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# FACILITIES manager

JAN/FEB 2015

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Should Know About  
Building Commissioning  
Ernory University's  
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## PUBLIC-PRIVATE PARTNERSHIPS • **BUILDING COMMISSIONING**



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### Public-Private Partnerships in Education: Shared Risk, Mutual Reward

*By Mark Crawford*

Public-private partnerships can rescue important projects that have been held back because of lack of funding or internal politics. PPPs can also deliver projects more quickly and take advantage of private-sector expertise when it comes to the latest advancements in design, materials, and construction methods. Included are PPP updates from Portland State University, University System of Georgia, Dean College, New Jersey Institute of Technology, and University of Iowa.



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### What Owners and Providers Should Know About Building Commissioning (And Each Other)

*By Diana Bjornskov*

Two different building community groups were surveyed about their perceptions and about the results of commissioning. One survey was directed at a wide range of large and small commissioning provider firms in North America, while the other was directed at owners and decision-making managers of large portfolios of higher education, hospital, and government facilities. Read the results of the survey.

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### Commissioning and Emory's Sustainable Performance Program

*By Eric Gregory*

In August 2011, the author submitted a business case for approval and buy-in from Emory's Campus Services Administration. The new, proactive, energy-based operations program was entitled the Sustainable Performance Program (SPP), and the original business case has been modified for this article.

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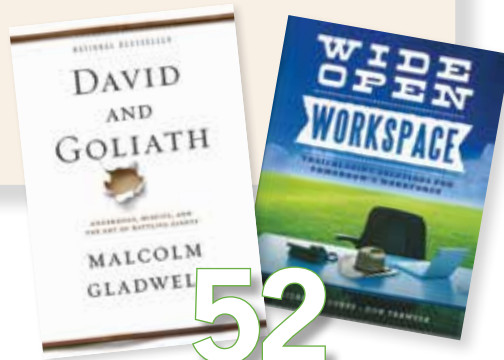
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### About APPA

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

## THE APPA LIBRARY—AN UNTAPPED RESOURCE

### Sometimes you find that you

need to write a report for your boss, prepare for a campus facilities committee meeting, or compile statistics or examples of best practices to help you justify a proposed project or decision. Where do you go for your content and connections?

We hope that APPA is one of your primary go-to resources for assistance. For example, are you aware that virtually every APPA book, chapter, monograph, research report, magazine article, and other published material has been abstracted and cited in our online library?

The APPA Library is a searchable resource of information about facilities management in colleges, universities, schools and school districts, and other educational institutions. Resources include articles from *Facilities Manager* magazine, proceedings of past APPA's annual conferences, books, surveys, reports from APPA's Center for Facilities Research, and other print and electronic material.

Results from your search of the APPA Library may be as brief as a bibliographic citation, or it may include a full description of the material and a link to the full text in HTML or PDF format. We are adding more full-text content to the library every month.

To date there are nearly 3,700 separate citations, and the list is growing. To search the library, simply go to [www.appa.org/library](http://www.appa.org/library). There you may browse the entries alphabetically

by author or by title, or you may hone your search to a particular author, keyword, year, or publication. In addition, you'll find a link to the latest issue of *Facilities Manager*.

For instance, a search using the keyword "environment" brings up 461 bibliographic citations from past APPA publications. A further search for "sustainability" brings up 114 listings.

"Energy management" shows 93 individual items, and "deferred maintenance" lists 162.

Looking for articles and presentations by Lander Medlin lists 87 pieces. There were 76 APPA citations for the year 2011. The search

function allows you to

do more complicated searches as well.

The APPA Library is only one of many resources available to APPA members as you traverse the waters of campus leadership, facilities management, and long-term planning. 💰



*Steve Glazner*

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- Crafting Your Sustainability Message
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More Innovation- More Value

# facilities digest

By Anita Dosik



## IN MEMORIAM – SANTIANNA STEWART

It is with great sadness that APPA announces the passing on December 2 of Santianna Stewart, who served as APPA's membership and outreach manager for seven years; she was 32 years old. Santianna grew up in Fayetteville, North Carolina and graduated with honors from her high school. She earned a B.S. in business administration from Fayetteville State University and recently completed her MBA from the University of Phoenix.

In her role at APPA, Santianna provided information and assistance to countless prospective and current members of APPA, its chapters, and regions. And in the same way that she touched them with her positive, uplifting, and dedicated manner, she also touched the lives of her friends, coworkers, and family. She leaves behind her parents, two brothers, many friends, and a grieving APPA staff.

Memorial donations in her honor can be made to the Lupus Foundation at [www.lupus.org](http://www.lupus.org).

## APPA LANDS' END STORE OPEN FOR BUSINESS

Show the world you are part of the educational facilities world's top professional organizations. 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. Polo shirts and caps are now available. They are ready to have the APPA logo added—and product offerings are growing. Visit <http://ces.landsend.com/>



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**Looking for a new employment opportunity?** Scan Job Express for the latest job openings to advance your career goals. Facilities management is a complex field, and educational facilities have special concerns that set them apart from commercial properties. At APPA's Job Express, you will find professional facilities management positions currently available at colleges and universities, K-12 organizations, hospitals, public works, museums, and other agencies and organizations. Whether you are looking for a part- or full-time job, an internship, or working on your resume, Job Express will help you find what you need.



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To find out more, go to <http://www.appa.org/JobExpress>.



## CONGRATULATES TO THE PGMS GREEN STAR AWARD-WINNING CAMPUSES!

The Professional Grounds Management Society (PGMS) has recognized several college campuses in the Society's 2014 Green Star Awards program. Winners were honored during the Society's 2014 Awards Dinner held in conjunction with the School of Grounds Management & GIE+EXPO in Louisville, Kentucky, October 22-25.

The Green Star Awards program brings national recognition to grounds maintained with a high degree of excellence, complementing other national landscape award programs that recognize outstanding landscape design and construction.

### University and College Grounds Category

#### Grand Awards:

- The George Bush Library at Texas A&M University, College Station, TX
- Northern Kentucky University, Highland Heights, KY

#### Honor Awards:

- Baylor University, Waco, TX
- The College of the Holy Cross, Worcester, MA
- Dallas Baptist University, Dallas, TX
- Mount St. Mary's University, Emmitsburg, MD
- Olin College of Engineering, Needham, MA
- Saint Leo University, St. Leo, FL
- Sam Houston State University, Huntsville, TX
- Southern Methodist University, Dallas, TX
- Texas Tech University, Lubbock, TX
- University of California Santa Barbara, Santa Barbara, CA
- Vanguard University, Costa Mesa, CA
- Virginia Wesleyan College, Norfolk, VA

#### Merit Awards:

- Averett University, Danville, VA
- Concordia University, Irvine, CA

### Urban University Grounds Category

#### Grand Award:

- George Washington University, Washington, DC

#### Honor Awards:

- Lawrence Technological University, Southfield, MI
- Savannah College of Art and Design, Savannah, GA

#### Merit Awards

- The University of Pittsburgh, Pittsburgh, PA

To view a complete list of winners, visit <http://pgms.org/2014-green-star-award-winners/>.

## EVENTS

### APPA EVENTS

**Jan 18-22, 2015** APPA U: Institute for Facilities Management and Leadership Academy, Tampa, FL

**Jan 23-24, 2015** EFP and CEFP Prep Course and Exam, Tampa, FL

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

**Aug 3, 2015** Emerging Professionals and Senior Facilities Officers Summit, Chicago, IL

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

### REGION/CHAPTER EVENTS

**Feb 10-11, 2015** MiAPPA Annual Winter Conference, Mt. Pleasant, MI

**Feb 25-27, 2015** CAPPA Technology and Leadership Conference, San Antonio, TX

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

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

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

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

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

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

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

For more information or to submit your organization's event, visit [www.appa.org/calendar](http://www.appa.org/calendar).

## A CHANGING OF THE GUARD FOR APPA'S CERTIFICATION BOARD: DAVID CAIN'S TERM ENDS, AS PAUL WUEBOLD'S BEGINS



David Cain



Paul Wuebold

David Cain, Coconino Community College, recently finished his term as APPA's Vice President for Professional Affairs, allowing for Paul Wuebold, University of Alabama, to take on the duties as APPA Board liaison to the Certification Board.

In December, Cain was honored by the Certification Board for his seven years of service, including one as Vice-Chair. "His support,

dedication, and longtime devotion to the committee will be missed," said Certification Board Chair, Tom Becker, Philadelphia University.

Wuebold participated on many of the monthly Board discussions before his formal term began in December, and "his dedication and expertise is very much appreciated and welcome" said Becker. "One of Paul's initiatives for credentialing will be to reach out and introduce his fellow U.S. Armed Forces veterans the APPA Credentialing Program. Paul and Casey Martin have already produced an informative podcast about transitioning from the military into higher education." (This podcast can be accessed at <http://credentialing.appa.org/>.)

# facilities digest

## APPA HIRES NEW DIRECTOR OF MEMBERSHIP AND OUTREACH

On January 5, Kristin Witters joined the APPA staff as director of membership and outreach. Kristin has over nine years' experience in membership services and association management, including two years with the American Council on Education, and more recently with NACUBO, the National Association of College and University Business Officers, where she had served almost seven years as the manager of membership services. She is a graduate of Mary Washington College and James Madison University, where she received her M.Ed. in counseling psychology.



## CEFP RECIPIENTS

**Valerie Amo**, *University of Michigan/Ann Arbor*  
**Kevin Austin**, *University of Chicago*  
**Griffin Avin**, *East Carolina University/Health Sciences*  
**Robert Bloom**, *Pennsylvania State University*  
**John Boliver**, *Pennsylvania State University*  
**Dennis Coakley**, *University of Vermont*  
**Dan Costello**, *Washington State University*  
**Joe Dinardo**, *Pennsylvania State University*  
**Tom Ertsgaard**, *Pennsylvania State University*  
**John Ferris**, *San Diego State University*  
**Peter Fraccaroli**, *North Carolina State University*  
**Pamela Garbini**, *Pennsylvania State University*  
**Luke Gentles**, *University of Michigan/Ann Arbor*  
**Andrew Gutberlet**, *Pennsylvania State University*  
**Kelly Harris**, *Pennsylvania State University*  
**Greg Harrow**, *Middlesex County Public Schools*  
**Lysa Holland**, *Pennsylvania State University*  
**Christopher Jackman**, *Emory University*  
**Jason Januszewicz**, *Bowling Green State University*  
**Alan Kelley**, *Bates College*  
**Robert Lawrence**, *Goochland County Public Schools*  
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**Jim Rohan**, *Pennsylvania State University*  
**Ian Salada**, *Pennsylvania State University*  
**Raymond Sowers**, *Pennsylvania State University*  
**J.D. Thompson**, *Hendrix College*  
**Frederick Willison**, *Texas Woman's University*  
**David Woodson**, *University of British Columbia*



## EFP RECIPIENTS

**Steven Bernheisel**, *Arlington Public Schools*  
**Lisa Curley**, *Pennsylvania State University*  
**Amy Day**, *Pennsylvania State University*  
**Timothy Dobson**, *New Mexico State University*  
**John Duncan**, *Pennsylvania State University*  
**William Gillmen**, *Pennsylvania State University*  
**Phillip Han**, *University of Michigan/Ann Arbor*  
**David Hawks**, *University of Michigan*  
**Michael Jackson**, *Pennsylvania State University*  
**James Jennings**, *Halifax County Public Schools*  
**Kevin Lynch**, *Pennsylvania State University*  
**Ryan Magyar**, *Pennsylvania State University*  
**Jeremy Marshall**, *University of Michigan/Ann Arbor*  
**Matthew Marshall**, *California State University/East Bay*  
**Everett Mason**, *Pennsylvania State University*  
**Andrew Moran**, *University of Michigan*  
**Heather Nelson**, *University of Arkansas/Fort Smith*  
**Terri Parker**, *Pennsylvania State University*  
**John Shimmel**, *Pennsylvania State University*  
**Kristin Sykes**, *Pennsylvania State University*  
**Justin Wisor**, *Pennsylvania State University*



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

Save the Date!

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



**E. Lander Medlin**, [lander@appa.org](mailto:lander@appa.org)

Executive Vice President, 703-542-3829  
Chief staff officer of the association. Contact for the Facilities Management Evaluation Program (FMEP). Serves as staff liaison to the Board of Directors, the Executive Committee, and the RMA and PCAPPA regions.



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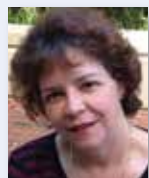
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# A Look Ahead at the External Influences Impacting Higher Education

By E. Lander Medlin


**N**ow more than ever, higher education institutions must think strategically about the future of their institutions. Today's economic and regulatory landscape remains unsettled and continues to change more rapidly every day. Similarly, educational facilities professionals must stay abreast of these broader issues to ensure the facilities organization is contributing to the greater good of the institution. As we look ahead, the following external influences will continue to impact society, the higher education industry, and ultimately all educational facilities management.

- **Everything is Going Digital, and Rapidly**—Technology remains transformative and will continue to change how students learn and how institutions are managed. The rate and pace of change in this area will continue to accelerate exponentially. We expect to see more online learning (moving beyond MOOCs), hybrid learning, flipped classrooms, and collaborative models. These will be typical rather than supplemental. With millennial students viewing technology as ubiquitous, information will be more accessible on a myriad of mobile devices and platforms, social networking will be used by everyone, and degrees in big data/analytics will be the norm. Or, are we already there? To survive, we need to understand and embrace the new technologies. Growth in higher education will rely on colleges and universities reaching out to students where they are located, rather than expecting students to necessarily reside on campuses.
- **Ensuring Education is Affordable**—A college education is increasingly unaffordable for many students, let alone their parents (the statistics are well-known and abound). Student loan debt has exceeded the trillion dollar mark, and student financial aid is in peril. Although most state governments' contributions to higher education institutions have stabilized, that share has seen little increase above the pre-2008 levels (before the Great Recession). Federal government's contribution remains in decline with questionable continued support of federal student aid. Both will affect public institutions and some private institutions as well. In the midst of this reality, we must seek to create a sustainable, yet adequate net tuition revenue base. We can expect increased scrutiny and more governmental regulation. The biggest fear is that this will lead to more cuts in funding and more intervention by government.
- **Rethinking the Business Model for Higher Education**—Since it is becoming abundantly clear that higher education will not return to a pre-2008 level of support, the cost spiral isn't sustainable. A new business model is needed with improved accountability in all areas. Alignment of institutional strategy with budget development and performance metrics will aid in future success. *Evolve or Atrophy* is driving the imperative to innovate.
- **Heightening Competition, Both Global and Local**—Higher education institutions are continuing to go global, with an increased presence outside the United States and rising numbers of international students and faculty on U.S. campuses. Institutions are establishing branch campuses on every continent, as well as contracting with other nations to plan and administer programs overseas. The international economic landscape brings China and India to the forefront given their commitment to education attainment and driving the need for increased numbers of trained, highly skilled workers. In addition, the ascendance of for-profit providers will continue to influence the very nature of higher education.

- **Measuring Outcomes is Increasingly Important**—The increased demand for accountability requires better tracking of outcomes. Informed institutional decision making should be data-driven, fact-based, and outcomes-based. There remains an increased need to prioritize needs and investments that are in alignment with institutional missions.
- **Anticipating Demographic Shifts**—If colleges and universities are to attract sufficient enrollment, they need to anticipate the radical demographic changes that are occurring now, and that will accelerate over the next several decades. For example, high school graduates are already slowing the enrollment of traditional age students and increasing the adult student population mix. Colleges must make their cultures more welcoming and responsive to prospective students in a wider demographic—and must shift their recruiting efforts accordingly.
- **Increasing Demands for Value**—Quality is number one. We must demonstrate productivity and efficiency of academic, administrative, and student programs and services and couple them with a corresponding achievement of student learning outcomes. Students are ultimately demanding value for their money and their perceptions are a powerful driver of change.
- **Improving Governance and Accountability**—The need for improvement in this area remains a high priority. Institutions (at all levels) must be prudent managers of the assets entrusted to them by donors, the government, and students. Looking at the institution's overall risk profile will become an increasingly common practice. There continues to be a push for communication with authenticity to achieve trust through transparency.

- **Using Assets Strategically**—Given today's competitive environment, colleges and universities need to think about how their financial and physical assets can best be aligned to achieve the institution's strategy. Institutions need to integrate and align their capital investments, debt and endowments, and management of operations to maintain appropriate liquidity levels and mitigate risk.
- **Staying Abreast of the Changing Regulatory Environment**—Legal and regulatory requirements affecting higher education institutions are constantly in flux. Colleges and universities need to have reliable and consistent processes in place for identifying and complying with applicable laws and regulations. The burden of these unfunded mandates will continue to climb.

Although these issues are all too familiar, their convergence is troubling for our industry. Add the rate and pace of change, and we indeed have that “perfect storm”. The “law of survivability” will be harsh if institutions have small endowments, poorly defined missions, a poor self-image, or low productivity.

Will institutions evolve or atrophy? Is higher education the next bubble? The challenges are many and the solutions are vexing. Yet, the time has come for new approaches and new solutions. Collectively, we are up to the challenge. 

Lander Medlin is APPA's executive vice president; she can be reached at [lander@appa.org](mailto:lander@appa.org).



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# APPA: Elevating Facilities Professionals

By Jerry Carlson, CEFM

**I**t was the fall of 1990, and I had been recently hired by the physical plant department at Illinois State University to be an assistant director, and to create a “work control center.” This was my third facilities- or building-related job, but the first with the campus facilities management department. My degrees were in accounting and finance. What did I know about physical plant?

## RELATIONSHIPS AND EVENTS THAT MOTIVATE

I was fortunate enough to attend a MAPPA regional meeting in Minneapolis/St. Paul. This was my first real introduction to MAPPA and APPA. I met a lot of great people there and at other regional meetings—people like Jim Christensen, John Harrod, Gary Reynolds, and Ron Flinn, just to name a few. This enabled me to network with facilities professionals with similar issues to mine, and I found that everyone was willing to answer questions and offer suggestions. These meetings shaped my career and made me want to learn and succeed in the facilities world.

While in Minnesota, I met Wayne Leroy, the executive vice president of APPA at the time. He spoke about APPA and the educational opportunities it had to offer. The following year I was able to attend my first APPA

Annual Meeting and Conference in Orlando, Florida. At that meeting I met Charlie Jenkins, Don Mackel, Jack Hug, and many others. The relationships you build by attending APPA

annual, regional, and chapter events are phenomenal—and you can call on these professionals when you need advice or guidance. Chances are they have experienced the same issues you have, or know someone who has. These relationships and events motivated me even more to succeed in the facilities world.

## EDUCATION MATTERS

As I learned more about APPA, I also learned about the APPA Institute for Facilities Management and the Leadership Academy. Both are excellent educational programs that are now combined every fall and winter as APPA U. I have been fortunate to attend and graduate from both the Institute and the Academy programs—they are great educational programs supported by APPA staff and deans, who are always tweaking these offerings to improve their content. I would suggest that everyone attend the APPA Institute for Facilities Management and the Leadership Academy to better prepare them for the future.

## ENTER THE BUSINESS PARTNERS

In addition to the networking and educational opportunities that APPA provided me, I was able to gain and build fantastic relationships with APPA's Business Partners members. Our business partners are not here just to sell you something; they are also available to





assist with solving problems and they often have resources to save you money as well.

#### **A LISTSERV THAT REACHES YOUR PEERS**

You can also tap our membership via the APPAinfo listserv to ask questions and seek advice and knowledge from others. As George Wright once stated, "All of us are smarter than any one of us." We need to use the resources APPA offers to help us do our jobs and respond to our ever-changing campuses.

#### **ELEVATING THE PROFESSION AND CREDENTIALING ITS MEMBERS**

One of APPA's many goals is to elevate our profession, by helping us become leaders at our institutions. Getting "a seat at the table" and preparing us to dis-


cuss our issues and articulate the needs of our institutions is paramount.

To this end, APPA initiated two credentialing programs, the Educational Facilities Professional (EFP) and the Certified Educational Facilities Professional (CEFP). These programs add credibility to our profession and demonstrate that we are trained and qualified professionals.

#### **A NEW MEMBERSHIP MODEL**

This year APPA successfully launched an integrated membership model. This means that while each APPA member institution has a primary representative or contact, it is no longer necessary to pay additional dues when adding your facilities staff to the APPA associate membership roster. Your member institution can

add an unlimited number of associate members from its facilities staff, and may also include your college faculty, students, and administrators outside the facilities department.

Membership in APPA does matter—the benefits are amazing! Now more than ever, everyone at your institution can stand to benefit from the numerous services that APPA and its regions and chapters have to offer. 

Jerry Carlson is APPA's Secretary-Treasurer, and director of maintenance services at Butler University in Indianapolis, IN. He can be reached at [gcarlson@butler.edu](mailto:gcarlson@butler.edu). This is his first article for *Facilities Manager*.

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# The Real Deal: Authentic Leadership—Lessons from David

By Joe Whitefield

**W**e have all seen many leaders with different leadership abilities and styles. Introverts, extroverts, facilitators, team builders, mavericks, coaches, mentors, visionaries, pragmatists, optimist, pessimists—the list goes on. I can probably identify a person with each style of leadership that ultimately proved to be a very good leader. On the other hand, I can also probably identify a person with each style of leadership that proved to be not-so-good.

Why such a large discrepancy in leadership styles and their effects? It's hard to pinpoint a single reason. It has been said that “everything works, but nothing works for long.” That may also be the case with leadership. Certainly some styles are better suited for specific

organizational environments than others. Sometimes the environments and cultures change and leadership that was once effective can become stale and ineffective. It is easy to focus too much on styles of leadership and not enough on the substance of the leader.

## **AUTHENTICITY: THE ESSENTIAL QUALITY**

In one way or another, leadership is ultimately a judgment on the quality of relationships. Effective leaders foster great relationships by combining a strong sense of direction with a mysterious blend of energy, trustworthiness, empathy, humility, and faith in others.

Still, there is one substantive quality that is essential for all effective leaders. Without it, the other qualities, skills, and approaches will be limited. That quality

is authenticity.

Authenticity is a basis for believability and, ultimately, trust. People can tell when you are faking it. You can't fool them for very long. Feigning interest, false humility, and conditional faith are relationship killers. On the contrary, authentic leaders foster a strong sense of support and loyalty and even an occasional measure of forgiveness from others simply because they are real and relatable.

I have learned a great deal about the importance of authenticity from a former boss of mine, David Gray. If ever there is a what-you-see-is-what-you-get kind of a person, it is David. Intellectual and driven, he addressed the specific needs of the day with a keen eye on the big picture. He worked hard at developing relationships where his employees would be comfortable enough to offer their ideas and fully use their talents. Collaboration was the norm. And he was never concerned about being the smartest person in the room. That freed him up to pursue better ways of doing things in an environment that was both motivational and rewarding to those working for him. So here are just a few things I learned from David.

## **GIVE OTHERS CREDIT**

In Facilities Management, like most organizations, there is a high level of interdependence and collaboration, is essential for success. Collaboration is a social dynamic. When things work, it is important to provide positive feedback on a personal level. Recognition and



expressions of gratitude go a long way. Authentic leaders give credit where credit is due.

David was intentional about spreading any praise. He thanked people individually—sometimes privately, sometimes publically. What really stood out, however, was his willingness to praise his employees to others, I will always remember hearing him tell others, “I’ve got good people.” That was his response to every successful project or initiative. Employees really get a boost when they hear that said about them. Now that’s authentic.

#### INVEST IN YOUR PEOPLE

David believed in providing training opportunities for his employees. He would talk about the value he’d always received, and wanted others to benefit as he had. The educational benefits from quality training are obvious. David also understood that training is also an opportunity to say “yes” to people. Giving people a break from the routine along with some quality Quadrant II time to think and network can be a real energy booster. New knowledge is great. New knowledge and motivation is greater.

Of course there is a financial cost for training and professional development that has to be evaluated. Similarly, there can also be a potential risk of attrition for employees with better expertise or credentials. David’s perspective on this was simple: What if I train them and they leave? What if I don’t train them and they stay? Now that’s authentic.

#### HUMILITY OVER HUBRIS

Over the years, I have had a unique opportunity to work with David on projects and initiatives of all types. No matter the challenge, we always evaluated the need and determined what outcome would qualify as a success. We have experienced several periods of change and challenges. We have had our share of successful projects. We have also had a few that weren’t perfect. The trick is to build on successes and to learn from the mistakes. Humility and self-awareness

keep you grounded. I have been involved in many working sessions where David would say, “Remember, one of us may have to say we’re sorry.” What a valuable perspective. Now that’s authentic.

I have worked for several excellent people throughout my career. I put David Gray at the top of the list. While he possesses so many of the qualities and

skills that make a strong leader, the one I value the most is his *David-ness*. He is an authentic person—and that makes him a strong leader. Thanks, David! 💰

Joe Whitefield is assistant vice president at Middle Tennessee State University, Murfreesboro, TN. He can be reached at [joe.whitefield@mtsu.edu](mailto:joe.whitefield@mtsu.edu).

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# APPA 2015 Annual Meeting & Exposition

August 4-6, 2015 | Chicago, IL



## **SPECIAL PROGRAMMING**

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Programming that builds the teams within our departments!  
Mark your calendars for these two special offerings to occur on  
August 3, 2015 before we officially kick off APPA 2015.

## APPA Announces Headlining Speakers for APPA 2015

Joining us for our opening general session in Chicago, Kristina Anderson, Frank DeAngelis, and Natalie Hammond will share with us their very personal stories of survival from such events that have marked our educational campuses unlike any other. Our session will be led by Keith Woodward, Associate Vice President for Facilities Operation at Quinnipiac University, and graciously sponsored by **SIEMENS**



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



Frank DeAngelis, Principal of Columbine High School (Retired)



Natalie Hammond, Former Lead Teacher of Sandy Hook Elementary School



*Here's To Our Next 100 Years*

### MORE INFORMATION

We encourage you to visit the APPA 2015 event website often for the latest happenings about programming, guest speakers, special events and much more!

Registration Opens February 6, 2015

**BOOKMARK OUR SITE  
TO YOUR FAVORITES NOW—**

**[www.appa.org/training/APPA2015](http://www.appa.org/training/APPA2015)**





# REGIONAL CONFERENCE REPORTS



*For more information visit [www.appa.org](http://www.appa.org)*



# Eastern Region

2015 REGIONAL CONFERENCE: October 4-7, 2015 • Providence, RI

# ERAPPA



## Michelle Frederick ERAPPA Past President American University

The 2014 ERAPPA Annual Meeting in Atlantic City, New Jersey, held September 21 through September 24, was the meeting that almost wasn't. Originally scheduled to be held at the Revel hotel, the meeting needed to be relocated when the Revel announced it would be closing its doors. In six short weeks, the host committee, under the extraordinary leadership of cochairs Andrew Christ (New Jersey Institute of Technology) and Mark Showers (Rowan University), was able to relocate our attendees to the Borgata hotel and the conference to the Atlantic City Convention Center. ERAPPA 2014 was a "go" once more!

More than 660 participants, representing 120 educational institutions, converged on Atlantic City to witness the miracle performed by this year's host, the New Jersey Chapter of APPA (NJAPPA). The conference theme was "An Ocean of Opportunities." The keynote speaker was George D. Martin, a 14-year veteran of the NFL and captain of the Super Bowl XXI Champion New York Giants. The plenary speaker was Eric LeGrand, a former defensive tackle for Rutgers University who suffered a severe spinal injury during a game in 2010. The host committee delivered an engaging program that included a five-track professional development program, APPA's Supervisor's Toolkit, APPA's EFP/CEFP Prep Course and Exam, a Hall of Resources, and a beach-themed networking event at the Landshark on the Atlantic City Boardwalk.

At the Annual Business Meeting, the entire allotment of professional development scholarships was awarded for the second



The 2014-2015 ERAPPA Board (Larry Fitzgerald, Business Partner Representative, not pictured).



Glenn Smith receives the prestigious Norman H. Bedell Award.

year in a row—six educational scholarships, three credentialing scholarships, and ten Ambassador Scholarships.

At the Awards Banquet, Certificates of Appreciation were awarded to the outgoing chapter presidents and committee members, and host committee members. Merit Awards were given to the outgoing board members and the host committee chairs. Rick Battistoni and Matthew Yench were awarded the Rising Star Award. Connie Simmons, Christine Matheson, and Joe Wojtysiak were awarded the Chapter Champion Award. ERAPPA President Michelle Frederick bestowed the President's Award upon Greg Clayton, Andrew Christ, and Mark Showers. The awards ceremony culminated with Glenn Smith receiving the prestigious Norman H. Bedell Award. Dale DeBlois assumed the role of



The Unexpected Boys perform at the Awards Banquet.

ERAPPA President at the end of the Annual Meeting.

## THE 2014-2015 ERAPPA OFFICERS

President—**Dale DeBlois**, Colby College  
President-Elect—**Beth Clark**,  
Penn State University  
Secretary—**Andrew Christ**, New Jersey  
Institute of Technology  
Treasurer—**Arthur Walsh**, University of  
New Brunswick-Fredericton  
APPA Senior Representative—**Dan  
Gearan**, New England College  
APPA Junior Representative—**Michelle  
Frederick**, American University  
APPA Liaison—**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>. This is Michelle Frederick's first article for *Facilities Manager*.

# Southeastern Region

2015 REGIONAL CONFERENCE: October 10-13, 2015 • Baton Rouge, LA

# SRAPPA



**Kelly Ostergrant, CAP**  
**SRAPPA Vice President for**  
**Communications**  
**Middle Tennessee State University**

**M**ore than 160 participants representing 38 institutions had the opportunity to attend 21 educational sessions with 107 business partners at this year's 2014 SRAPPA Conference October 4-7 in Huntington, West Virginia. The 63rd annual conference was hosted by Marshall University under the direction of Mark Cutlip.

Glenn Smith, APPA Immediate Past President, and John Bernhards, APPA Associate Vice President, conducted the general session by recapping some of the videos seen at APPA's 100th Anniversary Conference.

Keynote speaker Bruce Wilkinson shared stories about motivating people

and inspiring excellence, service, and accountability in the workplace. The Monday Night Football Dinner was a combination of fun, food, dancing, and friendly competition of corn hole as teams played each other to win beautiful military-themed corn hole boards. Plenary speaker Abby Rike spoke about her journey through an unbelievable tragedy and how she was able to push through the devastation, finding her inner strength and courage.

The President's Banquet concluded our conference as the outgoing president, Jay Williams, recapped the region's successful year and awarded the SRAPPA President's Award for Emeritus Status to Jay Klingel. Also recognized were the board members who received the President's Award for their service to the board: Paul Wuebold, Heather Hargrave, Lee Richey, and Larry Blake. The SRAPPA region recognized those who received APPA awards presented in July:

*Meritorious Service:* Marion Bracy, Xavier University, and Jay Klingel, University of Virginia

*Effective and Innovative Practices Award:* Xavier University

*Award for Excellence:* University of North Carolina Charlotte

*President's Unsung Hero Award:* Andy Maddox, University of Alabama

*Standards and Codes Council, President's Award:* Mark Goska

*Sustainability Award:* North Carolina State University

Glenn Smith, APPA Immediate Past President, installed the 2014-15 SRAPPA Board. Joe Castillo, one of the top finalists on *America's Got Talent* concluded the banquet with a phenomenal "live art" presentation using sand, light, and music.

## THE 2014-2015 SRAPPA OFFICERS

President—**Jodie Sweat**, Kennesaw State University

President-Elect—**Dave Maharrey**, Louisiana State University

First Vice President—**Dan Wooten**, Tennessee State University

Treasurer—**Becky Griffith**, Embry-Riddle Aeronautical University

APPA Senior Representative—**Dan Young**, Norfolk State University

APPA Junior Representative—**Wayne Goodwin**, Jackson State University

APPA Liaison—**Steve Glazner**

To view SRAPPA's website and find a complete listing of the board of directors, please go to <http://www.appa.org/regions/srappa.cfm>. This is Kelly Ostergrant's first article for *Facilities Manager*.



SRAPPA 2014-2015 Board Members.



Jodie Sweat addresses members during the President's Banquet.



Members competitive corn hole played at Monday Night Football Dinner.



# Midwest Region

2015 REGIONAL CONFERENCE: September 23-25, 2015 • Milwaukee, WI

# MAPPA



**Steve Gilsdorf**  
MAPPA Communication Chair  
Western Michigan University

**W**est Lafayette, Indiana, the home of Purdue University, hosted MAPPA 2014 September 16-19, 2014. MAPPA, where it all started, reveled in the celebration of APPA's 100-year celebration.

Keynote speaker Karen McCullough engaged and entertained all with her presentation about change and generational differences titled, "Change is Good—You Go First—Embracing a Change Mindset."

APPA President Randolph Hare and APPA Executive Vice President Lander Medlin shared the APPA Presidential Address outlining many of APPA's current initiatives and referenced the "next 100 years." This included an exceptional video from Randolph's campus, Washington and Lee University, describing our campuses as a "Place" (a reference to the APPA video *Changing U...Changing Me: The Place of Place*).

Elections occurred for two 2014 Board positions, MAPPA President-Elect, Greg Adams (University of Wisconsin Milwaukee) and MAPPA Treasurer, Anthony McClellan (University of Illinois Chicago).

Purdue University, led by Ken Jacobs and Terry Ashlock, served as our gracious conference hosts, which included a welcome reception at the Purdue Buchanan Club Suite in Ross-Ade Stadium. The conference offerings included a wide array of educational sessions, business partner displays, and tours of Subaru of Indiana, Frank Lloyd Wright-Samara House, Benton County Wind Farm, and Purdue's campus and facilities.

The Big Ten and Friends Trainers Network and Building Services Administrators group held joint conferences



The passing of the presidential gavel – MAPPA President Mike Hamilton receives the presidential gavel from outgoing president Lowell Bromander.



MAPPA President  
Mike Hamilton.

and were able to take full advantage of the conference.

The president's reception and dinner included the installation of officers by APPA President Randolph Hare. Outgoing MAPPA President Lowell Bromander presented the MAPPA Presidential Service Award to Art Chonko (Denison University), Ruthann Manlet (University of Minnesota), and Mike Hamilton (Iowa State University). President Mike Hamilton concluded the dinner with an acceptance speech thanking (and roasting) Lowell for his leadership for the past year and outlining MAPPA 2015 goals.

The president's dinner was followed by live music and entertainment including an impromptu guitar rendition of "House of The Rising Sun" by MAPPA's own Lowell "Godfather Tyme" Bromander.

The fundraiser/charity event for United Way collected over \$1,000, with MAPPA matching an additional \$1,000.



MAPPA board members for 2014-15.

## THE 2014-2015 MAPPA OFFICERS

President—**Mike Hamilton**, Iowa State University

President-Elect—**Greg Adams**, University of Wisconsin Milwaukee

Secretary—**Bob Currie**, Iowa State University

Treasurer—**Anthony McClellan**, University of Illinois Chicago

APPA Senior Representative—**Brandon Baswell**, Michigan State University

APPA Junior Representative—**Kristie Kowall**, Illinois State University

APPA Liaison—**Suzanne Healy**

To view MAPPA's website and find a complete listing of the board of directors, please go to <http://www.appa.org/regions/mappa.cfm>. This is Steve Gilsdorf's first article for *Facilities Manager*.



# Central Region

2015 REGIONAL CONFERENCE: October 10-14, 2015 • Manhattan, KS

# CAPPA



**Laurie D. Lentz**  
**CAPPA Communication Manager**  
**The University of Texas at Austin**

**T**wo universities hosted the CAPPA 2014 annual conference in El Paso, Texas: New Mexico State University (NMSU), part of the Rocky Mountain Association of Physical Plant Administrators, and University of Texas at El Paso (UTEP). Appropriately, the theme was "Collaboration: Kick It Up a Notch!" The event was held at the historic Camino Real Hotel from October 11-15.

Lowell Catlett, dean of the NMSU

College of Agricultural, Consumer and Environmental Sciences, delivered the keynote address, affirming a positive future for students in higher education. Day two was launched by Garrey Caruthers, president of NMSU, and Diana Natalicio, president of UTEP, who spoke about their institutions' achievements, opportunities, and challenges.

CAPPA 2014 offered 18 sessions in tracks ranging from facilities administration to maintenance, project management, and utilities. Tours of NMSU and UTEP campuses gave a firsthand look at these unique facilities. Other course options included Academy on Campus—Track II as well as the APPA Professional Credentialing program CEFP/EPF preparation course and exam. Collaboration extended to Mexico, with four conference attendees representing Universidad de Monterrey, Universidad Panamerica, and Tecnológico de Monterrey.

Collaboration was clearly evident at the exhibit hall in the El Paso Convention Center, where business partners staffed 62 exhibits geared to the needs and interests of CAPPA members. Several business partners sponsored prizes, lunches in the exhibit hall, and other networking opportunities throughout the conference.

Before the exhibit hall opened Sunday evening, attendees could join in a golf tournament at the scenic NMSU course, or tour a winery on the way to historic Mesilla, New Mexico. On Monday evening, UTEP hosted a buffet dinner outdoors, with mariachi music performed by students.

Colorful Folklorico dancers entertained at the awards banquet. APPA Vice President for Professional Development Chuck Scott assisted in recognizing CAPPA award winners: Distinguished Member, Robert Eckels; Presidential Award, J.B. Messer and Art Jones; Certificate of Meritorious Service, Sue-Anna Miller and Jeff Flathman; and Newsletter, Shelton Riley.

The conference concluded with the annual business meeting and induction of executive committee members for 2015.

## THE 2014-2015 CAPPA OFFICERS

President—**Glen Haubold**, New Mexico State University

1st Vice President—**Edward Heptig**, Kansas State University

Secretary—**Jeanne Hanson**, Black Hills State University

Treasurer—**Tim Stiger**, Edmond Public Schools, Oklahoma

APPA Senior Representative—**Robert Eckels**, Missouri State University

APPA Junior Representative—**Shelton Ripley**, Texas Christian University

APPA Liaison—**Christina Hills**

To view CAPPA's website and find a complete listing of the board of directors, go to <http://www.appa.org/regions/cappa.cfm>.



Folklorico dancers performed at the annual awards banquet.



Photos by Miles Abernathy

2015 CAPPA Executive Committee members.

# Rocky Mountain Region

2015 REGIONAL CONFERENCE: September 8-11, 2015 • Big Sky, MT

RMA



**Emmet Boyle**  
RMA President  
University of Regina

**B**illy Hromas and his team from the University of New Mexico hosted an outstanding regional conference for 300 attendees at the Hilton Buffalo Thunder Resort, just outside of Santa Fe on September 22-24.

The conference kicked off with the traditional Monday networking activities. A busload of avid fishers set off at daybreak for the Pecos River, where fly fishing techniques were either learned or refined. All returned with smiles, photos of beautiful specimens, and unverified tales of the ones that got away. Another busload of golfers played the nearby Towa Golf Course in the dramatic scenery of northern New Mexico's Pojoaque Valley. The golfers also returned with smiles, great photos, and tales of the "yellow ball" that got away.

The opening reception was a lively event with the Buffalo Thunder Resort living up to its name as a spectacular rain storm rolled through the valley. Fortunately, all the attendees watched the lightning show from the right side of the windows.

The president of San Jose State University and long-time APPA member and supporter, Mo Qayoumi, delivered the keynote address to kick off the first day of the conference. Following Qayoumi's address, the attendees spent time networking with the 47 business partners in the exhibit hall, before making the difficult decision of which of the three concurrent education sessions to attend in each time slot.

The "Blaze Your Trail" theme dinner



Emmet Boyle,  
RMA President.



Three Amigos enjoy the theme dinner.

was held at the New Mexico Museum of International Folk Art & Museum of Indian Arts and Culture. The attendees enjoyed exceptional local food, cultural dancing demonstrations, and lively music on the museum plaza, while an amazing sunset lit up the surrounding mountains.

Tim Harris, owner of Tim's Place Restaurant, woke up the crowd on Wednesday morning with his infectious optimism and frequent interjections of "Oh yeah!" A long line formed after Tim's address to get one of his signature hugs.

RMA president Brian Johnson was the MC for the awards banquet. While attendees enjoyed a delicious meal, Brian acknowledged those members achieving an EFP or CEFPP designation, and Lead Climber John Morris recognized the newest members of the RMA 14er's Club. GLHN Architects & Engineers received the Lee Newman award, Shawna Rowley received the Val Peterson award, and Brian presented the RMA President's award to Viron Lynch. APPA President Randolph Hare installed the 2014-15 RMA board, and Victoria Drummond invited all to "be one in a million" at Big Sky, Montana for RMA 2015.



Mike Sawyer wants you to join RMA!

## THE 2014-2015 RMA OFFICERS

President—**Emmet Boyle**, University of Regina  
President Elect—**David Turnquist**, University of Colorado Denver  
Secretary—**Mike Millsapps**, Aims Community College  
Treasurer—**Steve Hoskins**, University of Utah  
APPA Senior Representative—**Chris Kopach**, University of Arizona  
APPA Junior Representative—**Brian Johnson**, University of Idaho  
APPA Liaison—**Lander Medlin**

To view RMA website and find a complete listing of the board of directors, go to <http://www.appa.org/regions/rma.cfm>. This is Emmet Boyle's first article for *Facilities Manager*.

# Pacific Coast Region

2015 REGIONAL CONFERENCE: October 9-15, 2015 • Portland, OR

# PCAPPA



**Chuck Davis**  
**PCAPPA President**  
**Seattle Central College**

Educational facilities professionals with an array of business partners and sponsors from across the region dusted off their passports as they made their way to the 2014 PCAPPA Annual Regional Meeting, on October 4-8 at the Hyatt Regency Hotel in beautiful Vancouver, British Columbia. The University of British Columbia hosted. The attention to detail by David Woodson and his team provided everyone a warm welcome to the event. The attendees immersed themselves in the conference themes: **SAFE, SIMPLE SUSTAINABLE, EFFICIENT**. The PCAPPA Board wants to acknowledge the tremendous support of APPA International throughout conference. Randolph Hare and Lander Medlin deserve special thanks for their attendance and participation.

The conference fielded tremendous support from PCAPPA's business partners with 19 at the Bronze level, 10 at the Silver level, two at Gold, and another two stepping up to Platinum sponsorship. Although they were unable to attend due to a recent death in the firm, San Joaquin Chemicals, Inc. continued its long tradition of support with overall sponsorship and special funding of the Student Scholarship program.

More than 150 conference attendees were provided a variety of special activities including "An Amazing Program for Spouses," golf (a welcome return to the agenda), and tours at the University of British Columbia (new buildings, public realm, and sustainability.) In all more than 60 people took advantage of these programs.

During the awards banquet, outgoing president, David Woodson introduced incoming president, Chuck Davis. The new president challenged attendees to



Randolph Hare installs the PCAPPA Board.

take some risks. He shared a quote from John Shedd, "A ship in harbor is safe, but that is not what ships are built for." He encouraged all to ask, "What is my purpose? For what reason was I built? Is progress at my facility lagging because it is stuck in a safe place?"

APPA President Randolph Hare then conducted a swearing-in ceremony for the PCAPPA Board Members.

## THE 2014-2015 PCAPPA OFFICERS

President—**Chuck Davis**, Seattle Central College

President-Elect—**Tony Ichsan**, Sonoma County Jr. College District/Santa Rosa Jr. College

Secretary and Treasurer—**Tony Guerrero**, University of Washington, Bothell & Cascadia Community College

APPA Senior Representative—**Robert Andrews**, California State University East Bay

APPA Junior Representative—**David Woodson**, University of British Columbia

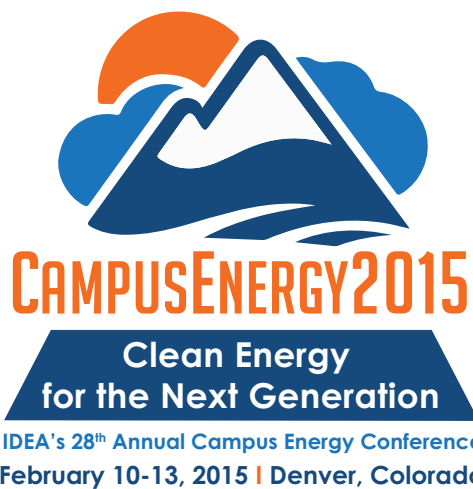
APPA Liaison—**Lander Medlin**

To view PCAPPA website and find a complete listing of the board of directors, go to <http://www.appa.org/regions/pcappa.cfm>. This is Chuck Davis' first article for *Facilities Manager*.



PCAPPA's New President Chuck Davis congratulating Outgoing PCAPPA President, David Woodson.





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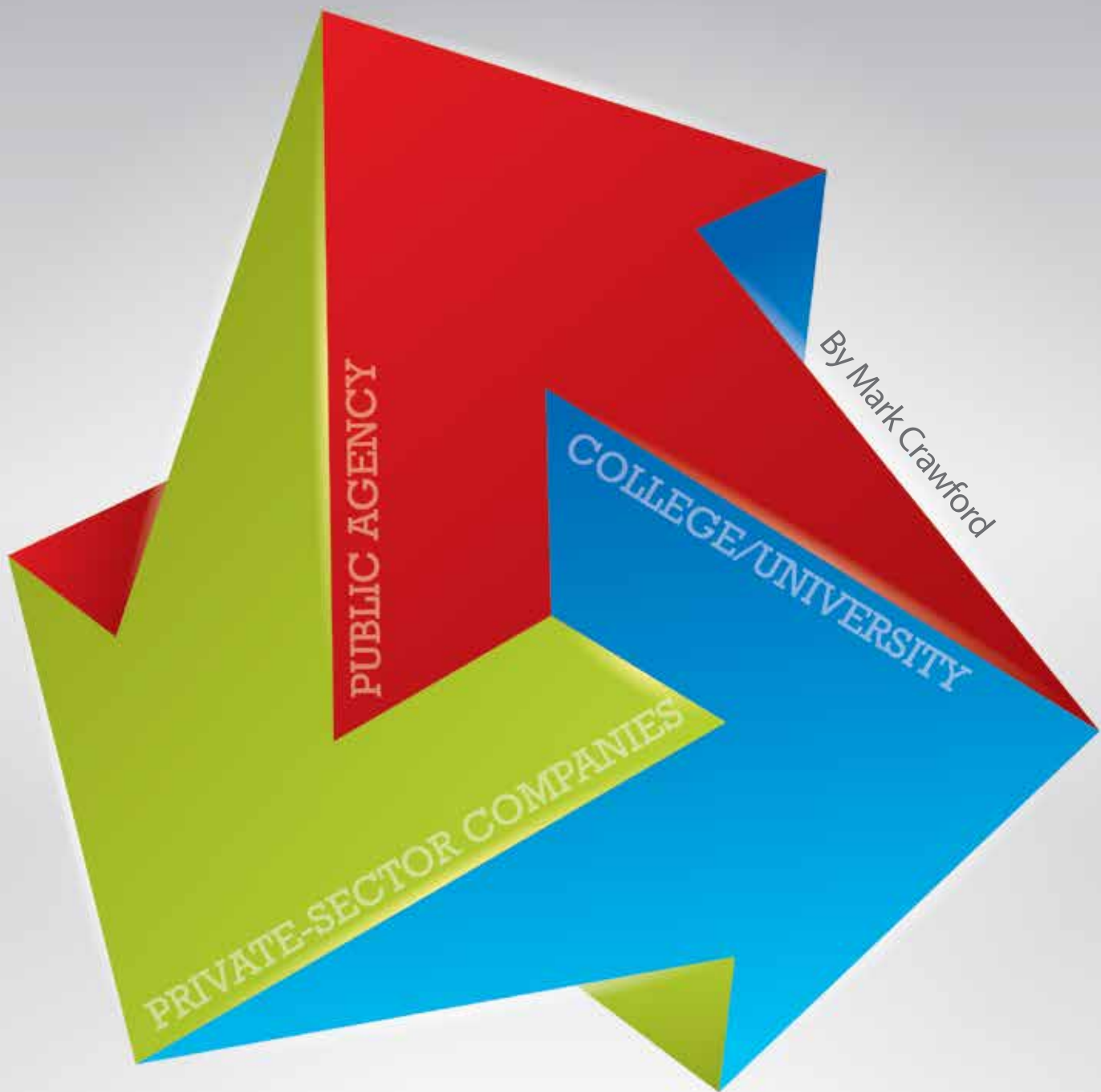
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- Integration of Renewables & Technology Innovation
- Policy, Finance & People, Training & Safety
- Energy Conservation & Efficiency Partnerships with Utilities
- Town/Gown Energy Infrastructure, Microgrids & Ecodistricts
- Tours of District Energy Systems in the Region



# Public-Private Partnerships in Education

*Shared Risk, Mutual Reward*

**P**ublic-private partnerships are increasingly popular as a funding tool for infrastructure projects on academic campuses. PPPs have worked well in other sectors for a number of years, especially with local, regional, and state government partners.

A public-private partnership (PPP, or P3) is a negotiated contract between a public agency and one or more private-sector companies for building infrastructure or providing services that benefit the public. PPPs are especially useful for completing important projects that have been held back because of lack of funding or internal politics.

“For many states and communities across the country, budgets remain flat but infrastructure expenses continue to rise,” states Todd Herberghs, executive director for the National Council for Public-Private Partnerships in Washington, D.C. “Public-sector leaders are looking to PPPs as a way to meet their needs in a cost-effective and efficient manner. Overall, PPPs are being used in new and exciting ways and moving beyond transportation and wastewater facilities toward energy, justice facilities, and education projects.”

“Colleges and universities are continuing to face a real infrastructure and deferred maintenance crisis that is now being paired with flat tuition rates, increasing expenses, and decreased revenue,” adds Ronald LaPorte, vice president of partnership development for Corvias Campus Living in East Greenwich, Rhode Island. “On average, 60 percent of a school’s space is over 25 years old, and schools face a backlog of \$92 per gross square foot on their facilities. Increased demands for improvements, rising costs, fixed revenues, and decreased endowments have

stalled renovation and new construction projects on campuses everywhere.”

Public-private partnerships can rescue these important projects. They solve university space problems by providing upfront financing and/or by bringing property not owned by the university into consideration. PPPs can also deliver projects more quickly, conserve taxpayer money, and take advantage of private-sector expertise when it comes to the latest advancements in design, materials, and construction methods.

“As buildable space becomes increasingly scarce on campus, consideration for relocating back-of-house administrative services off campus needs to be explored,” states Donald J. Guckert, associate vice president of facilities management for the University of Iowa in Iowa City. “PPPs provide the means for colleges and universities to effectively lease, versus finance, facilities. Off-campus PPP deliveries may also drive down costs, since the private-partner builder is not governed by public bidding statutes or restricted by project delivery methods.”



Todd Herberghs, NCPPP

#### ARE PPPs AS GOOD AS THEY SOUND?

PPPs got their start in the education market as a funding tool for building student housing. They are now being used in more creative ways to leverage the many benefits they offer, including access to funding, protecting debt capacity, reduced developer costs, operational expertise, risk mitigation, and faster project delivery. Depending on the project, a PPP can be completed in half the time or less, compared to the university building it on its own. PPPs also provide developers

## Portland State University Portland, OR

We have completed two public-private partnership facilities—a mixed-use Academic and Student Recreation Center with funding from the City of Portland and space for the city’s archives and historical documents. We used a similar development strategy in bringing in a partner to construct our College Station residential housing facility with a third-party contract. Our most recent project is a 660,000 gsf facility for science focused instruction and research, with medical professional track programs in the Collaborative Life Sciences Building, constructed in partnership between Oregon Health & Sci-

ence University (a public corporation), Oregon State University, and Portland State University. The building is constructed on land OHSU was gifted on Portland’s south waterfront.

The Academic and Student Recreation Center was completed in 2009 in partnership with the City of Portland: <http://www.pdx.edu/floorplans/buildings/asrc>.

College Station Housing Facility was completed in 2012 in partnership with a private developer. PSU owns the land on which the building is constructed. American Campus Communities funded construction of the building and manages its operation on a long-term lease:

<http://www.pdx.edu/insidepsu/college-station-residence-hall>

The Collaborative Life Sciences Building was completed in 2014 in partnership with OHSU (a public corporation) and Oregon State University: <http://www.pdx.edu/floorplans/buildings/clsb>.



Robyn Pierce

—Robyn Pierce

Director, Facilities Management  
Collaborative Life Sciences Building



# University System of Georgia

Atlanta, GA

The University System of Georgia (USG) recently selected Corvias Campus Living to develop, construct, manage, and maintain the first phase of student housing in a long-term partnership. During 2014 and 2015 Corvias will add 3,683 new beds across seven USG schools: Georgia State University, Georgia Regents University, University of North Georgia, Columbus State University, Dalton State College, East Georgia State College, and College of Coastal Georgia. Georgia Regents University and Dalton State College will be receiving the school's first-ever on-campus housing for students. In July 2015, the USG will also transition 6,195 existing beds across seven schools including Armstrong State University and Abraham Baldwin Agricultural College.

Turning to a private partner allows for the USG to expand its housing offerings without expending capital, incurring additional debt or managing project development. Benefits to the schools include a reinvestment account, an out-year development plan, upfront capital repair reinvestment dollars and, most important, quality, safe, affordable housing for the students.

As a result of this partnership, students will be guaranteed that both new and existing housing will be well-maintained throughout their time at the school. It will provide them with an excellent alternative to off-campus housing options with all of the benefits of living on-campus, including proximity to university resources and a sense of community.

—Kurt Ehlers

Managing Director,  
Corvias Campus Living



Kurt Ehlers

with access to otherwise choice but inaccessible property on campus.

Despite all these advantages, PPPs are not a slam-dunk. Disadvantages that need to be considered include higher cost of capital, agreement complexity, multi-party roles and responsibilities, and reduced control for the academic institution.

Lack of control is always a major concern. In the past, colleges and universities had to prioritize what they wanted out of a PPP relationship, knowing that they were going to lose a certain amount of control to the private entity.

"Today, innovative models are being introduced that allow institutions to retain control when partnering with the right private entity," says LaPorte.

Capital costs also require serious study. PPPs can reduce construction costs by about 10 to 25 percent, compared to typical projects. Yet PPPs may not be the most cost-effective method for building on campus, due to the higher borrowing rates and profit margins that private partners add to the cost. Some statutory restrictions may not allow the leasing of public campus land for PPPs to build upon, or may require them to follow public procurement statutes.

"The cost of a PPP project off campus will generally be lower," says Guckert. "But in theory, if built on campus, it would cost more to cover the profit margins and higher borrowing costs of the private partner for a facility built to campus-design standards."

New Jersey Institute of Technology (NJIT) has been exploring PPP options with private developers as a way to revitalize the University Heights neighborhood in Newark. Initially NJIT

considered a PPP for the Greek Village component of the redevelopment plan. However, after the finances were examined, it was decided to move forward with a traditional bond financed project.

"The challenges were related to the impact on credit rating/debt capacity for projects where the university is the main tenant/occupant," says Andrew P. Christ, vice president of real estate development and capital operations for NJIT in Newark. "Depending on the relationship of the university to the PPP project—such as any guarantees to fill rooms for a housing project, or a lease for a parking garage project—rating agencies may

consider that the university has a 'moral obligation' to backstop the project if things do not go as planned. If the developer brings equity to the project, that impact may be softened, but it will still be a consideration for an institution's rating moving forward."

Institutions that have little to no debt capacity can use PPP projects to get projects done and let the revenue generated pay the developer. However, says Christ, "Universities that have the ability to borrow with a sufficiently good bond rating may find that the costs associated with the PPP delivery method, such as development fees and slightly higher interest rates, may make it a more costly proposition."

## STRUCTURING THE DEAL

The ideal public-private partnership project has a champion within the public sector that realizes the value of the project and works with the private sector to educate other public stakeholders. A well-structured deal also shares the risk between both sectors and is open and transparent. Perhaps most important, the two entities must believe the partnership



Don Guckert, University of Iowa



Ron LaPorte, Corvias Campus Living

is a long-term relationship that is working toward shared goals. This allows the college, university, or school to focus on its core mission and trust the private partner is taking care of the development aspects of the project, in support of the core mission.

“Goals must be identified early in the process, especially when it comes to governance,” says La-Porte. “Loss of control for an educational institution can be a huge risk. For example, when a parking or housing partner decides that rates need to be raised to meet their corporate bottom line, the college is the one that has to deal with the student uproar.”

Preferred PPP projects include student housing facilities, parking garages, and back-of-house, off-campus services. For example, the University of Iowa is using a PPP to replace its art museum, which was lost in the flood of 2008. It was important to locate the new museum on higher ground, where university staff, students, and the public would have better access. However, there were no suitable or sizable locations available on campus to accommodate the relocation.

“Instead, through a PPP, we were able to secure a prime location within the downtown area with the developer constructing retail, office, and residential space into the project,” says Guckert. “Leveraging these developer goals with the university’s goal is a win-win for both parties. We secured a great location

because we allowed our museum to be co-located with other functions like retail, housing, and office, resulting in a more cost-effective build-out of the site.”



Eli Capilouto, University of Kentucky

In another creative alignment of strategic goals, the University of Kentucky has embarked on a \$245-million partnership with Aramark, a leading food-services company located in Philadelphia, Pennsylvania. Aramark will provide dining services to University of Kentucky students and staff; in return the company will invest \$70 million in new construction and \$5 million for a research center that works with the Kentucky Department of Agriculture and local farmers to promote the state’s food economy.

“Agriculture is a way of life in Kentucky,” says University of Kentucky president Eli Capilouto.

“The University of Kentucky is leading the way in furthering scholarships, as well as practical applications for Kentucky producers. In Aramark, we have a partner who is committed to Kentucky and one of our most important industries. This is an unprecedented public-private partnership that has the potential to be a national model for the study and promotion of food and agriculture.”

#### NEXT-GENERATION PPPS

As more academic institutions and private-sector companies get involved in PPP delivery systems, PPP models are becoming

## Dean College Franklin, MA

Dean College is a private, four-year liberal arts college in eastern Massachusetts with a population of about a thousand students. Like most small colleges, there are many needs that compete for limited resources. Difficult choices have to be made. Do we invest in aging building envelopes, mechanical systems, interiors, furnishings, or program needs, among others?

It’s difficult enough to have available cash to get ahead on deferred maintenance, never mind investing in new systems and technologies. Yes, energy-efficiency projects do save money in the long run, but in the short term it can be difficult to find the funds for these projects. Fortunately for Dean College, a public-private partnership had been developed that would help five to six Massachusetts campuses in forwarding their sustainability goals.

GreenerU, a private firm specializing in cam-

pus sustainability, partnered with the Association for Independent Colleges and Universities in Massachusetts (AICUM) to develop a program to advance sustainability in higher education. With \$2 million invested by Mass Development, the Mass College Green program was created. Using their portion of the available capital, each of the selected colleges could make improvements on their campuses that would advance sustainability, save money, engage the campus community, and bring positive change.

As a result of this partnership, Dean College will be completing many projects such as lighting retrofits, updating of controls, variable frequency drives, and ventilation and exhaust improvements. For five years, all savings from reduced energy consumption are shared by GreenerU and the college. After this five-year term, Dean College assumes 100 percent of all savings. In addition to the benefit to the bottom line, we have the benefit of the expertise of GreenerU in developing ongoing community

engagement and education programs designed to promote sustainable behavior, educate, and involve the campus community.

Since the GreenerU business plan depends on any installed systems working to their highest efficiencies, their engineers will be monitoring, adjusting, and maintaining all installed systems throughout the five-year period. In other words, for Dean College and the other participating institutions, it’s like having highly trained, engineering professionals on staff at no cost for five years. That sounds like a pretty good deal to me.



Brian Kelly

—Brian Kelly

Assistant Vice President,  
Capital Planning and Facilities

## New Jersey Institute of Technology

Newark, NJ



NJIT has been contemplating a P3 relationship for some time within our Gateway Redevelopment project. You can read about the redevelopment plan at <http://gateway.njit.edu/details/index.php>, whereby NJIT is working with private developers to revitalize the University Heights neighborhood. A major component to this for the university is a parking garage. The intent is for the developer to acquire the property from a neighboring hospital and construct a mixed-use development with residential, commercial, and parking. The university has committed to license 500 parking spaces at market rate. The hospital will also be a tenant for 350 spaces.

We are now contemplating a second parking garage project as a P3, but it is in the very early stages. Several New Jersey colleges and universities have completed P3 projects in the past few years: Rutgers University, Rowan University, Montclair State University, and Bloomfield College.

—Andrew P. Christ, P.E.

Vice President

Real Estate Development and Capital Operations

more innovative. The “next generation” PPP is a flexible and adaptive model that provides guidance and recourse for a long-term partnership with aligned interests. According to Corvias’ LaPorte, key benefits include:

- Partnerships structured so that decisions benefit the whole program and incorporate input from all stakeholders
- Long-term financial, operational, design/construction, and development components
- Surety of execution, less upfront funding, greater sustainability, and local economic impact
- Private partner responsible for ensuring project success, while the public partner retains oversight and governance
- Revenue is deposited into a reinvestment account that is controlled by the public partner, enabling upgrades, modernization, replacement, or completion of partner-mandated projects
- More resilient facilities and infrastructures

One of the most critical benefits above is that the next-generation PPP model effectively solves the aging infrastructure problem by setting up a reinvestment fund with project profits to help maintain, renovate, and operate the project long term.

“This makes the program sustainable over the length of the partnership, eliminating the past tendency to allow deferred maintenance to build up on facilities in the partnership,” says LaPorte. “Facility managers no longer need to worry about when the building’s next capital investment will be approved in their budget. This also allows the public sector to maintain control, but gives the private sector a long-term vested interest in the success of the project.”

### PARTING ADVICE

Academic institutions considering a PPP must put considerable effort into defining what it wants from its private partner,

## University of Iowa

Iowa City, IA



Jeri King

We partnered with Balfour Beatty to replace Hawkeye Court apartments (graduate and married student housing) that had reached the end of their useful lives. The firm erected Aspire at West Campus, a complex that was completely rented by the time it was completed (in time for the fall semester). You can learn more about the project at <http://now.uiowa.edu/2014/10/uima-development-partner-selected>. This was largely believed to have saved the university \$31 million in construction costs. We do not manage the facilities.

Now Balfour Beatty will be starting on Phase II (taking down more of the old apartment buildings in that area

and replacing them). More information on this is at [http://www.regents.iowa.gov/Meetings/DocketMemos/14Memos/September2014/0914\\_P&F05.pdf](http://www.regents.iowa.gov/Meetings/DocketMemos/14Memos/September2014/0914_P&F05.pdf).

We recently announced a partnership with H&H Development Group and Mortensen Inc. to build a new University of Iowa Museum of Art in downtown Iowa City. Here’s a recent news article on it: <http://now.uiowa.edu/2014/10/uima-development-partner-selected>.

The Public Private Partnership projects are now managed by the UI Business Manager.

—Jeri Ripley King

Assistant Director, Facilities Management



According to Campus Apartments in Philadelphia, a provider of P3 partnerships in the student housing sector, there are four typical structures and operating arrangements for P3s:

<b>University-owned land with ground lease to developer</b>	In these types of agreements, the developer obtains a long-term ground lease of a university-owned parcel of land and commits to the financing, construction, and management of the property. The university maintains fee ownership of the land, and a lease can typically last between 60 to 80 years.
<b>University-owned land with ground lease to developer plus master lease</b>	Similar to the above, this method entails additional risk mitigation for the developer. With a master lease, the institution has a financial commitment to lease units within the project regardless of student demand. Typically, the master lease is negotiated for a multiple-year period but does not extend through the full ground lease term.
<b>Foundation-owned project and fee development</b>	Student housing projects are ideal for tax-exempt bond financing due to their ability to generate consistent revenues that allow a project to amortize a long-term bond and still maintain a specific debt-service ratio. In this method, the university enters into a long-term ground lease that can be independent or affiliated with the institution. Tax-exempt bonds are given to finance a project and are repaid through project revenues as a later date. The developer receives a fee for its services, which can include coordination of bond financing, working with the architect, construction management services, and project delivery. This method carries the least amount of risk for the developer because it does not require the developer to put equity into the project.
<b>Joint ownership</b>	This deal structure involves the university contributing land or a facility to the partnership in exchange for equity within the partnership. The developer provides the remaining equity for the project, obtains financing, and assumes all construction risk. For this method to work effectively, it is necessary for both the university and the developer to be flexible.


so that it is easier to identify and align goals. Total clarity is required. The best PPP relationships are true partnerships where both entities are working toward shared, well-defined goals.

“The members of the partnership need to have aligned interests where the private entity is incentivized to support the mission of the school, rather than its own corporate mission,” says LaPorte.

Another key consideration is building life. Some facilities on campus are built to higher standards of durability, maintainability, and longevity to reduce total cost of ownership. However, for many facilities managers considering a PPP office building being built off campus, it is difficult to adjust thinking from long-term life (50-100 years) to short-term (about 20 years).

“The advantage of PPP delivery for a shorter-life building is that our private partners are more experienced constructing a more affordable building that will last 20 years, compared to 50,” says Guckert. “Many PPP projects are built with the notion of selling them off after 20 or so years. It makes no sense to build a 50-year-plus-life building off campus. But you also do not want a 20-year-life building on prime campus land. As it nears the end of its life it could appear as a blighted structure on the campus landscape.”

Finally, facilities managers who are inexperienced with PPPs may view them as difficult, time-consuming, and expensive to put together, fraught with conflicting viewpoints, egos, and control issues.

“Public-private partnerships can be difficult if you have two partners that are working toward divergent goals,” says LaPorte. “However, that when two partners have truly aligned interests, and are working toward the same outcome, establishment of the PPP is a smooth process and part of the team-building experience. In terms of time and assuming leadership buy-in to a PPP solution, the duration of a PPP process is more dependent on the institution’s internal process for selection and contracting, rather than the actual form of the agreement.” 

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# What Owners **and** Pro Should Know About Building Commissioning *(And Each Other)*

By Diana Bjornskov

**I**n early 2014, the Building Commissioning Association (BCA) surveyed two different building community groups about their perceptions and results of commissioning—one directed at a wide range of large and small commissioning provider firms (Providers) in North America, and one directed at owners and decision-making managers of large portfolios (Owners) of higher education, hospital, and government facilities. Altogether, 189 portfolio Owners, with properties ranging from 15 to hundreds of buildings and more than 16 million square feet, responded across the same regions as Providers.

Several topics intersect between the two surveys: 1) Owners' perception of quality commissioning, Providers' quest for Owners who understand how quality commissioning is accomplished and what it achieves; 2) Owners' drivers for commissioning and Providers' view of market drivers; and 3) Owners' concern for project cost versus Providers' concern for a cost-effective performance outcome.

# viders





## OWNERS

Owners were asked about the greatest challenges they face in commissioning (or Cx) across their portfolios. Some of the challenges they described are internal to their own organizations. Other challenges they placed squarely on provider quality—thoroughness, consistency, responsiveness, and accountability, as well as experience and understanding of specific building types. The Owners' survey indicates their most challenging commissioning issues are distributed as shown in the table at right.

Although more than one-fourth of Owners indicate that quality delivery of commissioning services is a problem, an equal number (25%) of portfolio Owners said they rarely or never include Owner's Project Requirements (OPR) in projects, and 41% say they do not require or request Providers to be certified in the commissioning profession.

## CX PROVIDERS

In response to a question about challenges, Providers listed their three most important factors for ensuring performance as

- Continuous team engagement by the Owner, design and construction teams, and Provider
- A thorough OPR to document needs and expectations, and
- Functional testing.

Many indicated that Owners and design teams don't always see commissioning as a *quality assurance* process, or they see commissioning as a "cost with no perceived benchmarks." According to many respondents, Owners often don't realize how important design phase commissioning is, or don't recognize that commissioning is a valuable asset to ensuring the building will operate as intended.

Providers are challenged by issues such as increasingly complex and differing building systems and controls, and by mixed signals from Owners. For example, when asked, "On a scale of 1-5, how important is *post-occupancy* commissioning in your business?," a full 41% of Providers said it is considered only somewhat important or not important at all—on the other hand, 49% said that Owners are asking for persistence of savings, which would be measured or optimized through post-occupancy commissioning. Providers also cited these increasing challenges:

- Improved business activity (i.e., although beneficial, growth is a challenge)
- Continued budget stress on new construction
- More emphasis on infrastructure issues, such as information technology
- Campus or multi-building utility delivery
- On-site power or combined heat and power

## SURVEY COMPARISON

The two surveys were not designed to correlate. They differed in purpose, yet several interesting and related themes surfaced by comparing the two. A mutual understanding of three particu-

Owner Issue	%	Description
Quality	27%	Provider thoroughness, skill, experience, responsiveness, accountability, consistency/standardization, understanding of building types
Time/Schedule	20%	Early engagement, time available, speed to complete, proper scheduling, milestone identification
Cost	17%	Capital asset budget and expense, project cost, escalation, value engineering
Project Teamwork	10%	Communication, coordination, integration, team input and cooperation, contractor engagement, volume of work prohibits adequate participation
Operations Staffing	8%	Internal engagement, not enough staffing for commissioning and operations personnel
Monitoring	5%	Post-occupancy building automation and energy management system monitoring, monitoring-based commissioning (MBCx)
EBCx Funding (Existing Buildings)	5%	Funding available to retrocommission poorly performing buildings and systems
Management	4%	Management buy-in, justification, viewpoint, education
Complexity	3%	Project management, complex systems and controls, scheduling, design
Energy Use	1%	Energy efficiency "first" attitude overrides other commissioning concerns

lar issues and how they affect Owners and Providers would better serve the interests of both: quality of commissioning services, communication, and building performance.

## 1. QUALITY OF COMMISSIONING SERVICES

**Downside Conclusion:** Owners are often confused about the role of Providers, and can be frustrated by the quality of work they expect commissioning to provide, while Providers are often hampered by Owners' lack of participation or commitment to the commissioning process.

**Upside Solution:** Time and again we hear that "educating Owners" is one of the most important solutions to reduce or avoid the misunderstandings that occur between Owners and Providers, but what kind of education? In addition to consistent advocacy and messaging about the success of commissioning, here are several topics that should be addressed more formally:

1. What commissioning *is*—and is *not*
2. How to conduct a qualifications-based selection process
3. What the OPR can/should do to facilitate on-time, on-budget, decreased-risk, team-based project delivery
4. Why a comprehensive, whole-building commissioning approach to integrated systems and energy efficiency increases project success
5. What certification means and how the certified commissioning professional (CCP) works for Owners

Here are examples of quality challenges faced by both Owners and Providers. *In their own words...*

### Owners' Quality Challenges

- Skill and experience of commissioning professionals.
- Thoroughness of overall Cx efforts across all phases of project life cycle on consistent basis, with early involvement of staff for training a close second.
- Expertise of companies dealing with old buildings that have old systems with poor or no documentation.
- The number of non-qualified technical commissioning firms that have grown due to the LEED process. The LEED commissioning process has significantly impacted the industry.

### Providers' Quality Challenges

- Ability for an owner to evaluate commissioning agents on qualifications and not just price.
- Owners' lack of knowledge about the benefits of including our team early on in the process. In the end they wish we were involved earlier.
- A widely held misconception (by Owners) regarding the depth of technical knowledge that exists among the design team with regard to building science and fully integrated, whole-building performance.
- Understanding new systems and technologies, how they should be integrated and tested and, more importantly, how test standards and methodologies should be applied to those systems and how proper interpretation of test results will continue to be critical.

## 2. COMMUNICATION AND TEAMWORK

**Downside Conclusion:** Providers are expected to work with Owner project team members at many levels of the project's organization and/or are often limited to less-than-adequate participation. Owners generally work with the design team and—if at all—only one lead Provider.

**Upside Solution:** Full project team engagement and Owner recognition that Provider involvement throughout the project, are imperative. Integrated teamwork is an opportunity for all project members to both teach and learn. It is useful to document project team members' agreement and commitment to schedule and milestones at the beginning. When LEED certification is a goal (and architects often provide LEED consulting services), Providers should be LEED-Accredited and should work with architects early on to be in lock-step toward achieving that goal. For large projects, architects are often the closest advisor to the client, writing the specs, and holding the systems design team contracts; using the OPR, Providers can help ensure the inclusion of other project members (MEP, contractors, operations personnel) in a timely way. *In their own words...*

### Owners' Communication & Teamwork Challenges

- Getting staff to assist and get more involved in the commissioning process.
- We hire third-party Cx and testing and balancing (TAB) firms, and they sometimes do not compare final results, with the TAB firm lagging behind and making changes not captured in Cx report.
- Getting the general contractor and the commissioning agent to incorporate commissioning milestones and events into the master construction schedule.
- Making sure the contractor allows time for commissioning in the schedule and doesn't cut into it when running late at the end.
- Cooperation from the MEP design professionals and contractors with the commissioning agent.

### Providers' Communication & Teamwork Challenges

- Not having the ability to provide critical input to the owner and design team when the owner's project requirements are addressed.
- Consistently "nagging" contractors to provide a quality product...low bid doesn't cause high quality. Aligning client expectations/needs, designed performance, and actual operational performance.
- Project management collaboration platforms that manage communications, actions and documents for the entire project team from design, construction, commissioning through occupancy (i.e., building integration modeling like BIM 360)
- With staff turnover and manpower issues on project sites, a consistent face that represents the owner that will document the successes of the project will be an important part of turning over a successful building.

### 3. BUILDING PERFORMANCE

**Downside Conclusion:** Owners are not always able to meet the commissioning goals and performance requirements they envision for their existing and new buildings. Providers identified some of the most important factors for ensuring building performance.

**Upside Solution:** Successful building performance is measured in both technical and experiential ways, starting with building turnover and ongoing after project delivery. A comprehensive commissioning schedule that includes operator training and post-occupancy commissioning to “tweak” the systems allows for managing the building under true operating conditions. Monitoring-based commissioning (MBCx) is increasingly used to test systems integration and optimize performance over time. *In their own words...*

#### Owners' Building Performance Challenges

- Facilities are not in use during commissioning so the system tests are not carried out under true operating conditions.
- For existing buildings, there are a lot of factors leading to performance degradation, including repurposing, operator error, insufficient preventive maintenance, etc. Older buildings and cost to bring them up to performance standards and efficiency are a challenge.
- Buildings are so complex that it is difficult to review all of the systems effectively.
- For new projects, the typical commissioning program verifies performance to design, but does not do a good job of optimizing performance to the occupied state.


#### Providers' Building Performance Challenges:

- There will be more pressure to perform commissioning remotely. On the flip side, the new technology like optimization routines, learning routines, fault detection and diagnostic (FDD) software, etc., require a greater human presence during turnover to fine-tune the systems under normal occupancy patterns and communicate the features to building occupants.
- Technology will drive a shift to persistence testing and increase post occupancy monitoring of performance.
- Our single most important factor for building performance is well specified, implemented and commissioned building automation systems (BAS) control logic.
- More complicated controls for mechanical and lighting equipment will require greater levels of rigor during commissioning, require higher quality of Provider (and ultimately drive up cost).

### CONCLUSION: WHAT OWNERS AND PROVIDERS MUST DO

Here are ten recommendations for Owners and Providers to plan and implement the *project process* and achieve *building performance*:

1. Solicit, select, or win work based on a qualifications-based selection process that meet the needs of your building
2. Engage commissioning provider in time to work with design team
3. Make time to create the Owner's Project Requirements together
4. Be involved in the project—early and often
5. Define clear expectations for all participants in the project
6. Ensure project managers support the Cx process and milestones while managing construction
7. Document integrated project team commitments
8. Focus on building optimization/performance in resolving construction issues
9. Train operations staff well
10. Verify operation through ongoing or periodic monitoring (MBCx) and occupant inquiries

For more information about this study, view the full report on the Building Commissioning Association's website at <http://www.bcx.org/knowledge-center/>. 

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In August 2011, I submitted a business case for a new, proactive, energy-based operations program at Emory University in Atlanta, Georgia, for approval and buy-in from Emory's Campus Services administration. The proposed program was entitled the Sustainable Performance Program (SPP), and I've modified the original business case for this article.

The program was approved with an initial funding commitment of \$75,000. In fiscal year 2012, using only \$40,000, we uncovered 78 operating inefficiencies, previously unknown to our operations staff, within seven of our newer facilities on campus. The estimated cost avoidance on those issues was \$250,000. Using these results, we were approved to create a full-time, dedicated position, which became effective in February 2013.

To date, we have eight facilities fully implemented within the SPP. These same facilities had recently been recommissioned (Re-Cx) in FY12/13. Emory's investment cost for the Re-Cx projects was \$1.27 million. When the SPP was implemented in these buildings, an additional 640 issues were identified and corrected. Annual utility cost savings in these facilities is tracking \$800,000. Now, with the SPP, the goal is to keep the performance optimized and avoid degradation. The graphic on page 40 is the essence of the SPP.

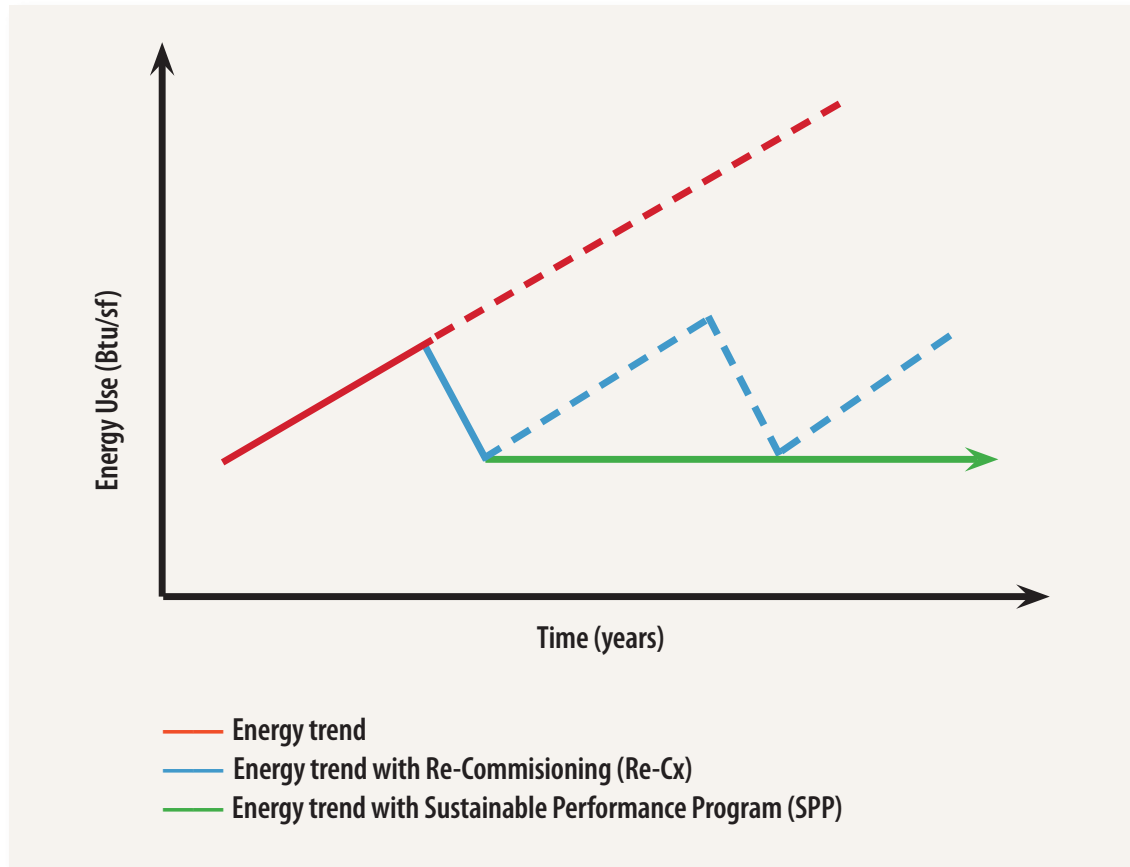


# Commissioning and Emory's Sustainable Performance Program

By Eric Gregory



## Emory University's Sustainable Performance Program



### PURPOSE

A Sustainable Performance Program, also known as Ongoing Commissioning or “Continuous Commissioning<sup>®</sup>,” is a process intended to sustain and even continuously improve the system performance of a facility over time. The purpose of this report is to demonstrate the benefits of implementing a Sustainable Performance Program at Emory University. The goal of such a program is to achieve the following benefits:

- Ensure that a facility’s utility consumption is in alignment with its baseline design, and avoid performance degradation over the life cycle of the system.
- Strive to improve building baseline performance by implementing engineer-led monitoring and optimization.
- Maintain the current functional requirements throughout the life of the facility. Ensure systems will effectively and optimally serve repurposed spaces.

### STATE OF COMMISSIONING AT EMORY UNIVERSITY

#### NEW CONSTRUCTION COMMISSIONING

Emory University was ahead of the curve as a university when it began implementing commissioning in its new construction projects beginning in the latter part of the 1990s. It was approximately the year 2000 when a full-time position was dedicated to the process of managing Emory’s commissioning activities. With

the requirement of all new large capital projects obtaining the USGBC’s LEED<sup>™</sup> Silver certification, in which commissioning is not only a credit but a prerequisite, it is evident that both Emory and the USGBC holds commissioning in high regard as a beneficial and sustainable process.

The process of commissioning is now being applied to not only the large capital projects seeking LEED certification, but also to a greater proportion of the maintenance rehabilitation and repair projects that entail significant mechanical, electrical, and plumbing components.

#### EXISTING BUILDING COMMISSIONING

Existing building commissioning had not been extensively applied at Emory. The Goizueta Business School (GBS), which was originally built and commissioned in 1997, was recommissioned in 2003, then underwent a second round of Re-Cx due to continued low performance operations and high annual energy consumption.

The Re-Cx project for the GBS was being performed in-house by Engineering Services. The building was selected for Re-Cx given its energy consumption was about 165 MBtu/sq ft versus the newer GBS Foundation building operating at 70 MBtu/sq ft, which was built and commissioned in 2005. A number of findings have been made during the investigation of GBS

that support a new Sustainable Performance Program (SPP):

- During the 2003 Re-Cx effort, terminal unit minimum airflows were reduced from around 50 percent of maximum to 30 percent of maximum. In general, 50 percent minimum airflow is too high and results in excessive reheat energy. However, these changes made in the terminal unit controllers were lost for an unknown reason and for an undetermined period of time. This may have occurred due to a database corruption issue in which the controllers were reloaded with an original program. A Sustainable Performance Program would likely have discovered and corrected this condition shortly after the occurrence.
- During the 2003 Re-Cx effort, the outside air brought into the facility for ventilation was reduced by 50 percent of original design to match actual occupancy. However, the current Re-Cx investigation found that the outside airflow was 200 percent of the original design, or 400 percent of the actual required outside air. A Sustainable Performance Program likely would have caught this degradation of control also.
- AHU-4, in particular, was found inducing 400 percent of outside air versus the original design. A damper position override was installed to maintain the return air damper at 80 percent open and the outside air damper open at 20 percent, which was more in line with the original design.

#### SUSTAINABLE PERFORMANCE

Some degree of sustainable performance is currently being utilized within Engineering Services, but it is confined to the efforts directly associated with our energy reduction efforts. When the utility engineer recognizes an abnormal increase in the utility consumption data recorded, he and the utility technician try to determine the root cause. Once the root cause is determined, an energy-related work order is generated and assigned to the operations group for them to address.

Although their efforts are finding and resolving energy waste issues, the process is currently reactive to the monthly trend data, and an energy waste issue can go undetected for months. Follow-up and verification of the work order closure is also proving to be an intense effort that the department is not positioned to deal with.

While these current efforts are a great benefit to the university, the SPP will provide more timely identification of energy waste issues, ensure that the ongoing facility performance requirements are met and optimized, and ensure a repurposed space does not negatively impact the building systems.

#### WHAT BUILDINGS MAKE THE PROGRAM?

All newly constructed facilities and major building renovations that have undergone a commissioning process would automatically roll into the SPP. Once a building has been commissioned, the facility performance will have been

verified as to whether or not it meets the functional requirements and intent, and a baseline established.

Existing buildings should be either recommissioned or retro-commissioned to bring the facility back to its original or current functional performance requirements, followed by the establishment of a baseline.

Chilled water plants provide some of the greatest opportunity to capture energy savings with an SPP. Given the complexity and continual changes in load and ambient conditions, a SPP would likely be augmented by an automated plant optimization program. Together with an established optimization program, the SPP would ensure that the optimization program remained enabled as the primary control, as well as provide a platform for the review of continuous trending data and provide a tracking mechanism to verify optimum performance.

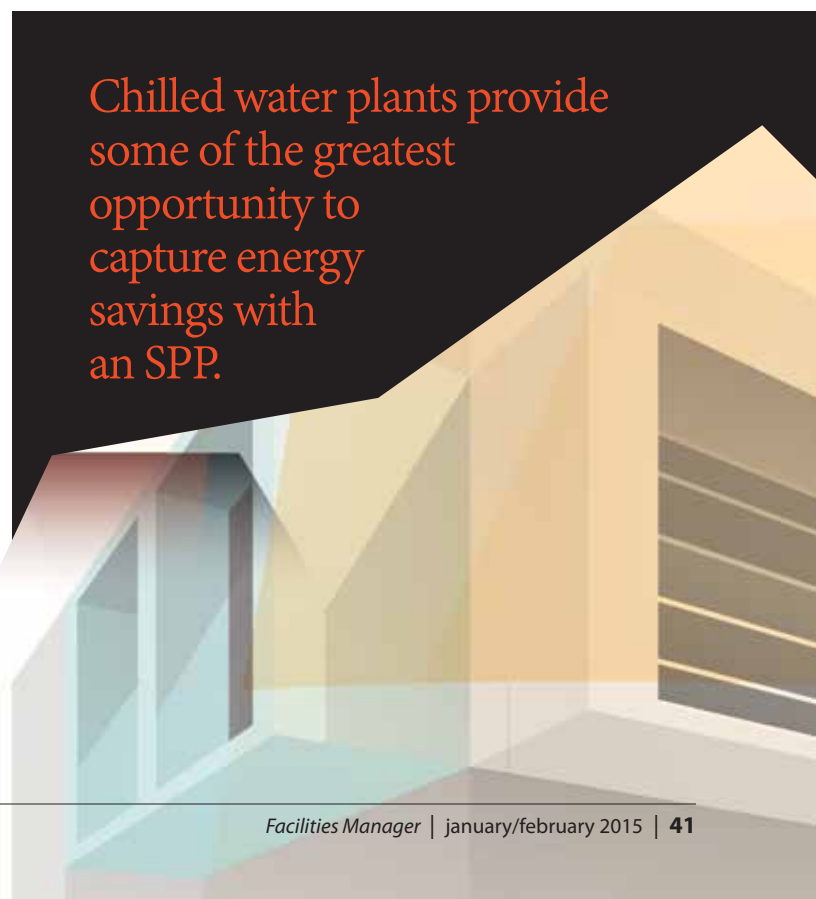
#### THE SUSTAINABLE PERFORMANCE PROCESS

The following is a general summary of the major tasks and duties of a Sustainable Performance Program.

The initial implementation of the SPP comes at the conclusion of the new or existing building commissioning process. At this time, performance will have been verified and a baseline established.

#### IMPLEMENTATION

- Implement the building-specific SPP, developed and provided by the commissioning authority as a deliverable of the project Cx process.



Chilled water plants provide some of the greatest opportunity to capture energy savings with an SPP.



- Implement trending on utility meters and controlling setpoints and outputs.
- Utilize the building automation system (BAS) to route alarms to the SPP engineer for any equipment issues that will impact energy consumption.

- Utilize facility dashboard information.
- Benchmark energy use.
- In time, the SPP engineer shall develop and implement automated fault detection and diagnostic program code to be integrated within the BAS. This will result in less hands-on oversight of system operation and enable the SPP engineer to manage more facilities within the SPP. Automated fault detection sequences would eventually be included in the appropriate sections of the Emory Design and Construction Standards maintained by PD&C of Campus Services.

#### MONITORING

- Monitor and track energy use to gain understanding of the facilities consumption patterns. Frequency shall initially be set for hourly optimization of controlling setpoints. Over time and upon gained familiarity, frequency can be extended, given the functional requirements of the facility and spaces within remain the same.
- Review key system parameter trends for observing performance under varying loads and seasons to ensure stable and optimal performance.
- Establish system level performance targets to improve energy performance continuously. Typical energy systems at Emory include chilled water, steam, electricity, and water.
- Rightsize performance at the zone level. This requires a determination of optimal maximum and minimum HVAC airflows on the terminal unit level, as well as tuning of temperature setpoints to optimize occupant comfort with performance. Designed airflow minimums are often incorrect and include so many engineered safety factors that result in the minimums being too high. This results in reheating energy waste to prevent a space from over-cooling. This can often be a moving target, given the use of the zone and the amount of heat generating load within. This was illustrated quite dramatically when we implemented the new tempera-

ture set point policy last summer.

- Monitor and track non-energy performance metrics such as comfort calls, occupant satisfaction, indoor air quality parameters, etc.
- Coordinate building occupancy schedules to optimize the durations of time that the building systems can be turned off.
- Follow-up to ensure that all energy related work orders to the facility maintenance shops are appropriately completed.

#### OPERATING LOG & AS-BUILT/RECORD DOCUMENT MAINTENANCE

- Maintain an operating log documenting significant events such as equipment replacement, maintenance, testing, and any issues and their resolution.
- Ensure the as-built and record documents are up to date.

#### ONGOING OPERATOR TRAINING

- Provide training to building operators and mechanics of all changes or modifications implemented.
- Maintain a routine training program that focuses on proper operating and maintenance procedures that sustain performance.

#### COST AND RETURN

##### COST

In order to devote full attention to implementing, executing, and guiding a Sustainable Performance Program at Emory, we recommended the addition of a full-time equivalent employee (FTE), titled Sustainable Performance Engineer (SPE), within Engineering Services, who would work closely with the current ES positions of commissioning engineer, utility engineer, and utility technician, as well as with personnel of the FM zones and shops.

As an option, an engineer contract employee could be obtained from one of Emory's preferred commissioning consultants—either a scope of work could be written around the responsibilities listed above and a fee proposal developed by the CxA, or an hourly rate and quantity could be negotiated. This would be a 50 to 75 percent cost premium over an in-house FTE. The downside of this option is that the knowledge and familiarity of the facilities within the program will be primarily with the contract employee and not with Emory.


##### RETURN

Most new facilities, constructed within the last three years, should be implemented in the SPP as soon as it is practical. Using the energy consumption data from FY2010, these buildings comprise a total annual cost of \$1.2 million. Using the estimate of typical performance degradation at 5 percent, these building could require \$60,000/year additional funding to operate going forward.

Facilities constructed within the last five to eight years would require some level of confirmation of the baseline,



entailing some level of Re-Cx implementation, then roll into the SPP. Using the energy consumption data from FY2010, these buildings comprise a total annual cost of \$3.9 million. Assuming a 20 percent annual usage savings were to result from a Re-Cx process, cost savings would be around \$780,000/year. An SPP would protect the investment of Re-Cx and sustain this savings.

The total estimated annual cost savings of the facilities under consideration would be in the neighborhood of \$1 million, and provide a revised total annual utility cost of \$4.58 million. A 5 percent annual degradation of this cost is \$229,000 in the first year. This would result in the cost of the FTE having an annual payback of approximately six months. 

#### ENDNOTES

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Eric Gregory is commissioning manager and the Sustainable Performance Program manager at Emory University in Atlanta, GA; he can be reached at [eric.gregory@emory.edu](mailto:eric.gregory@emory.edu). This is his first article for *Facilities Manager*. In addition, he is a member of the advisory committee working on the third edition of *The Building Commissioning Handbook*, to be published by APPA and the Building Commissioning Association.



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# What APPA Has to Offer

By Chuck Scott

APPA Vice President for Professional Development



I recently re-read an article written by APPA Past President Mary Vosevich. It was published in the March/April 2014 edition of *Facilities Manager* magazine and was titled, “Those Who Make Things Happen.” I couldn’t help but wholeheartedly agree with what Mary said about the people of APPA and how it is the people that indeed “make things happen.” And, it is the people that I am indebted to who have provided me the opportunity to serve as APPA’s Vice President for Professional Development these past two years.

Yet, serving in a leadership role in the premier educational facilities association

## THE OFFERINGS

**Drive-In Workshops** could arguably be the first gateway into APPA training for many of our members. These day-long programs provide networking and professional development within a localized vicinity. They are excellent for business partners, as they are afforded an inexpensive opportunity to share the content and promote their products or services. Responsibilities of the host institution are minimal—essentially just providing adequate meeting space and menu options for the business partner to fund.

**The Supervisor’s Toolkit** is another early entry into APPA programming.

This week long venture into the world of supervision is a great team building experience. Not only is daily “administrivia” explored, but there are also several modules that focus on communication, customer service, and leadership.

On my campus, Illinois State University, I hosted a Supervisor’s Toolkit for the facilities management supervisor

team. Many of these individuals knew each other’s names, but had rare opportunities to interact in a more personal or social way, which this venue afforded them. This is primarily due to the nature of a 24/7/365 operation that works multiple shifts, and I expect many of you are

in that same situation. I encourage you to consider hosting a Toolkit on your campus. The benefits are long-lasting and worth the investment.

**Regional conferences** are likely the most well-attended of all APPA professional development opportunities. Individual regions coordinate, sponsor, host, and facilitate these educational sessions. Typically held in the fall, regional conferences offer a vast array of educational presentations, complete with a business partner hall of resources.

**The APPA Annual Conference** offers educational programming at a broader international perspective through innovative perspectives, as well as a hall of resources that brings to you products and services that will keep your campus on the cutting edge. Additionally, there are keynote speakers or panels that touch on the most pertinent and timely topics relevant to the educational facilities industry. These sessions are intended to provoke thought and educate attendees so that they can also inform leadership on their respective campuses of salient topics.

Speaking of provoking thought, the annual APPA **Thought Leaders Series** is hosted by APPA International each spring. This annual symposium takes a deep dive into a single topic. The result of this intense look is a manuscript that is, or should be, shared at the highest levels of all of our institutions. This year’s monograph is now available at the APPA website (<http://www.appa.org/>)



is not the focus of this article. Instead, I want to concentrate my efforts on some of the training products that APPA has to offer. As I speak of these offerings, please keep Mary’s article in mind, and remember that the people of APPA are truly what makes things happen.



research/cfar/tls.cfm) or in print in the September/October and November/December 2014 issues of *Facilities Manager* magazine. It is titled *Leveraging Facilities for Institutional Success*.

## THE PINNACLE OF PROFESSIONAL DEVELOPMENT

I intentionally kept APPA U for last. The Institute for Facilities Management and Leadership Academy have joined forces to become APPA U, the pinnacle of educational facilities professional development. Each of these week-long programs comprised of four levels, or tracks. With emphasis on general administration, maintenance and operations, energy and utilities, and planning, design, and construction, the Institute offers all you need to know as you progress through a facilities career.

The Academy is built off the principles of Stephen R. Covey, drawing out your individual and interpersonal effectiveness skills. And now, levels 1, 2 & 3 of the Leadership Academy are available to travel to your campuses. The ultimate team-building opportunity is available for your entire staff.

In my role as VP for Professional Development, I wanted to accomplish a few important tasks. One is the creation of a graduate program for individuals that have already completed the Institute and Academy. This program is still in its infancy, but there is promise for those more seasoned members of our industry who want new training and learning opportunities.

In addition, a review is currently underway that is taking a deep dive into all aspects of the Institute. This program has had great success over the years and is continually reviewed by the deans. They make adjustments annually, based upon reviews provided by the attendees. Yet, in an effort for continual improvement, this additional review will aid the deans in preparation for future years. With a focus on providing attendees their best value, we want to deliver them the best experience available.

## VALUE, THE CRITICAL ELEMENT

It is important to inform our membership of all of the professional development opportunities that are available to them, and to highlight the value these offerings provide.

And finally, as Mary mentioned, it is the people of APPA that make things happen. Together, we can all make

things happen for the betterment of the educational facilities profession. ☎

Chuck Scott is APPA's Vice President for Professional Development and executive director, facilities management, at Illinois State University, Normal, IL. He can be reached at [cascott@ilstu.edu](mailto:cascott@ilstu.edu).

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# Campus Lockdown Policies vs. Fire and Life Safety Codes: Are They Compatible?

by John Bernhards

The term “lockdown” is broadly used within the education sector to describe a series of security measures undertaken during an emergency for purposes of preventing intruders, armed or otherwise, from leaving or entering a school building or campus facility. Discussion continues

At the invitation of the National Fire Protection Association (NFPA), representatives of the APPA Standards and Codes Council participated last December in the NFPA School Safety, Codes and Security Workshop, which was held at the University of Maryland’s College Park campus. More than 60 NFPA fire

and life safety professionals, campus and school public safety officials, and representatives from national and international standards setting bodies and public interest groups were present for the event.

The workshop participants took stock of the current building, life safety, and fire codes provisions for egress. Also identified were lockdown best practices and lessons learned from the Sandy Hook School shootings,

provisions in building, fire, and life safety codes address fire events. Among educational facilities, approximately 70 percent of all fires take place within K-12 school buildings, while approximately 12 percent occur on college and university campuses. When it comes to school life safety, however, many schools and campuses are now implementing not only fire drills, but lockdown drills as well. Additionally, where schools are prone to natural disasters and related risks, there is a growing mandate for “shakeout” or earthquake drills, not to mention flood drills.

Some jurisdictions are paring back the frequency of fire drills as required under NFPA 101 to accommodate these other drill requirements. The workshop revealed that there is growing concern that different and multiple drill procedures may lead to confusion among students and other occupants and therefore compromise safety in the event of an actual emergency.

**Locking Hardware:** A growing concern among fire and life safety professionals is the increasing number of “lockdown” door locking mechanisms and systems that are entering the marketplace and fail to meet egress compliance requirements, or may be unintentionally designed to obstruct such requirements. Workshop participants identified the need to ensure that innovations and new approaches to locking hardware are



to evolve among security consultants, members of law enforcement, and school administrators with regard to standard lockdown procedures and related best practices. What is less understood however, is the impact and potential conflict of lockdown measures on legally adopted, binding, and enforced building and life safety codes.

among other incidents. Additionally, participants discussed and reviewed, in detail, the protocols currently in place within the first responder community for purposes of dealing with armed intruders on campus. Among the key areas for discussion were the following.

**Multiple Hazard Planning Concepts in Schools:** Most of the current code

encouraged but thoroughly evaluated to ensure fire and life safety is not compromised. This concern will most certainly be an area of consideration and focus for NFPA Technical Committees.

**Fire Alarm Activation and Delayed Response:** Another area of concern is whether allowances should be made within current fire and life safety codes to support delayed response for evacuation, in the event a school building fire alarm is pulled or activated. The argument for allowing “delayed response” is that it would enable public safety personnel on school property to substantiate that a fire or related conditions exist, and to do so prior to sounding the audible alarm and evacuating occupants from the school building. This topic is of great debate among fire and life safety officials and security professionals and deservedly so.

**Tools, Procedures, and Resources Required of First Responders When**

#### **Facing an Armed Intruder Situation:**

The workshop sought to identify the basic building/fire code provisions that must be understood by first responders, as well as first responder protocols that must be understood by fire and life safety codes and standards developers. There was consensus among participants that greater clarity and adoption of general procedures were needed with regard to responder communications technologies, school building entry and access, and student evacuation safe areas.

Outcomes and findings from the workshop discussions will be circulated to APPA and other workshop participants, as well as to other stakeholders, and will be considered for use by NFPA Technical Committees. A workshop report is being developed by NFPA. The APPA Standards and Codes Council will announce the availability of the report when published early this year.

Additionally, to facilitate further understanding and dialogue among APPA members on this important topic, the APPA Standards and Codes Council will organize a conference session at APPA 2015, to be held August 4-6 in Chicago. Council members and fire safety experts will be on hand to highlight the report's findings. The session will allow APPA member institutions to identify chief report recommendations and best practices for discussion and implementation on their respective campuses, as relevant fire and life safety code language is developed and adopted. ⑤

John Bernhards is APPA's associate vice president and staff liaison to the APPA Standards and Codes Council. He can be reached at [john@appa.org](mailto:john@appa.org).

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# Using APPA's Credentialing Programs for Team and Knowledge Building

By Steve Maruszewski, with Susan Bedsworth

Two of the biggest challenges within facilities management are team building and professional development. Positive growth in these areas contributes greatly to the overall effectiveness of staff members. Ironically, these are also areas that suffer the most when issues and events arise that divert our attention. This is often when they are needed most.

## AN OPPORTUNITY TO EXPAND, ENHANCE, AND SHARE SKILLS

At Penn State we have all the normal pressures of a typical large-scale university facilities operation. In the midst of the many challenges we've faced here at Penn State, an idea emerged to give our employees an opportunity to expand, enhance and share their skills while simultaneously learning about the challenges facing their coworkers.

Our size alone makes it a challenge to interact with one another enough to understand what different units do every day. The hope was that understanding would lead to empathy and empathy would lead to increased partnership and collaboration.

After I personally participated in a review session for the CEFP and took



the exam, I realized this program could potentially be the tool to help the Office of Physical Plant (OPP) achieve its goal of improving working relationships between divisions. I offered a select group of staff the opportunity to participate in a six-week review program ending with the full-day APPA-led session and the exam.

The participants made a commitment, not only to complete the weekly reading, but also to each other, and I in turn made the commitment to prepare the notes and lead the review sessions. We would work together to make sure everyone was successful.

## REVIEW SESSIONS BECOME DYNAMIC SESSIONS

The group had participants from all parts of our organization representing every division. During each session, participants were encouraged to sit with employees from other work groups, as the real learning was going to be about areas outside the individual's current expertise. This resulted in dynamic sessions, effective



team and knowledge building, and helped ensure everyone passed the exam.

"I originally participated in the training to gain a better understanding of the various operations here at Physical Plant," said Tom Flynn, landscape architect. "We

**"IT'S HELPED ME UNDERSTAND THE BIG PICTURE. NOT JUST THE THINGS I AM DIRECTLY ASSOCIATED WITH, BUT HOW EVERYTHING IS CONNECTED."**

— Mike Jackson

all have our specialties, but I saw the class as an opportunity to learn what others within the organization are doing, and why their roles are important."

Joe Dinardo, a supervisor in the Work Control Division, echoed Flynn's sentiments. "I wanted to be a better asset to this university. Going through the training gave me a better understanding of how facilities management works for Penn State."



The feedback has been extremely positive, leading us to expand the program. With two more sessions completed, the desire to participate continues to grow. More than 70 individuals have passed the exam so far, and I have requests for another session.

"This training validates what I think we already know, that OPP comprises extremely bright, knowledgeable, and qualified professionals," said Flynn. "The credentialing demonstrates the individual's and OPP's commitment to the institution and the profession."

#### **BUILDING RESPECT AND CAMARADERIE**

Overall, both the knowledge and team building aspects have been tremendously successful. Respect for others' skill sets

**"OVERALL I HAVE A BETTER APPRECIATION FOR HOW DIFFERENT AREAS OF OPP WORK."**

**— Madeline Cantu**

and challenges have improved greatly, but so has the sense of camaraderie among the employees.

"The biggest thing I learned wasn't necessarily course content, but the six weeks we spent together over lunch learning the material together," said Beth Clark, budget analyst. "It's great that we have all been successful, but I think the best outcome was the sense of camaraderie that was built among the

people who went through it."

Ultimately, this is not the only and final answer to the challenge, but I can say without equivocation that if managed effectively, the CEFPP and EFP certification can serve as an effective tool to improve team building, professional development, and overall morale. ☺

Steve Maruszewski ([sxm37@psu.edu](mailto:sxm37@psu.edu)) is the assistant vice president, and Susan Bedsworth ([sbj5001@psu.edu](mailto:sbj5001@psu.edu)) is the marketing and communications coordinator, for Penn State's Office of Physical Plant, University Park, PA. This is their first article for *Facilities Manager*. To learn more about APPA's certification program, visit [credentialing.appa.org](http://credentialing.appa.org).

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# ASHRAE Level 1 Energy Audit: A Tool for Success

By Jeffrey A. Miller, P.E., LEED AP, CBCP

**M**any educational institutions need a prioritized management strategy to reduce energy consumption and to develop refined capital plans that move from the no cost to major capital expenditures. An ASHRAE Level 1 audit is a great place to start. These audits have been used for years to identify lower cost strategies that in many cases can be completed with available staff.

The Level 1 audit requires a Professional Engineer or an Energy Engineer to bring the right experience on costing and savings to refine the plan. The Level 1 could be run in parallel with the Energy Star program for greater efficiency if a designation is desirable. If the Level 1 calls for higher capital expenditures, that would then feed into a Level 2 or Level 3 audits that are investment grade audits for large capital expenditures. Using the ASHRAE energy audit allows the institution to use a stepped process to achieve the goals of their improvement plans.

## A CASE IN POINT

The National City Tower located in downtown Louisville, Kentucky, is a 38-story office building containing approximately 871,507 gross square feet (SF) that was constructed in 1972.

The building has a perimeter induction and terminal-reheat heating, ventilating, and air conditioning (HVAC) system, utilizing chilled water for cooling and electric resistance and hot water for heating. Chilled water, generated by

centrifugal water chillers, is circulated to air handling units that provide conditioned air to the induction units and suspended ductwork and air grilles. Heat is rejected from the chillers through cooling towers located on the roof.

Heating for the induction units and terminal reheat system is provided by natural gas-fired boilers. The building HVAC systems utilize pneumatic controls. Domestic hot water is provided by electric tank-type water heaters located on three levels throughout the building. Fluorescent lighting is provided on all levels by type T-12 and T-8 lamps.

The building engineering staff had previously improved the energy efficiency of the building. These strategies included reflective coatings on portions of the exterior glass, replacing water chillers, converting lighting to high-efficiency type T-8 fluorescent lamps, upgrading the cooling towers, and converting elevator controls to digital type and variable speed drives.

The owner prioritized options for improvement in energy efficiency and reduced energy costs at the Tower. The strategy needed to address feasibility, installed cost, payback, and rate of



return. The desired strategy would boost the competitiveness of the building in energy costs when compared to similar buildings and increase the building's overall value.

To do this, the owner requested the assistance of a mechanical consultant in developing the strategies for improvement in energy efficiency, who then conducted a Level 1 Energy Audit to assess the current energy efficiency of building envelope, mechanical, electrical, and lighting systems at the National City Tower.

### THE LEVEL 1 AUDIT

An ASHRAE Level 1 Energy Audit typically includes a site visit to obtain visual information and diagnostic information on the building's energy consuming systems; obtains one to three years of energy billings for evaluation and estimating potential energy savings of opportunities identified; develops recommendations for energy cost reduction measures (ECRMs); and develops preliminary cost estimates, approximate payback, and rates of return for the ECRMs. The Level 1 audit identifies and provides a savings and cost analysis of energy conserving measures. The audit also provides a listing of potential capital improvements that merit further consideration and provides opinions on potential installed costs and energy savings.

The Level 1 energy audit analyzes the utility usage and costs, and then BISDSISD determines an annual Energy Utilization Index (EUI) and Energy Cost Index (ECI) for the building. The EUI depicts the total annual energy consumption per square foot of building, and is expressed in British Thermal Units (Btus). Energy records reviewed from the subject building indicated that the annual Btu usage is within the typical range of buildings of similar age, size, and physical location in this geographic area.

In this case, the consultant developed ten opportunities for ECRMs, estimated the installed costs, and estimated



their payback and rates of return. The ECRMs included installing premium efficiency motors on pumps and air handling units, re-commissioning the HVAC system, installing heat recovery equipment, installing high-efficiency burners at the boilers, installing variable speed drives at the chillers, completing a lighting retrofit, and retrofitting the perimeter induction units. The estimated savings were considered incremental and exclusive as individual ECRMs are completed.

### OTHER OBSERVATIONS

Other building systems that could represent additional opportunities for energy reduction included installing digital controls and variable speed drives on the remaining elevators, converting the HVAC systems to variable air volume systems, installing a high-performance coating on the remaining exterior glass, and installing a high-efficiency cooling tower. Due to the potential installed cost and complexity of estimating energy savings with these options, further analysis was recommended, such as conducting an ASHRAE Level 2 or 3 energy audit.

A Level 1 Energy Audit provides an institution with a prioritized list of energy cost reduction measures that may



be implemented during general maintenance activities and provide an immediate impact on energy costs. Other measures identified during the audit may be implemented within existing capital improvement budgets and represent more significant reductions in energy costs. An ASHRAE Level 1 Energy Audit can further be utilized to develop a long-term plan for upgrade of a facility's energy consuming systems. It is a powerful tool for institutional facility managers to support their energy improvement agenda. ☞

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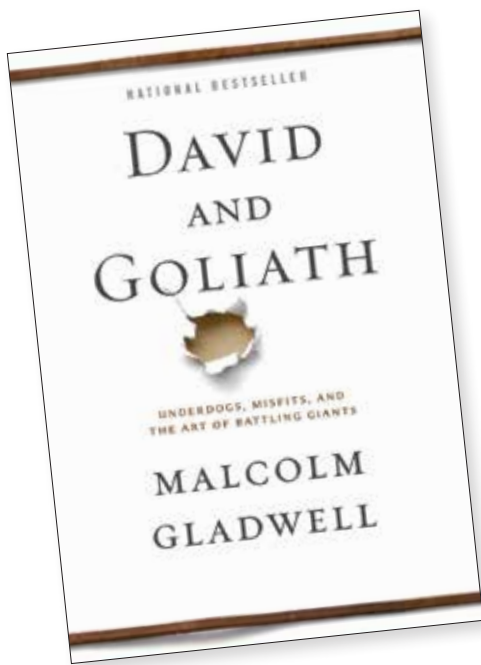




Book Review Editor: Theodore J. Weidner, Ph.D., P.E., CFP, AIA

## We've left the old year behind, and now look to the new.

Included with leaving the old is also leaving behind old ideas, and old ways of looking at things. It's therefore fitting to discuss two books that examine new (or different) ideas and ways of looking at things. Get ready for the New Year, and grab these books.



### DAVID AND GOLIATH: UNDERDOGS, MISFITS, AND THE ART OF BATTLING GIANTS

Malcolm Gladwell, Little, Brown and Co., Boston, 2013, 321 pp., hardcover \$29, softcover, \$14.99 Kindle.

Malcolm Gladwell has developed a habit of writing about people who do things differently and succeed. Books such as *Outliers* and *Blink* have been reviewed here previously, and Gladwell's ability to look things in unique ways and to describe them clearly comes through again.

In *David and Goliath*, Gladwell looks at the actions of various underdogs who have beaten the odds and succeeded by tackling a problem or situation using unconventional techniques. In the

case of David, a Jewish shepherd boy who volunteered to take on the Philistine giant Goliath, the unconventional technique was to appear defenseless and use a weapon that was not a typical fighting technique to defeat the giant. Essentially, the giant was expecting to fight a relatively large and armed Jewish soldier. None were as large as Goliath, which meant that the Hebrews would be defeated and become enslaved. David, who was a small and lowly shepherd, volunteered and fooled Goliath by attacking him with a sling and five stones. Gladwell identifies several mitigating factors that allowed David's approach to succeed.

Using the David and Goliath story as an introduction to several other stories about unconventional methods to overcome adversity provides an interesting theme. Some of the stories are disturbing and help explain some recent history, editorials, and news reporting by discussing some under-reported information.

But what's the big picture and why did Gladwell bother, again, to look at things differently? A lot of it has to do with problem dissection and selection of a solution in one's comfort zone. In hindsight, it's arguable that Gladwell only selected the problem/solution pairs where the winner got lucky (or had God on their side).

There are certainly many stories where an unconventional approach didn't succeed. Also, in the David and Goliath story, there's a lot of new information provided that David wouldn't

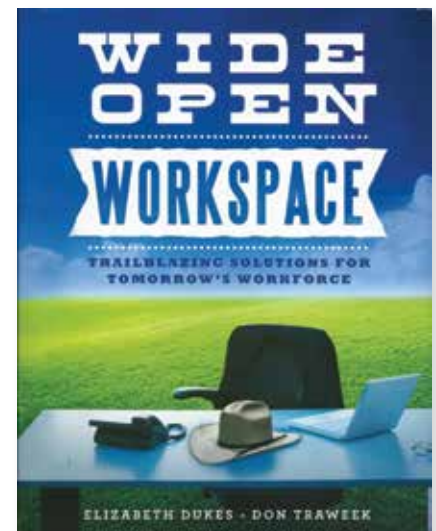
have had available in his decision-making process. I'd argue that identification of the problem is the first essential step, and that once having clearly defined the problem, any (although in these examples unusual) solution will work.

*David and Goliath*, like Gladwell's other work, is a pleasant read. He writes well, frames complex issues clearly, and provides a compelling message. But the take-away is that successful outcomes don't always come from solutions that we're accustomed to and comfortable with. Successful outcomes are the result of thinking through the problem and applying a solution with skill.

### WIDE OPEN WORKSPACE: TRAILBLAZING SOLUTIONS FOR TOMORROW'S WORKFORCE

Elizabeth Dukes and Don Traweck, WCT Publishing, Seabrook, TX, 2014, 138 pp., hardcover \$22.95.

The work world is changing. If you haven't seen it yet, you will. Consultants work out of Starbucks, poets work out of Panera, and other mobile workers do their work in other




transient locations. The meaning of a workplace is changing from a where employees do their job to where disparate people do a variety of things. I've observed it myself in an academic setting, where students don't study or do their work in a dorm or library, but instead do so just about anywhere on campus. Graduate students don't do their research in their assigned lab station unless that's where the experiment is. Students are choosing where to work; they're mobile by choice, not necessity. As facility officers we need to pay attention, because they are the next generation of workers.

So what does this mean for facility managers? Will we provide services to a fixed group of people who show up every day to do a particular job, or will start providing "hoteling" solutions, and

what are the implications of doing so? That answer, presented in *Wide Open Workspace* is upbeat and based on eight cowboy codes. I won't list them in detail but they include the terms: "new trails," "get together," "share," and "brand." Whether the eight codes identified by the authors represent an inclusive list of how cowboys did their job, and how the next generations of workers will do theirs, is immaterial. They frame the argument of mobility based on success.

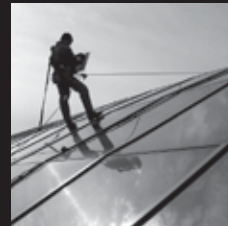
While the ideas are sound, the arguments reasonable, and the delivery is satisfactory, there are extensive references to the services delivered by the author's company, iOffice, and with a clear Texas bias. However, once you get past the appearance of commercialism, and accept the heavy "Made in Texas" references, the message in the book is clear and

important for facility officers to hear and understand.

While it's entirely possible your institution won't be implementing "hot desks" for faculty or staff anytime soon, students are creating their own, and it will become an issue in the future. Buildings stand for multiple generations of workers, so it's important for facility officers to become aware of these issues. To this end, *Wide Open Workspaces* does a good job of describing the issues and challenges coming our way. 

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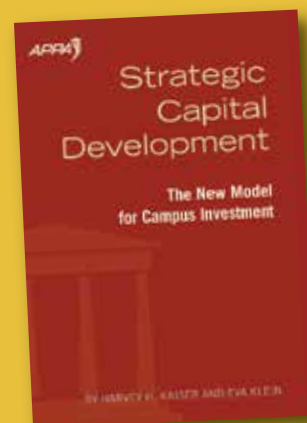
*Resources for Campus Facilities Management*

## Strategic Capital Development: The New Model for Campus Investment

Harvey H. Kaiser and Eva Klein

*Strategic Capital Development: The New Model for Campus Investment* presents a bold approach for planning capital investments from a strategic and long-range perspective. The authors combine their extensive higher education experience and expertise to improve capital planning and decision making and to make a case for a new model that seeks to balance idealism with pragmatism. They define stewardship principles necessary to create and sustain a built environment that is responsive to institutional strategies and functions, remains attractive to faculty and students, and optimizes available resources. (A763)

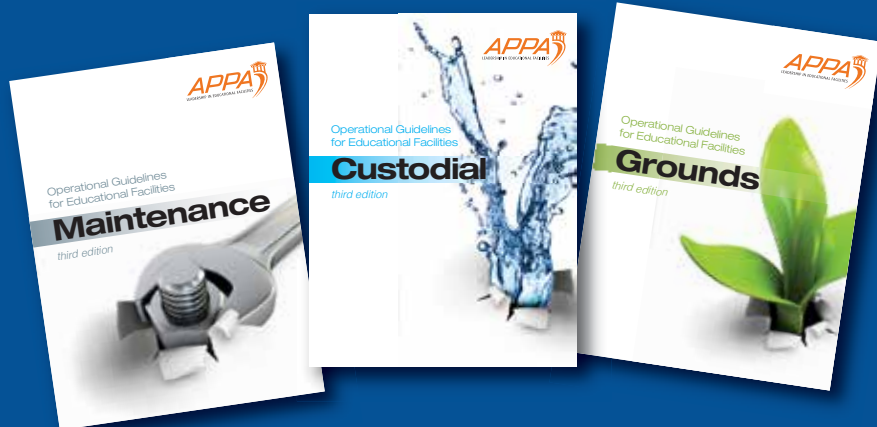
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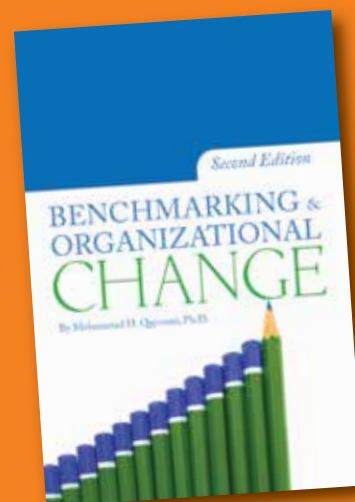
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Compiled by Gerry Van Treeck

**SnowEx** has introduced the Brine Pro 2000 brine maker. Brine Pro provides simple installation and automated operation, empowering end users to produce their own brine. Engineered for use with low-flow water input and standard 220VAC power sources, the Brine Pro is highly compatible for a variety of operations. It features intuitive touch-screen controls with separate modes for automatic and batch production, as well as a special cleaning mode. Its automatic salinity control helps ensure proper salt/water proportions with minimal effort from the operator. For additional information please visit SnowEx at [www.snowexproducts.com](http://www.snowexproducts.com).



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### Hubbell Lighting

announced that it has added an ultra-efficient, technologically advanced, compact exit sign—Dual-Lite's EVE Series LED Exit Sign—to its selection of emergency lighting products. The newest member of the Evolution EV-LED emergency lighting family, the EVE Series is a compact architectural LED exit sign designed for efficiency, long life, fast installation, reliability, and low maintenance. The sleek and durable EVE Series provides bright and uniform illumination utilizing efficient, long-life red or green LEDs rated at over 100,000 hours or 10 years. For more information regarding Hubbell Lighting visit [www.hubbelllighting.com](http://www.hubbelllighting.com).



**Trane**, a global provider of indoor comfort solutions and services and a brand of Ingersoll Rand, has expanded its ductless portfolio to include the new Trane® Water-Source VRF Ductless Systems. The new systems provide energy-efficient climate solutions for multi-tenant and diversely occupied buildings, including higher education facilities. Trane design experts can help specify VRF solutions for tall and historical structures, which often present unique challenges. For further information on Trane products visit [www.trane.com](http://www.trane.com).



**Rubbermaid Commercial Products** introduces the Executive Series Quick Cart, the durable mini-cart solution, empowering staff to maintain areas discreetly and efficiently. Blend



**Larson Electronics** reveals their temporary construction LED string lights. The ten 25-watt LED lamps on this work site light set provides higher quality light than 150-watt PAR38 lamps, while creating less heat and using less power. These LED lamps are suitable for wet areas, are extremely long lived, resistant to damage from impacts and vibrations, and consume far less energy than standard lamps. The LED bulbs in these hand lamps have no filament, making them resistant to damage from impacts and dropping. For additional information visit Larson Electronics at [www.larsonelectronics.com](http://www.larsonelectronics.com).



**LiftMaster** announced the release of its new IPAC (Internet Protocol Access Control) system, the first Internet-enabled outdoor access control system with Voiceover Internet Protocol (VoIP). IPAC gives building managers of commercial facilities the ability to control a building's access system from any device or browser, anywhere. The new system allows managers to have easy access to update the system remotely and provides reliable 24/7 access to building residents or tenants. Unlike



other outdoor access control systems, IPAC does not require a dedicated computer or installed software, allowing for management of resident information from any browser through Web-based software. IPAC also stores information for up to 50,000 residents ensuring extensive system memory space for large communities and facilities. For further information on LiftMaster products visit [www.liftmaster.com](http://www.liftmaster.com).

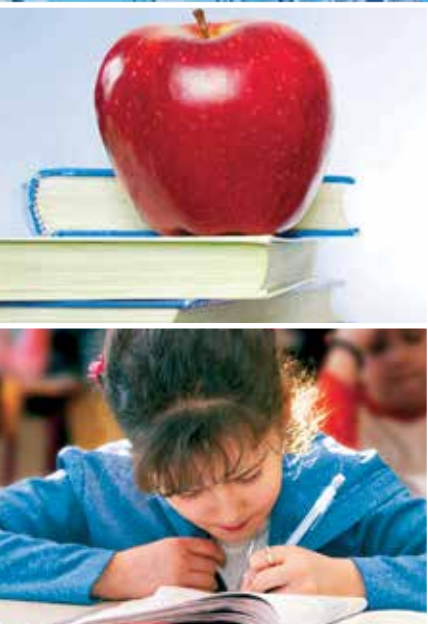
New Products listings are provided by the manufacturers and suppliers and selected by the editors for variety and innovation. For more information or to submit a New Products listing, e-mail Gerry Van Treeck at [gvtgvt@earthlink.net](mailto:gvtgvt@earthlink.net).

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