PUBLISHED BY APPA

FACILITIES manager

SEP/OCT 2012

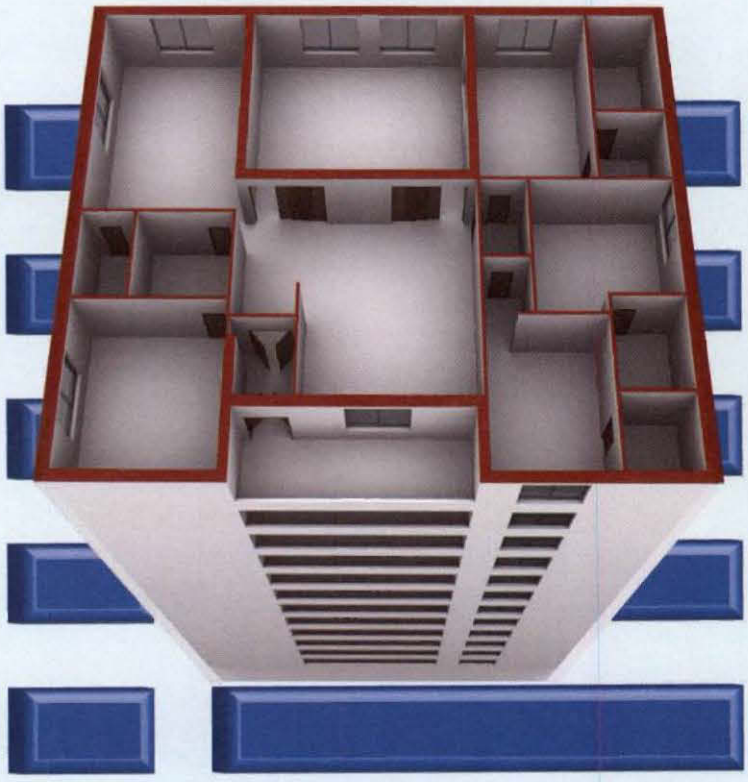
INSIDE

LIFT AS YOU CLIMB

A PROFILE OF PRESIDENT MARY VOSEVICH

Nonprofit Org.
U.S. Postage
PAID
Permit No. 425
Southern, MD

Success Made Simple.



TMASYSTEMS

TMA provides world-class Maintenance Management Software for educational institutions throughout the world.

We meet your organization's maintenance needs by providing a CMMS as either a Client-Hosted or Software as a Service (SaaS) solution.

With the flexibility to start small and add to your software, our scalable product set and optional modules grow with your organization's needs, requirements and demands.

sales@tmasystems.com | 800.862.1130 | www.tmasystems.com

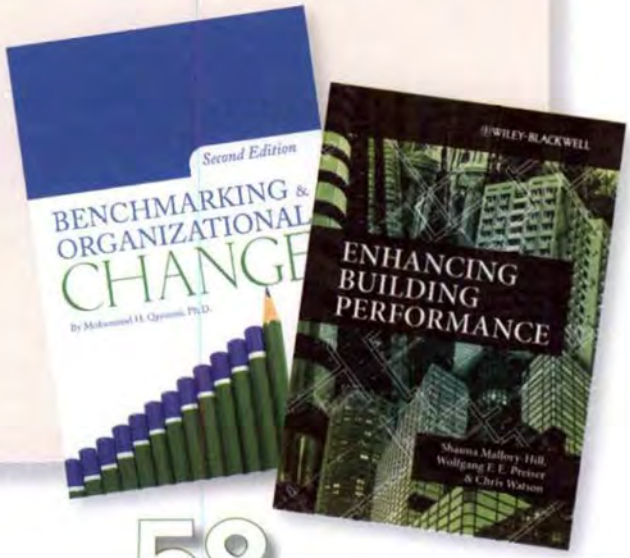
features

SEPTEMBER/OCTOBER 2012
VOLUME 28 • Number 5

MARY VOSEVICH PHOTOS BY JOHN SUMROW, UNM

columns
SEPTEMBER/OCTOBER 2012
VOLUME 28 • Number 5

10



58

54

Keith Woodward • *Associate Vice President of Facilities Operations*
Quinnipiac University • Hamden, Connecticut

"Our students wanted a sustainable option, we found the best solution."

Going green and staying hydrated are major themes across campuses today. With the Brita® Hydration Station™, schools like Quinnipiac University are helping to reduce bottled water waste while providing students with a convenient hydration solution.

The Brita® Hydration Station™, a touch-free, hygienic, water dispenser allows users to enjoy the benefits of healthier*, great-tasting water without the waste and cost of disposable water bottles.

Contact us to learn more about the Brita® Hydration Station™ for your campus.

The Brita® Hydration Station™... great-tasting water away from home.

BRITA®
HYDRATION STATION™

Manufactured by Haws Corporation® • www.BritaHydrationStation.com • Call Haws at 1.888.909.4297

*Certified to reduce Lead & Cysts. Substances reduced may not be in all user's water.

MAKING A CALL FOR BUSINESS PARTNER WHITEPAPERS

I am pleased to announce the addition of a forthcoming column to APPA's biweekly e-newsletter, *Inside APPA*. We are creating a new **Business Partner Whitepaper Series** and invite APPA Business Partner members to contribute a case study, technical paper, or research report to be published in a future issue of the e-newsletter, which is distributed biweekly to more than 7,500 educational facilities professionals. APPA's Business Partner members have a wealth of knowledge, experience, and expertise that our members can benefit from learning.

Here are the particulars:

- Contributions to the Business Partner Whitepaper Series are open only to current Business Partner members of APPA. Current dues must be paid in full.
- Your whitepaper should focus on an issue, project, or research that you've conducted related to educational facilities. This may include facilities topics focused on colleges, universities, K-12 schools and districts, preparatory schools, museums, city/county governments, federal agencies, and other nonprofit, education-oriented entities.
- Length will be no more than 1,000 words. Graphics, photos, and figures are welcomed to help illustrate the topic of your whitepaper.
- This is NOT a new product listing or a self-promotional marketing piece. You can use your own project examples, research, and case studies, but the whitepaper itself is not meant to be a self-promotional piece.
- APPA will format each accepted whitepaper with the APPA logo and your company's logo (with URL link) at the top of the paper. Each whitepaper will be produced as a PDF.
- Each published whitepaper will be archived with the issue of *Inside APPA* in which it appeared, as well as elsewhere on the APPA website, as valuable content for members and others to search and review.
- There is no cost to your company for contributing a whitepaper to this new series. This is a benefit of being an APPA Business Partner member.

Please send your questions or whitepaper ideas to Steve Glazner at *steve@appa.org*.

READERSHIP SURVEY PRIZE WINNERS

Finally, we congratulate the following APPA members who won the prize drawing for their participation in our recent readership survey on *Facilities Manager*.

- **Bill Littlefield**, Wofford College (Apple iPad)
- **Sally Moore**, University of Texas Austin (Kindle Fire)
- **Mike Zwanziger**, University of Northern Iowa ($100 Amazon gift card)

Thank you to everyone who completed the readership survey; we received 612 surveys, which translates to a solid 13.4 percent response rate. Your feedback will help us improve the magazine content and provide you with an even better resource for your professional development. I'll share a more complete report on the survey results in the next issue.

Coming in Nov/Dec 2012

- Space Management and Utilization theme
- Don't Build It Unless You Really Need It
- Thought Leaders Report, Part 2

FACILITIES manager

President
Mary S. Vosevich, University of New Mexico

Executive Vice President
E. Lander Medlin, *lander@appa.org*

Editor
Steve Glazner, *steve@appa.org*

Managing Editor
Anita Dosik, *anita@appa.org*

Design & Production
www.touch3.com

Printing
Corporate Press, Inc.

Editorial Office
703-684-1446 ext. 237
Fax: 703-549-2772

Advertising
Gerry Van Treeck, 847-562-8633
gvtgvt@earthlink.net

www.appa.org/facilitiesmanager

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

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

About APPA

APPA promotes leadership in educational facilities for professionals seeking to build their careers, transform their institutions, and elevate the value and recognition of facilities in education. 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 5,200 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*.

PRIDE

An uncompromising noun which provides a cause or source of pleasure or satisfaction; the best of a group or class

Okoguard EPR cables - introduced by Okonite over 45 years ago - have become the standard of excellence in power cables.

Only Okoguard cables have the distinction in the industry to provide an all EPR insulation system, ensuring Utility Managers unmatched cable characteristics and quality for their power systems.

The design, service history and uncompromising standards of Okoguard Cables also ensure Utility Managers confidence in the lifetime performance of the power cable.

Every foot of Okoguard cable bears the imprint of its 134 year old company and Owners/Employees. These employees are proud of its uncompromising quality and durability and know that every cable has been and always will be ..... **Made In The USA**.

Okonite Cables...A higher Standard!

THE OKONITE COMPANY

102 Hilltop Road, Ramsey, NJ 07446 201.825.0300 Fax: 201.825.9026 www.okonite.com

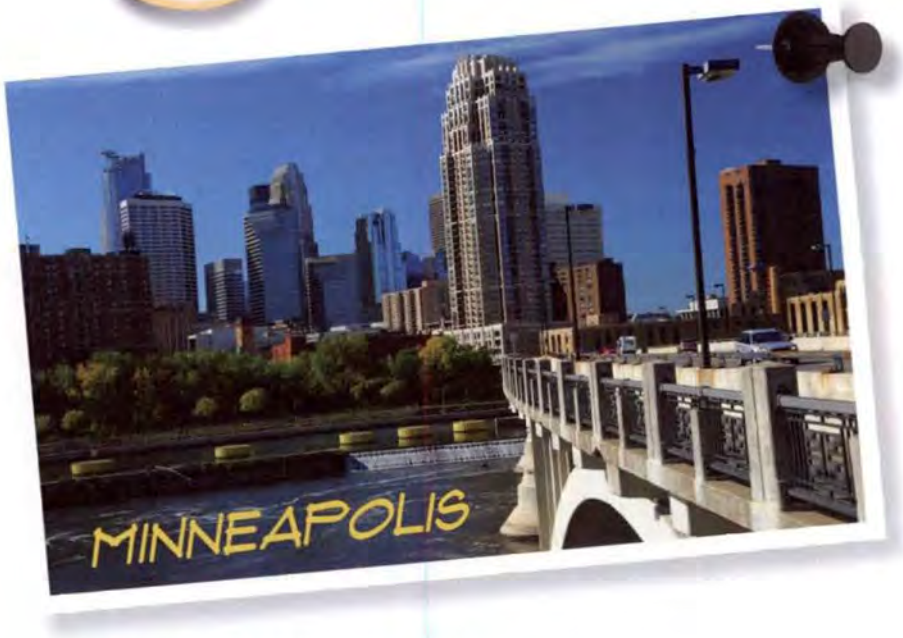
facilities digest

By Anita Dosik

APPA ANNOUNCES TWO COMPLETED CFAR PROJECTS

The Center for Facilities Research Advisory Council is pleased to announce the successful completion of two CFaR projects. The principal investigators for these projects received the CFaR Research Award at the APPA's 2012 in Denver in July. Their reports are available on the CFaR website at *www.appa.org/research/cfar*. In addition, each of the researchers will prepare an article for a future issue of *Facilities Manager*. Congratulations to:

- **Gregory K. Adams, University of Wisconsin Milwaukee**: *Relating Facility Performance Indicators with Organizational Sustainability in Public Higher Education Facilities*
- **Erica L. Eckert, Kent State University**: *Examining the Environment: The Development of a Survey Instrument to Assess Student Perceptions of the University Outdoor Physical Campus*



SEE YOU IN MINNEAPOLIS IN 2013!

It isn't too early to start planning to attend next year's APPA Conference & Exposition. **APPA 2013** will be held **August 2–4, 2013**, in Minneapolis, Minnesota, with the **SFO Summit** on **August 1**. You won't want to miss this exciting kickoff celebration for the association's 100 years of service to the profession of educational facilities management.

APPA U

SAVE THE DATE FOR APPA U!

January 13–17, 2013
Marriott Tampa Waterside
Tampa, FL

Join us this January for a week-long unique professional development experience devoted to the facilities professional. APPA U is designed with you in mind, and delivered by experts in our community! Enjoy the convenience of both the APPA Institute for Facilities Management and the Leadership Academy at one location.

Contact us at *education@appa.org* with questions as you prepare to join us in Tampa!

APPA'S MEMBERSHIP DIRECTORY—CONVENIENCE AND ACCURACY

As an APPA member, you can access the APPA members-only searchable database anytime through the APPA website. The membership directory is updated automatically to give you the latest contact information available – all available 24/7 for your convenience. All you need to do is log in, go to the Membership tab, then Membership Directory.

Along with the most current contact information about other members, you will also find information about APPA's strategic plan, staff, programs, and structure. Advertising opportunities are also available in the membership directory.

You may also change your contact information listed in the directory through myAPPA, under myAccount. Or if you prefer, you can send an e-mail to Santianna Stewart, APPA's membership and outreach manager, at *santianna@appa.org*.

APPA BOARD LAUNCHES STANDARDS AND CODES COUNCIL

By John Bernhards

APPA Associate Vice President

Recognizing APPA's growing and increasingly important role in codes and standards development, the APPA Board of Directors approved the creation of a permanent APPA Standards and Codes Council during its July meeting in Denver.

The council replaces the existing Code Advocacy Task Force (CATF) which, within the last decade, has helped ensure that national and international standards and codes are appropriately written and applied to the needs of educational facilities and infrastructure. Significant contributions written and submitted by the CATF have been adopted over the years by the National Fire Protection Association (NFPA) and ASHRAE, among other standards development organizations. These contributions have created opportunities for educational institutions to significantly reduce costs in the hundreds of millions of dollars.

Migrating the work of the CATF into a permanent council will greatly expand APPA's presence within the standards development community. It will also enhance APPA's responsiveness to individuals and organizations seeking input on the needs of education with respect to new standards and codes. Additionally, creation of the council should support engagement of fellow professionals with codes setting responsibilities into standards development activities at both the APPA International and regional levels.

The mission of the newly formed APPA Standards and Codes Council is as follows:

- To promote codes and standards awareness and **EDUCATION** among APPA member institutions;
- Determine the **IMPACT** of existing and proposed standards and codes on educational institutions;
- **INFLUENCE** standards and code development processes and outcomes among standards development organizations, government agencies and—where practical—establish educational facilities standards on behalf of APPA members and the field of educational facilities;
- Display APPA's **LEADERSHIP** on standards and codes, and seek pragmatic solutions to the needs and requirements of educational institutions; and
- Identify broad **CONSENSUS** among APPA's institutional members, and seek appropriate representation in standards bodies at local, state, national, and international levels.

Information on the APPA Standards and Codes Council will be shared with members during the fall annual regional meetings. For additional details, contact APPA's John Bernhards at 703-542-3848 or at *john@appa.org*.

EVENTS

Sep 23-27 **APPA U: Institute for Facilities Management & Leadership Academy,** *Vancouver, BC, Canada*

Oct 2-5 **ACUHO-I/APPA Housing Facilities Conference,** *Albuquerque, NM*

Jan 13-17, 2013 **APPA U: Institute for Facilities Management & Leadership Academy,** *Tampa, FL*

REGION/CHAPTER EVENTS

Sep 16-19 **RMA 2012 Annual Conference,** *Sheridan, WY*

Sep 30-Oct 2 **ERAPPA 2012 Annual Conference,** *Philadelphia, PA*

Oct 13-17 **MAPPA 2012 Annual Conference,** *Minneapolis, MN*

Oct 14-16 **SRAPPA 2012 Annual Conference,** *Lexington, VA*

Oct 14-17 **CAPPA 2012 Annual Conference,** *Dallas-Fort Worth, TX*

OTHER EVENTS

Oct 24 **Campus Sustainability Day**

Oct 24-27 **PGMS School Grounds Management & GIE+EXPO,** *Louisville, KY*

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

INTERVIEWS FOCUS ON THE NEED TO ELEVATE FACILITIES PROFESSIONALS AND THE CURRENT STATE OF DEFERRED MAINTENANCE

- Are we having too many conversations about depreciation and not enough about total cost of ownership?
- Are there any personalitay traits that unify facilities professionals?
- Do you see a time when physical classrooms become obsolete?

APPA Executive Vice President Lander Medlin answers these questions and others in an interview published in the July/August issue of *Net Assets*, the publication of the National Business Officers Association (NBOA). Read the interview at *www.appa.org/news/membernews.cfm.*

She was also interviewed in the July 2012 issue of *College Planning & Management* for the article, "The Deterioration of Our Nation's Colleges." Read the interview at *http://www.peterli.com/cpm/archive.php?article_id=3476.*

FPI SURVEY NOW OPEN FOR 2011-12 DATA!

The 2011-2012 cycle of APPA's **Facilities Performance Indicators** (FPI) is underway. Contribute your data today! Participating in the FPI survey helps your institution make the business case for its facilities' needs, successfully address capital asset realities, compare your facilities operations with other institutions, and more. This year's survey is enhanced with the ability to answer questions for Detailed or Express version from the same screen. While the deadline doesn't close until early December, the earlier you start, the more time you'll have to give your operations the critical analysis that the FPI fosters. Access to the FPI survey and report is free for all participating APPA members.

GET YOUR CAREER ON TRACK FOR SUCCESS—BECOME APPA CERTIFIED!

Register Today for the Credentialing Prep Course for both CEFP & EFP:

- September 28, Vancouver, BC, Canada
- October 13, Lexington, VA
- October 17, Minneapolis, MN

Do you get the recognition you deserve for your management expertise? Obtaining your Certified Educational Facilities Professional (CEFP) credential or Educational Facilities Professional (EFP) certificate is an excellent way to advance your career or invest in the success of the staff you manage. New training innovations, such as the credentialing prep manual and online credentialing exams, make it even easier to access training and testing to obtain the certification or credential that's best for you.

Get credit and accredited for all your hard work! Learn more about becoming APPA certified. Make plans now to advance your career by attending one of upcoming APPA Credentialing Prep Courses. To learn more visit *http://credentialing.appa.org*.

APPA Congratulates EFP & CEFP Recipients

The following professionals have successfully completed the requirements for APPA's CEFP and EFP credentials, from February 1 to June 30. Congratulations on their personal accomplishments!

CEFP Recipients

Emmet Boyle, University of Regina
Dave Button, University of Regina
Lynn Fletcher, University of Colorado/Bouler
Brian Guns, University of North Carolina/Charlotte
Susan Hopper, Michigan State University
Jim Jackson, University of Nebraska/Lincoln
Casey Martin, Jacobs Engineering
Lynn Rotoli, University of Pennsylvania
Matthew Yencha, Moravian College

EFP Recipients

Suzanne Alchin, Michigan State University
Mary Alford, University of Colorado/Boulder
Sarah Ely, University of Michigan/Ann Arbor
Seth Ferriell, SSC Service Solutions
Paul Guttman, University of Michigan/Ann Arbor
Lowell Hanson, University of Michigan/Ann Arbor
Kevin Kuretich, University of Michigan/Ann Arbor
John Lawter, University of Michigan/Ann Arbor
Steve Pflipsen, University of Colorado/Boulder
Richard Robben, University of Michigan/Ann Arbor
Mary Romano, University of Colorado/Boulder
Jacob Sabins, Michigan State University
Catherine Schainman, The Catlin Gabel School
Daniela Sousa, University of Massachusetts Dartmouth
Tressa Wahl, Michigan State University
Lynette Wright, University of Michigan/Ann Arbor

We can learn a lot from each other.

Introducing our Think Green® Campus Model.

Waste Management has worked closely with some of North America's leading green colleges and universities to help them meet their ambitious environmental goals. What we've learned in the process, using proven best practices from the industries we serve, has become our Think Green Campus Model: a scalable, customizable approach to maximize material recovery, manage waste diversion and reduce your institution's impact on the environment.

The model is a comprehensive framework for action. It can help you assess your university's carbon footprint, optimize efficiency, foster a culture of sustainability on campus, and drive toward the ultimate goal of zero waste.

To learn more about the Think Green Campus Model, please call Herb Sharpe, Corporate Director of Education, at 866 746 2180.

Go to wm.com/wm/greencampus to download our brochure, "In Pursuit of Zero Waste."

WM
WASTE MANAGEMENT

THINK GREEN®

Impressed by Simplicity

By Joe Whitefield

Two trains are on the same track heading toward one another. Initially they are 75 miles apart. Train A is traveling east at 15 miles per hour and Train B is traveling west at 10 miles per hour. The trains are carrying 145 passengers between them. As the trains leave the station, a bee takes off from the windshield of Train A and flies east, at 21 miles per hour, until it reaches the windshield of Train B. Once reaching Train B the bee turns around and flies west until it reaches the windshield of Train A. The bee continues flying, at the same speed, from windshield to windshield of each train until they collide. The question is: What is the total distance the bee travels (presuming he was not smashed on a windshield)?

For many people, this kind of problem stirs up bad memories and sick feelings. After all, it involves moving objects, several unrealistic elements, many unknowns, and an impending collision. While each element of the problem is important, taken together they seem to complicate the situation and add to its overall complexity. And no one really wants to take the time to calculate the number of segments as well as the time and distance of each segment the bee travels from train to train anyway.

In many ways, the problem with the trains and the bee resembles the problems facilities managers frequently face. Practically all operations, systems, or processes we use and rely upon everyday contain some measure of complexity. Generally speaking, complexity is a condition that is difficult to understand or analyze because it involves many interrelated parts. Given the prevalence of it at work and in our daily lives, it might be helpful if we look at both the nature and the impact of this condition.

NATURE OF COMPLEXITY

Complexity is subtle. It is rarely our intent to complicate a situation. In fact, our intent is usually the opposite. In trying to be more effective and efficient we integrate and automate everything we can for the purpose of saving time and financial resources. Integration is the primary mechanism for effficiency. Of course, technology is a tremendous enabler, if not an outright driver, of this effort.

The negative aspects of complexity lie below the surface, and sometimes stem from our improvement efforts. The same integration strategies that produce efficiencies, can create dependencies that propagate failures and errors throughout the system as fluidly as the benefits. While operating a new system may require less thought when it's running smoothly, the same cannot always be said when problems arise and have to be diagnosed and corrected.

IMPACTS OF COMPLEXITY

There are costs associated with complexity. We are all aware of the initial costs of implementing the fully integrated system or process—technology, personnel, training, etc. These costs serve as the basis of comparison with the quantified benefits producing some rate of return.

However, other costs of complexity are hidden. They may include:

- longer term operational and maintenance costs associated with the technology
- dependence on consultants and specialized service providers for support
- duplicate or backup systems that are required and sporadically used
- inefficiencies of all kinds, with both system and personnel, associated with intricate processes and product flow systems
- future renewal, replacement, and upgrade costs for equipment, hardware, software, etc.
- additional layers of management

These costs are the inefficiencies that are embedded in operations and administrative structures. Often, it is the dependencies established in the integration process that amplify the impacts and the costs associated with complex systems. A small problem in one phase snowballs as it rolls through the system.

C Completion
O Organization
I Innovation
N Being Nice

COMPLEXITY MANAGEMENT

Writer and strategy consultant Richard Koch opines that half of the value added costs in the average company are complexity-related, and half of that half offer opportunities for radical cost reduction. He says, "Waging war on complexity can lead simultaneously to stunning cost reductions and improvements in customer value."[1] A quick look at the operations and systems within your facilities management organization should indicate if you are managing complexity or complexity is managing you.

This is not a call to unplug the technology and revert to older processes and systems. Instead, it is a call to re-examine their benefits and their costs. It could be profitable to adopt a simplification mindset that wrings out unnecessary steps that add to the complexity but do not add value. Ask questions such as:

> A QUICK LOOK AT THE OPERATIONS AND SYSTEMS WITHIN YOUR FACILITIES MANAGEMENT ORGANIZATION SHOULD INDICATE IF YOU ARE MANAGING COMPLEXITY OR COMPLEXITY IS MANAGING YOU.

Is it necessary? Does it help? What are the true costs? Is it worth it? In short, keep it simple.

SO...HOW FAR DID OUR BEE TRAVEL?

In case you are wondering how far our bee has traveled, consider the following simple approach:

- Before you attempt the calculation, call Jack Bauer – the trains are going to collide
- The trains are converging on one another at a total rate of 25 miles per hour
- At 25 miles per hour, the trains will cover the 75-mile distance and collide in 3 hours
- A bee flying at 21 miles per hour will travel a total of 63 miles in 3 hours (no need to calculate the individual segments of the bees travel)

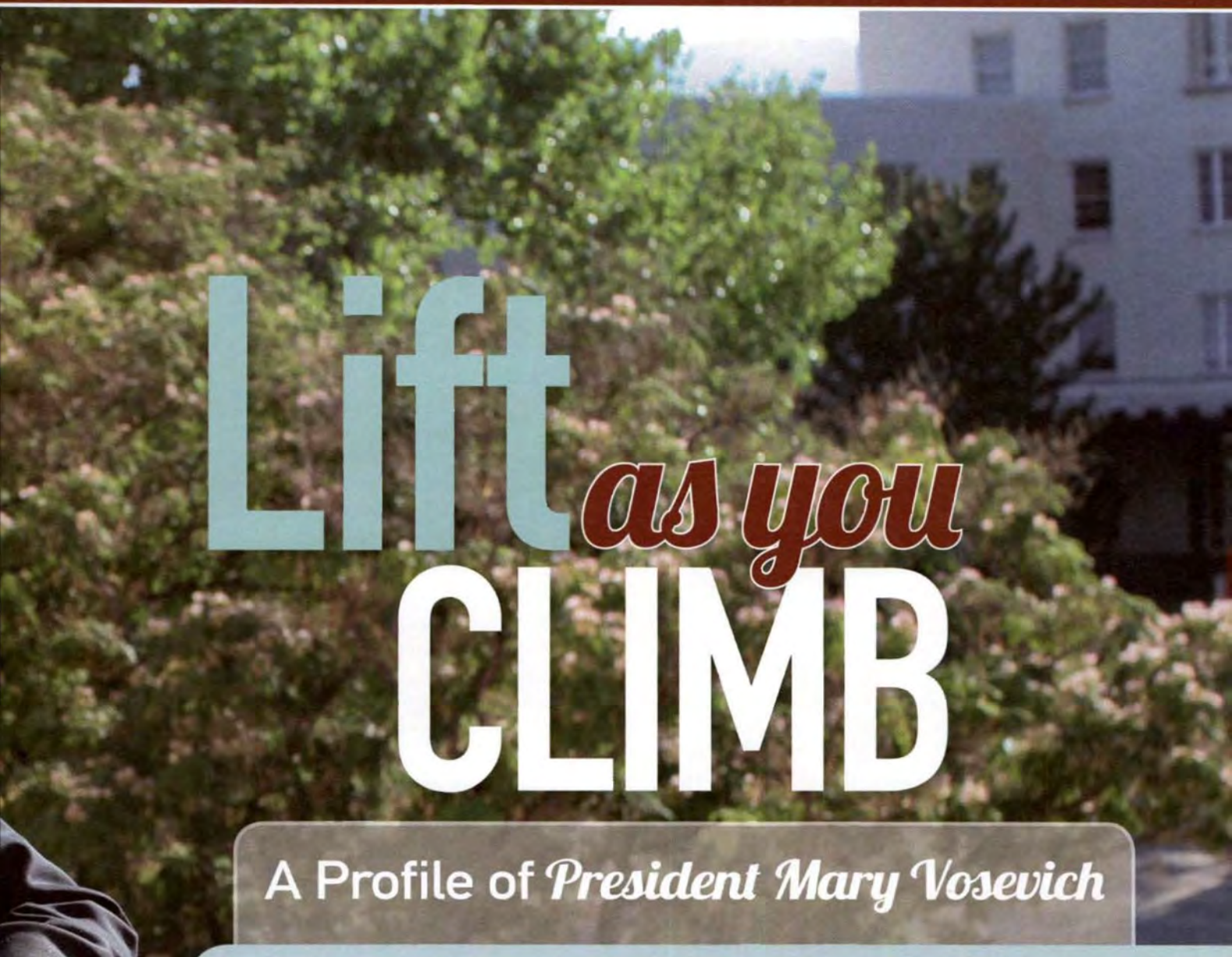
The problem is really not as difficult as it may have initially appeared—neither are many of the challenges we face every day.

ENDNOTE

1. *50 Management Ideas You Really Need to Know*, Edward Russell-Walling

Joe Whitefield is executive director of facilities services at Middle Tennessee State University, Murfreesboro, TN. He can be reached at *joe.whitefield@mtsu.edu*.

PHOTO BY JOHN SUMROW



Lift as you CLIMB

A Profile of *President Mary Vosevich*

"My thumb got me into this!" declares the new APPA President Mary Vosevich when asked how she entered the field of educational facilities management. It was 1984, and Vosevich, a Midwest native, was working at Monsanto in St. Louis as a research biologist, having earned her B.S. in horticulture/agriculture from the University of Missouri, Columbia. But she was looking for something else.

"You know how you read a newspaper—holding it up with both hands, thumbs facing you," she says. "As I was reading the want ads, I saw that my thumb was right on top of an ad for manager of campus landscaping operations at the University of Missouri, St. Louis. It was a perfect fit for my horticulture degree."

Her career took off as she assumed more responsibilities—transportation, custodial services, special event management. After five years, she was promoted to manager, environmental services of the Facilities Services Department. One of her initiatives was to establish a facilities services preventive maintenance program. As it was the early 1990s, both technology and environmental issues were growing in importance, and she took initiatives there, too. She implemented a support services management software program and also initiated and carried out a campus environmental program that included recycling and composting, reducing by one-third the amount going into landfills.

GROWING A CAREER, THANKS TO APPA U

Vosevich became interested in APPA during her

first years at the University of Missouri. In the early 1990s, she attended the Institute for Facilities Management and the Leadership Academy, known collectively as APPA U. "They certainly helped me—the Institute programs in technical areas, and the Leadership Academy in sound leadership and management principles and practices," she says.

Vosevich explains that APPA's education function is of particular importance because "the majority of us in the educational facilities management field kind of fell into it. So APPA educational programs amounted to our university. It really is 'APPA U.'

"The added benefit of the programs that cannot be understated is the wonderful networking opportunities," Vosevich says. "When you are with class members, working with them for a week, you create relationships that are enduring. This has been the case for me; I have APPA colleagues around the country and world that are friends and professional resources when I need assistance."

PHOTO BY RHONDA HOLE

Vosevich, seated at center, and the APPA Board recently met with representatives of a proposed Mexico APPA.

THE MOVE TO UNM—MORE RESPONSIBILITIES, MANY MORE HATS

In 1994, Vosevich became the associate director of environmental services of the Physical Plant Department at the University of New Mexico in Albuquerque. She reorganized her division to give it a more efficient reporting structure while still focusing on customer service. For example, over a two-year period, she oversaw the transition in custodial services from individual to team cleaning, which included training programs for 195 custodial, supervisory, and managerial personnel. Not only did the level of cleanliness rise appreciably, but there were savings in costs of labor and energy as well.

She also focused on training for staff health and safety and included switching from upright vacuum cleaners to the ergonomically preferred backpack vacuums, introducing stretching exercises for staff, and eliminating numerous chemicals. The training reflected the UNM philosophy of instilling in all employees a sense of their value to the organization.

In 2000, Vosevich was promoted to her current position of director of the Physical Plant Department. Today, UNM covers 11.5 million square feet and 783 acres. Vosevich manages human and financial resources in a department of 500 with an annual budget of $70 million. Initiatives here included closer alliances with other departments and groups, such as the university's business officers, and expansion of technology, with energy management, work order, and work control systems.

Vosevich wears a second hat as vice president of Lobo Energy Inc., a UNM corporation created in the late 1990s under the Research Park and Economic Development Act. "Lobo Energy allows us to function more efficiently in utility projects, with different ways of purchasing equipment and services," she says. Under this act, she implemented the Lobo Energy $63 million business plan to update the campus utility infrastructure.

Over the past decade or so, energy/environmental/sustainability issues have become core concerns of facilities management and of the wider university community. Vosevich chairs the UNM Sustainability Committee and oversees UNM's Office of Sustainability. Originally, the committee worked to set policies for the university. Today, wide-ranging activities include a green purchasing policy, a sustainable approach to pest management, and policies/programs to reduce greenhouse gas emissions, improve energy efficiency, reduce energy use, conserve water, and recycle traditional and electronic waste, and many other efforts.

"It was also important to address how the facilities department was going to support this sustainability effort," Vosevich says. "An aggressive energy conservation program was established that to date has resulted in energy savings since 2008 of 18 percent—the equivalent of 1,276,855 MMBTUs, a reduction of 179,084 metric tons of carbon dioxide, 4,580,601 tree seedlings grown for 10 years, or 32,143 passenger cars not driven for one year."

Saving on all fronts is more important than ever with the severe budget cuts of the past few years. "I don't know of any educational organization that has not been impacted by the downturn in the economy," Vosevich says. "All the challenges facing facility managers are exacerbated by budget cuts. This has required facility managers to be more efficient while still being effective. Many have reduced services and response time, and unfortunately many have been forced to lay off staff. Everyone is being challenged to do more with less to support the ongoing education and research missions of their respective organizations. Our effort to reduce energy has allowed our institution to face the budget reduction head on."

Another role Vosevich fills is logistics sector chief for UNM emergency response. "My FEMA certifications are for the National Incident Management System (NIMS)," she explains. "This is not a requirement for facilities managers, but at UNM

we recognized the value of this training, and the members of our emergency management team have been certified. Emergencies come is all shapes and sizes. We have experienced our fair share, and depending on the size or scope of the 'event,' we activate our emergency operations center. All training is provided by certified instructors."

PHOTO BY JOHN SUMROW

Vosevich reviews a boiler control panel with UNM utilities staff Rhonda Anfinson, John Fitzgerald, and Ben Dziczek.

GOING BACK TO SCHOOL—AND EXPERIENCING CHANGES FIRSTHAND

It is well known that, over the past couple of decades, the needs of students and the delivery of courses have changed radically. Vosevich saw this for herself when she went back to school for an executive MBA in 2002. It was far cry from her memories of undergraduate study.

"The first thing we did," she recalls, "was to break into groups, and we worked in these groups for the entire 25 months, sometimes even taking group exams. Being in class gave me a different perspective about maintenance and what we should be doing, as well as a different perspective of the way contemporary students learn. The course's approach gave an indication of how infrastructure needed to evolve because it affected space planning. New types of courses needed different layouts. Even that old standby, the tablet desk, might no longer be the seating of choice."

PLUS ÇA CHANGE... (THE MORE THINGS CHANGE...)

In the midst of this constant change, Vosevich finds several satisfying aspects of her work that remain the same. "Working in higher education is an incredible environment," she declares. "There's an energy on the campus that is wonderful to be a part of. And every year, new students arrive. There are opportunities to collaborate with various departments and schools within the university, such as the School of Engineering. Their research can benefit us, and we provide the environment for various engineering classes to learn from us, such as engineers interested in facilities. In fact, our power plant is next to the school of engineering, and we are exploring opportunities to provide engineering internships.

"In addition," Vosevich says, "the facilities organization has almost become like family, working together through good times and bad. You know they have your back and you have theirs."

MOVING UP IN REGIONAL, INTERNATIONAL APPA

Once she arrived at UNM in 1994, Vosevich's participation in APPA quickly grew because the director of the department was Don Mackel, 1992-93 president of APPA, who encouraged his staff to get involved. Vosevich became active through the Rocky Mountain Region, eventually becoming its president. Moving to the international level, she was APPA senior representative, participated in the APPA Thought Leaders Series, and was the region's representative to the committee that became the Professional Development Committee.

"In 2002, Charlie Jenkins [who had been APPA president in 1994-95] tapped me to get involved as the Dean of General Administration for the Institute for Facilities Management," Vosevich says. "He was stepping down from the position of dean and spent a lot of time mentoring me as I assumed the role. Although Charlie is no longer with us, my memories of him and lessons learned are part of my toolbox and guide me in my professional and personal life."

Also, Vosevich was a member of the APPA/Regional Relationship Task Force, which APPA convened to determine member needs and who consistently provided those needs, to identify overlap in meeting the needs of various members/constituent groups, to investigate best practices of engagement and participation, and to define roles and requirements of International APPA, regions, and chapters in an effort to avoid competition and unnecessary duplication of services. "The work of this task force will enhance the relationship and alignment between APPA international and regions," she says.

In recognition of her contributions over the years, Vosevich has received APPA's Pacesetter Award and Meritorious Service Award. She has also written several articles for *Facilities Manager*.

"WHAT DOES APPA THINK?"

From the start, UNM has provided Vosevich great support in her APPA activities. "Many institutions recognize the value of APPA for what people bring back to campus," she says, "and APPA gives the campus department credibility with the university organization and leadership. University leaders ask,

Mary Vosevich Joins the Boy Scouts

In addition to all her UNM and APPA work, Vosevich is involved with the Boy Scouts of America, Great Southwest Council. How did this come about? "I met someone on a plane who wore a Boy Scout patch on her vest," she says. "I mentioned that I knew a few people at UNM who were involved in Scouting. As it turned out, she knew them, too. She got in touch with them; they told her more about me—and a few weeks later, she phoned to offer me the position of vice president of camps and property for the Boy Scouts of New Mexico. My role is to develop a master plan for the regional Boy Scout camp, including renovation." In 2010, she received the Silver Beaver Award for Distinguished Service.

"I am impressed with the very good young men coming out of the program," Vosevich says, "especially the Eagle Scouts, with their discipline, community work, and respect for themselves and others. So when others ask me, 'Why work with the Boy Scouts? After all, you're a woman,' I reply, 'What greater gift to young women than to give them good young men?'"

PHOTO BY JOHN SUMROW

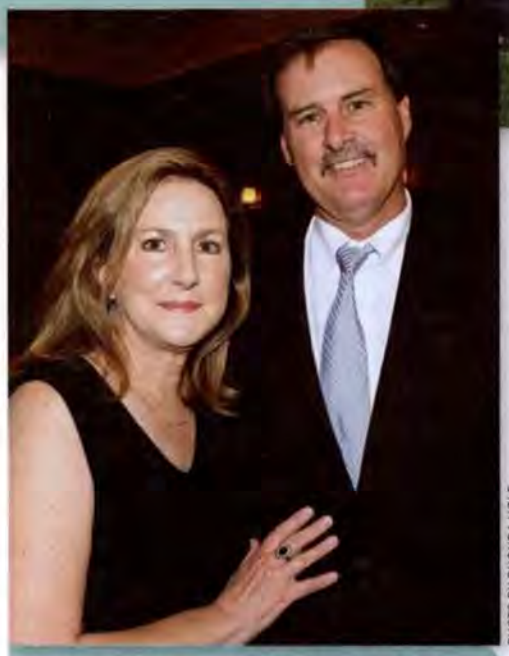


PHOTO BY RHONDA HOLE

Mary Vosevich and husband Jeff Hart. And with Lika the chocolate Lab.

'What does APPA think? What's going on at other universities?'"

In fact, Vosevich says, "One great value of APPA is the annual Facilities Performance Indicators (FPI) survey and report that allows us to see how we compare with other institutions; it helps us finetune our performance. It's a powerful tool because of the number of participants."

Facts and measurable data give heft to requests for more funding. "I can present these facts and figures to the administration along with my request, so even if they cannot act on it at the moment, I have at least planted the seed," she says. "Also, the indicators can show how well we are doing. For example, we can say, 'We're doing something for 10 percent less than other comparable places; that's how effective we are.'"

NEW GENERATION—NEW COMMUNICATION

Vosevich is committed to retaining and enhancing the quality of the organization in the face of workforce change, particularly by recognizing, encouraging, and developing new leaders on campuses and in APPA. "Baby boomers are retiring and taking with them a huge amount of institutional knowledge," she says. "How will we deal with that? Where will our future employees and leaders come from as we move to a new generation and a much more diverse workforce? That's a challenge for APPA and our institutions.

"We need to spread the message that APPA is a knowledge-based organization that is the go-to source of information for facilities management professionals as well as for general university leadership. We need to stress that, as a member, if you have a query, you can get information and help from anyone, anywhere. Folks want to help.

"But the new generation and new cultures communicate in different ways," Vosevich says. "To reach these new and vital groups, we need the right communication modes. It is presumptuous of the Executive Committee to try to figure this out all by ourselves." She says that the APPA Board of Directors needs help to understand what to do and then how to do it. APPA's Emerging Facilities Professionals Exchange has recently formed and will be an important resource for APPA now and in the future.

LIFT AS YOU CLIMB—A VISION FOR APPA

Looking forward to her presidential year, Vosevich quotes Maya Angelou: "'If I could give you one thought, it would be to lift someone up.... The very idea of lifting someone up will lift you as well.' When I think of this quote, I want to focus my year as president with this image: 'Lift as You Climb.' This has many applications for APPA. The most obvious is that that we should mentor people, create opportunities for their growth and development, and bring them along.... lift them up! Inquire what their career goals are and help them to achieve them. But I also think that this is about a thriving membership and the wonderful work that is taking place in APPA International, the regions, and the chapters.

"We need to be enablers of success," Vosevich declares. "We are an organization that supports efforts for educational institutions. What better way to achieve our mission than to provide opportunities through the exceptional programs APPA has to offer."

Anita Blumenthal is a freelance writer based in Potomac, MD; she can be reached at *anitablu@earthlink.net*. This is her first article for *Facilities Manager*.

Sustainable cleaning for a more sustainable future

THE TENNANT EDUCATION ADVANTAGE

PROVIDING THOSE IN YOUR CARE WITH A HEALTHY AND SAFE ENVIRONMENT

Tennant is recognized as a leader in cleaning solutions that reduce or eliminate the use of conventional cleaning chemicals.

- Award-winning, patented ec-H2O™ technology is helping schools and colleges across the country clean effectively while reducing environmental impact.
- Orbio® 5000-Sc Split Stream technology generates cleaning solution that replaces many daily-use conventional cleaning chemicals.

FOR TOMORROW'S CLEAN, CONTACT TENNANT TODAY.

www.tennantco.com ▪ 1-800-553-8033 ▪ info@tennantco.com

HACC, Pima CC, and CU-Boulder Win the 2012 AWARD for Excellence

APPA's highest institutional honor, the Award for Excellence in Facilities Management (AFE), recognizes those educational institutions whose facilities management organizations demonstrate quality in overall operations and effectiveness.

The three most recent recipients—Harrisburg Area Community College in Pennsylvania, Pima Community College in Arizona, and the University of Colorado-Boulder—were honored at the awards banquet during the APPA 2012 conference held in July in Denver, Colorado.

Since the AFE Award's inception in 1988, when Brigham Young University and the Medical College of Georgia became the first recipients, fewer than 50 institutions have received this distinct honor.

The Award for Excellence is based on a set of criteria that include:

- Leadership
- Strategic and Operational Planning
- Customer Focus
- Information and Analysis
- Development and Management of Human Resources
- Process Management
- Performance Results

Evaluation of the award applications consists of two parts: a self-evaluation addressing specific, stringent criteria, and a site visit by representatives from APPA's Professional Affairs Committee to confirm the accuracy of the self-assessment. Applying for and receiving the AFE is no small task for an institution. As you will read in the following pages, it takes teamwork from everyone within the facilities organization and requires coordination, motivation, and support from the top levels of leadership to be a successful facilities operation and to win the APPA Award for Excellence.

The deadline for applications for the 2013 Award for Excellence is January 31, 2013. Successful candidates will be honored at the APPA 2013 conference August 2-4 in Minneapolis, Minnesota.

To apply and for more information, visit: *www.appa.org/recognition/awardsforexcellence.cfm.*

To view past AFE winners, visit: *www.appa.org/recognition/excel-winners.cfm.*

Harrisburg Area Community College

By Joseph R. Wojtysiak, MSA, CFM, CEFP

Joe Wojtysiak is senior director, Harrisburg Campus Facilities Management Department, for the Harrisburg Area Community College, Harrisburg, PA. He may be reached at jrwojtys@hacc.edu. *HACC also won the AFE in 2007 and is the only institution to have twice received the award.*

Nearly 50 years ago, Clyde Blocker and Jim Evans envisioned a need to provide affordable, quality educational opportunities for residents living in Central Pennsylvania. Their vision and efforts were successful in creating Harrisburg Area Community College, the first of 14 community colleges in Pennsylvania. HACC's devotion to the individual and the community stems directly from its mission to foster educational, cultural, workforce development, and economic growth of the college service areas. The existing site, a former landfill, was donated by the City of Harrisburg and is now classified as an arboretum. Since being established on February 14, 1964, HACC has grown requiring four additional campuses and a large virtual campus.

MOTIVATION FOR APPLYING: *"IT'S ALL ABOUT THE STAFF"*

Our primary motivation for submitting for the Award for Facilities Excellence was to gain recognition for staff at the five campuses performing the day-to-day tasks, which might go unnoticed and/or unappreciated. It's about the night shift cleaning crews, the carpet and floor tile staff, and the staff who clean the parking lots before anyone arrives. It's about the HVAC and electrical technicians who perform the critical preventive maintenance tasks so the lights and receptacles function and so the learning and office spaces are comfortable. It's about the staff who maintains the attractive grounds which communicates a non-verbal message of "welcome to our campuses." However, the award and recognition goes beyond the Facilities organization and includes all the other staff (i.e., security, information technology, purchasing, administration, and many more) who support the college and work behind the scenes.

Another motivation was to have HACC, among the largest in size of the more than 1,400 community colleges in the United States, be recognized both nationally and internationally for being an outstanding community college.

And a final motivation was to market and elevate the facilities profession as being stewards of the physical plant and playing a strategic role with the recruitment and retention of students.

ABOUT HARRISBURG AREA COMMUNITY COLLEGE

HACC, Central Pennsylvania's Community College, is a vibrant and entrepreneurial community college serving nearly 23,000 traditional and non-traditional students, and 5,300+ virtual students in distance education/online courses, at the five campuses located in Harrisburg, Lancaster, York, Gettysburg, and Lebanon. The college has a reputation of excellence in faculty, academic programs, student services, and workforce economic development, and offers nearly 200 degree, certificate, or diploma programs. Noncredit courses are offered in areas such as job training, customized company contracts, public safety, technology trades, computer training, travel, and personal interest/hobbies/health.

In Central Pennsylvania, HACC is the largest provider of nursing and allied health professionals, law enforcement, and other public safety personnel.

About a third of HACC's students transfer to a large number of four-year colleges across the country. The remaining two-thirds study for a career leading to employment after earning an associate, certificate, or diploma.

HACC's York Campus Cytec Building.

The appearance, maintenance, and cleanliness of our 23 major buildings of more than 1.3 million gross square feet, and located on the 275 total acres, contributes significantly with the recruitment and retention of students. Students and parents experience a campus environment that is attractive, exudes safety, and feels like home.

ABOUT THE FACILITIES MANAGEMENT ORGANIZATION

In 2007, after addressing issues identified in the 2004 APPA Facilities Management Evaluation report, HACC became only the second community college to ever receive the Award for Excellence, and in 2012 became the only institution to receive this prestigious award more than once.

The Facilities Management Department supports HACC's quest for student excellence by providing this safe, attractive, and functional environment in a way that exceeds our customers' expectations. *"It's all about the students,"* and we actively support Student Life, the Student Government Association, the student newspaper (*The 4th Estate*), and numerous student clubs. Horticultural students not only complete their practicum requirements working with our Grounds & Arboretum staff but, from a student perspective, provide ideas for continual improvement of the campus environment. A vision for continuous improvement and creating an environment for employee empowerment is an ongoing process and has become a way of life within the facilities organization. Employees are not only encouraged but expected to make decisions on their own. Consistency exists at all campus facility operations using standard operating procedures developed using APPA Level 2 maintenance, grounds, and custodial guidelines. The potential of $260 million of, at LEED Silver minimum, new construction, major renovations, and maintenance projects are identified in the College Master Plan.

Of the 16 FMD personnel in key positions, seven have completed the Institute for Facilities Management, four are in various stages of completing the full curriculum, and the four others are expected to begin their APPA training experience.

HACC is committed to sustainability, conservation measures, and energy reduction. Facility staff keep current by participating in the Central Pennsylvania Energy Consortium, Pennsylvania Environmental Resource Consortium, Keystone Chapter of APPA, International Facility Management Association, and Richards Energy Group, and utilizes the Metasys building management system to regulate HVAC and lighting at all campuses. The Harrisburg campus is currently receiving and analyzing individual building electricity, natural gas, and water meter reports.

MOVING FORWARD

HACC has and will continue to adapt to the needs of its students and to the needs of the community. Challenges are expected to continue economically, with quickly evolving technology, and student expectations. HACC is positioned to meet whatever the challenges and to maintain its outstanding reputation for educational, cultural, and workforce development. It will be supported by the Facilities Management organization who are committed to facilities excellence, continual improvement, and providing the environment for academic success.

Pima Community College

By William R. Ward II

Bill Ward is assistant vice chancellor for facilities at Pima Community College, Tucson, AZ. He may be reached at wward@pima.edu.

Receiving the high honor of APPA's Award for Excellence places Pima Community College (PCC) alongside other learning institutions such as the Smithsonian Institution, University of Michigan, University of Oklahoma, Duke University, University of Florida, University of California Berkeley, and the United States Military Academy (West Point). International schools have also received this award, such as Memorial University of Newfoundland (Canada) and Griffith University (Australia). As I had stated at the awards banquet during the APPA 2012 conference, we are deeply honored to receive this recognition,

and to be one of only three community colleges to receive this award is truly special.

PCC is one of the largest multi-campus community college systems in the United States. PCC's six campuses and education centers include nearly 1.7 million square feet of facilities and 539 acres of land and about 1,500 full-time employees and academic programs that serve more than 75,000 students.

The District Facilities Department is a 250-person unit (in-house/contract employees) responsible for all district facilities operations and related issues including areas such as: facilities planning and construction, real estate management, industrial maintenance and repair, energy management, environmental health and safety, emergency planning, staff management, purchasing, fleet management, district warehousing, mail, and the management and oversight of an operating budget of $18 million and a capital budget of $30 million.

Pima Community College's Desert Vista Campus.

The leadership and management team is a tight-knit group of experienced professionals from a wide background of knowledge, skills, and abilities in all facets of the facilities management profession. Our goal is to construct, operate, maintain, and repair safe, functional, and attractive facilities for students, faculty, staff, and visitors.

The facilities team is dedicated to helping the college achieve its vision of **providing access to learning without the limits of time, place, or distance.** The mission of Pima Community College is to **develop our community through learning**. The facilities team is wholeheartedly supportive of the college values of accountability, diversity, innovation, integrity, people, and quality. All of the work of the facilities department is geared toward accomplishing the college goals:

1. To improve access to all college programs and services.
2. To provide excellent teaching and responsive student services.
3. To prepare a highly skilled workforce.
4. To created student-centered partnerships with colleges and universities.
5. To provide effective developmental and adult basic education.
6. To create partnership with business and industry, the local schools, government, and other constituencies, and that enhance the community.
7. To foster responsible civic engagement.

The entire PCC team is proud to be a recipient of the APPA Award for Excellence and look forward to maintaining our facilities in a manner that reflects the prestige and honor of this award. The award definitely speaks to the effectiveness and dedication of the facilities management team in supporting the college's mission.

We will also continue to take full advantage of the tools/training that the APPA organization has to offer to help prepare our facilities team for the future. Our senior leaders will set direction and establish customer focus, clear and visible values, and high expectations in line with campus mission, vision, and core values.

In conclusion, we are constantly vigilant in our goals of reducing all of our utility waste and costs in order to operate in a sustainable manner. The college Facilities staff and our dedicated business partners will work together to ensuring that all of our district facilities are constructed, operated, and maintained at the highest level possible. We will also do our best to inspire the people in our organization and create an environment that stimulates personal growth, development, learning, innovation, and creativity.

OTHER KEY ACHIEVEMENTS

- Received the Historic Preservation Award in 2012 from Tucson-Pima County Historical Commission and Historic Preservation Foundation for awareness and preservation of historic sites, structures, districts, and character of the City of Tucson, Pima County, and the City of South Tucson.
- Critical contributor to the development and implementation of the 1950s-era Neon Signs Tucson Rehabilitation Project "Art Walk." Received the 2012 Governor's Heritage Preservation Award.
- Spearheaded a successful drive-in symposium for all Arizona community college facilities management teams to meet and discuss best practices, efficiencies, and lessons learned. Article published in May/June 2011 *Facilities Manager.*
- Received Exemplary Practices Award in 2010 from Community College Business Officers Association for developing a replacement plan and installation of a new state-of-the-art modular central plant that resulted in a savings of $2 million. Article published in March/April 2011 *Facilities Manager.*
- Facilities received the highest rating of all areas from the 2010 PCC Institutional Climate Survey.
- Created the College's first Emergency Response Plan and developed training courses to improve the safety skills and awareness of Pima personnel.

University of Colorado-Boulder

By Lisa Potter, CEFP

Lisa Potter is interim director, facilities operations, at the University of Colorado-Boulder, and chair of the RMA Membership Committee. She may be reached at lisa.potter@colorado.edu. *This is her first article for* Facilities Manager.

Facilities Operations is one of three divisions within the University of Colorado-Boulder's Facilities Management department. After a previous executive director retired and the decision was made not to replace that position, the department was run by the three division directors: Ron Ried, director of business services, Paul Leef, director of planning, design, and construction, and John Morris, facilities operations director. Before John retired earlier this year to accept the position of associate vice president for facility services at Northern Arizona University, he applied for the APPA Award for Excellence to ensure that the hard work and efforts of his team were recognized.

This submittal was distinctive since it was submitted for just one division of the Facilities Management department instead of the entire department. However, credit goes to all divisions within Facilities Management since it truly was a collaborative effort and could not have been accomplished without the input and support of the other divisions. John Morris was so dedicated and enthusiastic about the progress of Facilities Operations that he completed the 44-page award submittal while he was away from work for a month. Under his exemplary leadership, the Facilities Operations division solidified as a team that is dedicated to providing service excellence.

A few key highlights from the award submittal follow.

LEADERSHIP

The Facilities Operations management team moved the department to exceptional levels of service awareness. University of Colorado-Boulder is fortunate to have the services of this dedicated and hard-working team.

- Strategic goals, defined focus, and vision allowed dedicated leaders to make an organizational change that focuses on service delivery, preventive maintenance as a foundation in which to continuously improve the buildings' performance, staff development, data-based decision making, continuous process improvement, and responsible fiscal management.
- The Facilities Operations management team worked hard to develop a strong level of trust by members of the department's workforce. This high level of trust allows for open communication, respect for individuals, and enhances the organization's ability to communicate effectively.
- Management focused on providing leadership training to our supervisory staff. State of Colorado Supervisor Certification classes, APPA Supervisor's Toolkit, and APPA Leadership Academy Track I are just a few examples of courses delivered to staff on campus.

STRATEGIC AND OPERATIONAL PLANNING

- Annual strategic goals were developed, called "Programs of Emphasis," for each functional service area of the department. The list is quite comprehensive and ambitious and represents a mix of strategic and tactical goals. These strategic goals were developed by the Facilities Operations senior leaders with collaboration and input from the various unit supervisors and feedback from key campus customers.
- Facilities Operations staff participate in the design review process, building construction process, perform both code and quality inspections, and are involved in the commissioning process in partnership with Planning, Design, and Construction.
- Facilities Operations has policies and procedures to ensure continuity through all levels of service. Cross training of all employees is encouraged such that a specific skill set is not limited to a single employee.
- The work order process and key performance indicators (KPIs) are defined in a procedural manual and reviewed with all new employees.

University of Colorado-Boulder.

CUSTOMER FOCUS

- *Promote a Customer-Focused Culture* is one of the Programs of Emphasis. There are numerous tactics that consider feedback from the customers. This information is collected via small customer focus groups and with input from the director's meetings with the campus deans, administrators, various department heads, and key campus customers.
- The Facilities Operations division has a collaborative and reciprocal relationship with most of its customers and peer service providers. The relationships developed are strong and the department has received high marks for its responsiveness, quality of work, and overall campus appearance.
- The department's computerized maintenance management software (FAMIS) provides notification to service requestors on the status of their work and is capable of alerting customers to complete a survey when a work order is completed. Customers are sent an e-mail confirming receipt of a work request and another when the work order is closed.
- Customer service training is provided to the staff, and the department leaders work diligently to set the expectation of a customer-driven service culture.

INFORMATION AND ANALYSIS

- KPIs are routinely reviewed by senior management to monitor department performance and to adjust services or processes as needed.
- The department uses benchmark tools such as the APPA Facilities Performance Indicators (FPI) survey and report, and the Sightlines analysis.
- University of Colorado-Boulder uses the AASHE STARS assessment model for tracking its sustainability efforts. Facilities Operations staff is actively involved in the implementation and tracking of programs such as energy management; water conservation; carbon emissions tracking; renewable energy; zero-waste initiatives including recycling, reuse, waste minimization, and composting; and fleet petroleum reduction.
- The building automation system, Andover, is routinely used to troubleshoot and improve building efficiency and is a critical tool in commissioning and re-commissioning of building systems, and in optimizing building system performance.

DEVELOPMENT AND MANAGEMENT OF HUMAN RESOURCES

- The Facilities Operations division has a strong training and

development program for all employees. Each position has a training plan in place and the top priority programs are included in a three-year training plan.

- Safety policies and procedures are written and in place. Safety training takes place during the beginning weeks of employment and periodically throughout the year. Developing a safety culture is a value that is strongly encouraged and supported by department leadership.
- There are several recognition and award programs in place. There are some spot awards, monthly and quarterly awards (for both individuals and teams), and annual employee recognition and awards issued at the annual summer picnic.

PROCESS MANAGEMENT

- Facilities Operations is currently in the process of implementing shop planner/schedulers in each work unit. The goal is to streamline the scheduling process, anticipate and proactively plan repair work, order materials, coordinate directly with customers, participate in process improvement, and ensure data integrity.
- An inventory management control committee is in place and defines bench stock, manages inventory in the shop areas, and manages truck stock.
- Team cleaning approach and the Breeze software helps to define and revise service schedules. All custodial teams have well-documented service cards defining their daily and weekly tasks.

Our department is committed to continuously working to optimize our resources to support the university goals and mission. We chose to become more efficient and effective and are looking forward to re-applying again in five years. Thank you for the opportunity—we were so honored to win this award.

One final thanks to John Morris for submitting the application for the award and for his leadership over the past seven years. We would like to acknowledge some of his efforts:

John brought awareness of our deferred maintenance needs to campus administration and the Regents; he helped us adopt reporting metrics for better management of our work processes; he ensured we invested in our staff; he increased safety awareness and professional development; he implemented preventive and planned maintenance programs, as well as many other initiatives. We were honored to have him at the University of Colorado-Boulder as a strategic director, leader, and friend.

Awards Deadline: January 31, 2013
www.appa.org/recognition

The One Convention Every Facility Manager Should Attend ...

IEHA's 46th Annual Conference & Convention

in conjunction with ISSA/INTERCLEAN® North America • October 14-19, 2012

Doubletree Magnificent Mile • Chicago, IL

Attendees Will Receive:

- 10+ hours of exclusive facility manager-focused educational sessions regarding management skills and continuous improvement, featuring IEHA's own expert members as presenters!
- 20+ hours of additional ISSA sponsored educational sessions that will help you do your job better!
- 17+ hours to discover new technologies, products and services to improve performance from more than 700 vendors on the ISSA/INTERCLEAN® tradeshow floor!
- Global networking and the opportunity to share and learn with peers in every cleaning industry segment!
- Take away proven best practices that you can easily and immediately implement upon your return!
- Return to work recharged, enthusiastic and excited with newfound skills that everyone in your facility will benefit from!
- And much more!

ieha

uniting facility managers worldwide

Register Online at www.ieha.org/Convention

Or Call (800) 200-6342 Today!

2012 APPA Fellow Encourages Colleagues to *Say Yes* to Opportunities to Serve

BY RUTH E. THALER-CARTER

IT should be no surprise that the 2012 APPA Fellow is William (Bill) Elvey, P.E., FMP. He has served the association from the grassroots level up through its highest ranks and created a still-continuing legacy of excellence and engagement—his theme when serving as APPA President—that has led to new services, programs, and partnerships for the association. Elvey's modest response to this prestigious honor: "One big reason this happened is that I've always had a problem saying no."

PHOTOS BY RHONDA HOLE

STRINGENT REQUIREMENTS

To be anointed with APPA's most prestigious individual honor, which recognizes past achievements and expected future service, a member must be an active member of APPA for ten years, graduate from APPA's Institute for Facilities Management and the Leadership Academy, complete an approved research project under APPA's Center for Facilities Research (CFaR), and formally apply for the Fellow designation. Applications include letters of recommendations from colleagues, are reviewed and approved by APPA's Professional Affairs Committee, and must receive endorsement by the APPA Board of Directors.

The required CFaR project usually involves being a research investigator on an individual project. Elvey took a different approach: his qualifying project is based on his role as APPA's representative to NACUBO's national Campus Safety and Security Project Survey. "We undertook research, a survey, did site visits, held a conference; published a book of case studies, and more," he says of the project. The project held special resonance for Elvey; he was working for Virginia Tech at the time of the horrific campus shooting there in 2007.

According to APPA Immediate Past President David Gray, during his award presentation remarks at the APPA 2012 Conference & Exposition in July, "A long-time colleague of Bill said, 'Bill was always engaged and on point' as he described Bill's work in the Southeastern Region and later as he volunteered for leadership roles at the International APPA level … Bill can always be depended on to listen, support, encourage, and guide other individuals as they, too, volunteer for related duties.'" Another colleague wrote, "Both in words and in deeds, Bill personifies integrity, quality, service, and dedication both to facilities management and to APPA. Bill is always there when you need him, giving tirelessly of his time, willing to volunteer whenever he is called upon to do so."

Elvey shares his belief in APPA not only within the membership but with his staff as well, Gray added, quoting one of his staff members as saying, "Bill has been and continues to be a mentor for me and others in facilities management, emphasizing APPA as a resource for professional development."

As Gray concluded, "Given Bill's individual successes and his steadfast dedication to our association, it is only appropriate that he receive the APPA Fellow Award designation."

STARTING IN THE SERVICE

Elvey, a native Texan, earned bachelor's and master's degrees in environmental engineering at Rice University in 1976 and 1977 and a master's in business administration from George Mason University in 1996. He came to higher education physical plant administration, and to APPA, after a 20-year first career in the U.S. Navy Civil Engineer Corps Officer, where he worked in facilities and developed solid leadership skills through experience in public works, Seabees, construction contract administration, personnel management, planning, programming, budget, and finance.

Elvey worked briefly in the private sector before finding his niche in higher education facilities management. He served for ten years as director of physical plant and associate vice president for facilities at Virginia Tech University, served seven years as director for engineering, construction, and planning at the University of Texas at Dallas, and has just started a new position as associate vice chancellor for facilities planning and management at the University of Wisconsin–Madison.

DISTINCTION IN APPA

In reflecting on his APPA career, Elvey makes the path to APPA Fellow look easy. "I joined APPA in 1997," he says. "A couple of years later, I was asked if our institution could host a state meeting, and I said yes. The year after, I was asked the same question, and I said yes. Then I was asked if we could host the Southeast Regional Conference (for SRAPPA), and I said yes. When I was asked if I would consider running for president in 2007, I said yes. In 2008, I was asked if I would be APPA's representative to the NACUBO-sponsored campus security project, and I said yes. Over the years, I said yes to APPA training resources."

Elvey's modest response to this prestigious honor is that "one big reason this happened is that I've always had a problem saying no."

As noted at this year's APPA conference, the latest of Elvey's many contributions to APPA at regional, national, and international levels was "admirably chairing" one of the two subgroups for the APPA/Regional Relationship Task Force.

As president of SRAPPA, Elvey hosted a memorable regional 50th anniversary event. He also was active in APPA's Central Region (CAPPA).

As APPA president, Elvey created the "Unsung Heroes" award in 2009 to recognize worthy individuals who work tirelessly for their regions, chapters, and/or the profession. He was also a member of a four-person Facilities Strategy Team for an Education & Institutional Cooperative Purchasing co-venture with

E&I, aimed at increasing the time and cost savings for members.

That habit of saying yes to a path in APPA leadership, he says, led naturally to this honor. "I had all the blocks in place and checked off," Elvey says, simply because of his ongoing involvement in APPA.

In addition to his deep involvement with APPA, Elvey is also a member of the Academic Facilities Council of the International Facilities Management Association, American Society of Civil Engineers, Dallas/Fort Worth Chapter of IFMA, Naval Facilities Engineering Command, Navy Civil Engineer Corps, Society of American Military Engineers, and U.S. Navy Seabee Veterans.

OTHERS CAN FOLLOW THIS PATH

Elvey intends to continue to be a guiding force behind his colleagues' professional growth and development within APPA, not least by encouraging other APPA members to aim for the association's highest honor. "I never intended to become a Fellow," he says. "It was a journey on which I just said yes. I had a lot of help along the way – it was a team effort, with the support of APPA staff and colleagues. If anyone else is interested in this achievement, you can start your journey tomorrow just by saying yes." He believes that getting involved and giving back "makes you a better member of an association."

And members can expect Elvey to serve as an example by continuing to say yes. "I still have a long way to go," he says. "I plan to keep working another 10 to 15 years. I'll continue serving APPA and the facilities profession. I enjoy giving back to my profession – it's very gratifying."

For Elvey, and APPA colleagues like him, APPA may have to create an award beyond the Fellow level!

PAST APPA FELLOW RECIPIENTS

(some years saw no award)

2011
Jack K. Colby

2010
Maggie Kinnaman
Mohammad H. Qayoumi

2009
Alan S. Bigger

2006
Christopher K. Ahoy
Donald J. Guckert
Gary L. Reynolds

2005
Edward D. Rice

2004 *(inaugural recipients)*
Douglas K. Christensen
William A. Daigneau
Jack Hug

Ruth Thaler-Carter is a Rochester, NY-based freelance writer/editor, a regular contributor to *Facilities Manager*, and the writer of APPA's onsite conference newsletter. She may be reached at *ruth@writerruth.com*.

Help When It's Needed!

Pelco's way finding signs make everything easier to find. Foot and vehicle traffic are directed more easily around campus with these beautiful, affordable way finding signs.

Call Pelco today to see how we can make your campus more student-friendly!

pelco
PELCO PRODUCTS, INC.

320 W. 18th Street
Edmond, OK 73013
(405) 340-3434
pelcoinc.com/ornamental.aspx

1. Loosen Set Screws

2. Remove Globe

3. Remove Lamp and Refractor

4. Disconnect Power

5. Connect Power to LED Conversion Kit

6. Tighten Set Screws

LED Conversion Kit

Save Big with Quick Switch

With Spring City's LED conversion kit, you can upgrade to LED without compromising your luminaire performance. You save not only money, but also energy and materials!

The simple conversion takes just 10 minutes and requires no special tools. Best of all, it gives you an LED system that:

- Meets foot-candle requirements
- Cuts energy use up to 70%
- Lasts well over 75,000-hours
- Comes with a CoolCast™ heat-dissipating roof, a CROSSFIRE™ optical system, and a 7-year warranty
- Is ARRA-compliant and LEED-certified
- And like everything else we produce, they're made in America.

The Washington fixture (pictured here) is just one of many luminaires included in Spring City's wide range of LED conversion kit offerings. We can also upgrade non-Spring City luminaires with our LED conversion kit.

View our video demonstration at www.springcity.com/media or request a demonstration today by calling 610-948-4000.

Spring City™

One South Main Street · Spring City · PA · 19475
610-948-4000 · www.springcity.com
marketing@springcity.com

APPA Promotes Leadership in ENERGY AND SUSTAINABILITY with *NEW* FPI Tool

By Darryl K. Boyce

Although sustainability best practices for buildings are generally well understood, campuses face unique challenges because they are developed to support a diverse community with a variety of facilities. From academic facilities and labs to residences and sports facilities, all operate under one organizational umbrella. This can make it difficult to compare the performance of individual buildings because of their varying operational requirements. It can also be a challenge to determine where resources should be allocated toward facility upgrades to derive the greatest environmental benefit or return on investment.

For a number of years APPA has been developing and enhancing the Facilities Performance Indicators program (FPI) used by APPA members to assess and benchmark critical areas related to the construction, operation, and maintenance of institutional facilities. The FPI program has developed into a comprehensive database to support ongoing performance monitoring and benchmarking.

The FPI program is currently being expanded to provide assessments and tracking of energy use and other sustainable operations criteria related to the campus and individual building operations. A working group was established under the APPA Information and Research Committee to review and evaluate strategies to expand the assessment in the critical areas of energy use and sustainable operations.

There are a number of programs that focus on buildings, such as USGBC's LEED, Green Globes, and the joint U.S. EPA/DOE's ENERGY STAR program; and those that focus on the campus, such as AASHE's STARS (Sustainability Tracking and Rating System) and Campus Sustainability Assessment Framework (CSAF) programs, all of which were evaluated for APPA's new assessment program.

In addition to the assessment programs that are generally structured on a single point in time evaluation of sustainability, there are also programs available to support the tracking and evaluation of CO_2 emissions related to the building and campus operations, such as Clean Air-Cool Planet's Carbon Calculator.

To achieve the greatest benefit from an energy use/sustainable operations assessment tool, the database needs be dynamic so that the user can track and analyze key indicators, by building type, on a monthly basis.

A system based on the Green Globes assessment structure was proposed, and Carleton University in Ottawa, Ontario, Canada, agreed to work with Jones Lang LaSalle to develop and pilot the enhanced Energy Module for the FPI program. The new program is called the Energy and Sustainability Assessment

TESTING AND DEVELOPMENT

In 2010, Carleton University undertook the ambitious project to pilot the evaluation its entire campus portfolio of 41 main buildings. Working with Jones Lang LaSalle, the university helped to develop and test a roadmap or benchmarking process that is streamlined, practical, and budget-sensitive for campuses. The process involved the following steps:

Step 1: Establish a baseline assessment of performance, features, and operations

Step 2: Establish goals, objectives, performance indicators, and

targets
Step 3: Develop strategies and action plans
Step 4: Identify funding
Step 5: Implement the plan
Step 6: Monitor results

At the heart of an energy and sustainability program is the need to baseline performance, establish key performance indicators, develop and implement an action plan, and monitor results. Although this may sound easy enough the reality is that not all buildings on a campus are submetered, hence the energy and water consumption of some buildings will need to be modeled or estimated. Even the most comprehensive energy and water consumption data needs to be reconciled to properly understand the energy use of each building on a campus.

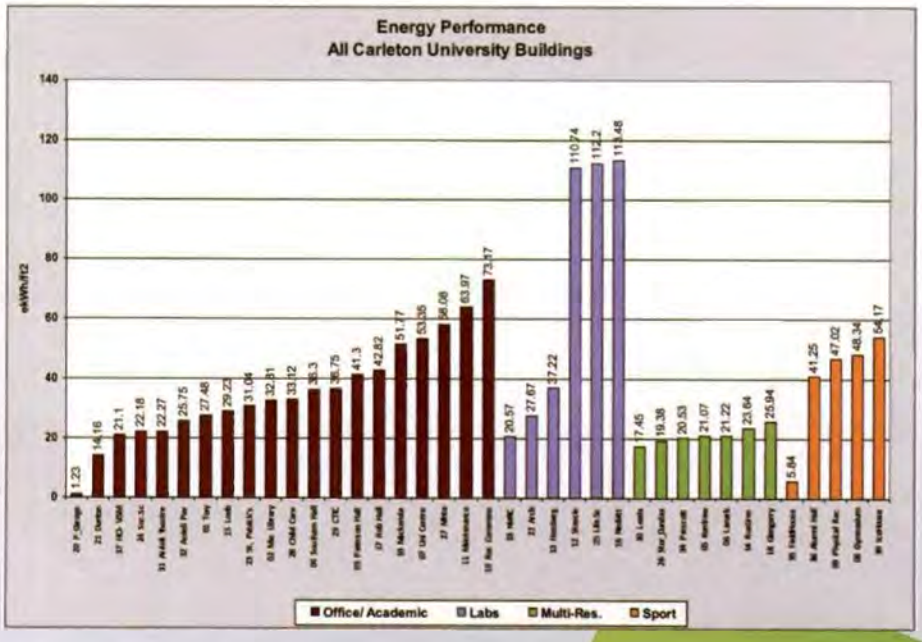
In order to assess the buildings under the FPI's new energy and sustainability program, the 41 main buildings were classified into four categories based on their primary functional characteristics:
1. Office/Academic
2. Research/Laboratories
3. Residences
4. Sports/Athletics

Building on the Green Globes assessment methodology, the new energy and sustainability program was restructured, adapted, and modified as follows: the campus-wide management criteria were separated from building specific criteria, and additional questions (relating to the specific building type) were added in order to determine the baseline rating. The operations managers and sustainability officer of the university together completed a questionnaire for the campus as a whole and for each building, using the appropriate survey for each building type.

The building-specific questionnaire addresses five categories:
1. The building-specific questionnaire addresses five categories:
2. Energy
3. Water
4. Resources (waste reduction and site)
5. Emissions, Effluents, and Pollution Control
6. Indoor Environment

In addition to completing the assessment questionnaire, a walk-through audit was carried out at each building. The audit helped to ensure accuracy of the responses to the questionaire and to generate a list of opportunities for improvement. It also helped to identify specific building upgrades that should be implemented that would have a positive impact on energy use and greenhouse gas (GHG) emissions. Already planned capital improvements were also incorporated into the strategic energy and water reduction plan—not only for each building but also for the campus as a whole.

Carleton University benefits from an extensive submetering system that monitors energy (electricity, steam, chilled water) and water consumption at each building. This submetering system was evaluated for accuracy, and utilized to develop weather-correlated energy and water baselines for each building. The energy and water data was analyzed in detail using BEAT (Building Energy



Allocation Tool), which has been developed to enhance ESAT's evaluation of energy use for each building by type of use and calculates greenhouse gas emissions based on the type energy that is used. The tool also trends the monthly data, supports the identification of excesses and anomalies, and logically breaks out the actual energy use by major end users, thus improving the accuracy of the estimated energy and water cost reductions and retrofit costs.

The campus has a single main electricity service with an annual cost (calendar year 2010) over $7 million, with the natural gas annual cost approximately $3 million. Despite the construction of new buildings, and an increase in enrollment, Carleton was able to confirm that they had reduced their energy costs by over $160,000 in 2010 versus 2009.

Data collected in the assessments for each of the 41 buildings was packaged into a Portfolio Report, thus enabling the university to evaluate building upgrades at the individual building level, or to leverage economies of scale for system retrofits that are planned for a number of buildings, such as lighting retrofits, HVAC controls replacement, and building envelope upgrades. Building and operational improvement opportunities totaling over $37 million were identified, and we estimated that implementation of these improvements would generate an estimated $1.5 million in annual utility cost savings, and a reduction of over 600 tons in greenhouse gas emissions per year.

The Carleton University experience can serve as a model to other institutions that are struggling to identify meaningful, cost-effective energy and carbon reduction strategies and sustainability improvement measures. Sustainability at Carleton includes operating the campus in a manner that protects and strengthens the physical and social environment for present and future students, staff, and faculty. This relates largely to energy and environmental sustainability. Carleton's philosophy also states that greening the campus should embody the kind of thought leadership that will influence tomorrow's decision-makers and help to redefine concepts of "quality of life" and "economic growth"—which can contribute to a powerful movement that will literally help to save the planet.

An unexpected outcome of the assessment at Carleton University is that it is engaging students directly in the university's sustainability program. Carleton, in conjunction with Ontario Centres of Excellence, Ottawa Hydro, and Jones Lang LaSalle, is providing energy audit training to interested students as an extracurricular activity. Students learn about the complex and interactive nature of building operations and maintenance (with

Energy Efficient Features	Residential Buildings								
Lighting	5/RH	6/LH	14/RU	14/GR	18/GH	26/SD	30/LE	34/PH	41/FR
Percentages of compact fluorescents light	70%<	70%<	70%<	70%<	70%<	70%<	70%<	70%<	70%<
Percentages of T8 or T5 fluorescent lights in the building area	70%<	70%<	70%<	70%<	70%<	70%<	70%<	70%<	70%<
Percentages of light-emitting diodes (LEDs) exit signs are	<40%	70%<	<40%	<40%	<40%	<40%	70%<	70%<	70%<
Other types of LED lighting	○	○	○	○	○	○	○	○	○
High-intensity fluorescent fixtures in large areas that require high lighting levels	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
time-clocks and/or photocells on outdoor lighting	●	●	●	●	●	●	●	●	●
Percentage of high efficiency lighting	80%<	80%<	80%<	80%<	80%<	80%<	80%<	80%<	80%<
Control									
Temperature setback and weather compensation implemented	●	●	●	●	●	●	●	●	●
Building automation systems (BAS)	Full	Full	Full	Full	Full	Full	Full	Full	Full
Hot Water									
High-efficiency water heating equipment	●	●	●	●	●	●	●	●	●
Percentage of hot water faucets saving devices	50%<	50%<	50%<	50%<	50%<	50%<	50%<	50%<	50%<
DHW temperatures maintained between 50° and 55° C	●	●	●	●	●	●	●	●	●

a focus on sustainability), as the university further develops and refines energy and water reduction strategies at the building level through the additional input from student audits.

SUPPORTING APPA MEMBERS THROUGH THE FPI'S ENERGY AND SUSTAINABILITY ASSESSMENT TOOL (ESAT)

APPA chose the Green Globes approach because it firmly establishes energy, water, and environmental baselines for each building against which the performance of implemented retrofits can be accurately measured. For many campuses, the temptation to embark directly on specific energy retrofits—without the benefit of establishing baselines for each building—may lead to missing out on some low-cost, no-cost opportunities, or focusing on major capital expenditures to the exclusion of other cost-effective upgrade opportunities. Taking smaller steps on a solid foundation allows institutions to embark on a variety of projects—involving one or multiple buildings—with the assurance that their decision making is sound, and that their targets for sustainable building performance are achievable and measurable over the short, medium, and long terms.

Based on the Carleton experience, APPA is adopting the campus Energy and Sustainability Assessment Tool (ESAT) as a benchmarking protocol for member institutions. This will be linked to the annual APPA Facilities Performance Indicators survey and report. The assessment will be entirely Web-based, allowing participating colleges, universities, and schools to first baseline their current environmental performance, and then continually monitor and improve the performance of their campus portfolio.

The Web-based Campus Energy and Sustainability Assessment Tool is currently in development is available now and is in beta format for all to test and use this year. It will be accessed by FPI participants through the current Energy Module. Learn more about the new module at *www.appa.org/research/FPI/index.cfm*.

The current high-level campus energy use data will still be available to track campus total consumption, and the new comprehensive database will be accessed only by the participating APPA institution members to provide secure data management and evaluation. As always, there is no cost for survey participation or report access to APPA member institutions.

A set of primary indicators for each building type will be transferred to the FPI database on an annual basis, as part of the FPI annual report, to enhance the value of the FPI benchmarking program specifically in the areas of building energy use and sustainable operations.

NEXT STEPS

Our plan is to make the new Energy and Sustainability Assessment Tool available year-round for any institution that wants to participate. You'll be able to input data, revise and update as needed, and have access to basic reports at any time throughout the year.

In addition, as mentioned above, certain key data points will be transferred annually to the Facilities Performance Indicators database and will become part of the calculations that comprise the annual FPI report. The energy and sustainability reports will be invaluable to you as you better understand your campus's carbon footprint and prepare or modify your climate action plans for improvement.

Darryl Boyce is assistant vice president, facilities management and planning, at Carleton University, Ottawa, ON, Canada, and an at-large member of APPA's Information and Research Committee. He can be reached at *darryl_boyce@carleton.ca*.


The most exciting product to hit your campus in years!
Academic excellence, redefined.
• Protect
• Inform
• Entertain
Introducing SmartSite™ powered by Intellistreets the first Distributed Intelligence Outdoor Lighting Control System that seamlessly integrates illumination, audio communications and sensory programs to protect, inform and entertain on campus.
SmartSite™ powered by Intellistreets, lets students, parents and administrators rest easier with discreet communications frameworks that monitor the exterior environment, offer students direct access for reporting threats, provide information on upcoming events, guide visitors around campus, play music, broadcast messages and much more. It can be further tailored to suit specific campus needs and requirements.
Learn more about how "off-the-charts-amazing" your campus can be. Visit SmartSite.Amerlux.com or, call us at 973.882.5010.
amerlux
SmartSite
Protect. Inform. Entertain.
Powered by intellistreets

Executive Vice President's Report on the "State of the State" at APPA

By E. Lander Medlin

Since its founding in 1914, APPA has become a premier association serving its diverse membership of international educational institutions in all areas of facilities management. APPA's programs, products, and services are designed to equip facilities professionals with the technical knowledge and necessary administrative acumen to fulfill their vital role in managing educational facilities and pursuing proper organizational alignment with the institutional vision, mission, and strategy.

This has been no easy task given the less-than-desirable global economic situation and its corresponding contribution to the funding challenges we all face. The impact of these economic challenges on your budgets and your ability to travel remains a challenge for you, your staff, and APPA. Nonetheless, deferring professional development is no more an option for you and your staff than deferring facilities maintenance and renewal is for your institution. Certainly, the continued challenges we face as educational facilities professionals, as an industry sector, and as an association will require our best collective and collaborative efforts.

In light of these conditions, APPA has kept its staffing levels as reduced in 2009 and has sought to further diversify its portfolio of programs, products, and services to meet your ever-changing needs and ensure a stable financial position. This has proven to be an effective strategy over time. I am pleased to report that we ended the fiscal year 2011-12 with a surplus balance of $66,993 from our annual operating funds (which already includes the "realized loss" of ($37,067) from the sale of our equities investment). APPA's Board of Directors made an appropriate policy decision to sell our equities investment portfolio late last summer.

Targeted revenue enhancements in such areas as the APPA 2011 conference in Atlanta; publication sales, Job Express and *Facilities Manager* magazine advertising sales; and the Facilities Management Evaluation Program (FMEP) contributed to an improved bottom line. Keeping a close eye on daily expenses and event management also contributed to our positive net surplus position. In addition, the value of our headquarters building (which we own outright) remains healthy at $2.2 million. See Secretary-Treasurer Pete Strazdas' financial report on page 40 for more details.

This year we have been actively focused on the accomplishment of numerous initiatives in support of APPA's Strategic Plan. The Strategic Plan is intended to strengthen the overall position of the organization, and most importantly, its members. This plan contains Objectives that articulate the desired results, Five Leading Strategies that define actions, and Five Foundational Elements that are keys to success by further buttressing each of the strategies to achieve the objectives/outcomes over time.

By targeting our actions strategically and effectively utilizing and leveraging our resources, we should be able to achieve our stated Objectives and outcomes of:

- a fully engaged group of stakeholders,
- across an increasingly diverse membership body,
- where there is greater alignment and synergy amongst and between international APPA, its regions, chapters, and international alliances,
- thereby achieving measurable influence and credibility throughout the entire educational enterprise, and ultimately,
- increasing value to you, our members.

Our programs, products, and services provide both a professional development career continuum and an institutional development pathway that is unparalleled in the industry. Our role is to elevate educational facilities professionals into influential leaders in education who, in turn, create inviting and supportive institutional learning environments, thus increasing the credibility and influence of the facilities profession.

Hence, our vision: "To become a global partner in learning by fostering competency, collaboration, and credibility for the facilities professional and their organizations in support of the institutional mission." The 3 Cs–competency, collaboration, credibility—remain a key and consistent message for the association.

COMPETENCY

The guidelines and standards established by your colleagues over the past several years remain invaluable tools for resource allocation and strategic planning. Most notable is the significant revision of the Operational Guidelines Trilogy – consisting of the maintenance trades, custodial services, and grounds management. The launch of the digital BOK (Body of Knowledge) remains noteworthy. This gives *any and all* individuals at your institution full access (24/7) to this wealth of information. The BOK serves as the content resource for the Institute for Facilities Management and for APPA's credentialing program.

In addition, if your resource library does not include the Web-based *Facilities Performance Indicators* (FPI) report and dashboards and our newest books—*Benchmarking & Organizational Change, second edition*, by San Jose State University President Mo Qayoumi; Harvey Kaiser and Eva Klein's *Strategic Capital Investment*; *The Green Campus*, edited by Walter Simpson, and the significantly revised edition of the *Environmental Compliance Assistance Guide* (published in collaboration with the Campus Safety Health and Environmental Management Association-CSHEMA)—you should quickly ensure that it does.

Further, it is noteworthy that our FPI data, ratios, and benchmarks are being used more widely than ever before. Several large higher education systems and associations (such as Georgia, California, North Carolina, and CAUBO, respectively) have established cohort groups and are taking advantage of APPA's FPI tools and training to make their data collection and benchmarking efforts extremely meaningful and valuable. In addition, we are pleased to announce the addition of another powerful module for energy and sustainability assessment. Institutions will be able to utilize this new FPI tool to *monitor and manage* individual building energy data. Decision-making strategies based on solid ROI data is but one positive aspect of this new tool. Don't hesitate to contact us for more information on this invaluable resource. And, yes, these tools and reports are available *free to member institutions who participate* in the data collection survey phase. An incredible member value!

The availability and flow of relevant information regularly occurs via APPA's bimonthly magazine, *Facilities Manager*, our biweekly electronic newsletter, *Inside APPA*; our website, *www.appa.org*; and the APPAinfo discussion list that boasts over 1,100 subscribers. The APPA website represents our updated, transformational brand identity. The site is indeed becoming the go-to resource for educational facilities questions worldwide.

CFaR | Center for Facilities Research

CFaR, APPA's Center for Facilities Research, is also resident on our website and fills a vital need by integrating the development, collection, and delivery of research in the education environment. Active participation in and involvement through CFaR by facilities professionals, allied associations and agencies, and other education community stakeholders is increasing the quality and quantity of credible data and information you need to make knowledgeable and informed decisions for your institutions. Over 30 research projects have been completed to date.

The content and appeal of APPA's vast array of educational programs are now available practically under one roof. We call this co-location of programs "APPA U" consisting of the

APPA U

Institute for Facilities Management, the Leadership Academy, Credentialing Prep Course, and Supervisor's Toolkit. These programs provide members with the professional career development and personal growth needed to compete and collaborate effectively in today's environment. These educational programs are truly cutting-edge. And, to meet your continuing education/ licensure requirements, look for the CEUs and PDHs available for many of the courses offered at APPA U.

Our newest development—Drive-In Workshops—continues to expand and flourish. These programs are offered locally and completely supported by the business partner community. What better way to connect with educational facilities professionals locally to "lunch and learn?" If you are a business partner, take advantage of the opportunity to sponsor one of these deliveries. The visibility and exposure is unbeatable.

Of particular note is APPA's annual conference, including our most recent successful program in July in Denver, Colorado. We have featured best-of-breed panelists and speakers who focus on future solutions to your most pressing issues. The enhanced framework consists of several general plenary panel sessions, followed by breakout sessions designed to provide practical tools and technologies for current and future projects, to bolster your skills, and to prepare your organization for the next generation of facilities management practices. This approach strengthens this offering in a number of ways and ensures differentiation from regional and state or chapter meetings.

Also, we continue to deliver a distinct and successful program for senior facilities officers and their senior leadership through the SFO Summit. This one-day program, co-located with the APPA annual conference as a high-level "pre-con" session, is hitting the mark. These activities are considered essential by the volunteer leadership to provide for a continuum of professional development career opportunities for the educational facilities professional.

To add to this continuum of professional development career opportunities and to complement our competency-based programs and services, APPA offers a credentialing and certification program comprising *two* credentials. The first is a knowledge-based credential called the EFP (Educational Facilities Professional) targeted to the less experienced/emerging educational facilities professional. As a result, more than 300 individuals have now achieved the status of EFP.

But the real end game in credentialing is the CEFP (Certified Educational Facilities Professional). This second credential is a *full certification* for the more experienced educational facilities professional incorporating both the body of knowledge of educational facilities management and successful demonstration that the knowledge has been applied at the institutional level. More than 100 individuals have received the CEFP designation.

These credentials are essential for the future engagement of our emerging facilities professionals in the educational workplace and to increase the credibility of the facilities profession at educational institutions. The associated, combined preparatory course will continue to be delivered locally upon request, and we will soon provide it online as well. The exams are already offered online, so you can sit for the exam right now at your institution! For more information, visit the credentialing section of the website today.

COLLABORATION

Strategic collaboration and partnering continues to occur on a number of fronts and increases the depth and breadth of research and information and ultimately the value you receive as part of your membership. APPA's work with the University of Maryland, NACUBO, and AASHE through the annual Smart & Sustainable Campuses Conference, and with HEASC (Higher Education Associations Sustainability Consortium) are expanding the collective knowledge and network for institutional sustainability programs. Articles in NACUBO's *Business Officer* magazine support facilities professional's efforts in numerous ways.

The joint ACUHO-I/APPA Housing Facilities Conference remains a successful annual program offering for both the campus housing and facilities professional. The Women's Leadership Institute is offered collaboratively each December by 19 higher education associations. In addition, we have targeted K-12 schools with SRAPPA's regional efforts and through the Virginia Schools Plant Management Association (VSPMA) for delivery of the FPI, Toolkit, and our credentialing program. Our international efforts remain strong through our international strategic alliance agreements (AUDE-Association of University Directors of Estates/U.K.; TEFMA-Tertiary Education Facilities Management Association/ Australasia; and HEFMA-Higher Education Facilities Management Association of Southern Africa).

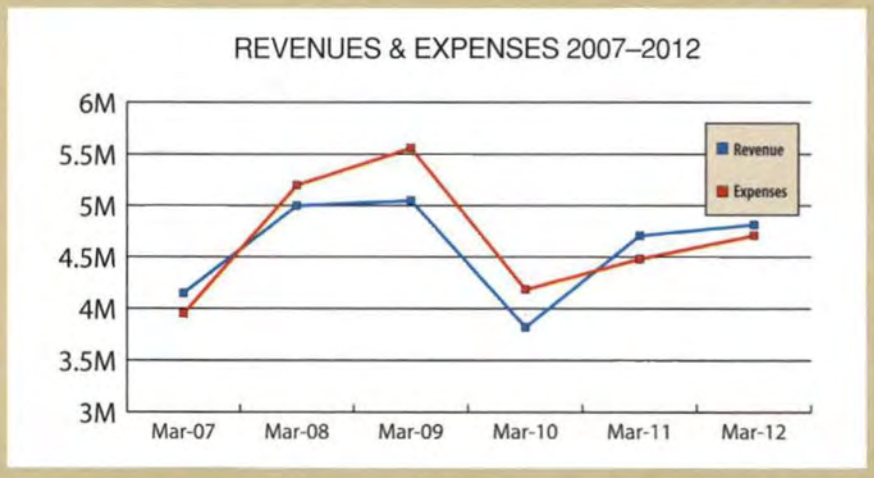
Thanks to the funding received from ASHRAE, we completed a major research project focused on the Total Cost of Ownership (TCO), which should engage members, organizations, associations, and agencies across the *entire* field of facilities management.

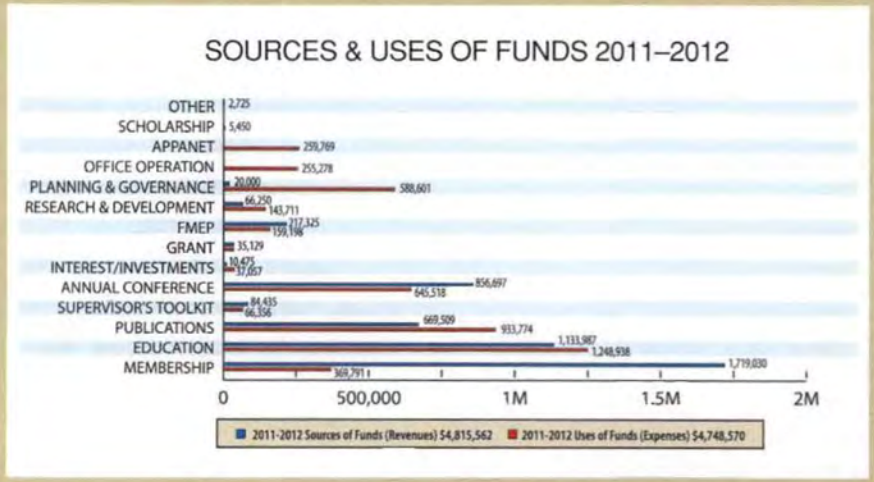
Treasurer's Annual Report — 2011-12

Peter Strazdas
APPA Secretary-Treasurer
Western Michigan University

Our membership should be pleased with APPA's continued financial success. For the fiscal year ending March 31, 2012, APPA posted a surplus of $66,993. The APPA staff and the Board of Directors understand the budget pressures our members are going through in this challenging economy. We are taking a conservative approach with our budget while focusing on offering value and quality services for our members.

APPA experienced an operating surplus while including payment of the "realized" loss from the sale of our long-term equity investment. We had a reasonable number of registrants for the annual conference in Atlanta last year along with significant support from our business partners. Our face-to-face educational programs did not net as well given increased expenses from our long-term hotel contracts and lesser registrants given the continued negative economic impact on educational institutions' budgets.





Additional revenue from the APPA 2011 conference, publications, job and magazine advertising sales, and the Facilities Management Evaluation Program (FMEP) contributed to this surplus. We will continue to focus on and further recalibrate all professional development programs and the cost of their delivery for this coming fiscal year (2012-13) to ensure a continued balanced budget.

Our operating and capital reserves remain at $369,000 (with Operating at $300,000 and Capital at $69,000). The APPA headquarters building continues to hold its value with an assessment at approximately $2.2 million as of February 2012 by the City of Alexandria. APPA owns its headquarters offices outright.

Membership expenses, totaling $369,791, reflects the direct cost of membership department salaries and benefits, travel and outreach efforts, printing, production and mailing of promotional materials and the membership directory, and other program supplies and equipment needs. However, membership dues also support the direct cost of many APPA activities such as the website and database management; a portion of research and development; office operation; and planning and governance. Revenues and expenses are planned and monitored by staff and the APPA Board to achieve APPA's mission to support educational excellence with quality leadership and professional management through education, research, and recognition.

Given stock market conditions and the global economy, APPA's Board of Directors made a conscious decision to sell our long term equity investments last August. The year-end closing balance sheet reflects the long term "realized loss" as required given the assessed fair market values posted over the past ten years.

The Board and the APPA staff remain committed to delivering excellent programs, products, and services in as cost effective a manner as possible. We will focus on non-dues revenue opportunities and provide you the best value for your membership. Our financial condition is enhanced by membership that is APPA active. Please encourage your peer institutions to be engaged in their professional organization.

Pete Strazdas is associate vice president, facilities management at Western Michigan University, Kalamazoo, MI. He can be reached at *peter.strazdas@wmich.edu*. This is his first article for *Facilities Manager*.

These strategic alliances and partnerships help APPA leverage its resources to provide cost-effective and focused research, information, and educational programming, and at the same time, ensure an increased information flow to our members and provide opportunities for more meaningful engagement. Visit our website for more details about our combined offerings to take advantage of these relationships.

Finally, we have begun efforts to target the emerging facilities professional—someone who has recently begun a career in the field of facilities management at an educational institution. APPA has established a regular "exchange" with these individuals to gain insight from younger and new or recent members of the organization. Their ideas and perspectives are being readily adopted. For example, Kunal Chitre of Digital Energy developed an APPA "app" that debuted at the APPA 2012 conference in Denver. We have also begun posting regular podcasts on various topics of interest. And this is just the beginning…this exchange group is on fire!

CREDIBILITY

As part of our strategy to expand knowledge and research, APPA, with generous support from both UGL Services and Jacobs, convened our seventh annual Thought Leaders Symposium last April 2012. In essence, a group of key higher education stakeholders consisting of chancellors, presidents, regents, business officers, facilities professionals, and representatives from the business community are assembled annually and engage in a day-long discussion of several drivers of change expected to shape the future of higher education and their impact on facilities. The specific trends in higher education and the top critical facilities issues identified for fiscal years 2006 through 2011 have been published as monographs and disseminated to facilities professionals and senior institutional officers. The 2012 Thought Leaders Symposium focused on the criticality of one specific issue in higher education: space management, with the corresponding impact of the economy and the need for innovation on this major trend. The 2012 monograph is now available through the APPA bookstore as a downloadable PDF. In addition, we are publishing the monograph in two parts, in this issue of *Facilities Manager* as well as the November/December issue.

It is just this type of research that will brand APPA as the go-to resource for educational facilities questions. And, it is through these research findings and thought-provoking symposia that we will increase the awareness of the facilities profession with senior institutional officers and enhance the credibility of the educational facilities professional.

Environmental issues and compliance concerns remain an important part of our public policy agenda. The explosion of regulatory issues and code compliance drove the establishment of a Code Advocacy Task Force, which the APPA Board has revamped as the Standards and Codes Council. The group has already successfully advocated a variety of positions with the NFPA, NEC, and ASHRAE thereby avoiding additional costs and/or saving educational institutions millions of dollars. Look for more information on these important developments during the coming year through the APPA website and in the Code Talkers column of *Facilities Manager* magazine.

FMEP
Evaluate. Execute. Excel.

Engagement in a Facilities Management Evaluation Program (FMEP) review is yet another way to assess your organization and its delivery system and attest value to senior institutional officers. More information about this valuable program is available on the APPA website.

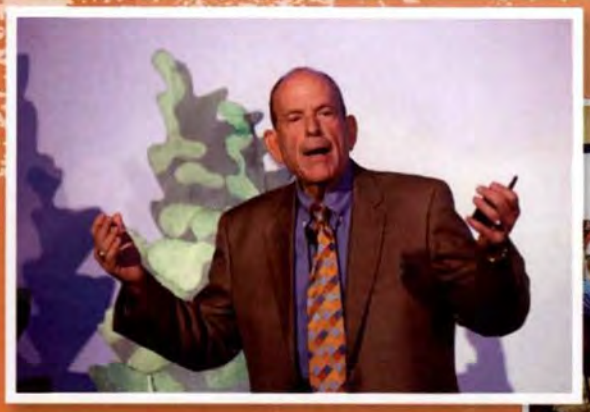
The clarity of APPA's brand purpose "to transform the educational facilities professional into influential leaders who, in turn, create supportive and inviting learning environments" is integral to all we do. And, APPA's role in increasing the awareness of the facilities profession with senior institutional officers will remain a strategic driving force on behalf of the education facilities profession. Our brand identity in education is reflective of this purpose and role and its ongoing attainment. Our commitment to programs, products, and services that improve the facilities professional's competency remains unparalleled in the field of educational facilities. By coupling this increased competency with our collaborative strengths, the credibility of our members and the profession is further enhanced.

APPA's competitive advantage in this rapidly changing and challenging world stems from your active engagement across our professional development career continuum and institutional development pathway where you will find programs, products, and services of great value as you wisely choose membership in this association. The decisions you face and the priorities you make must be strategic. We are pleased to be part of your strategy for your individual professional development, the training and development of your organization's staff, and for continuous institutional improvement. Through the vast array of educational offerings, print and electronic information, research, and publications, and this rich network of professionals, APPA can help you gain that competitive edge and enhance your professional image.

All these programs exist to position us, you, and your institutions for a brighter future. Your contributions will be key in helping to shape the future of education. APPA's contributions will be key as a significant voice on strategic institutional issues for the educational facilities profession.

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

APPA 2012 Conference Highlights



July 17-19, 2012

PHOTOS BY RHONDA HOLE

APPA
LEADERSHIP IN EDUCATIONAL FACILITIES

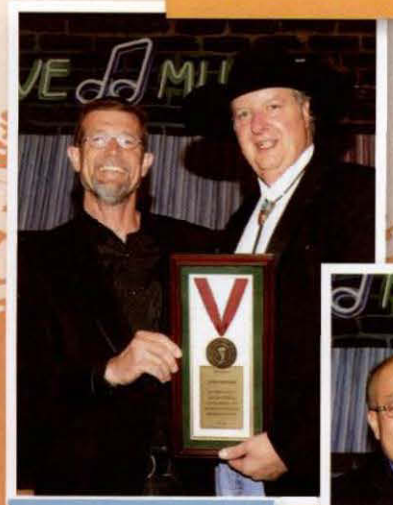
APPA 2012 Conference Highlights

July 17-19, 2012

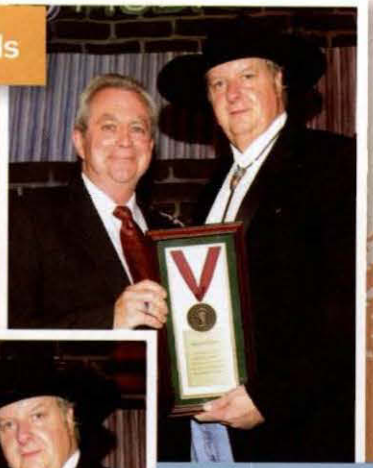
2012-2013 Board of Directors

Past APPA Presidents

Meritorious Service Awards



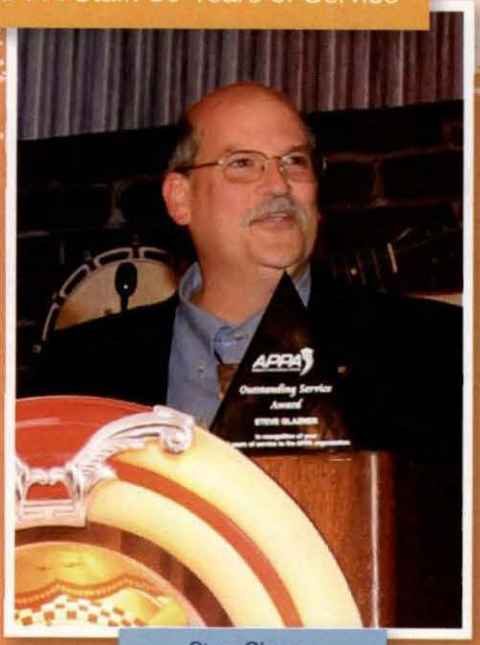
Mark Hunter



Brian Worley

Tony Ichsan

APPA Staff: 30 Years of Service



Steve Glazner

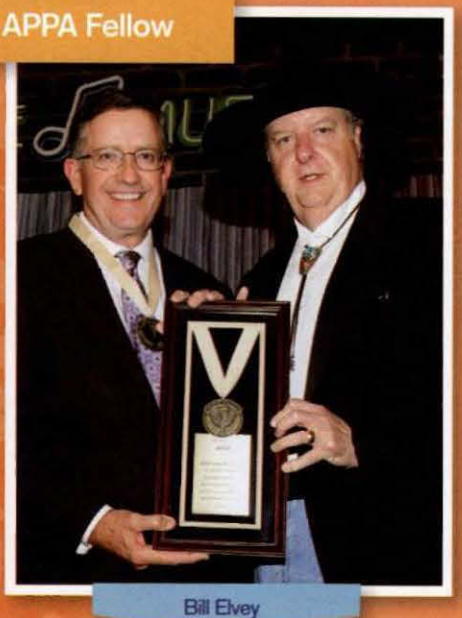
Rising Star Award

Nina Wollman of Jacobs

Eagle Award

Dan Whitezell of Spirotherm

APPA Fellow



Bill Elvey

Pacesetter Award

Rich Davis, Brandon Baswell, Lynne Finn, Sue-Anna Miller Bob Cornero, Chris Egan, David Gray (Dave Handwork not pictured.)

President's Recognition and Gavel Exchange

Diamond Business Partner Award

Strategic Business Partners

President's Award

Kunal Chitre

Polly Pinney

Mike O'Connor

APPA Regional Relationship Task Force

L-R: David Gray, John Morris, J.B. Messer, Larry Blake, Norm Young, Chuck Scott, Mary Vosevich, Bill Elvey, Mike Johnson, Darrel Meyer, Glenn Smith

Suzanne Healy

Strategic and Sponsoring Business Partners

2WR, Inc.	Silver
Able Services	Gold *
Accruent, Inc.	Bronze
Activeion Cleaning Solutions	Bronze
Aircuity	Bronze
AKF Group, LLC	**Gold***
Alcan Cable	Gold*
Alera Lighting	Silver*
Alertus Technologies	Bronze
Alpha Building Corporation	**DNE**
Alps Controls.com	**Gold***
Amerlux	Silver*
Ashland	Silver*
ASSA ABLOY Door Security Solutions	Gold*
AssetWorks, Inc.	**Gold***
BELFOR	Gold
Center for JOC Excellence	Gold *
ChemTreat, Inc.	Silver*
Club Car, Inc.	Platinum*
Construction Specialties, Inc.	Bronze
Crabtree, Rohrbaugh & Associates	**Bronze**
Cypress Envirosystems	Gold*
Delta Controls	**Platinum***
E & I Cooperative Purchasing	**Silver***
Eaton Corporation	**Gold***
e-Builder Inc	Silver*
Fisher Safety	Silver*
FM Squared	**Gold***
Freudenberg Filtration Technologies, LP	**Silver***
Gale Associates, Inc.	**Bronze**
Georgia-Pacific Professional	Silver*
Glidden Professional	Silver*
Gordian Group, Inc.	**Bronze**
Green World Strategies, LLC	Gold*
Haley & Aldrich Inc.	**DNE**
Honeywell	Platinum
InPro Corporation	Bronze
Instakey Security Systems	Bronze
InterfaceFLOR	Bronze
INVISTA	**Gold ***
ISES Corporation	Bronze
JACOBS	**Diamond**
Johnson Controls, Inc.	Diamond*
Labs Done Fast	Bronze
Lochinvar, LLC	Bronze
Marcis & Associates	Silver*
Marvin Windows & Doors	Silver
Max-R	Platinum*
McGard LLC	**Silver**
MegaMation Systems Inc.	Silver*
Miracle Method Surface Restoration	**Silver***
Mitsubishi Cooling & Heating	**Silver***
Musco Sports Lighting	Silver *
Nalco Company	**Bronze**
National Office Furniture	Bronze
Noresco	Bronze
Nouveau Construction and Technology Services	Bronze
Onicon Incorporated	**Gold***
Pennoni Associates	**DNE**
Quality Attributes Software	Gold*
Rochester Midland	Silver
Ross & Baruzzini	**DNE**
San Joaquin Chemical	Diamond
Schneider Electric	Platinum*
School/College Planning & Management	Silver
SchoolDude.com	Platinum*
Sebesta Blomberg	Gold
Siemens Industry, Inc.-Building Technologies Division	**Diamond***
Sodexo	Diamond
Sol Inc.	Silver*
Solar Secure	Gold*
Solar Turbines Inc.	Platinum*
Spartan Chemical Company	Bronze
Spirax Sarco, Inc.	Gold*
Spirotherm, Inc.	**Diamond***
SSC Service Solutions	**Bronze**
StageRight Corporation	Silver*
Stanley Consultants	**DNE**
Staples Facility Solutions	Gold*
Swan Corporation	Gold*
Tandus Flooring, Inc.	Platinum*
Tennant Company	Gold*
The Trane Company	Diamond*
TMA Systems, LLC	**Diamond***
Tremco Inc.	Silver*
UGL	**Diamond**
Unger Enterprises	Gold*
Vanasse Hangen Brustlin, Inc.	**DNE**
VDA	Silver*
VFA, Inc.	Bronze
Victor Stanley, Inc.	Bronze
Waste Management	**Gold***
Wenger Corporation	Platinum
Wesco Distribution, Inc.	Silver*
Western Construction Group	Gold*
WFF Facility Services	Silver*
Wizard Software Solutions, Inc.	Silver*
xpedx	Diamond*

** Denotes Ambassador Supporter*
Boldface denotes Strategic Business Partner

President Award "Unsung Hero"

Phyllis Gillis, MAPPA

Tony Ichsan, PCAPPA

Mike Miller, CAPPA

Lisa Potter, RMA

Anthony Yamada, SRAPPA

Not pictured: ERAPPA: Bob Britton and Peter Buchhiet

CFaR Research Award

Gregory Adams

Erica Eckert

Rex Dillow Award for Outstanding Article

John Cannon

Sustainability Award

Honored were:
American University
Emory University
University of British Columbia
University of California/Irvine
University of Prince Edward Island

Outgoing Elected Vice Presidents

Randolph Hare
Information and Research

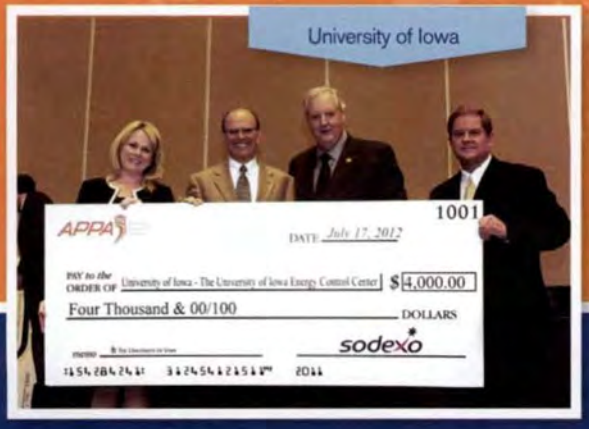
Glenn Smith
Professional Development

Effective and Innovative Practices Awards

University of Texas at Austin

Purdue University

Western Michigan University



University of Iowa

University of North Carolina Charlotte

FPI 2000–2011 Trends: Telling Your Campus Story

By Maggie Kinnaman, APPA Fellow

As you participate in the 2011-12 APPA Facilities Performance Indicators (FPI) survey, which is open until early December, I'd like to provide you with some motivation. Let's pretend for a moment that the data provided throughout this article is actual performance data for Institution "A" who participated in the last four years of FPI surveys. Looking at some key performance indicators, let's tell a story using the trending data for institution "A."

GSF

First, we're looking at gross square feet (GSF) maintained for this campus as decreasing by over 600,000 GSF. There may be many reasons for this, but let's say that the institution was one of the lucky few who were able to demolish older buildings and consolidate programs in newer existing space.

Questions	2008	2011
GSF maintained	3,566,144	2,922,997
CRV	$1,078,218,106	$1,184,342,082
CRV per GSF	$ 302.35	$327.57

CRV

Now, let's look at current replacement value (CRV). Remember that current replacement value is not the book value or insurance value of the campus buildings and infrastructure. Instead, it is what it would cost, in current construction dollars, to replace your entire campus.

Each year, as construction rates increase and GSF grows, CRV also goes up. Likewise, when the campus footprint decreases, CRV will also be affected. In three years the CRV for Institution "A" went from $302.25 per GSF to $327.557 per GSF. If the campus had not realized a reduction in GSF the CRV, growth would have been much greater.

AFOE/GIE

Annual Facilities Operating Expenditures/Gross Institutional Expenditures has gone down from 6.62 to 6 percent. This could be a troublesome indicator, as it says that the piece of the institutional pie representing facilities management is shrinking in comparison to the institutional pie. For some reason funding for facilities has not kept up with institutional growth, and it would be advisable for the facilities manager of Institution "A" to conduct a briefing with senior campus leaders to share with them the realities of campus assets.

Questions	2008	2011
Custodial cost/GSF	$ 1.40	$ 1.36
GSF per custodian	35,037	32,592
Grounds cost per acre	$ 5,749	$ 5,496
Acres per grounds FTE	15.9	17.9
Maintenance cost per GSF	$ 1.55	$ 1.57
GSF per maintenance FTE	66,751	71,192

OPERATING EXPENSES

Now let's look at the core facilities annual operating expenses and staffing for custodial, grounds, and maintenance. Looking across these three core services, grounds seems to be the area most impacted by the lack of institutional commitment seen in the ratio facilities annual operating expenditure/gross institutional expenditure. For grounds both the cost per acre and the acres per grounds full-time equivalent (FTE) have gone down over three years. I would anticipate that customer service ratings would go down in accordance since grounds services tend to be such a visible service, if they are significantly reduced levels of employee and student satisfaction can be impacted.

In the maintenance area, even though gross square footage went down by 600,000, the GSF per maintenance FTE went up. This would tell me that there was some downsizing in the staff of the maintenance department, and the impact of this downsizing will be seen as we move into the investment side of our institutional story.

Finally, in the custodial area we see a minor reduction in cost per GSF, but fewer GSF assigned to each FTE. Perhaps custodial services were less effective in the past, and the department saw the reduction in GSF as an opportunity to assign fewer GSF to each custodian.

Questions	2008	2011
Energy Cost per GSF	$ 2.62	$ 2.27
BTU per GSF	155,939	121,361

In the energy arena Institution "A" is doing a great job. Energy costs per GSF have gone down as have BTU/GSF, which is a key sustainability indicator. It would be a strategic move on the part of the institution to take the energy savings and realign them to enhance the diminished maintenance program.

Questions	2008	2011
Useful Life of MCB	54.10	53.67
FCI	9.43%	11.70%
Needs Index	20.70%	18.91%
Minimum Investment	2.11%	2.08%
Actual Investment	2.08%	2.71%

FCI

Now, to the investment section of our story. Facilities Condition Index (FCI) speaks to the condition of the buildings and infrastructure. As you see, this indicator got worse over the three years, 2008 to 2011. You also see that the Needs Index, which includes FCI plus programmatic needs, went down. This reduction in the overall Needs Index was achieved by an increase in the capital investment. Obviously that increased investment went toward programmatic improvements in the facilities versus building and infrastructure upgrades.

Also, remember our concern related to maintenance staffing and the number of GSF each FTE had to support. Well without adequate maintenance staffing the balance between preventive maintenance (PM) work orders and routine work orders is disrupted. There is less of a focus on PM work orders and more of a focus on routine work orders. This eventually impacts deferred maintenance backlog which adversely affects the FCI index. This is what we see as the reality for Institution "A".

Questions	2008	2011
Customer Rating	4.563	4.556
Employee Rating	4.314	4.318

CUSTOMER AND EMPLOYEE SATISFACTION RATINGS

Finally we come to the customer rating and the employee rating over the three years. As expected we see a reduction in customer satisfaction that although modest probably reflects the lack of commitment in the grounds program. In the employee rating area we see a modest increase in satisfaction that may come from the custodial employees who have been assigned fewer GSF per FTE. Their workload has been modestly reduced.

BY PARTICIPATING YOU CAN IDENTIFY YOUR STRENGTHS AND WEAKNESSES AND DEVELOP STRATEGIES TO BRING YOUR ORGANIZATION INTO BETTER ALIGNMENT. YOU CAN ALSO UTILIZE THE DATA AND INFORMATION IN YOUR EFFORTS TO EDUCATE THE CAMPUS COMMUNITY ABOUT FACILITIES REALITIES.

OPPORTUNITIES

So there you have it—there are some opportunities and challenges for Institution "A" as it moves forward into the future. As we all know, looking at data alone does not give us the entire story, but it certainly points out areas that require future investigation. Participating in FPI gives institutions just that opportunity. By participating you can identify your strengths and weaknesses and develop strategies to bring your organization into better alignment. You can also utilize the data and information in your efforts to educate the campus community about facilities realities. After all, if you don't do it, who will?

By the way, the data utilized in this analysis for Institution "A" is actually the overall averages for all participants in the FPI surveys for 2008 and 2011. It turns out that Institution "A's" story turns out to be the story for our FPI survey pool.

I encourage you to participate in the 2012 FPI survey so that you are armed with data and information to help add to the credibility of your institutional story.

Maggie Kinnaman is an APPA Fellow and Past APPA President. She can be reached at *maggiekinnaman@comcast.net.*

Make Sure You're (Inter)Connected

By Matt Klaus and Paul Dunphy

Advancements in mobile communication technology have made "staying connected" an integral part of day-to-day business operations for many of us. Making sure your fire protection and life safety systems are properly connected is equally important. Fire protection and life safety systems often rely on one another to enhance the level of safety provided for building occupants. This enhancement is of no value if the systems do not communicate as intended by the system designers.

In some buildings, these integrated systems are fairly simple. They may include an automatic sprinkler communicating with a fire alarm system through a waterflow alarm device (flow switch). Other buildings may have more complex interconnections for systems, including smoke management systems, special suppression systems, fire doors and dampers, and elevator systems. No matter how simple or complicated the systems are that are integrated, confirmation of the functionality of these interconnections is critical.

MANDATES AND LEGALLY ENFORCEABLE STANDARDS

One of the problems that many members of the fire protection and construction industries have become all too familiar with is the lack of a mandate to confirm this functionality prior to building occupancy. Some model codes may require an integrated test for specific systems, such as atrium smoke control systems, however there is no across-the-board mandate that other integrated systems must also go through an integrated system test. Many owners and contractors look to the individual system design and installation standards for some sort of requirement that will make sure that integrated tests are conducted.

Unfortunately, the scopes of these documents typically prohibit them from requiring or addressing testing on a different system. For example, NFPA 13, the Standard for the Installation of Automatic Sprinkler Systems, cannot require a test of a fire alarm or system component. Similarly, NFPA 72, the National Fire Alarm and Signaling Code, cannot mandate the testing of other systems or components, such as fire dampers or fire doors, even if these components are tied into the fire alarm system.

ONE OF THE PROBLEMS THAT MANY MEMBERS OF THE FIRE PROTECTION AND CONSTRUCTION INDUSTRIES HAVE BECOME ALL TOO FAMILIAR WITH IS THE LACK OF A MANDATE TO CONFIRM THIS FUNCTIONALITY PRIOR TO BUILDING OCCUPANCY.

This lack of a mandate often leaves the building owner and their facilities maintenance personnel wondering if everything is properly interconnected. Wondering if they got what they paid for when the building was constructed. Unfortunately, the lack of connection between these systems—or simply the improper sequencing of connections--is often found once the construction warranty has expired, taxing the maintenance budget for an item that should have been caught prior to the issuance of the certificate of occupancy.

As a means for detecting these deficient connections at the appropriate time, NFPA's Technical Committee on Commissioning and Integrated Testing, with approval from NFPA's Standards Council, initiated a new project, NFPA 4, tentatively titled "The Standard for Integrated Fire Protection and Life Safety System Testing" (see sidebar on next page.) The goal of this standard is to provide direction on the structure and execution of integrated fire protection and life safety system tests within a legally enforceable document.

INITIAL VS. PERIODIC INTEGRATED SYSTEM TESTS

Although this document is only in its infant stages of development, an initial draft was approved by the Standards Council in March 2012. The draft, which is open to the public until October 17, 2012, 5PM (EST), includes concepts that will most likely be included in the inaugural edition of the document. One of the major concepts is the separation between the initial integrated system test that occurs prior to building occupancy, and the periodic integrated

test that will occur once the building is occupied. The periodic integrated system test will either occur at a frequency identified in the integrated test plan, or when an integrated system test is triggered by building modifications.

The initial integrated test can be coordinated with the initial acceptance testing for individual systems to limit the financial impact for building owners. The integrated test conducted prior to occupancy is not intended to "reevaluate" the performance of individual systems, but rather to confirm the performance of the interconnections between the systems.

A classic example would be an atrium smoke control system. The intent of the integrated test is to ensure that when a flow switch trips, the appropriate dampers close, fans turn on, and a signal is received by the fire alarm control panel notify occupants to evacuate. It is not the intent of this test to confirm that the appropriate volumetric flow rates for supply and exhaust fans are reached or that the system ramps up in the time identified by the system designers.

Those items are considered individual system performance criteria and should be covered during the acceptance test for that individual system. This is not to say that the integrated testing agent cannot coordinate tests with contractors so that the performance of the individual systems and their interconnections are all verified in a single test, simply that it is not the intent to reconfirm individual system's performance.

Periodic integrated testing can take on multiple forms depending on the building, occupancy and the risk tolerance of the owner. For simple buildings that have few interconnected systems, periodic integrated testing may be seen to have little value. In these instances the owner and integrated testing agent may not include a specified frequency for retesting, but rather may simply require testing where a system is being upgraded, removed, replaced or significantly altered.

In other instances where, based on the occupancy or functionality of the building, the owner has a lower risk tolerance, such as power generation facilities or hospitals, a specified frequency of three or five years might be warranted. Whatever the selected frequency or list of periodic integrated testing triggers, budgeting for these tasks can become quite difficult. Often times the decision to establish such a frequency is made under one set of financial conditions, however the actions must be carried out under another. This can lead to revisions to the initial integrated test plan. Conducting periodic integrated test based on certain triggers can be a little bit easier to plan for and budget depending on the level of complexity of the interconnections.

YOUR INPUT IS WELCOME

The continued development of these concepts and this standard will be based upon the work of the technical committee, as well as code change proposals from the general public. To review the draft and propose a change to this standard, please go to *www.nfpa.org/4* and click on the Next Edition tab.

Matt Klaus is a senior fire protection engineer for NFPA's sprinkler, commissioning, and integrated testing standards. He can be reached at *mklaus@nfpa.org*. Paul Dunphy is the electrical inspector and compliance coordinator for Harvard University. He is a principal representing APPA on the NFPA 4 committee. He can be reached at *paul_dunphy@harvard.edu*. This is their first article for *Facilities Manager*.

NFPA 4: The Next Logical Step

Harvard University has applied NFPA 4 (Standard for Integrated Fire Protection and Life Safety System Testing) in various ways during the recent period of new construction and large renovation projects. Without a published code document, one of our challenges has been helping folks understand the process, and when to implement the integrated testing. Developing a plan and assembling a team takes time so the earlier you start the better. The cost can be a factor as well. But the results can be eye-opening and very important in helping owners and facilities staff to understand how critical building systems operate under emergency conditions.

I have been a member of the NFPA 3 technical committee for a few years. It has been a learning process for me to see a consensus document developed in such a way as to satisfy a majority of members. We debated whether to roll the document out as a recommended practice or a standard. As you know, NFPA 3 is now available as a recommended practice. It is very useful to me at Harvard, as it greatly expands upon my guideline. But looking ahead, NFPA 4 will fit the bill as we continue to build and renovate complex buildings. Our academic facilities, labs, libraries, museums, dormitories, graduate apartments and underground parking garages are not our "father's buildings." It is absolutely critical to test the interfaced and integrated fire and life safety systems. We typically contract commissioning agents on projects. They perform a valuable service but usually do not get into the integrated testing.

NFPA 4 is the next logical step in the process in ensuring the owner that they are getting what they buy. The Harvard community has embraced the concepts of NFPA 4 and it has been rewarding to see critical test findings resolved. Starting out a few years ago, we typically did our integrated testing after a certificate of occupancy was issued. Today, the University is including integrated testing in the specifications for a project. Planning is underway early on and contractors are buying in at the start. The goal is to have our buildings tested and working as designed before a C of O is issued. An important goal but NFPA 4 is a valuable tool for all involved.

— Paul Dunphy, Harvard University

The Rise of Offsite Clean Energy

By Bryce Smith

Purchased electricity accounts for more than 40 percent of campus emissions at U.S. colleges and universities. For most schools, it is the single largest source of greenhouse gas emissions (*http://rs.acupcc.org/stats/ghg-source-stats/*). As an increasing number of facilities managers examine how to support their institution's sustainability initiatives, purchased electricity holds an enormous opportunity for reducing emissions.

While the cleanest (and cheapest) electricity will always be the electricity not consumed, colleges, universities, and schools will continue to purchase large amounts of grid-sourced electricity for years to come. Fortunately, there are an increasing number of ways that institutions can buy clean power – the trick is to understand which option makes the most sense for your institution.

The purpose of this article is two-fold: first, to introduce the concept of purchasing clean energy from an offsite project developed on your behalf; and second, to help determine if this approach fits your school's needs.

In order to understand the potential benefits of this approach, let's take a quick look at the alternatives. Historically, most colleges and universities that source clean energy have done so through either onsite renewable energy installations or renewable energy certificates (RECs). Each approach presents certain advantages and limitations.

ONSITE

Onsite clean energy projects can offer a highly visible source of clean power, a tangible commitment to sustainability, and easy educational access for students and faculty. Institutions can benefit from attractive leasing options or PPA structures that amortize costs over many years.

However, an onsite facility may be difficult to build at a scale that significantly reduces an institution's footprint, and can be comparatively expensive. These drawbacks may be even more apparent on urban campuses with limited space.

RECS

Renewable energy certificates are notably easier and less expensive to procure than are onsite clean energy projects. RECs allow institutions to claim not only the environmental benefit of clean power generated elsewhere, but also to support the development of new projects. While a thriving REC market may be crucial to the health of renewable energy project markets, many colleges and universities believe that this financing mechanism falls short of delivering direct emotional and financial connections to a particular clean energy project. The abstract nature of the REC purchase often carries less appeal for institutions and their stakeholders.

A THIRD APPROACH - OFFSITE CLEAN ENERGY PROJECTS

To overcome many of these limitations, one option for facilities managers to consider is to source clean power from an offsite renewable energy project that is relatively close to campus.

LOCATION

Offsite projects can be sited in much better locations than can onsite ones, in terms of both the available sun or wind and the ease of connecting the project to the power grid. In addition, ground-mounted, offsite systems are often less expensive to install and maintain than are many onsite rooftop projects – savings that can be passed on to the end-user.

SIZE AND SCALE

Offsite systems also help overcome size limitations that confront many onsite systems, allowing a school to benefit from efficiencies of scale. Beyond the ability to create larger, more meaningful projects, offsite systems present the flexibility of a scalable system. This means an institution can size a project based on desired energy output (e.g., 10 or 20 percent of energy use) rather than on available space on campus.

While offsite installations may not be visible from campus, there are many ways to integrate these projects into

student life. Schools can bring larger offsite facilities to life by installing kiosks that display real-time power generation data and avoided carbon emissions, and students can take advantage of academic and vocational opportunities afforded by a large offsite project. If awareness and technology demonstration are particularly important to a school, small-scale on-campus demonstration projects can complement the offsite power plant.

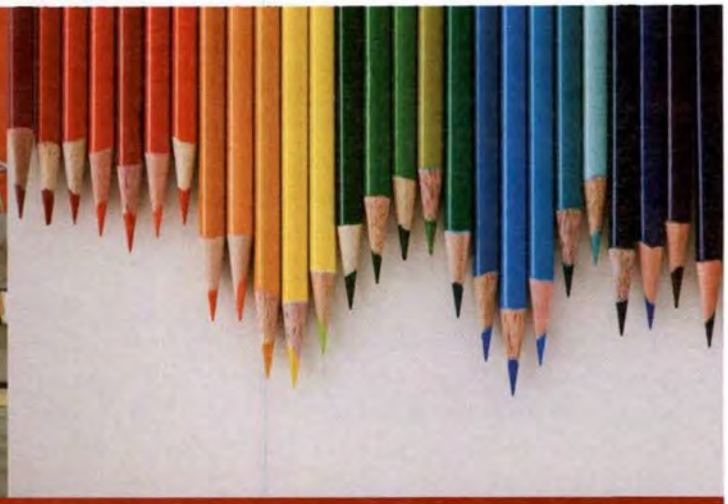
IS OFFSITE ON-TARGET? 5 QUESTIONS

To help you determine if an offsite project makes sense for your institution, consider these five questions:

1. Is your institution interested in purchasing clean power directly, but doing so on-campus is limited due to cost, complexity, or available space?
2. Is your institution reluctant to source clean power through RECs (either through a utility green power program or RECs provider)?
3. Is your institution in a deregulated electricity market? Deregulated markets can offer schools greater power purchasing options.
4. Is the solar or wind resource strong enough in your region? A higher quality resource allows a renewable energy system to generate the same amount of energy at a lower cost. Check the quality in your area by visiting the National Renewable Energy Laboratory's PVWatts Viewer online at *http://maps.nrel.gov/node/25*.
5. Is your institution located in a region with strong support for renewable energy? This assistance also helps lower the cost of power from an offsite project. Some states have "Renewable Portfolio Standards" (RPS) with specific requirements for solar. A map highlighting those states is available through the U.S. Department of Energy online at *http://www.dsireusa.org/documents/summarymaps/Solar_DG_RPS_map.pdf*.

If facilities managers can affirmatively answer some of these questions, then an offsite project is a possible viable source of clean energy (in addition to RECs and onsite projects). By considering these three options, institutions can make powerful decisions about how to reduce the impact of purchased electricity, and can move closer to reaching their sustainability goals.

Bryce Smith is the CEO of OneEnergy Renewables, Seattle, Washington and can be reached at *bryce@oneenergyrenewables.com*. This is his first article for *Facilities Manager*.



SAVE
time
WHILE PURCHASING

SAVE
millions
ALONG THE WAY

With more than 100 competitively bid contracts to choose from, E&I members collectively saved over $200 million last year. And unlike other group purchasing organizations, E&I members are also the owners of the cooperative. As such, they participate directly in the regional and national contracting processes, creating more and better contracts for everyone to use. Contact us today to learn more about joining E&I.

E&I
Educational & Institutional Cooperative Purchasing
Lower Costs for Higher Ed

Technology Scientific Furniture Supplies Maintenance Financial

800.283.2634 ext. 228 • www.eandi.org

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

As APPA's new leadership introduces newideas about advancement and change, it seems fitting to review some books that address change and process improvement. I hope you benefit from these books as much as I have.

BENCHMARKING & ORGANIZATIONAL CHANGE, 2ND ED.

Mohammad H. Qayoumi, Ph.D., APPA, Alexandria, VA, 2012, 74 pages, soft cover, $32 Member / $45 Nonmember

The only constant in life is change, and educational facility officers are seeing more and more change every day. Indeed, higher education is experiencing pressures to change in many areas that inevitably fall onto the facilities sector. Even though the buildings on your campus may not currently be experiencing change, change is occurring everywhere, and your organization must lead some changes in order to survive.

Mo Qayoumi, APPA Fellow and president of San Jose State University, has updated his *Benchmarking & Organization Change* book of 2000 with this new edition. The changes that have occurred in higher education since then may seem small to us now, but in reality, they were huge. And Mo has been involved in many of these changes at the universities he led during that time. His campus leadership provided him with significant insights to what it takes to accomplish change, which he shares in this new edition.

> THE FOCUS OF THE BOOK IS NOT THE CURRENT, EXTERNAL PRESSURES FOR HIGHER EDUCATION TO CHANGE. INSTEAD, IT IS ABOUT HOW ONE IDENTIFIES, MANAGES, AND IMPLEMENTS CHANGE.

However, the focus of the book is not the current, external pressures for higher education to change. Instead, it is about how one identifies, manages, and implements change. *Benchmarking* provides a clear outline (not detailed instructions) on the concepts of benchmarking, how to avoid aiming for the middle, and utilizing the system to identify or create best practices for your organization. There are chapters explaining why benchmarking is important, how it benefits the organization and any resultant organizational changes, how to ensure its success, and how to leverage the information gathered to address future needs. It's just the information any good leader needs to make keep an organization successful.

While facility officers may not be responsible for instructional methods if the general physical requirements of the campus change, facilities must change, too. Our success in how we maintain the buildings and campus during and after the instructional changes will be an indication of how well we can succeed at change, too. Organizational change is a constant in higher education now, and *Benchmarking* is an excellent resource for APPA members.

ENHANCING BUILDING PERFORMANCE

Shauna Mallory-Hill, Wolfgang F. E. Preiser, and Chris Watson, editors, Wiley-Blackwell, Oxford, UK, 2012, 320 pages, softcover, $115.

APPA members have long known about the importance of thinking long-term when designing a new building or major renovation. Appearances aren't everything: what's behind the walls, above the ceilings, and under the floor can mean more about the success of the building than what appears in magazine photos or praises at the ribbon cutting. Problems arising from shallow thinking during the design phase appear after the building is occupied and used.

The challenge is that we often struggle to explain the importance of better planning and testing of design; careful thought about what the occupants really want or need; how the building will be operated or changed in future; and how the built environment responds to the natural environment. It's not that we aren't good communicators, we just don't have the

data or a systematic way of getting the data. The editors of *Enhancing Building Performance* have spent years studying the subject and looking for others who have developed better ways to manage the design process, and measure the resultant project so process improvements can be made in future.

This is not an easy read. But then building design and construction, particularly in a higher education environment, is not easy either; it is serious business and the articles reflect that. The book comprises the work of 40 international experts in building design, evaluation, and process improvements. It is arranged in six major sections that conclude with the history of "Step M," the post-occupancy evaluation process. (For more information on Step M, see *The Architect and His Office*, Royal Institute of British Architects, 1962. Yes, 50 years ago!)

THIS IS NOT AN EASY READ. BUT THEN BUILDING DESIGN AND CONSTRUCTION, PARTICULARLY IN A HIGHER EDUCATION ENVIRONMENT, IS NOT EASY EITHER; IT IS SERIOUS BUSINESS AND THE ARTICLES REFLECT THAT.

What I liked the most about this book are the case studies and process diagrams. They provide examples and guides to manage the design process in a collaborative yet focused way. What's missing is a description of the traits possessed by people who can be successful at managing the process. Because ultimately, it's a people management process.

This compilation of articles and studies of how to incorporate post-occupancy evaluation into the planning and design process is a valuable resource. Any facility officer facing continuing pressures to work better and smarter in one of the most expensive processes any building owner experiences will find it beneficial. I predict, if used successfully, it is further evidence that many of APPA's recommendations and best practices identified over the years has stood the test of time.

Ted Weidner, formerly with the University of Nebraska-Lincoln, can be reached at *tjweidner@windstream.net*.

Compiled by Gerry Van Treeck

Viking Pure introduces The Viking Pure 1000: 25 Gallon Pump Unit. A safe and effective electrolyzed water system designed specifically to protect your wallet and health by producing 100 percent non-toxic cleaning and sanitizing solutions for less than 2 cents a gallon. Viking Pure's product is approved for use by the FDA, USDA, and EPA for use in the food and hospitality industries. To learn more about Viking Pure visit *www.vikingpure.com*.

Medeco presents a security solution that delivers unprecedented, dual-security for washer and dryer coin boxes and laundry card add-value stations. NEXGEN XT virtually eliminates the risk associated with unauthorized use of keys. The NEXGEN XT system eliminates the use of traditional keys, through the installation of electronic lock cylinders used in conjunction with a single, programmable "collector's key" with access codes for each associated lock. The collector's key will only work at specified times and will record up to 5,000 time and date stamped events. For additional information about the Medeco visit *www.medeco.com*.

Arbortech introduces new caulking blades that offer combined cutting and grinding action for faster caulk removal. These patented and uniquely shaped carbide-tipped blades are used with the AS170 brick and mortar saw to powerfully remove caulking while simultaneously grinding both sides of the expansion joint. This leaves a clean surface ready for recaulking. It replaces traditional methods, such as the pipe knife or the single-bladed machines, both of which require cutting both sides of the caulking before grinding the sides to remove residual material. The caulking blades save time by reducing the traditional four-step process to one step. The new caulking blades make the AS170 ideal for removing caulking from between concrete panels in tilt-up constructed buildings, parking lots and anywhere that caulking is used on outside panels. To learn more about Arbortech visit *www.arbortechusa.com*.

Sierra Monitor Corporation announces that the Model 5100-28-IT, the infrared Combustible Gas Sensor Module, now includes HART interface. The 5100-28-IT is network enabled, meeting users' and integrators' needs to communication with any plant-wide control and monitoring system. HART (Highway Addressable Remote Transducer) is a global bi-directional communication protocol standard for sending and receiving digital information across analog wires between smart field devices and host control or monitoring systems. The host can be any software application from a technician's handheld device or laptop to a plant's process control, asset management, safety or other system using any control platform. The HART protocol used on the Sierra Monitor IR Combustibles Gas Sensor Module has been developed to fully comply with the HART specifications outlined by the HART Communication Foundation. For more information about Sierra Monitor Corporation visit *www.sierramonitor.com*.

Sanitaire introduces the optimized SC9050B Lightweight Commercial Upright vacuum designed to handle the demanding commercial cleaning environment with ease. Built for schools, hospitals, hotels, and office buildings the SC9050B features a more durable design in a lightweight, easy-to-maneuver frame. The vacuum frame is made of magnesium, a resilient metal that is 75 percent lighter than steel and 33 percent lighter than aluminum. Magnesium offers dimensional stability, strength, and anti-corrosion properties for a lightweight but powerful combination. In addition, a new detent assembly allows users to place their foot on the vacuum hood and release the vacuum from the upright position without use of the foot pedal. Ribs on the bag support were extended to strengthen the design of the vacuum and increase suction

power. For additional information please contact Sanitaire at *www.sanitairevac.com.*

XSPlatforms presents a multi-line steel cable track LinkedPro. The new LinkedPro fall prevention track presents a fall protection system that can be used to attach multiple lines to a single anchor point. This unique system makes it possible for several workers to safely pass each other on the same system or to create several routes from the same starting point. The LinkedPro system is modular and can be used in various configurations. A major advantage is that users on the same system each have their own steel cable and can therefore move freely without interfering with one another. They no longer need to disconnect at dangerous or undesirable locations in order to pass each other. The system also offers safe passage to and along multiple routes. The LinkedPro steel cable system is available for roof, wall, and ceiling tracks and has been developed to allow existing XSPlatforms steel cable tracks to be expanded to form a LinkedPro track. For more information about XSPlatforms visit *www.xsplatforms.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.*

Index of Advertisers

2012

APPA THOUGHT LEADERS

Campus Space... An Asset and a Burden

Including the Top Facilities Issues

Part 1

APPA
LEADERSHIP IN EDUCATIONAL FACILITIES

Published by:

APPA
LEADERSHIP IN EDUCATIONAL FACILITIES

CFaR | Center for Facilities Research

APPA is the association of choice serving educational facilities professionals and their institutions. APPA's mission is to support educational excellence with quality leadership and professional management through education, research, and recognition. APPA's **Center for Facilities Research** engages in a deliberate search for knowledge critical to policy making in education. CFaR encourages the study of the learning environment, appropriate management strategies, and their impact on education.

APPA
1643 Prince Street
Alexandria, Virginia 22314-2818
www.appa.org
www.appa.org/tools/measures/tls.cfm

With sponsorship assistance from:

DTZ a UGL company

JACOBS

International Standard Book Number: 1-890956-72-4
Produced in the United States of America

Campus Space...An Asset and a Burden

Including the Top Facilities Issues

SECTION I: Executive Summary

Space is both an asset and a burden for colleges and universities. On the one hand, space holds enormous value for institutions; their campuses and buildings are worth, in many cases, hundreds of millions of dollars. Space is the medium in which the institution operates. Online courses have proven that education can be conducted anywhere, but most teaching, learning, and research still takes place on campuses. And while the value of buildings and grounds can be calculated, college and university spaces have a greater intrinsic value in the minds of students, faculty, alumni, staff, and community members. Campus spaces and places, the buildings and grounds, hold memories, retain emotions, and represent the ethos of an institution. They represent that "sense of place" so important to an institution's community and brand.

On the other hand, building, operating, and maintaining classrooms and laboratories, offices and libraries represent a growing proportion of the annual budget for higher education institutions. Correspondingly, these costs have grown by 20 percent at public research institutions over the past ten years—and 48 percent at private research institutions. At the same time, construction costs for new space have risen by nearly 65 percent since 1997.

Few institutional battles can be as intense as those regarding space. Despite this potential for conflict, higher education leaders are recognizing the value and cost of their space and are taking steps to better manage it. In this era of constrained budgets, declining state support and increasing tuition fees, institutions are assessing their limited resources and realizing that their space needs an effective management strategy.

But the issues, and opportunities, related to space management and utilization go well beyond an institution's budget or program requirements. In fact, policies and practices on campus space are overarching, enterprise-wide, and entrenched. APPA is devoting the 2012 Thought Leaders report to the challenges of space. The purpose of the Thought Leaders Series is to assess how higher education issues will shape the campus, and no other issue has such potential to transform the institution than that of the policies related to effective space management and utilization.

Why space management? Why now?

The following beliefs, issues and attitudes are preventing effective space management on many college and university campuses:

Space is expensive. Whether or not faculty and department chairs realize it, space is growing increasingly expensive for colleges and universities. Both new construction and operations costs continue to rise and place an increasing burden on college and university budgets.

Space is in demand. Colleges and universities are scrambling to find enough classrooms, labs and offices, and demand is expected to grow in the next few decades. Some 23 million students will be crowding U.S. colleges and universities by the end of the decade, yet only 6 percent of campus space is classified as classroom.

Space is underutilized. Space wouldn't be a problem at many institutions if it were better used. Space costs money whether it is used or not. Underutilized classrooms are also unsustainable; energy usage can be justified when learning is taking place, but not when a room is sitting empty.

Space is poorly measured. The majority of colleges and universities have metrics in place to measure the types of space on campus and how that space is used, but this data has serious limitations. Most space managers have a hard time keeping track of the quality, functionality and usage of actual space.

Space is poorly managed. Space management policies and governance are often weak, ineffective and highly political. At some institutions, the old model still holds: space is managed at a department level, and departments cling tightly to "their" space, refusing to grant others access to space resources or even acknowledge they exist. As a result, institutions often believe they are short on space when in fact it's being poorly managed.

Space is "free." At the majority of colleges and universities, departments are assigned space without any consideration for its cost, whether in terms of construction, renovation, or maintenance and operations. This attitude makes it difficult for institutions to shift attitudes about space and bring home the realization that space has inherent costs to the institution, no matter who bears the expense.

Space doesn't work. Poor quality space is almost as bad as no space at all. Contemporary interactive teaching methods are often constrained by the lack of flexibility in current classrooms, while research can be hampered by aging campus labs.

Space can't be ignored. In today's higher education environment, space is a pressing issue. Growing competition and tight financial constraints mean institutions need to maximize every resource available.

Thinking about space in a new way

It's time to develop and promote a new space management vision and enterprise-wide policies about space within the institution. The primary message: **space is an institutional asset**.

This fundamental point has multiple implications. First, space requires strategic thinking. Overcoming the current deadlocks over space will require savvy solutions to long-standing problems. Second, legacy space management systems must be challenged. The old attitudes have to be eliminated. This will require a combination of firmness and sensitivity—while emphasizing the value of space. It's important to remember human beings develop deep feelings about the space they occupy.

Thought Leaders participants considered several best practices for space management and utilization, all of which should be examined and adapted to make better use of space on campus. They include the following:

- Establish metrics to better measure and allocate space.
- Develop effective policies, decision-making processes, and standards.
- Create effective organizational governance structures.
- Implement incentives to encourage smart space management.
- Design spaces that are easy to manage.

Top six space management issues for higher education

Drawing on the discussion of space, participants in the Thought Leaders symposium developed a list of the top critical space management issues along with key strategies to address these issues and a set of critical questions for institutional dialogue.

1. **Align space management to the mission of the institution.** The management of space should align with the priorities of the college or university. Space

decisions that conflict with the overall mission and vision dilute the effectiveness of the institution.

2. **Make space one of the top assets of the institution.** Space should be one of the highest priorities of campus administrators and considered as a factor in critical decision making.
3. **Change the culture of space.** The pervasive attitude that space belongs to an individual or department needs to shift to a culture that promotes sharing resources for the overall good of the institution.
4. **Develop effective policies, processes and organizational structures to manage space.** Many institutions have policies and processes in place intended to manage space, but they lack effectiveness. New systems need enough backing and buy-in to get the job done.
5. **Implement a space inventory system to understand resources and identify needs.** A powerful tool in space management is an up-to-date inventory system with enough power and flexibility to manage critical metrics, interface with other institutional systems and support strategic planning.
6. **Address space utilization by assembling credible data and adopting best practices.** Often colleges and universities have more space available than they realize. Effective metrics and practices can help colleges and universities make the most of their space.

The Thought Leaders process

The issues discussed in the Thought Leaders report are the result of an intensive process that draws on the wisdom and insight of higher education experts from around the U.S. and Canada. At a two-day symposium, higher education experts, administrators, and consultants in facilities management, campus operations, finance, administration, human resources, student services, and more meet to analyze issues, discuss the effect of these issues on the built environment, and propose strategies to prepare for the future. The yearly Thought Leaders report summarizes the discussions at the symposium as well as provides additional context about major trends. The purpose of the report is both to inform and to prompt discussion.

At campuses worldwide, senior facilities officers use this report as a resource both within their own departments and with their counterparts in space management, IT, finance, HR, student services, and senior administration.

Changing thinking about space

It is unlikely that everyone at a college or university will ever have the space he or she wants. Who doesn't want a bigger office, newer classroom, or better equipped lab? What's important, however, is that the institution have the space it needs. Inadequate or insufficient space interferes with teaching, learning, and research. It hampers achievement of the mission of the institution. At the same time, it is important to acknowledge that some institutions actually suffer from declining populations and, therefore, have excess space to manage. This makes for a much different challenge to sustain campuses in the declining regions.

Ensuring that the campus has the right quantity and type of space to fulfill its mission, therefore, should be the priority of everyone involved in the management of space. We live in an era of constrained resources. Confronting the challenge of space will not be easy, but it is essential to meet the priorities and vision of the institution going forward. Effective management of the existing inventory becomes crucial. The tools, concepts, and practices outlined in this report are an important step toward effective space management.

SECTION II: Space planning, allocation and management in higher education

Why space management? Why now?

Many a provost heaves a sigh when a department chair comes to his or her office to talk about space. The conversation to follow will likely be complex, political, full of minefields and costly to resolve.

The same provost is likely to be having more conversations about space than ever before, and not just with disgruntled department chairs. Stakeholders from state legislators to board members to major donors are asking questions about how institutions use their space. State university systems are conducting major studies about space and developing proposals to transform space management system-wide. Industry experts are highlighting the inefficiency of current space practices while student sustainability groups are pushing to reduce the campus' carbon footprint by improving the productivity of its space.

Following is a survey of the challenges of space for colleges and universities today, a big-picture view of the headaches that imaginary provost is likely to be experiencing.

Space is expensive. Whether or not faculty and department chairs realize it, space is growing increasingly expensive for colleges and universities.

New construction is, of course, the most expensive type of space. According to the 2011 Annual College Construction Report from *College Planning and Management*, the median cost for academic buildings is currently $339 per square foot, up from just over $120 per square foot in 1997. Libraries cost an average of $346 per square foot, and science buildings can be $500 or more per square foot.

However, the cost to operate existing space is also on the rise. Operations and maintenance expenses at public research institutions has gone up from an average $1,726 per full-time equivalent (FTE) student in 1999 to $2,073 per FTE in 2009, an increase of about 20 percent, according to the report "Trends in College Spending: 1999-2009" from the Delta Cost Project. Not surprisingly, expenses were lower and rose less at community colleges, from $1,095 per FTE in 1999 to $1,224 in 2009, an increase of just under 12 percent. Private research institutions, however, saw a massive leap of nearly 48 percent, from $2,887 in 1999 to $4,270 per FTE in 2009. These costs include service and maintenance of the physical plant, grounds and building maintenance, utilities, and property insurance. Rising fuel and energy costs play a major role in these increases, and aren't going to go down any time soon.

Finally, space has a cost simply as a result of supply and demand. Many institutions find their campuses hemmed in by neighborhoods or cities. There's no open space left for new facilities. Construction or expansion would require tearing down existing buildings—always difficult on campuses, where every facility, no matter how run down, is beloved by some segment of alumni—buying expensive land, or creating a satellite campus. Beyond the obvious costs of keeping the lights and the heat running, space is never free.

Space is in demand. Colleges and universities are scrambling to find enough classrooms, labs, and offices, and demand is expected to grow in the next few decades. Enrollment in degree-granting institutions increased 43 percent from 1995 to 2009 and is projected to grow a further 13 percent by 2020, according to the National Center for Education Statistics. Some 23 million students will be crowding U.S. colleges and universities by the end of the decade. Yet only 6 percent of campus space is classified as classroom.

Increases in enrollment are likely to vary by institution type. Community colleges saw the greatest increase in enrollment in the past five years. In 2009, 44.5 percent of traditional-age students enrolled at two-year colleges, up from 41.7 percent in 2006. Between 2008 and 2009 alone, enrollment jumped by 8.3 percent, according to the National Student Clearinghouse Research Center. These dramatic increases are not expected to continue—in fact, enrollment at some community colleges was flat or declined slightly in 2010 and 2011—but experts predict enrollment will continue at its new

high as students rely on two-year institutions to reduce their total tuition bill.

Community colleges, therefore, are at the forefront of the space crunch. Classes have been booked in every conceivable space; at LaGuardia Community College in New York, for example, courses have been held in faculty conference rooms, lounges, and computer labs. Northern Virginia Community College has moved courses to trailers and housed night classes in local high schools. Colleges from the District of Columbia to Cincinnati to Las Vegas to Hawaii have leased commercial space for classrooms. Demand remains a problem, however, particularly for labs, which require specialized construction.

Four-year institutions have yet to confront such pressing demands, but as enrollment rises, colleges and universities will be forced to find new classroom and lab space.

Data Point:
Community college and university partner to maximize space utilization

The University of Michigan (U-M) wasn't using enough of its classroom space at night. Nearby Washtenaw Community College (WCC), on the other hand, regularly ran out of classroom space. In 2010, the two institutions realized they could solve each other's problems and began an innovative partnership to share space.

WCC began leasing classrooms from U-M, creating opportunities for students to avoid the crowded WCC campus and giving them exposure to a top university. U-M, meanwhile, keeps its classrooms full, earns some rental income, and better serves the surrounding community.

WCC had considered purchasing property in downtown Ann Arbor, a far more costly plan that was complicated by falling property values in the area. The two-year college wanted to expand in the downtown area, since research indicated many of its students lived within a mile of downtown. "It's a great example of collaboration and cooperation between two schools," says Rick Fitzgerald, U-M spokesperson.

Space is underutilized. Space wouldn't be a problem at many institutions if it were better used. Students and faculty prefer classes in mid-morning, so that's when classrooms are generally jammed. Typically, classroom usage spikes at 9:00, dips slightly at noon, rises again at 2:00 and then drops off precipitously. Friday classroom occupancy is lower overall; as Cheryl Sedgewick, manager of room scheduling at the University of Saskatchewan, noted, "At 3:30 on a Friday afternoon you could shoot a cannon in most universities and it wouldn't be a problem."

Generally these trends hold for all types of institutions other than community colleges. Accustomed to space pressures and meeting the needs of their students, two-year colleges have spread their course offerings across the entire day. Miami Dade College, for example, offers classes from 6:00 a.m. to 11:00 p.m., and Boston's Bunker Hill Community College has classes that begin at midnight.

Underutilization extends to breaks as well. The majority of college campuses operate at reduced levels in the summer, yet every building is wide open, fully lit, and air conditioned.

The implications of underutilized space are considerable. Space costs money whether it is used or not. A vacant classroom still uses power and consumes heat or AC. Pouring money into an empty room is a waste. Underutilized classrooms are also unsustainable; energy usage can be justified when learning is taking place, but not when a room is sitting empty. The Association for the Advancement of Sustainability in Higher Education (AASHE) emphasizes space utilization as a strategy for campus climate action planning, noting:

> While new construction is sexy and having a LEED Gold or Platinum building on campus certainly gives you real bragging rights, the reality is that each new building adds to your campus carbon footprint unless it is a zero-energy building or it replaces a building that used more energy. . . . Colleges and universities committed to reducing their carbon footprints need to look at new construction in a new way. They can save energy dollars and reduce carbon emissions by maximizing the utilization of existing space and avoiding new construction.

Data Point:
Higher education pressures itself to build more space than it needs

"Higher education is making less and less efficient use of campus physical facilities. We gauge our need based on the number of classes we would like to schedule during the most popular time slots. Consequently, there are often pressures to build more classroom facilities to meet a peak demand when a more efficient scheduling matrix could easily accommodate all classes without additional bricks and mortar... [T]he reality is that we are also not fully utilizing our facilities early in the morning, late at night, and Fridays (plus of course Saturdays and Sundays). As all of us look for economies that will not adversely impact the quality of our education, efficient utilization of space should not be left out of the discussion."

— Herman A. Berliner, Provost and Senior Vice President for Academic Affairs, Hofstra University, "A Broad Education, More Narrowly Defined," *Inside Higher Ed*, April 11, 2010

Space is poorly measured. The majority of colleges and universities have metrics in place to measure the types of space on campus and how that space is used. The National Center of Education Statistics (NCES) Room Use Codes are widely employed to categorize space, while information from registrars is used to track space usage. Put this data together and, in theory, you have a good sense of who is using what and when.

However, this data has serious limitations. Room codes can be improperly assigned. Some spaces are difficult to measure, particularly those that combine uses. How do you categorize a fine arts space that combines an office and a studio? A research space that is both laboratory, meeting room, and graduate student office?

Furthermore, NCES codes fail to take into account the quality of space. A freshly painted classroom with new furniture, good lighting, and up-to-date technology is going to be far more desirable than an old room with worn floors, scratched desks, and a battered whiteboard, yet both could end up with the same code. A deeper question is whether spaces meet the current and future needs of the institution as a whole as well as the current and future needs of the academic program housed there. Space metrics often fail to take pedagogy into account. If a department is moving to a teaching method that emphasizes the interaction of small groups instead of lectures, a theater-style classroom is going to be unsuitable to that department.

Measuring usage is also complicated. Classroom schedules only indicate when classes intend to meet. The data can disguise classes that fail to meet, that don't meet regularly, or that meet for irregular times. Looking at non-classroom spaces, usage is even harder to assess. Office space, for example, is often automatically assigned, and usage isn't tracked at all. Some faculty members use their offices all the time and others hardly ever. More sophisticated usage metrics are necessary to get a global view of actual space utilization on campus.

Space is poorly managed. Space management policies—when they exist—are often weak, ineffective, and highly political. At some institutions, the old model still holds: space is managed at a department level. If the English department is bursting at the seams but the modern language department has space to spare, too bad for English.

The final report from the University of Illinois at Urbana-Champaign Space Utilization Project Team put the matter this way:

> A major challenge of space management is the pervasive view on campus that space is a commodity to be acquired and protected at all costs. Most of us never want to give up space once we have acquired it, perhaps for fear that we will never get it back or that we may need it someday. It is a natural tendency but one that inevitably leads to the inefficient use of some fraction of our space.

This sense of ownership can become entrenched at some institutions. For example, at an anonymous university included in a study of space management practices as part of a doctoral dissertation, the sense of ownership was so strong that when space planners tried to conduct a space inventory, a faculty member called campus police to have them removed from his office.

As a result of all this hoarded space, institutions believe they are short of space when in fact it's being poorly managed. Creating or strengthening institution-wide policies is often the first step to better managing space. Some colleges have gone to purely centralized systems, where all space is allocated at the university level. Others have adjusted policies to encourage cooperation. For example, at Middle Tennessee State University, departments still control classrooms, but they must fully use the spaces allotted to them and allow other units to borrow classrooms when possible. Fail to make use of assigned space and it will be taken away.

Data Point:
Principles of space management from the Texas State University System

- The Texas State University System (TSUS) Board of Regents has ownership and control of all facilities belonging to or controlled by the university.
- Ultimate responsibility for the assignment or reassignment of space resides with the president upon recommendation of the Campus Facilities Planning Committee, provost, and President's Cabinet.
- Allocation of increased square footage depends on a demonstrated campus-wide need.
- Allocation of space does not imply permanence, but rather a commitment based upon continued program justification and to changing program priorities.
- Space vacated by a physical move, renovation, or new construction is allocated back to the campus. Likewise, space vacated due to a reduction in program size, reduction in workforce, or program elimination is also allocated back to the campus.
- All university space, particularly classrooms and class labs, will be managed to ensure effective and efficient utilization. The university will conduct annual classroom and class lab utilization studies to ensure optimum utilization of these spaces.

Research reveals that even in institutions with established space management policies, the policy is often bypassed or ignored. A formal system to assign and manage space might exist alongside an ad-hoc process based on personal relationships and informal communications. Those who are "in the know" are able to snatch up space as it becomes available; departments with good relationships set up deals to trade or borrow space. This sort of system inevitably disadvantages those out of the loop and eliminates transparency from the space management process.

It's not enough, therefore, to establish a management system. You have to monitor and enforce it. Tom Schaver, founder and CEO of scheduling software provider Ad Astra Information Systems, notes, "You have to build the policy, then build reports that can then enforce the policy, and you need to be diligent about checking up on adherence to the policy on a term-by-term basis."

Space is "free." At the majority of colleges and universities, academic units don't pay for the space they occupy. They are assigned space without any consideration for its cost, whether in terms of construction, renovation, or maintenance and operations. Most of the time departments don't even know how much their space costs the college or university. In recent years as part of efforts to better track and manage energy expenses, some schools have begun metering individual buildings or even rooms, but this is still the exception rather than the rule.

The belief that space is free goes hand in hand with attitudes of entitlement and ownership. When a department or faculty member "owns" certain space at no cost, there's no motivation to give up that space. In fact, the department might as well try to accumulate as much space as possible and won't care if that space is underused. There's no cost to the department if an office or classroom sits empty.

With a few notable exceptions (which will be discussed later), institutions have resisted charging departments for space. Some think charging for space sends the wrong message. The University of Illinois at Urbana-Champaign Space Utilization Project Team stated that charging for space "seemed to reinforce the notion of space as a commodity to be traded." Instead,

the committee embraced the notion that space on campus is a valuable common resource that needs to be distributed without being directly or strictly tied to the financial resources of individual academic units.

Other critics fear that charging for space will reinforce existing inequalities in academic space. Revenue-generating departments with lots of resources—business schools, for example, or biomedical research programs—will settle into luxurious offices while the classics department will end up in a basement. Simple equations where money equals space clearly aren't fair. A business professor might need more than an office and a computer to bring in more money than a huge, sparsely populated biology lab, and both will make more money than the school of education can imagine, but it would be contrary to the mission of the institution to equate space solely with income generation.

Data Point: Who gets what space?

Different types of institutions use space in different ways, but it's possible to come up with some generalities about space utilization. Here's a look at space usage at a large public research institution:

Office space	23%
Residential space	22%
Institutional support space (Police, IT, etc.)	11%
Research labs	10%
General use (Student unions, auditoriums, clubs)	9%
Special use (Learning labs, computer labs, and other special-use instructional spaces)	9%
Study/library space	7%
Instructional labs	5%
Classrooms	3%
Healthcare (Not counting institutions with hospitals)	1%

— Scott Carlson, "Campus officials seek building efficiencies, one square foot at a time," *Chronicle of Higher Education*, April 17, 2009

Despite these challenges, the belief in free space makes it difficult for institutions to shift attitudes about space and bring home the realization that space has inherent costs, no matter who pays them.

Space doesn't work. Poor quality space is almost as bad as no space at all. Colleges and universities operate in an environment of vast disparity in the quality and functionality of classrooms, labs, and offices. Students can take one class in a gleaming "smart" classroom with new desks, integrated projectors and Wi-Fi and the next in an aging theater with stained carpet, mismatched desks, and an extension cord snaking out the door so the professor can run a PowerPoint presentation.

More than half the buildings on college and university campuses were constructed in the 1960s and 1970s when the Baby Boom generation reached college. The construction of these buildings reflected the then current thinking on pedagogy, which essentially consisted of a professor at the front of the room lecturing to a passive student body. Flexibility wasn't built into those classrooms—it was the farthest thing from anyone's mind. So the chairs don't move and a podium is fixed at the front. Technology has further complicated matters; most students arrive on campus with laptops and expect to use them in class, yet old desks are too narrow to comfortably support computers.

Probably the most frustrating environments are large tiered lecture halls. Try having a small group discussion when no one in the group is on the same tier. Many universities are moving away from large lectures to smaller, more interactive classes, but they find themselves stymied by their own architecture. Three or four small classrooms could take the place of one large lecture hall, if only someone could find money to pay for the renovations.

Older architecture proves an even greater challenge. Campuses with historic buildings can find themselves stuck with beloved spaces that can hardly be used. In rare cases, it actually makes more sense to tear down an old building than to attempt to renovate it. This is most often the case with mid-20th century buildings that were poorly constructed to begin with, operate inefficiently, and lack flexibility in their design. If a building has made it onto a historic register, usually demolition isn't an option. Creative adaptive reuse can

Data Point:
Careful renovation gives new life to architectural gem

Amherst College's Fayerweather Hall is considered the architectural jewel of the campus, but the building had long been a drain on the campus facilities budget. Constructed in 1894, Fayerweather was designed by the famous architectural firm McKim, Mead and White in the Renaissance Revival style. It began life as a physics and chemistry building, but over the years the sciences moved to newer, more up-to-date facilities and Fayerweather fell into disuse.

Amherst took a look at existing needs and the features of the building and decided to invest $8 million in a renovation that converted the space to use by the fine arts department. Large lab spaces with generous natural light were a perfect fit for studios and classrooms. This allowed architects to preserve most of the original floor plan.

As well as updating utilities and fire protection services, the renovation also incorporated modern technology and created new flexible studio spaces out of old labs. One advantage of the project is that it allowed the entire fire arts program to be under the same roof for the first time in years. Previously studio arts and art history had been separated by space constraints.

Today, Amherst art majors study in a renovated building that is itself a functional work of art.

give new life to historic structures and allow institutions to reap sustainability benefits (not only by avoiding waste but also by taking advantage of energy-efficient, now-costly building materials such as brick and plaster), but the cost can be almost as high as that of new construction.

Space can't be ignored. Colleges and universities have been able to coast along with existing space and space policies, sometimes for decades. But no longer. The challenges confronting higher education have ramifications for space and can't be ignored.

Consider the following major trends and issues in higher education and their implications for space:

- **Financial constraints.** State support for public institutions is in sharp decline, with state revenues remaining painfully low. Total state support for higher education declined 7.6 percent from 2011 to 2012 fiscal years, according to an annual report from the Grapevine Project at Illinois State University and the State Higher Education Executive Officers. At the same time, public pressure to limit tuition increases, reduced donorship and declining endowment values are challenging not-for-profit private institutions. The result is a constrained financial situation for most colleges and universities. In this environment, schools can't buy their way out of space crunches. They must make better use of what resources they have.
- **Sustainability.** Colleges and universities are at the forefront of sustainability in the United States and Canada. More than 675 institutions have signed the American College & University Presidents Climate Commitment agreeing to make their campuses carbon-neutral, and sustainability programs from recycling drives to major green energy initiatives are underway across the continent. This environment exposes unsustainable space practices and makes their impracticability obvious.
- **Productivity.** Productivity was once the concern of factory managers and office supervisors, but today it is a worry of deans and chancellors. Politicians and public policy leaders are calling on colleges and universities to produce more graduates in order to increase the competitiveness of the North American workforce; this policy generally boils down to an intense focus on degree attainment rates, retention statistics, and time to graduation measures. Yet, as discussed above, at the same time graduation rates are supposed to increase, funding is set to decrease. The only solution will be greater use of existing resources—i.e., improved productivity. As one of the critical resources on campus, space will need to be better utilized to see gains in productivity. That means keeping classrooms filled, offices occupied, and labs humming.

Most of the issues facing higher education today will somehow affect the use of space. Ignoring the problem

won't make it go away—space is going to be at the top of the agenda going forward.

Thinking about space in a new way

Space doesn't have to be a problem. Shift the thinking about space, and it can become a powerful tool for the institution.

So what is the new attitude about space? It boils down to a simple statement:

Space is an institutional asset.

Participants at the Thought Leaders symposium put it this way: every institution has assets and operations essential to its performance. Typically colleges and universities focus on three big areas: budget, personnel, and information technology. But the Big Three should be the Big Four: space, budget, personnel, and IT.

Colleges and universities are thoughtful about the allocation of their endowment investment portfolios. We need to be as thoughtful about our space portfolio.

Data Point:
Managing the cultural challenges of improving space utilization

The University Advisory Board investigated space utilization on campus and, among the top lessons of their study, developed the following four tips for addressing the cultural transformation necessary to making better use of space on campus:

1. **People will accept less space for better space.** Provosts and space committees from a wide variety of institutions concur on an insight in faculty psychology: academics (and the staff that support them) are often willing to accept refurbished space that results in less square footage but more modern features.
2. **People will share space with assurances they can get it back when needed.** Deans and department chairs are less likely to hoard space when supported by "right of return" policies guaranteeing that units that voluntarily loan out underutilized office, classroom, or lab space can reclaim it at a later date when demand rises.
3. **Facilities staff must embrace a proactive, consultative role.** With the proper incentives in place to motivate academics to share space, space planning teams must be prepared to do more than impose standards. They must partner with deans to help adopt utilization best practices and prioritize space to shed or repurpose to stay within allocation incentive targets.
4. **Space utilization is a promising area to pilot data-driven resource allocation practices.** An avowed priority at many institutions in the downturn's aftermath is to embrace "data-driven" decision making—evaluating academic requests not just on quality or perceptions of fairness, but on objective measures of need, paired with rewards and penalties for unit-level decisions that affect institutional finances. Beyond cost-avoidance potential, many provosts and chief business officers see space utilization initiatives as a pilot for data-driven decision making that they hope will offer a model for extending into even more politicized trade-off decisions around academic programs, research priorities, and faculty lines.

Despite these challenges, institutions that can assess the usage of their labs can uncover key information, including outdated labs in urgent need of renovation and underutilized labs that can be converted to other uses.

— University Leadership Council. "Maximizing Space Utilization: Measuring, Allocating, and Incentivizing Efficient Use of Facilities." The Advisory Board Company, 2010.

What does this shift in attitude imply?

- **Space is valuable.** It represents a vast investment, something that is often forgotten when thinking about ongoing costs.
- **Space is essential.** Without classrooms, labs, offices, and libraries, higher education as we know it cannot operate. Yes, classrooms can be virtual and offices remote, but there's no sign yet that the campus as we know it is going away—and you can't conduct cutting-edge biomedical research anywhere but in a physical lab.
- **Space is powerful.** Through smart, effective management, space becomes a tool to accomplish the institution's goals.

Two implications flow from thinking of space as an asset. The first is that space requires strategic thinking. You don't manage one of the most critical assets of your institution through ad-hoc, seat-of-your-pants systems. Would you "muddle through" the budget process and expect to come out in the black? Institutions are already thinking about finances, personnel, and technology in strategic terms. Now they need to apply the same rigorous processes to space.

The second, related implication is that legacy space management systems need to be challenged. In previous decades it didn't matter if departments acted as fiefdoms hoarding space. But this attitude won't work any more. Treating space as an institutional asset means institutional needs trump department-level desires.

While promoting a new attitude about space is critical, it's important to insert a caveat. Human beings develop deep feelings about space—we are a territorial species. Take away the space we love and we'll lash out. Legacy systems need to be challenged with firmness but also with sensitivity. Individuals need to be respected, and heard, and institutions need to understand and accommodate basic human emotions about space.

Best practices for effective space management

With the starting point of space as an institutional asset, participants at the Thought Leaders symposium considered what space management practices will be essential to colleges and universities.

Establish metrics to better measure how space is used. The more data institutions have about space on campus, the better they can manage that space. Colleges and universities often have basic inventories using NCES codes, but that inventory should only be a starting point. As Thought Leaders participants pointed out, NCES inventories are backward-looking: they only describe what has been. Institutions need inventory

Data Point:
Developing metrics for interdisciplinary research space

The Fulton School of Engineering at Arizona State University (ASU) confronts a challenge shared by many research institutions today: that of interdisciplinary space. Research often crosses traditional boundaries of discipline and department, yet space inventory systems typically tie space to faculty members and departments.

ASU developed a new system that assigns space to projects rather than faculty members. A number of advantages arise out of this approach. First, the complications of assigning space to multiple faculty and/or departments are eliminated. Second, projects generally have distinct ending points, which allows for space to be assigned for the duration of the project then reallocated when the project winds down. Finally, the system provides an objective method to measure the effectiveness of the use of space, predict future needs and allocate space in an equitable manner.

ASU has found its new space allocation system a powerful tool for promoting interdisciplinary research. As ASU's Ben Huey and JoAnne Valdenegro note in an article for *Planning for Higher Education*:

> The emergence and growth of new transdisciplinary research activities that not only connect research from traditional disciplines but also form the unifying theme around which a whole new area may grow depends in part on reducing traditional barriers to space allocation and encouraging the creative efforts of everyone contributing to meet research space needs.

systems that are forward-looking and allow for improved management and planning.

Inventories should also be expanded to include new categories of information. The basic codes can be limiting and fail to account for multi-use spaces. How, for example, do codes differentiate between seminar rooms and conference rooms? What about arts studios that are also offices? Inventories should also account for the quality of space, not just the quantity. Some spaces are more usable than others; there's that classroom where the AC blasts at the students' faces, or the row of offices where the light is terrible, or the lab where the Internet connection never works. Keeping these spaces on the inventory as available when in fact they are highly undesirable masks the true picture of space on campus.

Finally, institutions should track space as many ways as possible. The more types of measurement the better. For example, research space can be tracked by square foot, by student, by faculty member, by productivity (e.g., number of research papers produced per square foot of lab space), and by revenue (e.g., grant dollars received per square foot). You won't know until you have the data what information will prove to be useful.

Develop effective policies, decision-making processes, and standards. Institutions need clear space standards, policies, and processes. Buy-in and enforcement are critical for policies to have any meaning. A policy that is applied inconsistently, repeatedly ignored, or frequently overridden is worse than no policy at all.

Transparency is also critical. Research of space policies and practices at three campuses by graduate student Sandra McCoskrie Blanchette revealed that decisions about space were often unclear to outsiders; people who found themselves "out of the loop" could rarely make sense of how space was allocated. It's almost inevitable in these cases that decisions will seem unfair.

Different institutions will need different amounts of flexibility in their policies. Some colleges and universities prefer hard and fast rules that can be strictly enforced. Others prefer statements of principle that can serve as guides to decision making. The former is more straightforward but can be overly rigid. The latter allows for more flexibility but must be more carefully managed.

Data Point: What would Google do?

Higher education traditionally emphasizes standards and policies when considering space—the exact opposite of the thinking of cutting-edge companies like Google and Pixar. They spend much more thought on interaction, creativity, and a sense of play.

Technology companies often include elements of whimsy in their buildings—Google's Zurich office features slides from floor to floor—but there's a serious point to light-hearted design. For example, when Steve Jobs supervised the construction of Pixar's headquarters, he proposed the entire building only have one set of common spaces. That way everyone in the company—writers, animators, administrators, accountants, and IT staff—would have to come together on a regular basis. Jobs believed this would stimulate creative interchange between individuals who would otherwise have no reason to interact. The best meetings, Jobs believed, were those that happened spontaneously.

No one is proposing we equip classroom buildings with slides, but higher education could learn something from creative corporations. As Steven Turckes noted in an article for *Co.Design*:

> Imagine what could happen if the advanced physics student and the photography student had meaningful collisions ...? What would young people see as possible? They might come to understand that the lines between music, math, physics, and art are much blurrier than textbooks make them appear. Schools could be the breeding ground for a new millennium of Renaissance young men and women where creating something trumps memorizing it.

In any case, both policies and guidelines should be based on the overall priorities of the institution. Space policies need to be aligned with the campus master plan, which should be aligned with the institution's mission and vision. Decision-makers should be able to draw a straight line from the long-term priorities of the college or university to choices about scheduling an individual classroom.

Space standards also need to be clear and consistent, but over-insistence on square-feet per student or faculty member can be counter-productive. State university systems in particular have often focused on standards in an attempt to ensure consistency and equity across campuses. But standards say nothing about the quality of space. Standards are good guidelines for planning in terms of how much space is needed in a new building or for new faculty, but they don't tell the whole story.

Create effective organizational structures. Once upon a time, department secretaries assigned space, and that was just fine. At some colleges and universities, they still do. But this sort of ad-hoc allocation perpetuates the bad habits institutions are trying to shake. Best practices call for a more systematic, campus-wide approach.

Different campuses have come up with different solutions to this problem. Some establish institution-wide policies and standards, then allow departments, schools, or colleges to implement them. Others move all decision making about space to a centralized body such as an office of space management. On some campuses, an effective practice is to create a space committee with broad representation and have it serve as an advisory board to staff. On other campuses, committees have become bogged down in politics and only by eliminating the committee have institutions been able to move forward.

No one structure will work for every campus. Instead campus leaders must consider the needs of the institution and implement a structure that can succeed.

Implement incentives to encourage smart space management. Firm policies are important, but they're more stick than carrot. Organizational systems work best when individuals are offered incentives for preferred behaviors. Right now, few institutions reward faculty or departments for using space the "right" way.

The nature of incentives will vary from campus to campus. The most controversial approach has already been touched upon: charging academic units for space. It's a complex issue, yet some institutions have made it work. Stanford University, for example, charges schools for office space. Schools receive a general funds allocation to cover the space that institutional standards consider appropriate. Then schools are charged annually based on their actual space usage: if they are using space efficiently, their allocation will cover all of their space. Inefficient use will mean the school owes money back to the university. Charges might be accrued if individual faculty member are using more than one office, if the ratio of students to space is too high, or if staff are occupying offices intended for faculty. Schools can reduce their net charge by repurposing office space for other needs, growing within their existing footprint, and subletting or relinquishing space to the provost. Stanford officials note numerous benefits from the program, the best one being a new focus on the cost of space.

Other incentives are also possible. Some institutions offer to renovate classrooms if they are turned over to the general assignable pool. The Center for College Affordability and Productivity suggests a variety of incentives to improve space utilization. Classrooms might be free for use on Friday afternoons, evenings, and weekends, relatively cheap before 9:00 a.m. and after 3:00 p.m., and costly at peak times. Students might even get a discount on their tuition for registering for night or weekend classes. It will take creative thinking to come up with incentives that will work for individual campuses, but space management systems

Data Point: A market view of academic space

"Typical practice of universities is to allocate office and laboratory space through administrative negotiation, not to regard space as an economic asset that should be priced and budgeted. An academic department or research organization has little or no incentive to admit excess capacity or to give up space unless forced to do so. . . Putting the allocation of space in a more disciplined, market-like framework would make departments and other units behave somewhat more rationally."

—Frederick Balderston, "Organization, Funding, Incentives, and Initiatives for University Research: A University Management Perspective," *The Economics of American Universities*, 1990.

that reward desired behavior will have a greater chance of success.

Design spaces that are easy to manage. Most participants at the Thought Leaders symposium had spaces on their campus that were in need of renovation, in poor quality, or out of sync with current priorities and pedagogy. Institutions can only do so much with the space they have; new construction, on the other hand, presents an opportunity to make smart decisions for the long term.

Generally, the driving force in contemporary academic design is flexibility. Not only has pedagogy changed over the past few decades, it is continuing to change, and no one knows what the typical classroom will look like going forward. The more options within academic buildings, the better. Flexible design decisions might include adding movable partitions that can be used to subdivide spaces, and installing furniture that is easily moved to accommodate a variety of configurations. Above all, single-use spaces should be avoided—that means limiting the number of tiered lecture halls.

On the other hand, built-in flexibility can increase costs. For example, an institution might wish to include shell space that can be expanded into at some future point. Yet often the college or university never finds the funds to expand into that shell space, and the investment is wasted. It would have made more sense to limit flexibility and cut expenses. Smart design requires careful balance of options and costs.

Benefits of improved space management

Increased productivity and efficiency. Colleges and universities are confronting unprecedented pressures to maximize their productivity. Improving space management is a critical way to address these pressures and satisfy stakeholders that the institution is making smart use of its resources.

Improved student services. Better use of space has trickle-down effects. Spreading out use of the campus can reduce parking needs, lighten the pressure on support staff, and reduce strains on food services. In general, it allows institutions to better serve their students.

Reduced costs. Classrooms, offices and labs cost money whether they're occupied or not; fill those spaces and not only do those costs become acceptable, they have tuition to cover them. Furthermore, better use of space reduces the need for new space. With the costs of construction rising steadily, any measures to limit building are welcome. The cheapest building is the one you don't have to construct.

Greater equity. Colleges and universities are often accustomed to inequities of space that would be shocking in any other environment. Is it right that the business school is housed in a brand new building that would make many corporate headquarters look shabby while the psychology department is in a run-down, rattle-trap warren of ancient offices and classrooms with mismatched desks? An improved space management system makes the allocation of space fairer and can gradually improve the condition of institutional have-nots.

Improved sustainability. Empty buildings waste energy—no question about it. Pouring heating or air conditioning into a vacant classroom can counteract any number of institutional sustainability initiatives. Colleges and universities seeking to improve their space management practices can use sustainability as a tool to help them advance their cause. Emphasizing sustainability advantages can attract attention to your efforts and help you find key allies.

Look for Part 2 of this series in the November/ December 2012 issue of *Facilities Manager*. Download the full report at **www.appa.org/bookstore**.

UNGER

Quality Tools for Smart Cleaning™

HiFlo™ PureWater Window Cleaning

Insource Your Window Cleaning Jobs

- Work up to 50' from the ground safely - no ladders needed.
- PureWater filter system delivers spot-free results without chemicals.
- Fast return on investment vs. renting lift trucks. Cost of ownership realized after one or two cleaning jobs.

Contact Unger Today to Schedule a Demo

www.ungerglobal.com

WE WATCH YOUR FIRE ALARM SYSTEM.

YOU WATCH YOUR KID'S GAME. GOOD TRADE, EH?

Introducing TrueInsight℠ Remote Service. New from SimplexGrinnell, its remote diagnostics can alert our specialized team when your Simplex® fire alarm system experiences a trouble condition or when a detector is "almost dirty." By proactively diagnosing problems from our end, the first-time resolution rate for TrueInsight customers is nearly 90%. That's just part of the game-changing value we deliver to customers with our advanced suite of web-based eServices technologies. Find out more at www.simplexgrinnell.com and click on Services.

SimplexGrinnell
BE SAFE.

A Tyco International Company

800-746-7539
www.simplexgrinnell.com