JAN/FEB 2018

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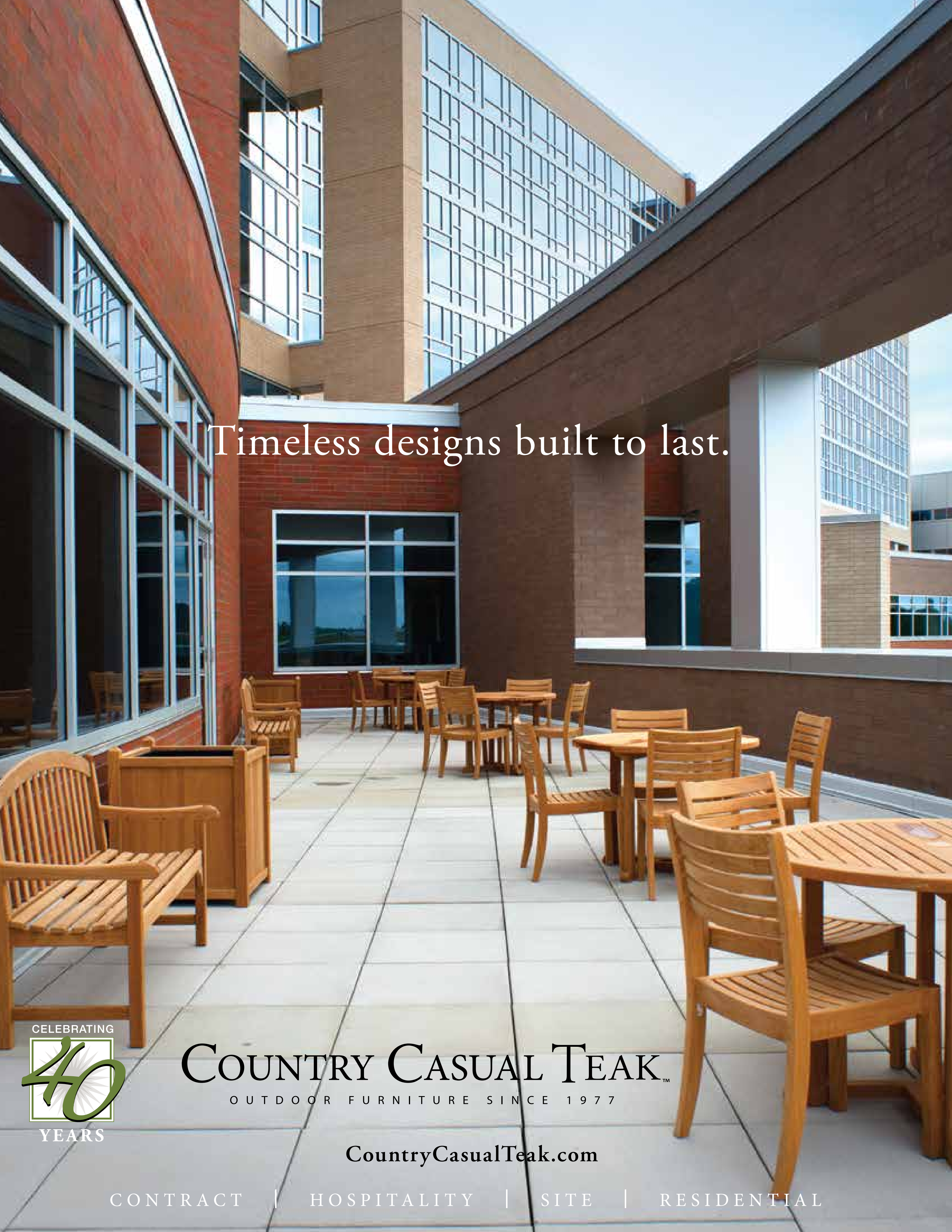
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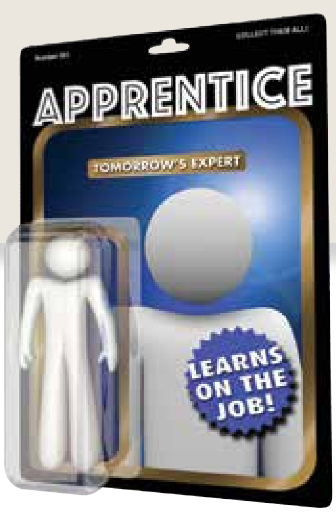

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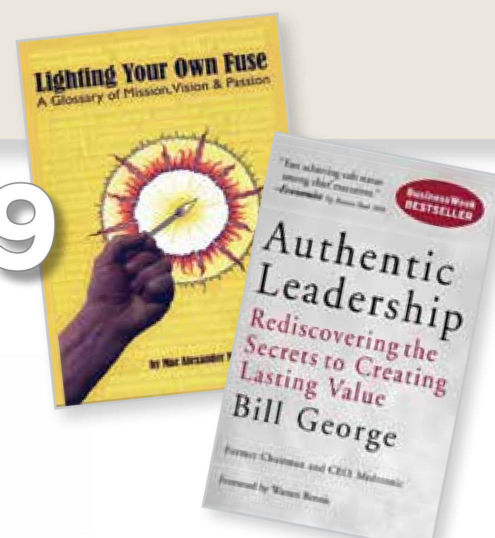

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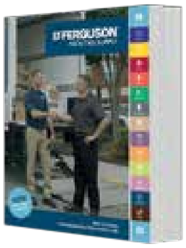

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2018 APPA Chapter Conferences Announced

APPA's state and local chapters continue to grow and thrive. They serve as a grassroots entry point to the world of APPA and educational facilities management, especially for those facilities professionals new to their institutions or are not able to travel far to attend a regional or international APPA conference or to APPA U. Networking, educational content, and campus tours are each an integral part of each chapter's conference.

Below are the 2018 conferences that we are aware of at press time. We will add and update the chapter conference list, so please visit *www.appa.org/regions/chapters.cfm* for the latest APPA chapter information.

- January 30-31: **SUNY/PPAA** (Cooperstown, NY)
- March date TBD: **Southern New England** (Foxboro, MA)
- March 6-7: **Virginia** (Hampden-Sydney)
- March 7-9: **Florida** (Boca Raton)
- March 12-13: **Northern New England** (Manchester, NH)
- March 12-14: **Missouri** (Kirksville)
- March 20-22: **Michigan** (Kalamazoo)
- March 22-23: **Illinois** (Chicago)
- March 28-30: **Arkansas** (Magnolia)
- April 7-10: **Texas** (Austin)
- April 8-9: **West Virginia** (Morgantown)
- April 18-20: **New Jersey** (Galloway Township)
- April 25-26: **Colorado** (Greeley)
- May 14-15: **Tennessee** (Chattanooga)
- May 16-18: **North Carolina** (Cullowhee)
- May 26-30: **Georgia** (Jekyll Island)
- June 6: **Delaware Valley** (location TBD)
- June 12-14: **New York** (Lake Placid)
- October 6-10: **South Carolina**/*in conj. with SRAPPA* (Greenville)

APPA AND SAME ANNOUNCES NEW ALLIANCE

APPA and SAME, the Society of American Military Engineers, recently announced the formation of a strategic alliance that will expand training, information, and collaboration between facilities engineers, architects, operations, maintenance, and construction professionals within both the military and educational campus communities. The APPA-SAME alliance will bring support to transitioning military officers and personnel by providing access to APPA's professional development opportunities and career credentialing services. Additionally, the alliance will support exiting military personnel in their search for career opportunities at colleges, universities, and K-12 school systems. For instance, APPA allows all SAME members to submit their resume to APPA's Resume Bank at no charge. More services and activities will follow.

2018-2019 MEMBERSHIP RENEWAL

An important message from Kristin Witters, APPA's director of membership and outreach: "It's that time of year again! Your 2018-2019 membership dues invoices will be sent out **mid-February** and will be available to your primary representatives through myAPPA. Keep an eye out for these invoices via email and USPS. **invoices sent ONLY to the primary representative**"

COMING IN MAR/APR 2018

- Campus sustainability case studies
- Water conservation planning
- Challenging employee engagement

FACILITIES manager

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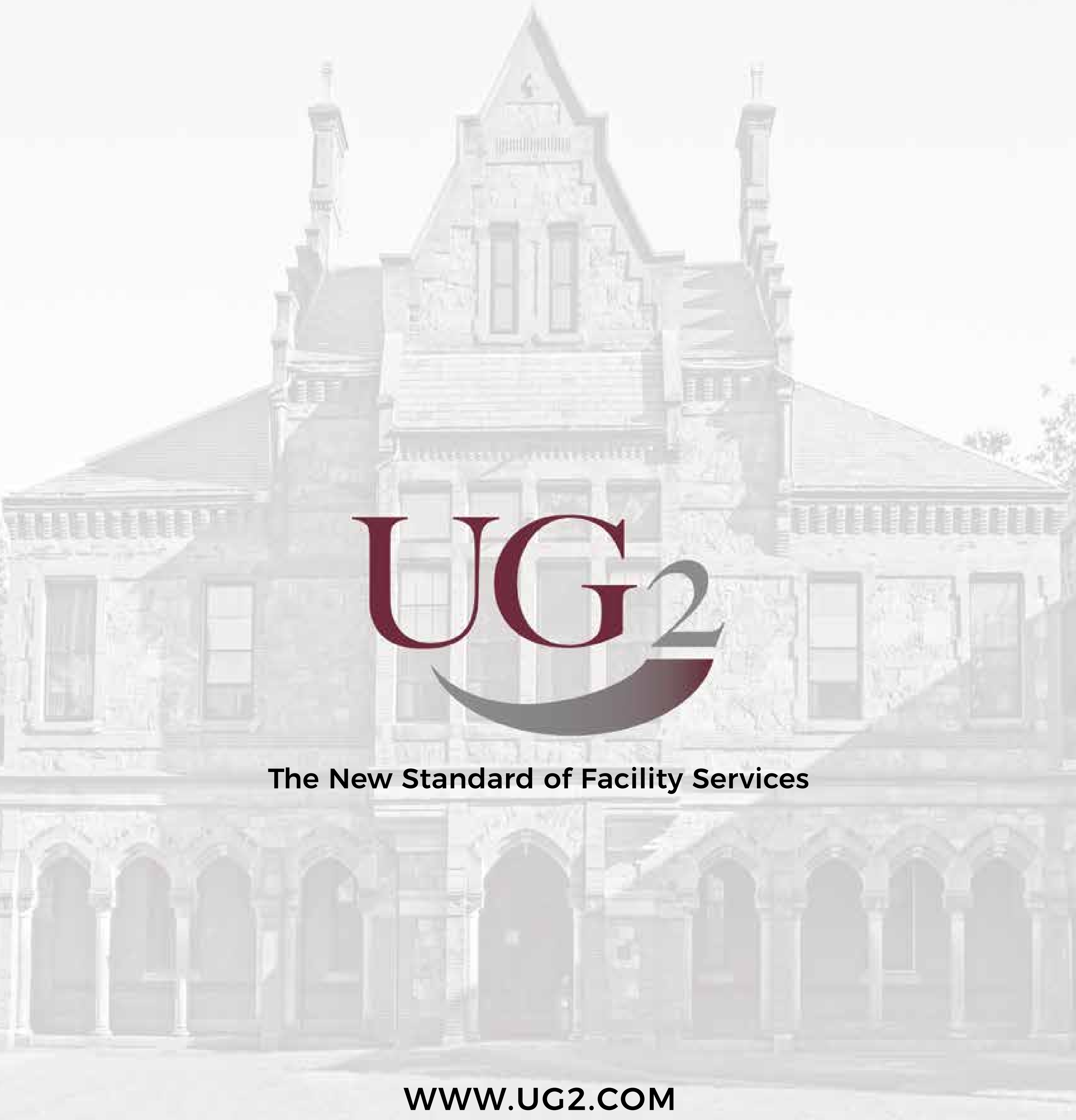
Facilities Manager (ISSN 0882-7249) is published six times a year (January, March, May, July, September, and November). Send editorial submissions to *steve@appa.org*. A portion of APPA's annual membership dues ($53) pays for the subscription to *Facilities Manager*. Additional annual subscriptions cost $66 for APPA members, $120 for nonmembers. Contact the editorial office for article reprints.

POSTMASTER: Send address changes to **Facilities Manager**, 1643 Prince Street, Alexandria, VA 22314-2818.

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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If you are looking for a highly qualified pool of candidates for a facilities management opening, Job Express can help you. Your ad will be posted online where it can be seen by thousands of facilities professionals who access APPA's website.

The Job Express audience consists of professional facilities managers in top executive-level positions, individuals from the military with extensive facilities and engineering experience, graduates of APPA's Institute for Facilities Management, and members who have earned an APPA credential.

Job Express gives you market exposure through its online postings. All ads appear in one format for one low cost and are hosted online for eight weeks! Add email and website links so that applicants can reach you at the click of a button. To find out more, go to *http://www.appa.org/jobexpress.*

APPA Lands' End Store Open for Business

Show the world you are part of the educational facilities world's top professional organization. At the APPA Land's End store, you can purchase high-quality apparel and other gear of your choice and have it personalized with the APPA logo. All personalized products are backed 100 percent by the Land's End's product guarantee. Visit *https://business.landsend.com/store/appa* today to fulfill your APPA gear needs—and those of your staff—at the APPA Land's End store.

Keep Your Contact Information with APPA Fresh

Please help APPA ensure that you continue to receive the most relevant industry information in an efficient manner. It will take no more than a minute to check your membership profile on myAPPA (*www.appa.org/login.cfm*) to confirm or update your contact information. Should you need assistance, contact *membership@appa.org* or 703-684-1446.

SAVE THE DATE

APPA 2018 ANNUAL MEETING & EXPOSITION

Washington, DC
August 3-5, 2018

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

Supervisor's Toolkit

Nuts and Bolts of Facilities Supervision

2018 Supervisor's Toolkit

Supervisor's Toolkit has been specifically designed to meet the needs of the facilities management professional. It is a structured, open-ended, and pragmatic approach to developing supervisors, and designed to help them realize both personal and professional growth. The program is designed for a full week of training.

For more information contact Corey Newman at *corey@appa.org*, or visit *http://www.appa.org/training/toolkit/.*

SRAPPA **University of Tennessee Knoxville** • ***March 12-16, 2018***

MAPPA **Radisson Plaza Hotel-Kalamazoo, MI** • ***March 19-22, 2018***

SRAPPA **Northern Kentucky University** • ***June 11-15, 2018***

SRAPPA **University of Richmond** • ***October 15-18, 2018***

APPA's Facilities Management Evaluation Program (FMEP)

The quality of an educational organization's facilities has a major impact on attracting and keeping students. But how do the many people who depend on your facilities define quality? How do your facilities meet their expectations? And how do they measure up against other campuses?

APPA's Facilities Management Evaluation Program (FMEP) helps you turn these questions into a powerful catalyst for improving how you manage your facilities. Modeled after the Baldrige National Quality Program Criteria for Performance Excellence, the FMEP criteria provide a framework for continuous improvement. This customized evaluation gives you the feedback and actions you need to transform your educational facilities program into one worthy of international recognition for quality.

The FMEP is not a cookie-cutter process. Each FMEP is customized and tailored to the specific institution for which it is conducted. The evaluation team is handpicked so that each institution is evaluated by a select group of peers from campuses sharing similar educational, financial, and physical characteristics.

If you are interested in:

- Achieving continuous quality improvement,
- Improving your understanding of facilities issues,
- Exceeding customer expectations, and
- Changing your organization's responsiveness to the demands it faces...Consider the APPA FMEP!

For more information, visit *www.appa.org/fmep/* or contact Holly Judd at *holly@appa.org.*

CALENDAR OF EVENTS

APPA Events

Jan 21-25, 2018
APPA U (Institute and Academy)
Portland, OR

Mar 12-16, 2018
APPA's Supervisor's Toolkit
University of Tennessee, Knoxville,TN

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

Jun 11-15, 2018
APPA's Supervisor's Toolkit
Northern Kentucky University, Highland Heights, KY

Aug 2, 2018
SFO Summit, *Washington, DC*

Aug 3-5, 2018
APPA 2018 Annual Meeting & Exposition
Washington, DC

Oct 15-18, 2018
APPA's Supervisor's Toolkit
University of Richmond, Richmond, VA

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

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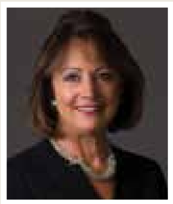
Contact APPA's staff for any questions regarding membership, programs, or publications via phone or email.



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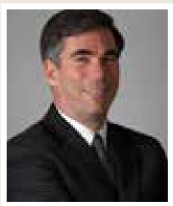

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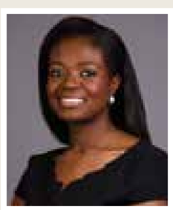

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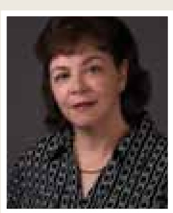

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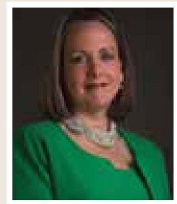

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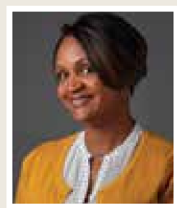

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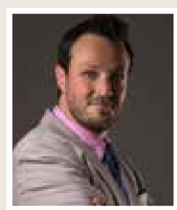

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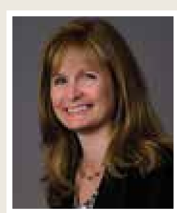

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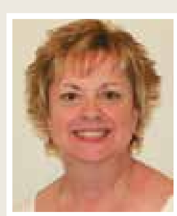

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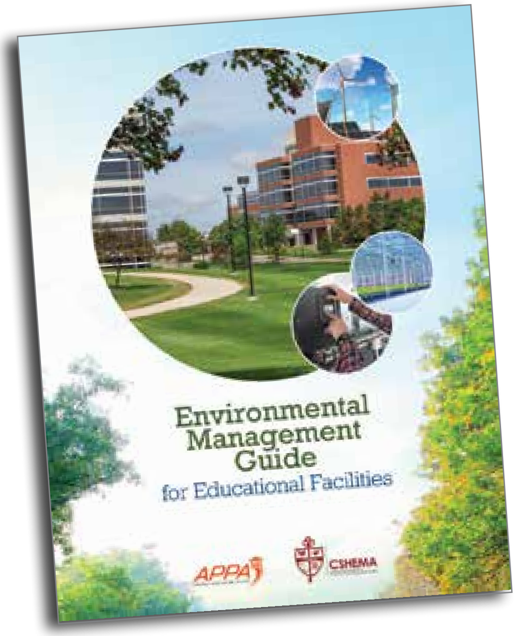


Environmental Management Guide for Educational Facilities

Getting in Front of Environmental Compliance

Colleges and universities are environmental leaders in teaching, research, and sustainability. Institutions need to be vigilant to the importance of environmental laws and regulations and to allocate the resources required for compliance. Additionally, environmental compliance has proved to be a moving target.

Since 1996, APPA and CSHEMA, the Campus Safety Health and Environmental Management Association, have collaborated to produce guidance documents to help educational facilities overcome the challenges of environmental compliance.

Contents:

- Elements of an Effective Program for Environmental Management and Compliance
- A Quick Reference Guide for Determining What Regulations May Apply to Your Institution
- Legislative/Regulatory Program Summaries (CAA, CWA, CERCLA, EPCRA, FIFRA, RCRA, SDWA, TSCA, and more)
- Environmental Compliance Resources
- Overview of Subpart K of RCRA
- Federal RCRA UST Management Requirements

The Building Commissioning Handbook Third Edition

It has been 40 years since the inception of building commissioning (Cx) as a discrete profession. This third edition of *The Building Commissioning Handbook* captures the many changes in the building market that are – and will continue to be – advancing and accelerating the role and value of commissioning. The design, construction, operation, and optimization of increasingly complex building systems and assemblies requires unique and expanding skill sets along with broad and deep knowledge of building science.

Produced by APPA and the Building Commissioning Association, this handbook provides a sequential, phase-based approach to the building commissioning process for all who have a stake in understanding, participating, and delivering properly functioning higher education and other commercial and institutional facilities.

Contents:

Chapter 1. Overview

Chapter 2. Benefits and Costs of Commissioning

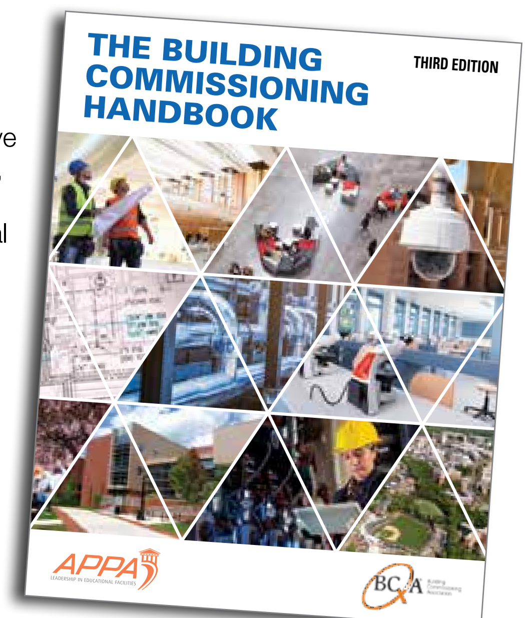
Chapter 3. New Construction Commissioning

Chapter 4. Existing Building Commissioning

Chapter 5. Ongoing Commissioning

Chapter 6. Building Enclosure Commissioning

Appendices and Resources



Discovering New Ideas Down Under

By Don Guckert, APPA Fellow

When I learned that I would be attending an annual conference of the Tertiary Education Facilities Management Association (TEFMA) and its sister association, the Association for Tertiary Education Management (ATEM), in Melbourne, Australia this past September, I was wondering what to expect. This year's conference theme was "Eureka—Discovering New Ideas." The joint conference, known as the Tertiary Education Managers Conference (TEMC), was celebrating its 40th anniversary with a record-setting 922 attendees. TEMC featured an impressive lineup of general session speakers covering a range of topics, principally centered on the themes of change, discovery, and innovation.

THE IMPACT OF ATTENDING

I had the privilege of attending as APPA's international representative, joined by the Association of University Directors of Estates (AUDE) representative Mike Clark of Brighton University in the United Kingdom, and Vanessa Ranjit of the Tshwane University of Technology in South Africa, who represented the Higher Education Facilities Management Association (HEFMA). Mike, Vanessa, and I were asked to present as a panel to offer an international perspective on the state of higher education facilities management. I discussed how changes in finances, technology, demographics, and communications are having a transformative impact on how we conduct our business, and what is in store in the very near future.

The conference featured several concurrent breakout sessions aligned to specific themes. TEFMA gave me the opportunity to present a session on Big Data and how the Internet of Things is reshaping our business via systems sensing and the emerging predictive analytics tools for building and plant operations. During my presentation, I noted that the same fault detection and diagnostics technology for building systems that we are applying at the University of Iowa is currently in place at Melbourne's airport.

During TEFMA's board meeting, I introduced myself and reinforced the valued partnership APPA enjoys with TEFMA, AUDE, and HEFMA. Mike, Vanessa, and I were asked to talk about our respective associations, institutions, and communities. I touched on how APPA enjoys a robust North American higher education member base, with participating institutions from Canada, the United States, and growing numbers of member institutions in Mexico. Natural disasters were of great interest to the board members, so I spoke of the dramatic and devastating flood that the University of Iowa campus experienced in 2008 and our long road to recovery. Having recently learned of Australians' generally high interest in American politics, I discussed the special role the Iowa Caucuses play every four years in the American presidential election process, and noted that every serious presidential contender visits the University of Iowa. Because Melbourne was the conference host city, I mentioned that in 2008, Melbourne and Iowa City were designated the second and third UNESCO Cities of Literature, and that at the time, those were the only cities in our respective countries with that designation (Seattle was designated last November).

LEARNING FROM VISITING

While in Australia, I had the opportunity to visit several universities. The University of Sydney, like many APPA institutions, features a rich mixture of historic and iconic buildings along with a cluster of more contemporary buildings. Its original campus was designed in the European, walled-in style of Oxford and Cambridge, which is a sharp contrast to the open, frontier campus design of the University of Iowa and the majority of American universities.

I visited the University of Melbourne and RMIT (Royal Melbourne Institute of Technology) while I was in Melbourne. These two urban institutions are in a city that has been designated several times as the "world's most livable." Having served two medical research universities during my tenure in higher education, I was particularly interested in learning that the University of Melbourne is one of the leading medical research campuses in the world.

However, the 4,000-student suburban campus of James Cook University in Cairns was particularly interesting. This campus was built in 1998, in a tropical setting located at the base of a national park and rainforest, is laid out in a "neighborhood" scheme with linear, covered walkways connecting its campus buildings and all parking on the perimeter. The buildings and grounds are immaculately clean and well-maintained. The campus boasts a state-of-the-art dental school teaching lab. Under construction is the school's first residence hall, which is expected to change the character of the campus and breathe after-hours life to a setting that is normally quiet in the evenings.

REFLECTIONS

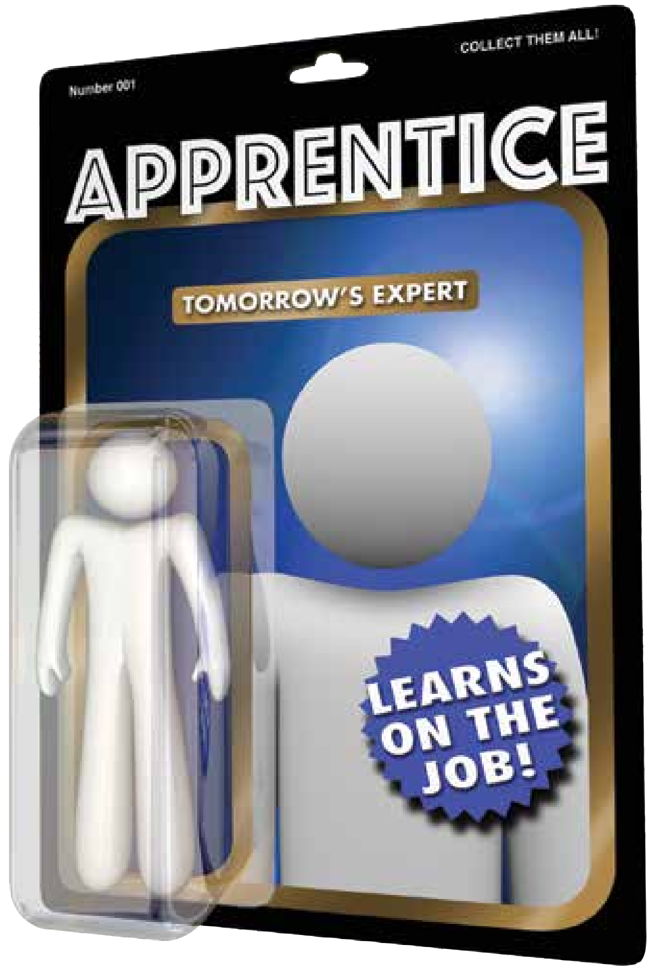
Several of the conference attendees commented on how much larger our in-house staffs are compared with theirs. I learned that outsourced service providers are the rule, not the exception, among institutions in Australia and New Zealand; this is a mature service delivery platform that gives them effective results. However, I could not help but reflect on the passion and pride that our employees show in providing personal service and stewardship to our beloved institutions. I also noticed that because TEFMA facilities organizations outsource their daily services, the character of the business-partner presence at their conference was notably different from APPA's.

At TEFMA's Awards Dinner, I recalled that Australia and New Zealand once formed a region within APPA before breaking off to become a separate association. Jack Hug told me about the collaboration he had (as APPA president in the 1990s) with Maurie Pawsey to get TEFMA on a growth trajectory. I was delighted to meet Maurie at the conference. This was his first year back at TEFMA in over a decade. He was there to present the Maurie Pawsey Award to Kate Robertson from the University of the Sunshine Coast. The award provides up to $10,000 toward the recipient's attendance at either an AUDE, HEFMA, or APPA annual meeting. Of course, I was pleased Kate chose to attend APPA 2018 in Washington, D.C. I look forward to seeing her there, and to return the warm welcome that I was given by my new friends and colleagues Down Under.

APPA President-Elect Don Guckert is associate vice president and director, facilities management, at the University of Iowa, Iowa City, IA, and can be reached at *don-guckert@uiowa.edu.*

Taking a Closer Look at Apprenticeship Programs and the Job Market

By E. Lander Medlin



It may be heresy for an educational association to say that not all individuals need a college degree. However, if you are representing facilities professionals at higher education institutions (as APPA does), the story is a bit different. As a matter of fact, I was motivated for the topic of this column after having listened to and read the materials from APPA's monthly webinar series with Chris Kopach and Jenna Elmer on December 7, 2017. The title was *Setting up a Facilities Management Apprenticeship Program for Seamless Succession Planning*. You can view their webinar and access the PowerPoint presentation on APPA's website (*www.appa.org/webinarseries/appa_monthly_webinars.cfm*). Their material deserves another look and a short recap.

BRIDGING THE SKILLS GAP WITH APPRENTICESHIPS

The rate of Baby Boomer retirements has escalated and tipped the balance appreciably on higher education facilities departments' ability to replace its skilled trades personnel. In addition, the construction industry sector continues to grow and provides another job pool for an already diminished bank of skilled trades workers. Plus, fewer and fewer 19-25 year olds are entering the trades – down from 18 percent in 2006 – and even fewer perceive this path as a viable alternative to achieving their long-term financial goals. Yet, nothing could be further from the truth.

One of the keys to solving this perception problem and associated skills gap is to establish and offer apprenticeship programs. Certainly, both presidents (Obama, now Trump) have allocated funds for federal apprenticeship programs. Community colleges are increasingly becoming engaged in delivering a curriculum wrapped around apprenticeships. In fact, the American Association of Community Colleges (AACC) president, Walter Bumphus, met with the White House staff this past fall focused on ramping up delivery of curricula for apprenticeship programs in the skilled trades and manufacturing sector (along with numerous other occupations) across community colleges.

Yet, there are other viable collaborative partnerships – local high schools, vocational education schools, and last, but certainly not least, the military and their veterans transitioning programs. APPA is presently working with the Society of Military Engineers (SAME), NAVFAC (Navy SeaBees and the

CEC), and the DoD/Pentagon's Transition to Veterans Program to establish entry by these highly skilled professionals into the education sector and facilities management.

Given the situation, numerous colleges and universities facilities departments have doubled down on the creation of apprenticeship programs to address the looming trades' positions gap. Certainly employees gain invaluable on-the-job training and technical education while earning a solid wage. Employers address critical workforce shortages head-on while achieving knowledge transfer, better recruitment targets, and the potential for improved retention rates as the employer who cared enough to make this offering available in the first place.

THE "NEW COLLAR" FM WORKER

To add to the mix in this discussion, is the change to jobs/skillset that is coming to our facilities environment, let alone its impact on higher education. There are three areas where we should be mindful: A.I. (artificial intelligence), robotics, and data analytics and modeling; thereby, creating "New Collar" workers in the maintenance and repair industry.

The job impact is such that by 2038 one-third of the jobs will be transitioned, one-third will be eliminated or reduced, and one-third will not be affected. That's the "New Collar" revolution. Something to consider further.

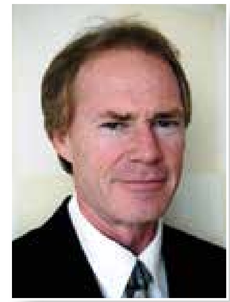
PROACTIVE SUCCESSION PLANNING

Frankly, apprenticeship programs demonstrate succession planning and management at its best – a proactive approach to a very real and impending problem. To get a handle on this issue at your institution and in your department, assess your specific needs. Identify the number and type of retirements and turnover, and the trades positions needed/required to deliver appropriate maintenance and repair services. After taking a closer look at your own needs, recognize the opportunity you might also gain from establishing a viable apprenticeship program.

For more information, visit the APPA website. In addition, check out the University of Arizona and the University of Virginia for two great examples of viable apprenticeship programs in place today.

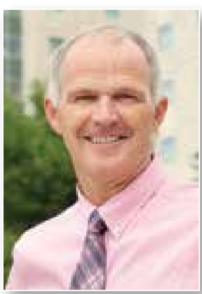
Lander Medlin is APPA's executive vice president and can be reached at *lander@appa.org*.

APPA Credentialing Board Recognizes Two Outgoing Board Members



By John P. Morris P.E., CFM, CEFP, APPA Fellow

Tom Becker



Dave Button

As chair of the Credentialing Board I would like to recognize two of our outgoing Credentialing Board of Director (BOD) members: Tom Becker, P.E., EFP, CEFP, (Associate V.P. of Operations at Thomas Jefferson University), and Dave Button, MSc, P.Eng, PMP, CEFP (Vice-President of Administration at the University of Regina). We are now in our 12th year since inception, and Tom and Dave have been on the BOD for half of those years and have been instrumental in the program's advancement. Tom served as the chair of the BOD from 2014 through 2016 and Vice-Chair for 2017. Dave served as the Secretary/Treasurer for all six years of his term on the Credentialing Board.

During the tenure of these two individuals the BOD made significant progress, and I would like to expand on some of these accomplishments. Under Tom's leadership the BOD promoted the following strategic plan.

CREDENTIALING BOARD STRATEGIC PLAN

- Maintain Body of Knowledge (BOK) Alignment
- Program Design will Support Local Delivery
- Create and Deliver Quality Preparatory Programming
- Create a Comprehensive Marketing and Communications Plan
- Refine and Enhance Support Systems
- Integrate Credentialing and APPA Programming
- Establish and Maintain Program Integrity
- Establish Benchmarks, Metrics, and Reporting Mechanisms to Guide Resource Management

During their tenure the credentialing program advanced from its "infancy" stage to its "adolescence" stage as shown in the Credentialing Timeline chart below. One of the most exciting accomplishments was successfully achieving the goal of 1,000 certified and credentialed individuals by 2018. This was no small feat, since there were only about 220 certified and credentialed individuals when they first took office.

The Credentialing Board feels accreditation is critical, and Tom and Dave were instrumental in leading this initiative. After investigation and in alignment with other APPA standards we have

2005-2009	2009-2011	2011-2013	2013-2018	2018-2027
BIRTH	INFANCY	YOUTH	ADOLESCENCE	MATURITY
2005-2007 Researched and Initiated	2008 Economy Impact	2011 Metric Reality fosters delivery re-alignment	Continue with tight margins	Institutional Membership factor
2007 First APPA EFP	Program alignment with delivery required development	Program gains support	Retool tests	Thousands of EFPs & CEFPs
2009 First APPA CEFP	Fiscal viability questioned	2012 Fiscal Balance	Online review	Accreditation
			Double momentum	Residuals & program stability
			1,000	
			Commence Accreditation	

designated our accreditation target to be ANSI accredited. ANSI follows ISO 17024 standards, which are widely accepted internationally. Again, quite an accomplishment knowing that many other professional organizations took several decades to achieve this designation.

Per the stategic plan, alignment with the APPA Body of Knowledge (BOK) and other APPA programs is essential. As shown in the chart above, credentialing is an important part of the Professional Development Continuum and adds competency assurance.

REGIONAL SUPPORT

The Credentialing Board has received incredibly strong commitments from the various APPA regions as certificates and credentialing become the normal expectations of our profession. The goal of both the APPA Board and the Credentialing Board is to give our membership every opportunity to attain these validations. As part of the regional commitments, the APPA regions have offered full or partial subsidies to their members who seek certification and credentials, and over 530 members have taken advantage of this opportunity.

STRATEGIC ALLIANCES

The Credentialing Board also recognizes that the EFP and CEFP programs can benefit some of APPA's strategic partners such as ACUHO-I, NACUBO, AIA, NSPE, SAME (Military Engineers), GSA, and even the United Nations/International Schools. The Board is actively working with these organizations to have them accept the APPA credentials as a standard for their members or to be a part of their educational requirements. For example, the Board was approved by the AIA to become a professional provider of course content for their members.

CUSTOMIZED INTERACTIVE LEARNING (CIL)

Per the strategic plan, the Credentialing Board, with incredible help from the APPA staff, has completed revisions to the online training and preparatory platform, aka customized interactive learning (CIL). This self-paced online course covers the fundamentals of the educational facilities profession, using state-of-the-art learning tools to help applicants master the full CEFP Credentialing Curriculum, which includes:

- Distinct EFP and CEFP study guides
- All four core areas of the APPA Body of Knowledge
- Flashcards
- Practice exams
- Practice quizzes
- Sample Q&A Questions and Knowledge Checks
- An active engagement via a forum chat area
- Live interactive webinars

The CIL platform is a live and private web event with peers and qualified CEFP facilitators. Upon enrolling in the CEFP or EFP Curriculum, participants are assigned to a CIL Group and facilitator, and are pre-registered for four separate live customized learning sessions held monthly over a period of 90 days. We have also started offering 8-week courses—two a week per chapter/domain—which include four live webinars, in addition to all of the CIL learning tools and 30 days to test.

The CIL program has proven itself to be beneficial to the nearly 600 participants who are actively enrolled or already completed the program.

ACCOLADES

I would like to extend my thanks and appreciation to the APPA staff, the Credentialing Board of Directors, the APPA SMEs, our CIL facilitators, and our consultants for their exceptional efforts to make this program a success. I would also like to give special recognition to Tom Becker and Dave Button for their outstanding service to the Credentialing Board. We could not have been as successful in our efforts without their dedicated contributions. I also welcome our newest BOD member: Emmet Boyle.

John Morris is vice president for facilities planning, management, and operations at the College of Charleston, SC. He can be reached now at *john.morris@colorado.edu.*

NEED MORE INFORMATION?

If you would like to learn more about the APPA Credentialing program, please visit our website at *http://credentialing.appa.org/* or contact Kelly Ostergrant *kelly@appa.org* or Christina Hills *christina@appa.org.*

Membership—It's More than Just the Dues

By Nancy Yeroshefsky

By the time you read this article, I will be retired. Just like that, 28 years in educational facilities, over. Actually, it is not over—and it will not be over anytime soon. Because of my membership in APPA, the Eastern Region of APPA (ERAPPA) and the Maryland/DC chapter (MDDC APPA), it is certainly not over. My affiliation with these organizations has been so fulfilling that I plan to continue my involvement for many years to come.

My message to you is that membership really does matter. Membership in APPA, your region, and your local chapter can be as rewarding as you allow it to be. Make the most of your membership—and that does not mean just reading the magazines, attending annual conferences, and perusing email blasts. It means *getting involved.*

When I joined the University of Maryland College Park (UMCP) in 1990, my first exposure to APPA was because of my boss, Wally Glasscock, who was on the board of directors for MDDC APPA, our local chapter. The chapter was hosting the ERAPPA 1990 annual meeting and he encouraged me to get involved; in fact, he put me on the program as a backup presenter, and I didn't have a clue what I was getting myself into. Little did I know that this was just the beginning of an APPA journey I will never forget. (Thanks, Wally!)

INVOLVEMENT = REWARDS

Over the course of my tenure in facilities human resources at UMCP, I was actively engaged with APPA at all levels. I served on a workgroup that developed APPA's Supervisor's Toolkit; I became a Master Trainer for the Toolkit; and I served more than a decade on my chapter board of directors, became a faculty member for APPA U's Institute for Facilities Management, presented at a host of regional and chapter conferences, served on my regional board, and on multiple committees. With the support of my institution, I can honestly say that I received the full benefit of APPA membership and have been able to share the wealth with hundreds, if not thousands, of facilities professionals.

People have joked that I am the poster child for APPA. I am not sure the "child" reference holds true anymore, however, I do feel that I have done my best to champion the value of APPA membership and to epitomize what a member can gain from engagement.

Did I mention friendships? I would be remiss not to mention that in addition to all the educational and professional development perks a member can receive from APPA and APPA-related programs, an engaged member will make friends and build relationships that will last a lifetime. I can honestly say that some of my best and closest friends are individuals whom I met through APPA.

My career in facilities has been rewarding and fulfilling, not just because of my role at my institution, but also because of my affiliation with APPA. Membership is so much more than paying dues, attending conferences, and reading publications—it is about being engaged with others in the industry; networking with institutional and business partner members; learning about best practices in your field; sharing war stories; and most of all, building relationships.

IT'S YOUR APPA

APPA is your association—make the most of it. Learn more about your local chapter, your region, and APPA International. Find out how you can get involved. If you are a young professional in educational facilities, check out the new APPA Young Professionals offerings; if you are a seasoned professional, consider becoming a mentor through the APPA Mentoring Program; if you want to demonstrate your knowledge in facilities, explore the credentialing program. I repeat, make the most of your membership—the value and benefits are endless.

I am so thankful for my institution's support of my APPA journey and for the friendships, relationships, and professional growth I experienced because of it. Membership really does matter.

Nancy Yeroshefsky, former director of human resources for facilities management, retired from the University of Maryland College Park on December 31, 2017, after nearly 28 years. She can be reached at *nyeroshe@gmail.com.*

Join us in our nation's capital this August as we connect as one community from throughout the United States, Canada, Mexico, and the world for career impacting programming. Tackling the most current and pressing challenges facing educational facilities professionals as we determine the common path forward.

Topical content to include:

The Role of Facilities In Fostering Student Success

- Your Student's Champion—Our Facilities Organizations
- A+: Defining Student Success

Facilities Modernization & Collaboration

- One Voice – One Team: Achieving True Collaboration
- Follow the Yellow Brick Road: Pathway to Facilities Modernization

Be Aware – Be Alert

- Crisis Leadership—Strong Leaders: Where Do They Come From?
- Staying Ahead of the Curve—What's Next in Regulatory Codes?

Preventive Maintenance for People

- What Are You Worth?—Recognizing Your Value
- Do I Really Have To Use This?—Changing Workforce Expectations & Technology

HOME OF APPA 2018 THIS AUGUST

APPA's has chosen Marriott Marquis Washington DC as the headquarter hotel. Designed to reflect its vibrant downtown surroundings and the state-of-the-art Walter E. Washington Convention Center, the Marriott Marquis Washington blends unparalleled comfort with preferred amenities and business-friendly services. Conveniently located near Penn Quarter, Chinatown, and Capital One Arena, our modern downtown hotel is the perfect home base to explore the city's best attractions. Our room block opens February 5, 2018 with special conference rate of $239 per night (plus taxes & fees).

MARK YOUR CALENDARS | Delegate Registration Opens February 5

2017 REGIONAL REPORTS

Eastern Region

ERAPPA

By Kevin Mann
ERAPPA President
Salisbury University

ERAPPA President
Kevin Mann

Photos courtesy of ERAPPA

Above: Paul Martin Award.

Left: ERAPPA 2017 Host Committee.

Over 500 participants representing 125 educational institutions attended the 2017 ERAPPA Annual Meeting in Washington, D.C. from October 29th through November 1st. The conference theme was "Capital Ideas, Monumental Tasks," keynote speaker Daniel H. Pink – author of five books, including three long-running *New York Times* bestsellers, *A Whole New Mind, Drive*, and *To Sell is Human*. He spoke to the assembled audience about motivation. Plenary speaker Rick Bradley III – a fitness expert and motivator and the creator of the Quick Fit exercise program and the author of the *Quick Fit: The Complete 15-Minute, No-Sweat Workout* book. He inspired the audience with his 15-minute workout program and educated them on exercise, healthy eating, and other lifestyle practices we all should be doing.

The 2017 conference was hosted by Maryland/DC APPA under the leadership of Sheri Vucci (Smithsonian Institution) and Kelly Geishauser (Catholic University). The host committee created an engaging and thought-provoking educational program that included educational sessions, APPA's Supervisor's Toolkit, a Hall of Resources with a variety of Business Partners, and an evening of networking and a 3-hour boat cruise viewing the national monuments along the Potomac River in Washington, D.C.

There were five Board members elected at the Annual Business Meeting on Tuesday afternoon. Arthur Walsh (Dalhousie University) was elected President-Elect, Andy Wilson (Slippery Rock University) was elected Vice President for Chapter Affairs, Sheri Vucci (Smithsonian Institution) was elected Vice President for Technology and Communication, and Philip Melnick (Penn State University) was elected Treasurer. Also at the Annual Business Meeting, all of ERAPPA's professional development scholarships were awarded.

At the Awards Banquet, Certificates of Appreciation were awarded to outgoing Chapter Presidents, ERAPPA Committee Members, and Host Committee Members. Merit Awards were given to the Host Committee Chair, outgoing ERAPPA Liaisons to APPA Committees, and outgoing Board Members. Jennifer Kelerman, Dan Barlup (Penn State Harrisburg), and Tim Garland (Keene State College) were recognized with ERAPPA's Rising Star Award. Arthur Walsh (Dalhousie University) was awarded ERAPPA's Chapter Champion Award for Chapter of APPA. ERAPPA President Steve Peary bestowed President's Awards upon Matthew Yencha (Skepton Construction), Dale DeBlois (Colby College), and Dan Gearan (New England College).

Kevin Mann assumed the role of ERAPPA President at the end of the Annual Meeting.

THE 2017-2018 ERAPPA OFFICERS

President—**Kevin Mann**, Salisbury University
President-Elect—**Arthur Walsh**, Dalhousie University
Secretary—**Jonathan Terry**, Quinnipiac University
Treasurer—**Phillip Melnick,** Penn State University
Senior APPA Representative—**Steve Peary**, University of Vermont
Junior APPA Representative—**Kevin Mann**, Salisbury University
APPA Liaision—**John Bernhards**

To view ERAPPA's website and find a complete listing of the board of directors, please go to *http://www.appa.org/regions/erappa.cfm.*

2018 CONFERENCE: September 27-October 3 • Manchester, New Hampshire

Southeastern Region SRAPPA

By Brian Wilcox
SRAPPA Vice President for Communications
University of Memphis

Photos courtesy of SRAPPA

Top left: Outgoing President Dan Wooten. Left: Winning golf quartet. Above: SRAPPA members assemble meals for the annual service project.

More than 470 participants representing had the opportunity to attend 36 educational sessions at the 2017 SRAPPA Conference October 26 – 28, 2017 in Charlotte, NC. This was SRAPPA's 66th annual conference and it was a memorable one hosted by University of North Carolina Charlotte!

The conference theme was "Building Excellence in Facilities," and we were treated to a tour of the UNC Charlotte campus where the staff has an obvious infectious commitment to facilities excellence. The host committee delivered an exceptional conference, bringing many great programs and venues for the attendees and for our business partners. Every day of the conference was filled with opportunities to connect, engage with, and learn from one another.

But the great prelude of activities the day before the conference were also terrific! 45 SRAPPA attendees prepared over 10,000 meals at the Stop Hunger event, and the golf outing at Olde Sycamore Golf Club was attended by 92 golfers.

Former Navy Seal Shannon Rusch gave a unique and inspiring presentation on the values of commitment and determination in the face of tremendous obstacles. The SRAPPA Breakfast and Business Meeting began the last day of the conference, and Glen Ward's humor and inspirational presentation gave us all a positive charge!

The conference was capped off on Saturday evening at the Banquet and Board Installation event. Outgoing SRAPPA President Dan Wooten recapped the region's successful year and recognized board members for their service to the region: Jay Williams, David Hatch, Tom Kantsios. Dan also presented Jack Colby as an Emeritus Member and Paul Weubold with the President's Award. The SRAPPA region also recognized those who received APPA awards this year:

- *2017 Meritorious Service Award:* Jodie Sweat
- *2017 Pacesetter Award*: Rebecca Griffith and Allen Boyette

Chris Kopach, APPA President, installed the new 2017 – 2018 SRAPPA Board:

THE 2017-2018 SRAPPA OFFICERS

President—**David Smith**, University of North Carolina Charlotte
President-Elect—**Tom Jones**, Clemson University
First Vice President—**Ray Mirizzi**, Northern Kentucky University
Treasurer—**Becky Griffith**, Embry-Riddle Aeronautical University
APPA Senior Representative—**Jodie Sweat**, Kennesaw State University
APPA Junior Representative—**Dave Maharrey**, Louisiana State University
APPA Liaison—**Steve Glazner**

David Smith, incoming President, concluded the banquet by highlighting some of the episodes of the conference, thanking everyone who worked so hard on this great conference, and challenging his SRAPPA colleagues to do their part this coming year to engage in this great organization.

To view SRAPPA's website and find a complete listing of the board of directors, go to *http://www.appa.org/regions/srappa.cfm.*

2018 CONFERENCE: October 6 – 9 • Greenville, SC

Midwest Region

MAPPA

By Becky Barnes
MAPPA Communications Coordinator
University of Wisconsin Madison

MAPPA and CAPPA joined forces this year with a shared annual conference in St. Louis, Missouri, from September 17-21. Maggie Hamilton, Iowa State University, and Brandon Baswell, Michigan State University, worked extensively with CAPPA to pull off a festive and collaborative event. The conference hosted 557 guests, with 182 of the guests being first timers, and 271 being business partners. APPA's Leadership Academy Level 1 and the 30-plus learning sessions were all a huge success! MAPPA and CAPPA members thoroughly enjoyed the inclusive learning experience offered at this shared conference.

The biggest treat for facilities geeks—which most of us are—were the facilities that this conference allowed us to experience. The Union Station Hotel offered a beautiful renovated historic venue, a tour of the 164-year-old Washington University in St. Louis, and a wonderful dinner overlooking Busch Stadium.

MAPPA enjoyed celebrating the progress made in 2017 under the leadership of President Tim Thimmesch, Grand Valley State University. During the year, 36 MAPPA members were credentialed in either EFP or CEFP, and eight Drive-In Workshops and four Leadership Academy sessions were held. But of course the biggest accomplishment was the successful joint annual conference with CAPPA!

The following awards received by MAPPA members and institutions in 2017 were recognized:

- *APPA Pacesetter Award:* Mike Hamilton, Iowa State University
- *APPA Unsung Hero Award:* Erin Marsh, University of Iowa
- *APPA Fellow Award:* Jeri King, University of Iowa
- *APPA Sustainability Award:* The Ohio State University
- *APPA Effective and Innovative Practices Award:* Grand Valley State University
- *MAPPA President's Awards:* Maggie Hamilton, Brandon Baswell, and Michelle Holstege, Grand Valley State University

Academy on Campus.

First Timers Attendees.

MAPPA 2017-2018 Board.

Photos courtesy of MAPPA

MAPPA welcomed Steve Gilsdorf, Western Michigan University, as the new MAPPA President-Elect, and Nicole Corll, Kent State University, as the new MAPPA Secretary. We honored Lowell Bromander, Hamline University; Sarah Ely, University of Michigan; and Mike Hamilton for their commitment of time and hard work on the MAPPA board as they rotated off the board and into new opportunities. They have all done exceptional work and we are so grateful!

Jim Bogan, University of Wisconsin Madison, assumed the role as the new MAPPA President. Moving into 2018, the MAPPA board is eager to work on goals for the new year; those goals include encouraging the growth and stability of the Illinois and Iowa chapters and continuing to promote scholarships, credentialing, and learning opportunities with MAPPA and APPA.

THE 2017-2018 MAPPA OFFICERS

President—**James Bogan**, University of Wisconsin Madison
President-Elect—**Steven Gilsdorf**, Western Michigan University
Secretary—**Nicole Corll**, Kent State University
Treasurer—**Dana Gillon**, University of Illinois at Urbana–Champaign
APPA Senior Representative—**Greg Adams**, Marquette University
APPA Junior Representative—**Tim Thimmesch**, Grand Valley State University
APPA Liaison—**Suzanne Healy**

To view MAPPA's website and find a complete listing of the board of directors, go to *http://appa.org/regions/mappa.cfm*.

2018 CONFERENCE: October 13-17 • Cleveland, Ohio

Central Region

CAPPA

By Angela Meyer
CAPPA President
Southeast Missouri State University

CAPPA President Angela Meyer

2017 CAPPA/MAPPA Conference Planning Committee. L-R: Maggie Hamilton, Angie Mitchell, Angela Meyer, Brandon Baswell

The first CAPPA/MAPPA 2017 Joint Annual Conference drew more than 550 attendees to St. Louis, Missouri from September 17-20, 2017. The theme was "A Gateway to Better Facilities."

This year's conference began with Committee and Executive Board meetings as well as an Academy on Campus Leadership Track I class with 26 participants.

Day two included the annual golf tournament, Academy On Campus, the Facilities Trainers Network, and spouse excursions (Discover St. Louis). The first-time attendee reception acknowledged 189 attendees, and the evening wrapped up with the opening of the exhibit hall.

In the exhibit hall, 272 business partners representing 115 businesses shared information with conference attendees about services and products geared to the unique needs and interests of CAPPA/MAPPA members. Business partners also sponsored several of the special activities.

CAPPA President Ian Hadden launched the conference Tuesday morning at breakfast and introduced keynote speaker Chad Pregracke, author of *From the Bottom Up: One Man's Crusade to Clean America's Rivers,* and founder of Living Lands & Waters. A total of 20 educational sessions were available for attendees. Educational sessions addressed topics including communication, energy efficiency, budget, custodial care, water quality management, and asset management, just to name a few.

MAPPA President Tim Thimmesch gave the opening remarks at Wednesday's breakfast and introduced keynote speaker Tim Selgo, who presented "Three Fundamentals for Successful Leadership." The day included 10 additional educational sessions and a tour of the Washington University in St. Louis campus.

2017-2018 CAPPA Executive Board

Photos courtesy of CAPPA.

The conference wrapped up with a joint awards banquet and the installation of new officers for both CAPPA and MAPPA. It was an evening of many firsts.

The 2017 Annual Banquet Awards

- *APPA Unsung Hero Award*: Sheila Awalt, University of Texas at El Paso
- *APPA Pacesetter Award*: Lee McQueen, University Nebraska at Kearney
- *APPA Meritorious Service Award:* Shelton Riley, Texas Christian University

- *CAPPA Meritorious Service Award*: Keith Macejewski, Sightlines
- *CAPPA Distinguished Member Award:* Ana Thiemer, University of Texas Austin
- *CAPPA President's Award:*
  – Angie Mitchell, Southeast Missouri State University
  – Glen Haubold, New Mexico State University

THE 2017—2018 CAPPA OFFICERS

President—**Angela Meyer**, Southeast Missouri State University
First Vice President—**Robert Wall**, University of Arkansas at Pine Bluff
Secretary—**Sheila Awalt**, University of Texas at El Paso
Treasurer—**Virginia Smith**, University of Texas at Dallas
APPA Senior Representative—**Glen Haubold**, New Mexico State University
APPA Junior Representative—**Ian Hadden**, University of Arkansas at Little Rock and **Ed Heptig**, Kansas State University
APPA Liaison—**Christina Hills**

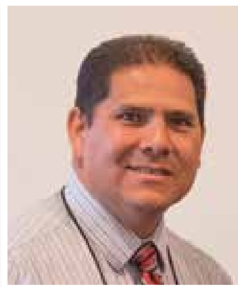
To view CAPPA's website and find a complete listing of the board of directors, visit *http://www.cappaedu.org.*

2018 CONFERENCE: September 29-October 2 • Spearfish, South Dakota

Rocky Mountain Region

RMA

By Rachel Stone
RMA Communications Coodinator
University of New Mexico



2017-2018 RMA President Luis Rocha of the University of Arizona.

The Grand Tetons could be seen from almost anywhere RMA members found themselves.

Images courtesy of RMA.

Whitewater rafting was a hit during the RMA Networking Day.

In a place with the largest elk reserve in North America and the biggest national forest in the lower 48 states, it's only fitting that Rocky Mountain APPA (RMA) had its largest conference in **Jackson Hole, Wyoming** last fall. Because the conference was held at the first ski area in Jackson, the Snow King Resort, 391 attendees were able to experience this unique landscape found only in the Rocky Mountain region.

The RMA Annual Conference was held September 18-20, with the appropriate theme of "Lift As You Climb," as presented by Mary Vosevich, vice president for facilities management at the University of Kentucky and a conference keynote speaker. Charles Wax, CEO of Waxie Sanitary Supply, was the second keynote speaker and gave RMA a rundown of his family history, explaining how his multimillion-dollar business grew from modest roots. Attendees were reminded that facilities management professionals "lift" others in their daily tasks as they "climb" the ladder of personal growth and success.

The 120 business partners who attended and supported the conference were invaluable, sharing the latest in industry products and services that help sustain the vital work of facilities management. Tours and networking opportunities were abundant, and catered to a wide variety of interests: a float trip, whitewater rafting, fishing, a golf tournament, a tour of Brigham Young University-Idaho's new central energy plant, and tours of Vertical Harvest—a three-story, stacked 1/10-acre greenhouse that produces the annual equivalent of five acres of traditional agriculture.

With all of the activity that filled the daily educational sessions, the RMA Host Committee made sure everyone was well fed. The annual theme dinner was a chuckwagon style meat-and-potato extravaganza at the Bar J Chuckwagon. 750 people were fed in under 25 minutes, and then enjoyed a western music show from the Bar J Wranglers.

After an elegant dinner at the Awards Banquet, outgoing RMA President Lisa Potter presented several awards:

- *H. Val Peterson Award*—Rachel Stone
- *Lee Newman Award*—Chuck Gumeson
- *RMA President's Award*—Emmet Boyle

The gavel was then passed to the 2017-2018 RMA President, Luis Rocha, who enthused the crowd with his optimism for the coming year, and challenged each RMA member to get involved and stay involved in *their* organization.

THE 2016-2017 RMA OFFICERS

President—**Luis Rocha**, University of Arizona
President-Elect—**Wayne Clark**, Brigham Young University-Idaho
Secretary—**Wim Chalmet**, University of Lethbridge
Treasurer—**Mary Jane Thompson**, Salt Lake Community College
APPA Senior Representative—**Dave Turnquist**, University of Colorado Denver
APPA Junior Representative—**Lisa Potter**, University of Colorado Boulder
APPA Liaison—**Kristin Witters**

To view RMA's website and find a complete listing of the board of directors, go to *http://appa.org/regions/rma.cfm.*

2018 CONFERENCE: September 24-26 • Aurora, Colorado

Pacific Coast Region

PCAPPA

By Robert Andrews
PCAPPA President
California State University East Bay

Did you leave your heart in San Francisco this past July? Well, if you did, then you returned home with a fresh sustainable new knowledge of the most relevant educational opportunities this joint partnership provided. July 2017 created another synergistic nationally staged partnership in the best city in the country, "if I say so myself," between PCAPPA and APPA once again. The region's annual conference for PCAPPA and our international conference for APPA brought together the most talented speakers and session providers I've seen in a while. What did I learn?

Organizational metrics and how we view our work as facilities administrators is greeting the 22nd century. Real-time analytics of data is pushing us to seek gaining seats at the table to explain our relevance like never before. We are asset holders for campuses supporting multi-million dollar buildings but the infrastructure we support now is attached to successful student outcomes. These outcomes drive student demand and interest on our campuses and we provide a strong relationship to campus selection by these new students. Both challenged and proactive facilities initiatives drive campus revenue up and down. Social media connections are moving faster than we think and likewise influencing significant campus selection opportunities before a student even sets foot on your campus. On and on it went, but the educational nuggets were superb.

For PCAPPA, it was the commencing of a new board. Basically a (70%) turnover in board senior membership, unheard opportunity with our new members coming from multiple institutions not represented before seeking regionally the ability to grow new local state chapters, develop more CEFP credentialing, pushing greater insight for leadership, and examining strategically what our membership desire by hosting listening sessions that have extended into new committees with extended board opportunities to foster greater ease of future transitions in regional roles. All relevant, and honestly the "stuff" we all deal with daily in our organizations.

This is my second opportunity to provide customer services as a regional President but my first opportunity to be a mentor. As stated, (70%) new board membership means experienced friends, colleges and even my own mentors are leaving. If you didn't participate this year? Take a look around you, are you now the mentor for your organization. If like myself. I have not considered myself a mentor but that was my learning opportunity. Understanding how my role is changing and the importance of "why." Get out there and participate and contact me with what you need.

PCAPPA President Robert Andrews

President-Elect Winnie Kwofie

Photos courtesy of PCAPPA.

John Ferris passes gavel to Robert Andrews at gavel ceremony

THE 2016-2017 PCAPPA OFFICERS

President—**Robert Andrews**, California State University East Bay
President-Elect—**Winnie Kwofie**, Stanford University
Secretary—**John Ferris**, San Diego State University
APPA Senior Representative—**Tony Ichsan**, Portland Community College
APPA Junior Representative—**John Ferris**, San Diego State University
APPA Liaison—**Kristin Witters**

To view PCAPPA's website and find a complete listing of the board of directors, visit *http://www.appa.org/regions/pcappa.cfm*.

2018 CONFERENCE: September 29 – October 3 • Spokane Washington

OUTSOURC

Is It the Right Move for Your Institution?

By Mark Crawford

With the nonstop pressure to reduce costs, an increasing number of educational institutions are outsourcing facilities management (FM) to private-sector firms such as Jones Lang LaSalle (JLL), Sodexo, Aramark, ABM, and Compass/SSC. FM services can be outsourced individually or in packages, to include student bookstores, custodial services, plant management, student housing, planning, and procurement. Although saving money is the typical reason for outsourcing, colleges and universities also outsource for aging workforce/retirement concerns or because of the lack of the programs, processes, and technology/data they need to improve operations.

The greatest worry about outsourcing for most FM leaders is losing control and doing serious damage to mission, customer service, and their institutional brand. When institutions choose to outsource, they must be relentless about monitoring the performance of the vendor and meeting the benchmarks established in the agreement. Can an outside company truly embrace a university's culture and mission as if they were its own? This should be the driving question for any institution that is considering outsourcing.

OUTSOURCING ADVANTAGES

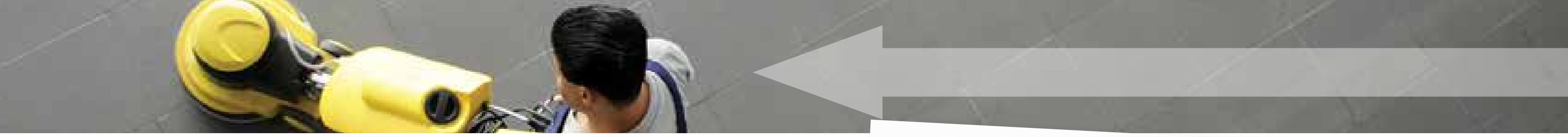
Outsourcing transfers day-to-day FM responsibilities to a service provider that has the expertise to perform these tasks more efficiently, thereby streamlining FM operations and saving the institution time and money. Top outsourcing advantages include:

- Vendors can provide diverse resources, including formalized programs, processes, and procedures, which are beyond the reach of many educational institutions.
- Vendors have the ability to consolidate purchasing for their customers to deliver better prices on supplies and equipment.
- In regions where a service provider has multiple customers, it can share highly specialized subject matter experts (for example, building automation) among customers, at a discount.
- Vendors can provide qualified employees in regions that do not have enough skilled workers; they also have more latitude to hire, fire, train, and deploy employees to maximize team performance.

OUTSOURCING DISADVANTAGES

Outsourcing just to save money can make an institution

ING FM



lose sight of its mission and the value of a dedicated workforce that intimately knows the campus. "Sometimes the lowest price turns out to be the highest cost in the long run, when you consider service, customer satisfaction, administrative time, and employee morale," says Randy Ledbetter, founder and CEO of R. Ledbetter & Associates, an FM consulting firm. Other potential disadvantages are:

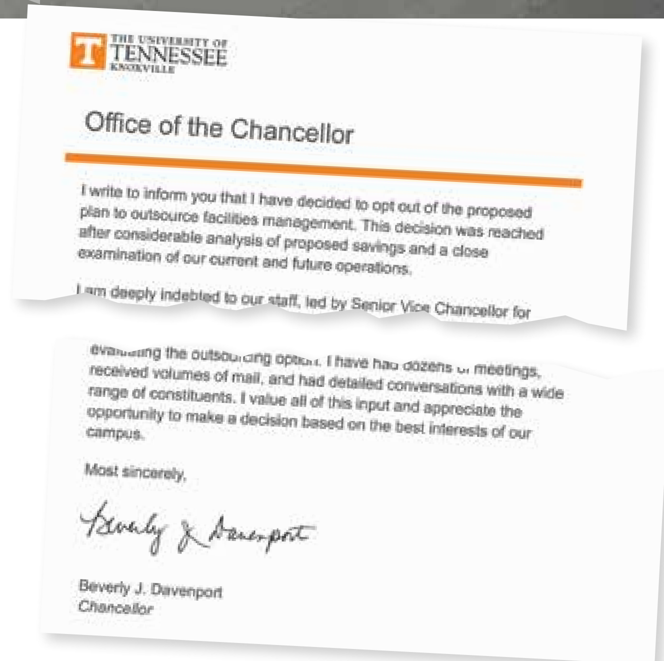
- Outsourcing contracts may outsource too many services under one contract, instead of determining the best tool/approach for different FM needs, which can be quite specific and require different contracts or vendors. "When a contract falls short, it is often because there is no clear understanding of what is really needed," states Dave Irvin, associate vice chancellor for facilities services at the University of Tennessee Knoxville (UT Knoxville).
- Loss of control is a top concern: "If the chancellor or vice chancellor gets a directive or has a goal, it is much easier to get an in-house team marching in the same line, instead of working with an outside contractor," says Irvin. This risk can be offset with a clear contract built around key performance indicators (KPIs).

Randy Ledbetter

- Outsourcing can create a false sense of security. Even if a solid contract is in place, it still needs to be managed. "A big mistake is thinking you don't have to think of facilities anymore, once the outsourcing contract is signed," warns Irvin. "This is not true. You must aggressively manage the contract, just as you would a contract with a contractor who is building a campus structure."
- Potential disruption and morale issues can result if an outsourcing initiative is not properly planned and communicated. Therefore it is extremely important to select a provider that is sensitive to this concern and aligns itself with the mission and culture of the institution. "Sometime the 'town and gown' relationship of FM staff and customers is sacrificed when contractors rotate staff into and out of client contracts on a relatively frequent basis," says Matt Adams, president of FM Squared, a consulting firm that works with educational institutions on outsourcing options. "Granted, there is a business case for the contractor, but it is not ideal for the customer."

UNIVERSITY OF TENNESSEE OPTS OUT

In June 2017 the state of Tennessee awarded JLL a five-year contract (with up to five one-year extensions) to manage the facility needs for all the state's various agencies and institutions—including higher education. However, several University of Tennessee campuses decided to opt out of this FM plan, saying they could do a better job themselves. For example, University of Tennessee Chattanooga (UTC) reported that JLL's proposal



THE UNIVERSITY OF TENNESSEE KNOXVILLE

Office of the Chancellor

I write to inform you that I have decided to opt out of the proposed plan to outsource facilities management. This decision was reached after considerable analysis of proposed savings and a close examination of our current and future operations.

I am deeply indebted to our staff, led by Senior Vice Chancellor for

evaluating the outsourcing option. I have had dozens of meetings, received volumes of mail, and had detailed conversations with a wide range of constituents. I value all of this input and appreciate the opportunity to make a decision based on the best interests of our campus.

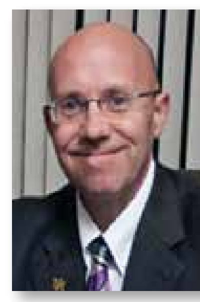
Most sincerely,

Beverly J. Davenport

Beverly J. Davenport
Chancellor

for annual costs for custodial, groundskeeping, and maintenance services was almost $265,000 more than UTC's annual costs for doing the same work.

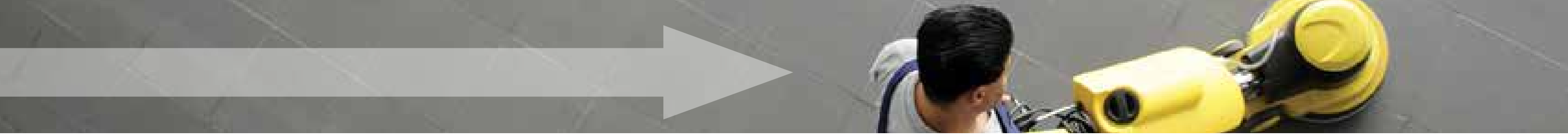
"With a very broad contract, the state of Tennessee hired one company to do prisons, hospitals, highways, state parks, and all of higher education," says Irvin. "Unfortunately, the team they chose has virtually no experience with higher education, so the challenges of student life, research, and athletic programs would be all new to them. We would be the beta test, and they would be learning on our dime."



Dave Irvin

UT Knoxville was in a good position to opt out because of quality initiatives it had launched six years ago. "We were doing a fairly good job of taking care of the buildings and the facilities, but were not doing as good a job of supporting mission," continues Irvin. "We completely reorganized and refocused and made a lot of hard choices. Our employees now have the training, tools, and authority they need to respond effectively to customer needs. This is an ongoing program of continual improvement. Administration saw how we were aggressively supporting mission and decided that an outside firm could not do a better job. The key is asking how FM can best serve the campus; answering that question accurately makes it much easier to decide how and where to apply outsourcing."

Once the decision is made to outsource, notes Irvin, experienced personnel tend to leave. Most vendors want to retain these experienced workers, but most of them prefer not to work with a private contractor. At UT Knoxville, for example, almost all the FM staff told Irvin they would not make the transition and would retire instead. "This is a big downside to trying to outsource everything," says Irvin. "For example, we have some very



specific research equipment. If our people left, there is nobody out there who could understand those very specific research requirements. The fear that we would not have a team with the experience and knowledge base to take care of our complex systems was a big factor for opting out."

MITIGATING OUTSOURCING RISK

FM leaders must carry out in-depth discussions with potential vendors to detail objectives and see how strongly they can support mission. Many FM outsourcing vendors have little or no college or university experience. It is imperative to look beyond cost and determine what kind of value can be placed on the vendor's team, its experience, and how it will blend with the campus and institutional mission.

Matt Adams

According to Adams, one of the biggest concerns for an educational institution is the economic state of the campus and the structure of the contract. "If a particular department is in distress and underfunded," says Adams, "it is unlikely that a contractor will have much success curing the problem under the same constraints. In fact, it could become worse. Contractors are often very good at refining and enhancing operations that are doing well, but are not nearly as effective at resurrecting those on their deathbed."

The normal initial contract term in the FM outsourcing industry is five years with optional renewal periods. This allows the provider to recover its amortized start-up and depreciation costs. Most firms will agree to a mutual, no-cause 30-60 day cancellation clause with appropriate buyout language. Contracts should have metrics established for KPIs (both short- and long-term) and be scalable in order to add/delete services, square footage, acreage, etc. Benchmarks must be well described, including how they will be measured and assessed. These can include a property's cost savings during its entire life cycle; energy savings; staff and student satisfaction with FM services; flexibility and scalability of services; efficiency of services; response time for service requests; and ease of management of daily activities. KPIs should be reviewed at least annually to be sure goals are being met and that the program is still aligned with the institution's situation and culture.

When Adams represents a college during the solicitation process, a key item he reviews is the impact the potential contract will have on the contractor's financial statements. "If the contract size equals 30 percent or more of the company's existing total revenue, that is a red flag for me," he says. "I would view this as a risk to the college and either encourage them to find a partner, change the scope, or eliminate the contractor from the competition."

MOVING FORWARD

In a recent report on real estate and facilities management (REFM) outsourcing, KPMG noted that larger firms in mature markets prefer to bundle their services under the fewest number of service providers and operate under an integrated model to further reduce costs, drive consistency, and improve governance, controls, service level agreements, KPIs, and performance reporting.

"Tactical REFM services—for example, workplace and facilities services, lease administration, and facilities management—remain the activities most commonly outsourced," states the report. "A growing number of service providers are advancing their capabilities, enabling them to move up the value chain in terms of services offered into areas such as REFM strategy, planning and research, and development support services. These service providers are focusing on integrating existing business operations to provide more high-value and strategic services, such as portfolio strategy planning."

Higher education is increasingly a target market for these outsourcing firms because of its issues with declining enrollments, tuition increases, potential taxes on endowments, budget constraints/cuts, aging workforce and infrastructure, deferred maintenance and life-cycle issues, rising healthcare costs, and overall public scrutiny. Outsourcing firms can provide the resources that most schools cannot afford for maximizing operational efficiencies, making them an attractive alternative.

That said, outsourcing is not always the right answer. "There are many high-achieving facilities management organizations in higher education that have the talent in-house to achieve performance excellence," indicates Ledbetter. "They may need a little help in certain areas, but they are smart enough to identify that and deal with it. These tend to be larger schools with the bandwidth required to identify and address opportunities for improvement. Small to medium-size schools simply do not have the resources in many cases to take things to the next level, or to work through the change management process."

For Irvin, the best way to deal with the possibility of outsourcing is to be constantly deploying best practices and finding new ways to innovate and reduce costs, maximize customer service, and support the university mission. "If we can do this," says Irvin, "then the outsourcing question can be decided by us in a single room, rather than having it forced on us—which is always the better position."

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Facilities Budgets

Issues with Recovery and Recharge in Higher Education

By Glen Haubold and David Reynolds, P.E.

[*Ed. Note: This article is a summary of findings from the research project conducted by the authors as part of their Center for Facilities Research project #CFaR033-15. The full research report, which was vetted by an anonymous peer-review panel, can be found at* https://www.appa.org/Research/CFaR/documents/Reynolds_Haubold_CFaR033_15_Recharge_and_Recovery_Final_Submitted.pdf. *The authors will present their findings at the APPA 2018 conference August 3-5 in Washington, D.C.*]

CFaR | Center for Facilities Research

It was not that long ago that the university physical plant department took care of every facilities need on campus. Starting in the late 1970s, public universities faced changing regulations that, along with tight budgets, drove changes in dealing with auxiliary organizations. Simultaneously, and guided by APPA, the campus facilities management developed into a professional organization that began charging for "non-maintenance work" to non-educational units such as Auxiliaries, Housing, and Athletics. As a result, definitions of services covered were developed with statements, communications, and publications of what constituted "billable" and "non-billable" work. This mechanism became informally known as "recharge" or "recovery," because it "recharged" the budget.

In their excellent and in-depth 2004 article in *Facilities Manager*, "The Charge of the Rate Brigade: A Rate Template for In-House Construction Labor," Donald J. Guckert and Jeri Ripley King wrote:

> Determining rates that permit full cost recovery for in-house construction can provide your organization with the information it needs to decide how to manage its funds. Full cost recovery for in-house construction services may or may not be a goal of your institution. However, if less than full cost recovery has not been an informed decision, facilities management organizations may be unwittingly losing budgetary ground by subsidizing elective improvements.[1]

We knew that many institutions—including ours, New Mexico State University and the University of North Texas—had implemented this recommendation. What was *not* clear was whether the financial model we were operating under was a well-managed process or one that had simply evolved over time. After posing the question to many of our peers, we found kindred minds thinking the same thing. We undertook our study to determine what impact this and other cost recovery models have had in the long term, because once a facilities unit begins using chargebacks to make up budgetary ground, anything less means that the department is operating in a deficit. Since a fully allocated mechanism of rate development captures overhead costs, there may be a tendency to gradually fund the expansion of organizational overhead versus truly recognizing its full cost to the university.

Since the recovery and recharge model is widely used, we wanted to study the issues and challenges involved, particularly in times of constrained and reduced budgets. Our goal is to broaden the knowledge base about chargebacks while generating a discussion regarding the advantages and disadvantages associated with different budgetary models for recapturing costs.

With the assistance of APPA, we created survey questions and sent them to each institutional representative. Eighty-six unique responses were received in addition to seven email conversations. One individual responded to us by phone in order to remain fully anonymous. All questions were not answered by every respondent.

The first question was whether the facilities organization had a chargeback system. As expected, most of the respondents (78 percent) answered affirmatively. Another question sought to determine if the chargebacks were only for elective improvements, and 35 out of 77 said they were not. Over half told us that they did not have a chargeback goal. After evaluating these responses, it is our opinion that if a unit has both a recharge system and a budget, by definition, there should be some internal goal for recharge, even if it is a "soft" one.

Forty-one of the 57 respondents answering the question have seen positive impacts from their recharge system, and 43 of 58 reported negative consequences; some had apparently experienced both. A representative example of a positive impact was, "The cost of project management is now captured to arrive at a true total project cost." A negative example we received stated: "Budget cuts pushed a lot of overhead into the chargeback budget."

When asked for the percentage of their operating budget made up by recharge, 50 percent said that they earned 0-10 percent of their budget; 18 percent needed to generate 10-25 percent; another 18 percent were required to earn 25-50 percent; and 13 percent said that recharge made up more than half of their budget.

We learned that there are many models used to bill for non-maintenance work, with advantages and disadvantages associated with each.

FULLY ALLOCATED

A fully allocated cost model based upon recovering overhead costs might be the most common, and this model benefits from budget stability. With this model, a labor rate is developed that recaptures or recharges the facilities department overhead. Note that where institutional policy allows a balance or deficit to be carried forward, a deficit will drive the rate up. In the same manner, additional funds can be added to the facilities budget simply by increasing the rate and working more hours of recharge instead of maintenance.

The fully loaded cost model may work well in times of stable or level budgets, but less so when revenue is a large percentage of an overall budget that is shrinking, particularly if an increase in overhead was funded through recharge. We learned that some schools have indeed increased the rate and added recharge hours to assist the facilities budget.

On the positive side, because the construction and small remodel workload varies, some institutions hedge against those fluctuations in construction by staffing to and targeting the "baseline" demand (versus the average or peak), and then relying on outsourced options or scheduling practices over seasonal demand cycles in order to manage the recharge target.

FULLY OUTSOURCED

Some of the institutions we surveyed find it easier to simply outsource any non-maintenance work. After conducting this research and reading their responses, it becomes obvious why this may be attractive. This approach definitely protects the maintenance function and budget, although the costs may be higher for non-maintenance work. The term "may" is used here, because when *all* time and costs are fully allocated, the facilities unit is not always the lowest cost when compared to outside providers. The authors would contend that this may be the only way to accurately allocate the true costs of operations.

MATERIALS ONLY

Another approach is to simply charge for materials when performing non-maintenance work. This leads to challenges in deciding what work is performed and does little to protect the maintenance hours. On the other hand, this methodology is certainly customer-centric, as the requesting unit receives "free labor." This can be a workaround in those states that prohibit state-funded employees from charging labor against bond issuances or other appropriations under the logic that the employees are already being paid.

INCREMENTAL STAFFING

This approach simply assumes that the overhead already exists and that the additional positions funded through recharge are layered on top of the existing organizational overhead. The rate then would be calculated using direct hourly labor costs, consumables, and fringe, but not overhead. This would "leave some money on the table" during good times, but protects overhead during periods of retrenchment. Most notably, converting to this methodology from a fully allocated recharge model would require additional institutional funds.

ICING ON THE CAKE

Based on our survey, it became apparent that a number of facilities units simply treat recharge as "icing on the (budget) cake." The rates are developed without an hourly target, sometimes by comparing internal rates to local contractor wage rates. The volume of recharge is relatively small, and chargebacks are used in a positive manner (i.e., departments receive the benefit of readily available labor, employees get a break from the monotony of maintenance, and the facilities department supplements the budget). Other than the fact that rates should be calculated in a consistent and systematic way, there are many advantages to this model. The percentage of the facilities budget that is funded "centrally" would

be higher when compared to the fully allocated cost model.

During our research, we received a number of comments pointing out that any model other than the fully allocated model essentially subsidizes the non-maintenance and/or remodel work. The counterpoint is that while this approach advocates for recovering all of the costs incurred by the facilities organization, those costs still may not be all the expenses necessary to conduct organizational business. While a few facilities groups may pay the true cost of institutional support for items such as legal counsel or advertising for request for proposals (RFPs), most institutions provide some unreimbursed services to their facilities operation.

Thus, the question perhaps is not so much whether or not to subsidize, but to what degree.

It appears that more institutions than not feel there is value to having a workforce available to do small remodels quickly, and thus are willing to subsidize these costs to some extent because the in-house group often brings institutional knowledge, as well as a willingness to work around campus activities.

In any event, when all costs are fully allocated or close to it, the in-house facilities staff may not be less expensive than private contractors, and there are actually many reasons why higher education administrative operations may well never be as efficient as their counterparts in private industry. If lowest cost is the goal, the institution must choose to place a value on having in-house staff, begin comparing costs to external vendors in search of the lowest price, or find a midpoint with workload balancing. Outsourcing becomes extremely attractive to those only looking at the bottom line.

We concluded that there are significant issues with respect to recovery and recharge mechanisms as practiced by many institutions in higher education, primarily because there is no standard approach. The specific model is a management decision, but adequate maintenance may be at risk at institutions while the facilities unit pursues recharge work, unless specific emphasis is placed upon best practices associated with the process.

In addition, there are numerous models available to bill for non-maintenance work, with advantages and disadvantages associated with each. With many universities experiencing enrollment declines, corresponding loss of revenue, and dwindling state support, it is important that the model selected support the institution's goals. A clear understanding of the overall impact to facilities and the university budget is critical to making an informed decision.

Finally, a common understanding of the subject should also be a goal. A lack of consistent terminology, definitions, and methods as well as reliance on past historical practices at many universities cast doubt on the efficiency of the recharge methods in place; and the lack of common definitions disrupts benchmarking efforts. [*Ed. note: The APPA Standards and Codes Council is in the process of creating a standard set of terms and definitions used by facilities organizations.*]

APPA and member institutions would benefit from additional research into the overall impact of recharge and recovery, both on institutional and facilities budgets and on the frequently used benchmarks in the APPA Facilities Performance Indicators (FPI) survey and report. A section on recharge and recovery that included definitions and rate preparation methodologies could be considered for inclusion in the APPA Body of Knowledge.

The authors concluded the information gathering for this study at the APPA 2017 Annual Conference in San Francisco by having conversations with Mike Johnson, associate vice president for facilities at the University of Arkansas, and Matt Adams, president of FM^2. They told us about the reorganization of the University of Arkansas Facilities Department that began in 2000, and stated that one of the drivers of that reorganization was a dependence on recharge to the detriment of maintenance.[2]

Their analysis provided a comprehensive understanding of the issues and illustrated the contrast of solutions available to excessive institutional dependence on recharge: lower the recovery goal, or raise the rates to accomplish the goal with fewer hours.

As a result of their study, the University of Arkansas moved to zone maintenance in order to distinctly separate the maintenance function from the construction personnel, while at the same time recalculating rates upwards to fully allocate costs. It should be noted that increasing rates allows for additional costs to be recaptured and/or the number of hours devoted to the task to be reduced.

In other words, an over-reliance on recharge hours can be remedied by adding institutional funding to the budget or by simply charging more.

Labor rates must be well understood and managed as a component of the overall facilities budget; the decision as to which of the multiple models available will be used should be an *informed decision* by university leadership based upon the proven viability of the methodology over many years—but it is important to note that having a meaningful conversation on these issues will also require a common dictionary of terms.

ENDNOTES

1 Donald J. Guckert and Jeri Ripley King, "The Charge of the Rate Brigade: A Rate Template for In-House Construction Labor," *Facilities Manager* (July/August 2004).

2 Draper and Associates, "University of Arkansas—Physical Plant Operations Reorganization/Reengineering," draperandassociates.com/engagements/uark_reeng.html (2000).

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APPA DRIVE-IN WORKSHOPS

APPA's Facilities Drive-In Workshop offerings are an excellent way for APPA member institutions to encourage networking and professional development among educational facilities professionals within their local vicinity. These workshops are ideal for professionals who might not normally have access to training and professional development opportunities, due to operating budget restrictions or similar constraints and are a great way to introduce these professionals to APPA, its regions, and chapters.

How are APPA's Drive In Workshops Planned and Organized?

Each workshop is organized with the support of APPA, an APPA Business Partner, and a host educational institution.

Responsibilities of the Host Institution:

- Provide adequate meeting space plus tables and chairs (conference room plus adjoining registration area, as well as separate seating in adjoining area for sponsored luncheon).
- Supply audiovisual equipment (typical requirements are a podium, one or two mics, a projection screen and LCD projector).
- Arrange for parking if needed for attendees.
- Provide menu options to the sponsor (if the host location site has a kitchen or works with required caterers). The sponsor picks up the cost of lunch and all breaks.
- The person coordinating on behalf of the host institution (typically the institution's facilities officer) is present during the workshop to welcome attendees and provide some introductory comments on APPA.

Responsibilities of the Sponsor:

- Works with APPA and the host institution to identify suitable session content and speakers, and firms up the program. This also ensures that the content is fully educational in nature, i.e., does not advocate a particular product or service.
- Manages on-site registration on the day of the workshop, distributes badges and distributes/collects evaluation forms.
- Pays sponsorship fees, cost of food/beverage at the workshop.

Responsibilities of APPA:

- Manages event promotions (produces flyer, email invitations and distributes these promotions).
- Creates list of prospective attendees (from both APPA member institutions and prospective institutions). Shares this targeted attendee list with the host and the sponsor.
- Creates an online registration link and sends regular attendee registration reports out to the sponsor and host prior to the event.
- Works with host institution's facility officer to prepare any comments, supporting materials, slides describing APPA, benefits of becoming involved with APPA, etc.

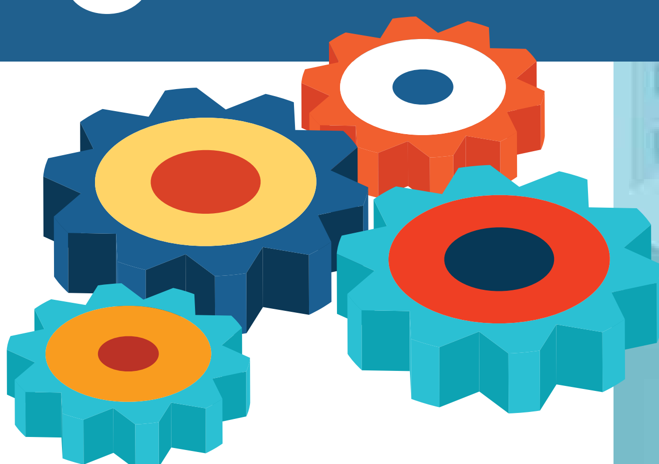
For more details about sponsoring or hosting an APPA Drive-In Workshop, please contact APPA's Professional Development Manager, Corey Newman at corey@appa.org.

1643 Prince Street, Alexandria, VA 22314

APPA LEADERSHIP IN EDUCATIONAL FACILITIES

The ECONOMICS of Facilities Management

By Chris Hodges



In facilities management, when we need to address money and funding, we tend to go directly to those topics most familiar to us: capital and operating budgets, funding levels, and the monetary savings we gain from managing our resources efficiently. The day-to-day challenge of managing facilities tends to keep us locked into a tactical view of how our organizations fund facilities and how money is spent. What's missing is that we don't often address how funding decisions are made, and what the motivations are behind those decisions. Instead of framing our decisions around *finance*, maybe we should be thinking about *economics*.

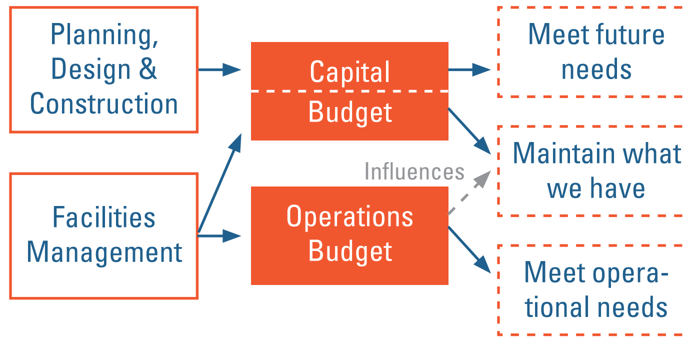
Economics, defined at the macroeconomic level, is about how we use resources and how we make decisions about those resources. In facilities management, economic decision making is influenced by a number of factors that we ignore at our own peril. Politics, favoritism, economic acumen, and human bias all influence decision making when it comes to spending money. Those biases do not disappear when we get to the organizational level.

BUYING NEW OR MAINTAINING: WHAT YOU WANT VS. WHAT YOU NEED

The most widely recognized bias we see in facilities management is the bias our organizations and stakeholders have in choosing something new over maintaining what we have. This bias is not unique to facilities management. In fact, we all experience it in everyday life. A colleague once pointed out that there's only one reason we buy a new car—*because we want one!*

We can spend a lot of time creating a business case for a new car, but maintaining what we already have is almost always more economically feasible. There are a lot of other reasons to buy a new car: dependability, fuel savings, enhanced safety, and image, just to name a few. But rarely is the reason financially compelling. In fact, we can spend a lot of time creating a business case justifying the purchase of a new car, but few of us stretch the limits of the expected service life of the car we already have. If we were more aggressive at extending service life, there would be far fewer car dealers and fewer new cars on those new car lots. The motivation to pick *new* over *maintain* is strong; however, that choice usually comes at a steeper price.

Capital and Operational Budgeting



This same type of bias in facilities management often skews our funding mechanisms away from maintenance and toward new and renovated facilities. This creates competition for funding, and the proponents of maintaining what we already have are at a disadvantage.

We know intuitively that investing in operations and maintenance increases the life of our physical assets and positively influences the amount of capital dollars needed to maintain our facilities. How do we prove it?

OPERATIONAL VS. CAPITAL BUDGETS: THE DEPRECIATION MODEL

Let's start by understanding the difference between operating and capital budgets. Operating budgets are required to maintain facilities on a day-to-day basis. This includes expenses such as utilities, routine maintenance, cleaning, trash removal, and anything that would be considered "used-up" on a day-to-day basis. Accounting principles govern what time periods are considered appropriate for operational expenses, and are largely driven by the taxing authority in any given country or region. An *accounting period* is defined by the taxing authority, and is associated with the end of the period when our taxes are due—one year for most of the world. Capital costs are those that typically outlast the accounting period. In most cases, they are expenses with a service life in excess of one year.

When considering how to levy taxes on a revenue-generating organization, the taxing authority will allow the deduction of operating expenses against revenue earned in order to determine "profits," which are taxed. From the organization's standpoint, the greater the amount of expenses that are counted against revenue, the lower the tax burden. The challenge remains how we account for an asset that lasts more than one accounting period, or more than one year. That's where depreciation comes in. Depreciation is a way of accounting for the annualized portion of expenses. In other words, depreciation is the annual cost of a capitalized asset. The figure below depicts a single capital expense (in the year 2017) as the top bucket. The small buckets represent the annual depreciable portion of that asset in any single year (from 2017 to as long as the asset is depreciated, in this case 2021). Many organizations assign depreciation costs back to the facilities management group, thus creating a non-cash expense against the operating budget.

Most organizations have a schedule that lists dozens to hundreds of capitalized assets that are being depreciated throughout the service life of the facility the asset serves. In any single year, there would be a number of depreciable assets coming and going from the schedule, each remaining as long as the asset is being depreciated. The facilities manager may not have control, and in some cases, may not even see the depreciation schedule. However, a fundamental knowledge of how capital assets are depreciated is valuable knowledge, especially in this day of changing tax laws. Although tax law changes would not be expected to affect how capital assets are managed, there may be nuances in how they are accounted for in the capital budget cycle. This model of operating and capital costs serves as the basis for accounting practice, regardless of whether the organization is a for-profit entity or not-for-profit. At the most basic level, it is a method of annualizing capital expenditures so that they are properly accounted for in the year they are used.

THE CHALLENGE: SHOWING THE RELATIONSHIP BETWEEN OPERATIONAL AND CAPITAL BUDGETS

This is an oversimplification in many regards, but it serves as the baseline for why we need to account for operating and capital budgets separately. The challenge in facilities management is that many (if not most) organizations separate the accountability for the "buckets," even though they are closely related. The more separation we create between operational and capital budgeting, the more difficult it is to manage for the long-term life cycle of our facility assets.

This fundamental understanding of operational versus capital budgeting allows us to apply some defendable logic to the "intuition" we experience when we conclude that operational and capital budgets are related. In our bucket example, it follows that if we continually decrease our operational budget, our demand for capital renewal and replacement will increase.

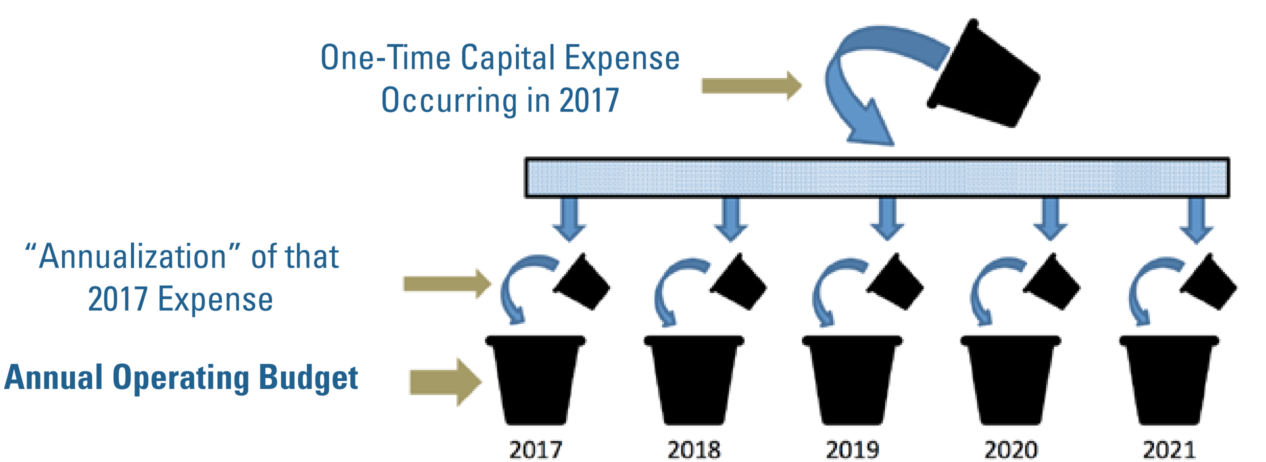
Equipment will wear out sooner, breakdowns due to lack of maintenance will occur, and we will require greater amounts of capital to maintain facilities at the same service level we desire. The opposite is also true; when we decrease capital spending, we defer major (capital) repairs and replacements. This increases the demand for operational funding to keep older equipment running. It also increases the risk of equipment failure.

Many organizations use metrics such as the Facility Condition Index (FCI) to track the overall condition of their facilities in relation to capital spending requirements. The problem is that metrics such as FCI are trend-based; it takes years of tracking to show relationships. There are few if any industry guidelines that relate operational and capital budgeting. In *The Facility Management Handbook,* (fourth edition, Roper and Payant, 2014), the authors state that "Depreciation should be kept in the range of 6 to 8 percent of the capital budget." This is one of the few citations we see in the literature about operational spending in the facilities management world.

As most facilities professionals know, proving the business case for facilities funding is easier said than done. It's a long-term process that involves lots of money spent on physical assessment, data-gathering, analysis, and, most of all—time. Capital renewal budgeting involves estimation of service life, present and future costs, and operating and maintenance requirements that are often uncertain. There is some risk in this process if we are unable to estimate these factors with a reasonable degree of certainty. Knowledge of our cognitive biases tells us that new wins out over old, and projecting savings that may not occur for several years puts us at a disadvantage if the cost savings are not immediate and easy to recognize.

A BETTER WAY TO TELL THE BUDGET STORY: FRAMING AND LOSS AVERSION

For more successful investment in facilities at the economics level, what is needed is a better way to tell the story. A fundamental understanding and recognition of our cognitive biases



helps in making a more compelling case for facilities operational investment.

Behavioral economics is the study of the psychological, social, and cognitive factors that go into economic decision making at the individual and organizational level. Sometimes it helps to back away from the day-to-day struggle over funding and (lack of) resources, and consider the ways we make decisions in our organizations, and what individual and organizational behaviors drive the economics of facilities management.

Aside from the bias we have for "new versus maintain," there are two cognitive biases that may prove helpful in understanding the facilities management mindset. The first is framing and the second is loss aversion. Although there are many more, we will focus on these two in order to improve the business case for operational and capital spending.

Behavioral economists tell us that the framing bias occurs when we highlight certain aspects of a situation over others that might not lead the observer to the same conclusion. In facilities management, the framing bias applies to how we make our business case for operational and capital spending. A good approach to budgeting is to "frame" our budget cases in terms the organization's leaders can see and understand. Budgets should be framed in terms of how well they support service delivery level, customer satisfaction, and system serviceability—all factors that we can measure if we have an appropriate performance management system in place.

For example, service levels can be shown to decrease as a direct result of decreased operational budget spending. Appearance-care and grounds-care levels of service are directly observable by our stakeholders and our leadership. A demonstration of how decreased spending results in lower satisfaction levels may

Risk No.	Risk Category	Risk Description	Nature of Risk	Initial Risk Assessment			Mitigation	Risk (After Mitigation)		
				Probability of Occurrence (P)	Impact of Event (I)	Risk Index (P x I)		Probability of Occurrence (P)	Impact of Event (I)	Risk Index (P x I)
1	**Operational Spending: Equipment Reliability**	**Deferral of Preventive Maintenance (PM) due to lack of O&M funding/staffing**	Reduction in O&M funding leads to risk of premature equipment failure, reduction of service life	3	5	15	Mitigation efforts might include increase in PM to reduce *probability* of failure for building systems with a Risk Index greater than 10.	2	5	10
2	**Operational: Facility Operations**	**Flood, weather-related event**	Temporary loss of facility impacts ability to deliver services to stakeholders	3	5	15	Mitigation efforts might include increase in capital spending to reduce *impact* of a weather-related event.	3	3	9
3	**Capital Spending: Equipment Service Life**	**Deferral of Capital Replacements due to reduction or lack of capital funding**	Reduction in capital funding leads to increase in O&M costs to maintain aged equipment and higher capital expenditure to replace	3	4	12	Mitigation efforts might include increase in PM for aging at or near its Estimated Useful Life (EUL). This strategy could reduce the probability of occurrence to an acceptable risk level.	2	4	8
4	**Operational: Reputation (FM Level)**	**Low service levels lead to low work productivity, decreased retention, unsafe conditions**	Stakeholders dissatisfied with facility and facility services, increased complaints, potential health & safety risk	3	3	9	Mitigation efforts might include increase in Operational Spending to bring service level up to acceptable level, reducing *probability* and *impact*.	2	2	4

Risk Index

12 or Greater	Unacceptable—Requires Mitigation
9 to 11	May require further mitigation
8 or less	Acceptable level

be achievable without waiting years to prove our case. Monitoring complaints tied to facility appearance then becomes a business decision rather than an emotional one.

However, we don't ignore or leave the damaging consequences of insufficient budgets to chance. That's where loss aversion comes in. Loss aversion is the cognitive bias that says we fear losses over an equivalent gain. That doesn't mean we scare our stakeholders with visions of great losses if our budget demands are not met (e.g., catastrophic losses due to failed roofs, lack of emergency preparedness, safety violations, etc.). Rather than revert to scare tactics, facilities managers can become risk managers who identify and quantify risks to operations related to system failures and losses. Resource needs can then be understood in terms of impact to the core business. This systematic approach to risk, as in a risk register, is an organized and defendable way to address the loss aversion bias in a systematic, quantifiable, and defendable manner.

In the following example, risk is expressed in terms of Probability of Occurrence (on a scale of 1 to 5) multiplied by Impact of Event (on a scale of 1 to 5). The product, the Risk Index, provides a risk scale that can be used to determine if risk mitigation is required.

In this example of a risk register, the four risk categories shown are linked to the level of operational and capital spending. The weather-related risk and the reputational risks (Risks 2 and 4) exist regardless of funding levels, but the probability and impact of those risks can be reduced by adjusting operational or capital spending. The additional cost of the mitigation is weighed against the impact of the adverse event.

The risks associated with reductions in operational or capital spending (Risks 1 and 3) have associated mitigation efforts that might yield a significant return on investment—increased maintenance efforts may cost the organization in additional labor and funding, but the return might far outweigh the cost of a catastrophic loss of service or reduction in service life. The Risk Register is used to frame the business case for more funding or more maintenance.

Framing and loss aversion are just two of the many cognitive biases that most of us have. By recognizing these types of biases, we can improve our chances of having our budget arguments heard, discussed, and incorporated into the larger picture of how our organizations function, how we support the mission, and how economic decisions are made.

SUMMARY

The ability to recast our thinking from tactical level *financial* thinking to strategic-level *economic* thinking can help us with the long-term management of our facilities. Our chances of success in promoting our operational and capital budgets are vastly improved if we consider the financial rules that govern operational and capital spending, and the behavioral economic drivers of decision making. Recognizing these factors and how we adapt to them in composing the facilities budget does not mean guaranteed success.

However, if you ignore them, you risk a perpetual loop of reactionary budgeting and a constant struggle to obtain the monetary resources needed to keep facilities in good working order. Linking operational and capital budgets is not easy, but that doesn't mean we shouldn't strive for greater integration, more robust business analysis, and a greater recognition of perspective (framing) in making the operational and capital budgeting business case.

Chris Hodges is a principal and cofounder of Facility Engineering Associates (FEA), Fairfax, VA, and is coauthor of the book *Sustainable Facility Management: The Facility Manager's Guide to Optimizing Building Performance*. He consults with clients on facility performance management at FEA and teaches facility management courses at George Mason University and the Catholic University of America. He can be reached at *hodges@feapc.com*.

U.S. Department of Homeland Security (DHS) Chemical Facility Anti-Terrorism Standards (CFATS)

By Maureen Kotlas, CSP

On October 11, 2017, the APPA Standards and Codes Council (ASCC) presented a webinar on Chemical Facility Anti-Terrorism Standards (CFATS). The presentation was given by Maureen Kotlas, CSP, executive director, Department of Environmental Safety, Sustainability & Risk at the University of Maryland College Park. At the end of the presentation the presenter and attendees had a Q&A session.

Based on the session, the points listed below should give you important facts and allow you to decide if the chemical amounts stored at your facility need to be registered with DHS.

The webinar and presentation slides are available on the APPA website at *http://www.appa.org/webinarseries/appa_monthly_webinars.cfm.*

1. The Chemical Facility Anti-Terrorism Standards (CFATS), established by the Homeland Security Appropriations Act of 2007, provide authority to DHS to regulate high-risk chemical facilities. The regulation applies to universities and colleges. A facility is covered by the regulation if it possesses a Chemical of Interest (COI) in a regulated quantity (and concentration if in a mixture). The list of COI is found in 6 CFR Part 27, Appendix A (*https://www.dhs.gov/appendix-a-chemicals-interest-list*). The list of COI has not changed since 2007.
2. DHS has identified three risk categories of COI based on the potential for harm to human health from an intentional release, theft, or sabotage. The theft risk applies only if the COI is in compliant transportation packaging, since it is more portable and transportable. The sabotage risk applies only if the facility ships the COI. Some chemicals appear in more than one risk category.
3. CFATS requires a facility to complete the Chemical Security Assessment Tool (CSAT) questionnaire, or Top-Screen, if it possesses (or had possessed within the past 60 days) a COI in a quantity that meets the screening threshold quantity (STQ) in the applicable security risk category. The facility is not required to report the COI if the quantity is less than the STQ. DHS uses a risk methodology to assign one of four risk "tiers," or it may determine that the facility is not a high risk. If assigned a risk tier, the facility is required to submit a security vulnerability assessment and a site security plan. Both are subject to approval and monitoring by DHS.
4. DHS has given chemical facilities the flexibil-

ity to define a facility boundary for assessing the chemical inventory, and for reporting COI if required. The facility may be one building or may be the entire campus. DHS does not accept individual laboratories, groupings of buildings, or sections within buildings as a facility.

5. If the institution possesses a COI that meets the STQ in just one building, it may be prudent to define the building as the facility in the Top-Screen. If the facility is placed in one of the risk tiers, the Security Vulnerability Assessment and Site Security Plan would be specific to that building rather than to the entire campus.
6. Laboratories that are under the supervision of a technically qualified individual have an exclusion from reporting COI in the release category. Stockrooms that are directly associated with a laboratory may also be excluded. Laboratories must still report COI in the theft and sabotage categories if the quantity meets the STQ. Nonlaboratory locations are subject to reporting COI in all risk categories.
7. As an example, nitric acid, found in many research laboratories, falls into two security risk categories: release and theft. Laboratories do not need to consider nitric acid in the release category but do need to consider it in the theft category and report if it is in compliant transportation packaging and the quantity in the facility meets the STQ (400 lbs.). If nitric acid is located in a nonlaboratory location such as a central receiving facility, it would be subject to reporting in the release category and in the theft category if the criteria were met.
8. Some COI are considered a sabotage risk if shipped. The designation of "A Placarded Amount" (APA) appears in Appendix A as an STQ in the sabotage category. This refers to the requirement for placarding in the Department of Transportation (DOT) Hazardous Materials regulations, 49 CFR Part 172, Subpart F.
9. Chemicals that require placards are listed in the DOT regulations in Table 1—Placard Any Quantity or Table 2—Placard at 1,001 lbs. aggregate gross weight. Assistance with the DOT Hazardous Materials regulations is available at Hazardous Materials Information Center | PHMSA
10. If the facility ships a COI that is a sabotage risk and is required by DOT to be placarded at any quantity, it must be reported through a Top-Screen. If the facility ships a COI that is required to be placarded at 1,001 lbs. aggregate gross weight, but the shipment quantity is less than that amount, it would not have to be reported.
11. Solid wastes (including hazardous wastes) that are regulated under the Resource Conservation and Recovery Act (RCRA) are exempt from CFATS reporting except for P and U list wastes. These wastes are described in 40 CFR Part 261.33 as "discarded commercial chemical products, off-specification species, container residues, and spill residues thereof." The P and U lists are available at *https://www.epa.gov/hw/defining-hazardous-waste-listed-characteristic-and-mixed-radiological-wastes#PandU.*
12. If the facility ships (or has shipped in the past 60 days) a P or U list waste that is a COI sabotage risk, it must be reported if the quantity meets the placarding requirement of any quantity or 1,001 lbs. for that chemical. Since there is a 60-day lookback period, a facility would be required to report a COI that is no longer at the facility and is in transit or at a permanent disposal site.
13. DHS has contacted facilities recently to update information on existing Top-Screens. The use of new risk-tiering methodology may result in DHS making changes to the risk-tier category for some facilities. To update Top-Screens if quantities of COI change or to submit new Top-Screens, access the existing user account or register for a new account through the Chemical Security Assessment Tool (*https://www.dhs.gov/chemical-security-assessment-tool*). For questions or assistance, contact the CFATS Help Desk at 866-323-2957 or email *csat@hq.dhs.gov.*

Maureen Kotlas is the executive director of the Department of Environmental Safety, Sustainability & Risk at the University of Maryland College Park, and can be reached at *mkotlas@umd.edu*. This is her first article for *Facilities Manager.*

APPA's *Operational Guidelines for Educational Facilities*: A Focus on Staffing

By Ernest R. Hunter Sr., P.E., ACP, MOS (Master)

One of the most challenging issues facing facilities management professionals is determining the number of employees needed to perform the facilities maintenance and operations functions for colleges and universities. Much has been written about the APPA Facilities Performance Indicators survey (FPI) and the wealth of facilities management data and information contained in the FPI report for close to 300 survey participants. Some facilities professionals rely almost exclusively on comparative analysis of FPI cohort staffing data and summary benchmarks to determine what their staffing should be.

While the FPI is a valuable tool and while comparative analysis, used in the appropriate context, is certainly a legitimate approach to making judgments about staffing needs, APPA has also published a set of three books meant to serve as guidelines for several areas of educational facilities. The set is titled *Operational Guidelines for Educational Facilities*, and each book concentrates on a separate area:

- ***Custodial*** (third edition)
- ***Grounds*** (second edition)
- ***Maintenance*** (second edition)

In this article, we will refer to the *Operational Guidelines* Trilogy as *Guidelines*.

In addition to providing guidance for facilities professionals on a wide range of facilities management subjects, the *Guidelines* contain definitive protocols for estimating staffing and funding needs for the maintenance, custodial, and grounds functions.

ESTABLISHING PROTOCOLS

All three *Guidelines* contain a protocol or procedure for estimating the number of *Full-Time Equivalent* staff (FTEs) and the budget required to perform the function in question. The protocols require specific asset inventory data and local variables as basic estimating model inputs. For custodial, the asset inventory data is the *Cleanable Square Feet* (CSF) data set, which contains cleanable spaces by category and size. For grounds, the asset inventory is the *Grounds Area* data set, which contains grounds areas by area type and size. For maintenance, the asset inventory is the *Maintained Space* data set, which contains maintained spaces by APPA maintenance type and size.

The *Guidelines* provide standard space categories for custodial as well as standard grounds area types for grounds, to reflect the fact that different type of assets require different amounts of labor. The maintenance *Guidelines* treat inventory data slightly differently in that they use a conversion table to convert local space types to one of four APPA staffing guidelines maintenance space types based on NCES or FICM codes.[1]

All three estimating protocols require the input of local variables in order to capture elements such as 1) worker productive minutes per day; 2) days of worker authorized absence per year; 3) average worker wage rate; 4) fringe benefits rate; 5) factor for worker equipment cost; and 6) factor for worker consumers cost.

The *Guidelines* estimating protocols for the grounds and custodial functions are similar in that they both use what I will refer to the *Task-Time-Frequency* (TT&F) method. The TT&F method bases its estimates on 1) specific tasks to be performed for each type of asset; 2) predetermined standard time estimates to perform those tasks; and 3) the frequency at which the tasks are to be performed.

The maintenance estimating protocol is unique and does not use the TT&F method. It is referred to in the *Guidelines* as the *Aggregate FTE* method (AFTE). I consider the AFTE method to be a parametric process that applies empirical data calculations on parameters derived from the maintained space inventory profile to calculate baseline FTEs. The baseline FTEs are then adjusted by five adjustment factors:

1. Campus Size;
2. Campus Age;
3. Facilities Type Variation;
4. Deferred Maintenance Facilities Condition Index (FCI); and
5. Campus Mission Type.

These adjustment factors are added to become the aggregate adjustment factor, which is applied to the baseline FTEs to produce the estimated number of frontline worker FTEs.

Figure 1 is a graphical representation of the estimating protocol for maintenance (a custodial and grounds graphic would be similar). The protocols estimate the FTEs based on which of the five APPA service levels the institution wishes to achieve (Level 1 through Level 5). Figure 1 begins with denoting the desired APPA level of service. All three protocols estimate the number of FTEs and the budget requirement for frontline workers only, and they do so without regard to whether the work is to be performed with in-house workers or through contracted services. The protocols do not estimate the number of FTEs or budget required for administration, management, and supervision. Nor do they estimate the FTEs or budget requirement for all the other tasks the maintenance, custodial, and grounds frontline workers perform above and beyond their core functions (e.g., custodial providing event support, maintenance workers performing renovation projects, grounds workers providing moving service, any frontline worker performing any type of work in spaces not included in the asset inventory data set, and the many other noncore functions performed by frontline workers). I refer to these above-and-beyond tasks as "additional duties."

DETERMINING FTES

It falls to the facilities management professional to determine the appropriate number of FTEs for administration, management, and supervision based on institutional policy, practices, and accepted local norms. The bigger challenge comes when estimating FTEs and cost requirements for additional duties. Those fortunate enough to have work-order information in a Computerized Maintenance Management System (CMMS) or an Integrated Workplace Management System (IWMS) can run reports to

Figure 1: Maintenance guidelines for in-house FTEs and cost-estimating protocol.

Guidelines for Frontline Worker FTEs & Cost Only					Additional
	Inputs		Process	Outputs[1]	Additional
Desired Service Level	•	Gross Square Feet (GSF) by space use category (classrooms, residence halls, labs offices, etc.)	• Space profile and empirical parameter-based estimation • Standard parameters for materials, spare parts, and equipment cost • FTE per GSF based on space type	• Total FTEs and Budget Requirement for core function regardless of method of service delivery (in-house or contracted) excluding supervision and additional duties	• **To estimate** total in-house FTEs, add supervision and additional duties FTEs and subtract contracted services FTE equivalent • To estimate total budget, add cost of supervision and cost of additional duties activities
	•	Average days worked per year			
	•	Average productive minutes per day			
	•	Average wage rate			
	•	Average benefits rate			
	•	Adjustment factors for: ➢ Campus Size ➢ Campus Age ➢ Varying Building Types ➢ Deferred Maintenance Levels ➢ Campuses of Varying Missions			

see how many hours of additional duties have been performed in the past, and extrapolate that a similar number of hours would be required in the future.

These hours are converted to FTEs and added to the FTEs produced by the Guidelines protocol along with the FTEs for administration, management, and supervision. If the organization did not perform work through contracted services that otherwise would need to be performed by in-house workers, this would be the end of the process and the in-house FTE and cost requirement would be as follows:

6. FTEs estimated by the protocol; plus
7. FTEs for administration, management, and supervision; plus
8. FTEs for additional duties.

However, to be a credible representation of the in-house FTE needs, what I refer to as "contracted equivalent FTEs" must be subtracted from the above total to arrive at the final in-house total.

While we generally do not know how many FTEs contractors use to perform our contracted service work, we always know the contract cost. We can convert contract cost to contracted equivalent FTEs by dividing the cost by an appropriate wage rate. An appropriate wage rate can be based on the in-house fully burdened labor rate for the function in question, or it can be the prevailing wage rate for the local contractor community. This gives you the final figure for how many in-house frontline workers you will need.

OBJECTIVE ESTIMATES

In times of scarce resources, I highly recommend that facilities management professionals use some form of objective estimating protocol to estimate FTEs and cost needs for their core facilities functions. I would then caution that most estimates are based on averages, thus the answers produced by them are guidelines and not absolutes. High-performing organizations can achieve more than average-performing organizations with the same resources.

ENDNOTE

1 NCES or FICM codes: National Center for Education Statistics (NCES) space use codes or Postsecondary Education Facilities Inventory and Classification Manual (FICM) codes are nationally accepted standards for collecting and reporting data related to education facilities in the United States and other nations.

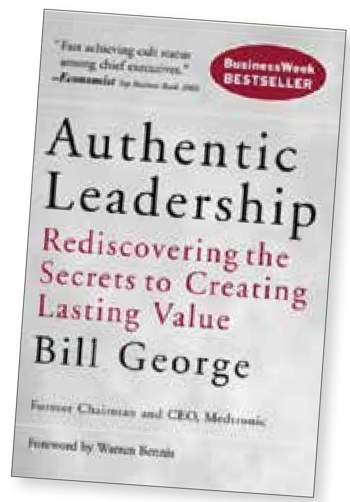
Ernest Hunter is president of Hunter Consulting and Training, Austin, TX. He can be reached at *ernesthunter@gmail.com.*

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

Let's start the New Year with leadership. How you choose to lead determines how many people will follow as well as how successful your leadership will be. In both of the books I've reviewed for this issue, leadership is not about winning every battle—it is about maintaining your principles, values, and goals. This kind of leadership meshes well with the soon-to-be-released ISO 41001 "Facilities Management—Management Systems" standard that APPA has helped develop.

AUTHENTIC LEADERSHIP: REDISCOVERING THE SECRETS TO CREATING LASTING VALUE

Bill George, Jossey-Bass, 2004, 218 pp., hardcover, softcover, e-book ($0.10-$10.99)



This book has been around for a while but never made it onto my radar until now. *Authentic Leadership* is about knowing what makes a good leader and how leaders can succeed better than others by maintaining a balance between leading and managing the organization's goals. It contains brief case studies of the methods espoused by Covey and others who should be familiar to many APPA members, particularly graduates of the Leadership Academy.

Bill George has moved from leading organizations to teaching and sharing the experiences that led him to a successful career. In *Authentic Leadership,* he relates both personal experiences and his observations of leadership successes and failures. He identifies the essential characteristics and external factors that help make people successful leaders rather than disappointing leaders. Both types may be leaders, but the latter is a leader good people don't want to follow. Think of bad leaders, the ones you don't want to follow, and compare them with leaders who inspire and draw more people into their sphere of influence or direction of focus. There's a huge difference when you think about it, and when you think about what those leaders did to be attractive and successful.

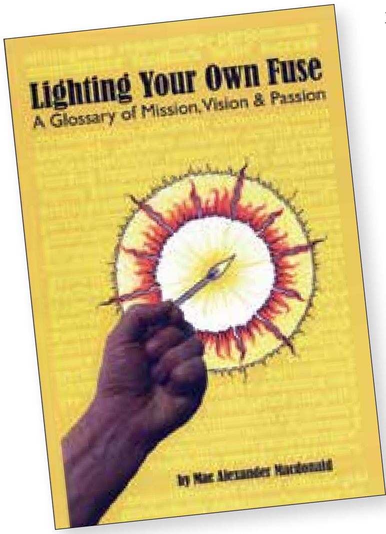
Every person is different; they have different morals and standards, and different backgrounds and experiences, but inside they are either leaders, managers, or followers. Some managers or followers aspire to lead, and many can if they have the correct focus and utilize the "secrets" that George exposes. Some of the cases he presents in *Authentic Leadership* demonstrate a follower moving to a leadership role by using the techniques he has identified.

The enjoyable thing about this book is that it reminds me of the people in my career who demonstrated leadership, the principles they followed, and the risks they took along the way. The admirable characteristics George mentions were found in all of them. Sadly, I've known folks who were bad leaders too. They are presented here too—people who move into a position of leadership but whom few wish to follow, or who espouse attitudes and behaviors that result in their downfall.

While the word "secret" is found in the title of the book, it is only a teaser. There are no secrets here; and anything that is published widely can't remain a secret very long. The characteristics and behaviors of authentic leaders are values-based, focus on others and not self, adhere to widely accepted principles requiring consistent application, and are ethical. Bill George discusses these and other principles clearly and concisely. He has demonstrated the truths in *Authentic Leadership* through his own actions—current and aspiring leaders should take advantage of his wisdom.

LIGHTING YOUR OWN FUSE: A GLOSSARY OF MISSION, VISION, AND PASSION

Mac Alexander Macdonald, LYFECO, 2011, 227 pp., softcover, ebook, audiobook ($0-$14.95)



One of the more difficult things I encounter is getting in front of a crowd and trying to say something inspiring. Teaching engineering material does not fall in that "difficult" category, because it's simply discussion about what's in a book. However, inspiring people from one's heart takes some thought and preparation.

I have now "discovered" *Lighting Your Own Fuse* by Mac Macdonald, available from the APPA bookstore. This book is different, in a good way. There are many books on leadership, on which none is the sole authority; there are also many books of inspiration with the same issue. However, there aren't many books that I would put in the category of "teaching a man to fish." *Lighting Your Own Fuse* is in that category.

Of course, there must be a desire before the connection between fishing and hunger is discovered. If you don't yet have a desire to improve, or to make a change in your career or attitude, consider taking advantage of *Lighting Your Own Fuse*. Alternatively, if you have the job of delivering an inspirational message, you may find a valuable resource in this glossary, which is organized with additional exercises for a group or individuals to develop their own goals that will help propel them to a new position or career.

There are a lot of nuggets to find in *Lighting Your Own Fuse* if you look for them. MacDonald's advice can also be supplemented with some of the "secrets" from George's book (above).

Ted Weidner is an associate professor at Purdue University 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.

new products

Compiled by Gerry Van Treeck

GETAC is introducing its 4th generation F110 fully rugged tablet. Designed to help field service professionals meet the demands of extreme working environments, the F110 combines Intel® Kaby Lake processors and new multi-layer security features with a fully rugged design to create the best performing and most secure fully rugged tablet in the market. One of the most significant additions to the next gen F110 is its optional IR camera that supports facial recognition with Windows Hello for more convenient login and security. Combined with TPM 2.0 and Opal 2.0 SSD, both standard in the F110, users now have an ultra-secure, mobile solution. For more information visit Getac at *www.getac.com*.

OASIS® responds to the demands of contemporary lifestyles with new Aquarius coolers. Available in three unique designs—point-of-use countertop and bottle-filled top load or bottom load—Aquarius serves a variety of needs and applications. There's a configuration to fit offices, warehouses, conference suites, dormitories, and anywhere fresh, pure water is in immediate demand. Each Aquarius unit boasts an extra-high 11-inch dispense height to easily accommodate today's refillable water bottles. The sleek, modern polymer cabinet complements contemporary public spaces with smart electronic controls and a small footprint. It is durable, won't rust, and won't scratch floors or countertops. Tri-temp water dispensing is standard on every Aquarius unit. For additional detailed information on Oasis visit *www.oasiscoolers.com*.

SOFIDEL, a provider of paper for hygienic and domestic use, debuted Papernet Bio Tech, the first toilet paper to use innovative Biologic Active Tissue Paper (BATP) technology. When the paper makes contact with water, natural, non-pathogenic micro-organisms are activated and produce enzymes to eat away dirt. Once their work is complete, the enzymes bio-degrade, leaving no residue or negative environmental impact. In about four weeks, the sanitizing effect of Papernet's Bio Tech toilet paper helps to free pipes, septic tanks, and sewer systems of dirt to help prevent blockages. For more information on Sofidel products visit *www.sofidel.com*.

TANDOSHAKE™ AND TANDOSTONE™, manufactured by Derby Building Products, represents new categories in exterior cladding. The company will debut a specialty line of TandoShake manufactured with Signature Stain, a technology that imparts a true semi-transparent stain to the polymer shake product line with an unrivaled level of realism. Tando's collection of low-maintenance TandoShake Signature Stain Collection products will consist of six colors and will be available along with sister-brand TandoStone, which also allows for authentic, lighter, and more workable option to stone or stone veneer. For additional information on Tando products visit *www.tandobp.com*.

FLOOD BUZZ™ BLUE is already in use by buildings to protect their premises from undetected leaking water heaters. Installation is easy. Just place the Flood Buzz™ Blue into a water heater's drip pan, use the attached double-stick tape to affix the Flood Buzz™ Blue to the water heater, and installation is complete. The Flood Buzz™ Blue is good for three years. For best protection, replace the Flood Buzz™ Blue by the "Replace by" date. The key to avoiding extensive damage is to catch the leak early—before it does extensive damage. The Flood Buzz™ Blue is specifically designed to monitor water heaters for leaks. For further information on Flood Buzz visit *www.floodbuzzpro.com*.

PEOPLES ELECTRIC COMPANY, a full-service electrical and building controls contractor, introduced its Unity Connected Building Intelligence smart lighting and building automation solution. Instead of approaching lighting, HVAC, and other major building functions separately, Unity offers a single technology platform for HVAC and lighting controls with a front end that can integrate with access control, low-voltage communications, fire alerts, and renewables, among other building systems. Unity leverages the latest in money- and energy-saving LED lighting and controls with the data-sharing capabilities and scalability of the Internet of Things (IoT). Data collected from built-in sensors in the fixtures gives building managers actionable information about occupancy, light levels, temperature, and more, with convenient, mobile, real-time dashboard access to all systems and data. For more information on Peoples Electric Company visit *www.peoplesco.com*.

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

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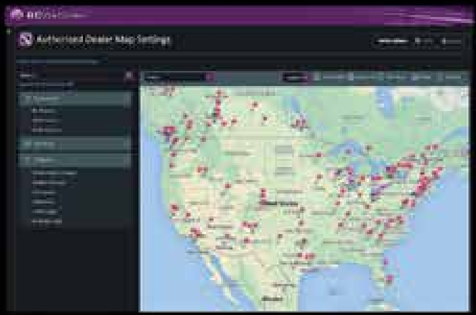

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