CELEBRATING 100 YEARS
APPA
1914 – 2014
OF EDUCATIONAL FACILITIES LEADERSHIP

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SEP/OCT 2013

INSIDE

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A PROFILE OF
PRESIDENT GLENN SMITH

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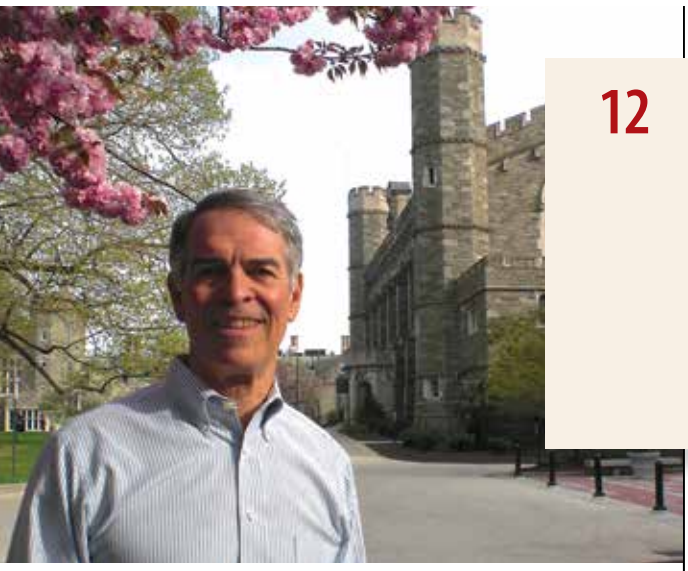
features
SEPTEMBER/OCTOBER 2013
Volume 29 • Number 5

2013-14 APPA PRESIDENT GLENN SMITH



2013 Award for Excellence

COVER PHOTO BY KIT FARMAN

columns

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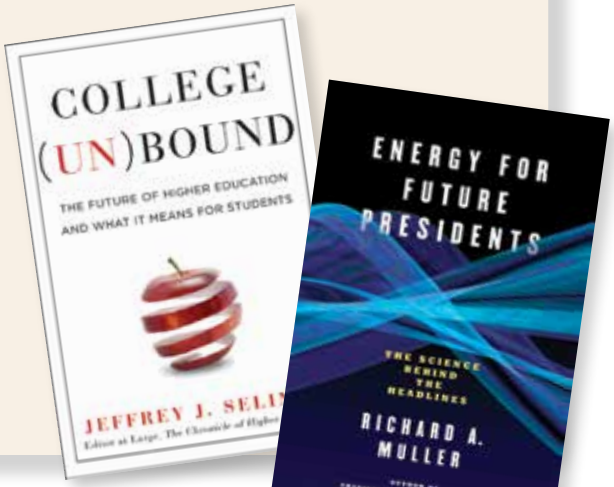

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APPA LAUNCHES REDESIGNED WEBSITE

On September 19, APPA revealed its new association website following months of design and development by a team of APPA staff, APPA members, and consultants. The new design offers easier navigation and access to APPA's many resources, publications, and services. The URL remains *www.appa.org*.

You'll find greater compatibility now in viewing content and graphics on your tablet, smart phone, laptop, or traditional desktop computer. You can read complete issues of *Facilities Manager* on your mobile device, and the new website layout brings you to most any page with no more than two clicks. This is the first major redesign of the site since the previous version was launched in January 2008; it was definitely time for a change.

2013

1996

For a jolt of time travel, we wanted to compare one of our earliest websites (this one is from 1996) with a screen capture of the new site. APPA rolled out its first website in July 1995; that design was a stark black-and-red design and did not last long. Then came the cartoon campus you see above.

We urge you to visit the website often to register for programs such as APPA U, read past issues of *Facilities Manager*, sign up for the Credentialing Prep Course and Exam, and to complete the annual Facilities Performance Indicators survey. You may want to browse the APPA Glossary, gain access to the BOK (Body of Knowledge), or search our extensive abstracts for past articles and presentations. There's much to offer at appa.org, so please spend some time checking it out.

We hope you enjoy the new site and, as always, let us know if you have any questions or suggestions about APPA's website resources.

Coming in Nov/Dec 2013

- Technology & Best Practices
- Reimaging the Future of Higher Education
- Empowering Facilities Teams Through Technology
- 2013 Thought Leaders Report: Part 2

FACILITIES manager

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About APPA

APPA promotes leadership in educational facilities for professionals seeking to build their careers, transform their institutions, and elevate the value and recognition of facilities in education. Founded in 1914, APPA provides members the opportunity to explore trends, issues, and best practices in educational facilities through research, publications, professional development, and credentialing. Formerly the Association of Physical Plant Administrators, APPA is the association of choice for 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*.

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facilities digest

By Anita Dosik

CENTENNIAL LOGO KICKS OFF A YEAR OF CELEBRATION

APPA kicked off its yearlong Centennial Celebration with the unveiling of the Centennial logo during the closing session of the Annual Conference in Minneapolis. As part of the presentation, we premiered a video comprising 1,000+ images from APPA's history; you can view the video at *http://www.youtube.com/watch?v=xouehmU700I&feature=youtu.be*.

Additionally, to help us celebrate our 100th anniversary, APPA has created a Web page designed to allow you an opportunity to contribute photos, video, and other images to APPA's Centennial Image Bank. The Image Bank will be unveiled at the APPA 2014 Annual Conference and Centennial Celebration, to be held July 21-23, 2014 at the Sheraton Harbor Island Hotel in San Diego, California. Visit *http://100years.appa.org/* for more information and ideas for submissions.

In the coming year you will also see special features in *Facilities Manager*—not only celebrating APPA's past, but focusing on our future through profiles of Emerging Professionals, interviews with futurists, and photos from our history.

Additional links of interest:
APPA 2013 Breakout sessions:
http://appa.org/training/APPA2013/2013BreakoutSessions.cfm
APPA 2013 Photos on Shutterfly website:
Appa2013minneapolis@shutterfly.com

APPA 2014 CALL FOR PAPERS: *SUBMISSION DEADLINE IS NOVEMBER 8, 2013*

APPA invites you to submit a program presenting solutions for improvement, sharing of best practices, or innovative approaches relevant to facilities professionals throughout the educational community. The APPA 2014 annual conference offers an opportunity for you to be part of the outstanding professional development program, to participate in discussions and share effective strategies to the many challenges facing facilities professionals.

The selected proposals will provide a program that offers innovative, comprehensive, and diverse treatment of issues facing facilities professionals throughout the educational community—colleges, universities, community colleges, and K-12. Topic areas to be addressed are:

Technology:
Use of Tablets—Best Practices within Facilities Management, BIM, Social Media—Effective Practices, Tell Our Story Using Data, The Cloud

Cost of Higher Education:
Communicating—Cost & Value, Alternative Funding, How Do We Tell Our Story?, How Do We Do Different For Less?

Sustainability/Energy:
Impacts of Electric Vehicles (EVs), Ethics of Renewable Energy, Being a Leader in a Learning, Living Laboratory, Impact of Sustainability on FM.

Safety & Emergency Management:
Natural Disaster Recoveries, Advancement of Codes—Impact on Campus

General Interest
Customer Service and the Experience with Internal and External Customers, Employee Fitness, Programs for a Strong Team, Succession Planning and Mentoring, Out-of-the-Box Leadership Styles and Successes

Proposals are being accepted for 60-minute concurrent sessions. Programming will occur July 21-23, 2014 in San Diego, California. Six to eight educational sessions will run concurrently in two to three time slots per day.

Guidelines for Submissions can be found at *http://www.appa.org/training/APPA2014/conferencehighlights.cfm*. Here are a few key considerations as you prepare your proposal:

- Submission of program abstract with title in a format of a 5-7 sentence description;
- Submission of 4 learning outcomes;
- Submission of complete contact information for each potential presenter to include full name, title, institution or company, phone, e-mail address, and a 10-sentence biographical introduction;
- Submissions from business partners should include a partnering with an educational entity.
- Submissions can be made by e-mail to *callforprograms@appa.org*.
- Submissions will not be accepted if the above items are not included.

If you have questions, contact Suzanne Healy, director of professional development, at *suzanne@appa.org* or 703-542-3833.

FPI SURVEY NOW OPEN FOR 2012-13 DATA

The 2012-2013 cycle of APPA's Facilities Performance Indicators (FPI) is underway. 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. Visit *www.appa.org/research/fpi* for more information and to register to complete the survey.

WOMEN'S LEADERSHIP INSTITUTE 2013

December 3-6, 2013
Amelia Island, FL

Co-produced by APPA and members of the Council of Higher Education Management Associations, the Women Leadership Institute is an event designed offering valuable presentations, small-group exercises, and discussion. You will gain a practical understanding of what it takes to be a leader on a college or university campus—both the challenges and the rewards. Examine the unique roles, skills, and relationships needed to lead as higher education faces and deals with its greatest challenges in 50 years. Scholarships are available for this event, and we encourage you to visit the event website at *http://www.acui.org/programs/professional/program.aspx?id=21636* to review these opportunities and the current programming information.

EVENTS

APPA EVENTS

Sep 8-12, 2013 APPA U: Institute for Facilities Management and Leadership Academy, *Fort Lauderdale, FL*

Sep 19-20, 2013 CEFP/EFP Credentialing Prep Course and Exam, *San Diego, CA*

Sep 26, 2013 CEFP/EFP Credentialing Prep Course and Exam, *Colorado Springs, CO*

Sep 28-29, 2013 CEFP/EFP Credentialing Prep Course and Exam, *Galveston, TX*

Oct 15-16, 2013 CEFP/EFP Credentialing Prep Course and Exam, *Lake Lanier Islands, GA*

Oct 15-18, 2013 ACUHO-I/APPA Housing Facilities Conference, *Providence, RI*

Oct 31-Nov 1, 2013 CEFP/EFP Credentialing Prep Course and Exam, *Grand Rapids, MI*

Feb 2-6, 2014 APPA U: Institute for Facilities Management and Leadership Academy, *Dallas, TX*

APPA 2013 REGIONAL MEETINGS

Sep 14-18, 2013 PCAPPA, *San Diego, CA*

Sep 23-25, 2013 RMA, *Colorado Springs, CO*

Sep 29-Oct 2, 2013 ERAPPA, *Rochester, NY*

Sep 29-Oct 2, 2013 CAPPA, *Galveston, TX*

Oct 12-15, 2013 SRAPPA, *Lake Lanier Islands, GA*

Oct 27-31, 2013 MAPPA, *Grand Rapids, MI*

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

GETYOUR CAREER ON TRACK FOR SUCCESS—BECOME APPA CERTIFIED!

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/*

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Sep 26, 2013 ..... *Colorado Springs, CO*
Sep 28-29, 2013 ..... *Galveston, TX*
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Oct 15-16, 2013 ..... *Lake Lanier Islands, GA*
Oct 19-20, 2013 ..... *Norfolk, VA*
Oct 31- Nov 1, 2013 ..... *Grand Rapids, MI*
Apr 12-13, 2014 ..... *El Paso, TX*

facilities digest

APPA CONGRATULATES EFP & CEFP RECIPIENTS

The following professionals have successfully completed the requirements for APPA's CEFP and EFP credentials, from April 2013 to the present. Congratulations on their personal accomplishments. For a full listing of recipients got to *http://credentialing.appa.org/recognition.cfm*.

CEFP RECIPIENTS

Candace Awbrey, *Northern Arizona University*
Bill Hughes, *Clemson University*
Steve Maruszewski, *Pennsylvania State University*
Denis Puls, *Seattle University*
Richard Robben, *University of Michigan/Ann Arbor*
Aaron Scherpereel, *Texas Tech University Health Sciences Center*
Steve Szablya, *Seattle University*

EFP RECIPIENTS

Randall Baker, *University of Michigan/Ann Arbor*
Maggie Garcia, *University of Michigan/Ann Arbor*
Gerald Kennedy, *University of Michigan/Ann Arbor*
Nicole Sanderson, *University of Washington/Bothell*
Dan Sullivan, *University of Washington/Bothell*
James Wentworth, *University of Washington/Bothell*

APPA Academy On Campus Bring Leadership HOME!

The most successful teams and organizations are led and driven by the character, strengths, and talents of their individual members. Developing that strength of character and releasing individual potential is an inside-out process. Provide your team the programming that will allow them to explore their values and highest priorities, increase productivity by staying focused on those priorities, improve leadership skills and trust-based relationships, and achieve a healthy work/life balance. Discover that the pursuit of effectiveness will have enduring positive impacts on both your staff's personal and professional lives. Explore today how you can schedule to have APPA's Academy on Campus training program brought to your campus team!

PROGRAM

APPA's Academy on Campus program is a 4-day immersion development offering provided by Covey/APPA Certified Facilitators yielding each participant 3 CEUs/32PDHs/32LUs. Offerings in the Individual Effectiveness Skills program or the Interpersonal Effectiveness Skills program are now available. Participants will:

BENEFITS

Individual Effectiveness Skills

- Learn an approach to embracing more effective paradigms, which will trigger individual change and better habits, yielding more productive behaviors and results;
- Focus energy on what you can change, take responsibility, and have accountability for your choices in life;
- Define vision and values, set measurable team and personal goals, align goals to priorities, and obtain desired outcomes;
- Focus on important activities and execute strategic mission-related goals through the use of effective planning and scheduling tools;
- Develop personal trustworthiness in the pursuit of long-term, high-trust relationships and collaborative teams.

Interpersonal Effectiveness Skills

- Increase awareness and knowledge of how to use the MBTI to enhance your communication.
- Understand how to negotiate a group process and monitor its implementation.
- Learn methods for effectively managing conflict.
- Master strategies for handling and communicating with difficult people.
- Determine when teamwork is appropriate and beneficial.
- Discover specific processes for successful involvement of all team members.

COST

APPA's Academy on Campus program is $995 per participant. Additionally, host institutions are responsible for the travel expenses of the facilitators.

INTERESTED IN BRINGING LEADERSHIP HOME?

Contact APPA's Director of Professional Development, Suzanne Healy, at suzanne@appa.org or 703.542.3282 to discuss how APPA can bring Leadership Home to Your Campus!

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These improvements are expected to save $80 million over 20 years, preserving more funds for education. Carbon emissions will be reduced by 5,200 metric tons, complementing Hawai'i's respect for the land. And students and faculty benefit from more comfortable learning environments and sustainability education programs provided by Johnson Controls. Aloha paradise!

Johnson Controls makes buildings work more efficiently, sustainably and profitably, and we can do the same for your campus. After all, when buildings work better, people work better. Visit MakeYourBuildingsWork.com.

Johnson Controls

Reach Out to a Newcomer

By Dan Park

Recently, there have been many discussions regarding APPA's upcoming 100-year anniversary celebration. APPA's international and regional officers are collectively planning an extraordinary event that will take place in San Diego, California in July 2014. There is no doubt that the APPA staff will provide exceptional educational programs and opportunities to interact with business partners who are willing to share their experiences and services to help solve relevant problems, offering a consistent balance of networking and entertainment.

GETTING INVOLVED

APPA's 100-year anniversary is an impressive accomplishment particularly because it has been achieved primarily by APPA volunteers who are dedicated to the mission and goals of the organization. While Whitman College has been a member of APPA/PCAPPA since 1980, it wasn't until 1989 that I became actively involved. At that time, my boss urged me to join a professional organization dedicated to the improvement of the facilities profession. APPA was the obvious choice because she considered it to be the leading organization in this field based on its national reputation.

As of 2014, I will have been an active member of APPA/PCAPPA for 25 years. There are a variety of aspects that have kept me both interested and engaged with APPA throughout my career. The benefits abound and include great educational opportunities, a world-class annual conference, APPA U, *Facilities Manager* magazine, the Body of Knowledge, the *Inside APPA* newsletter, APPA's annual awards and recognition program, and wonderful networking events.

THE START

The first APPA conference that I attended was held in Ottawa, Canada in 1990. Having never attended a conference of this caliber, the experience was both memorable and overwhelming. I remember specifically leaving the daily educational session feeling intimidated by the magnitude of information.

When walking down the street following one of the sessions that first year, one of the APPA participants recognized me on the street by my conference badge. He extended an invitation for me to join him along with other attendees for dinner. His name was John Amend, who at the time worked for the University of Nevada Las Vegas, also a PCAPPA member. Following this interaction, I looked forward to meeting John each year at our regional conference. He encouraged me to get involved with various committees within PCAPPA. Over the years, I have met so many admirable individuals and fostered long-lasting friendships.

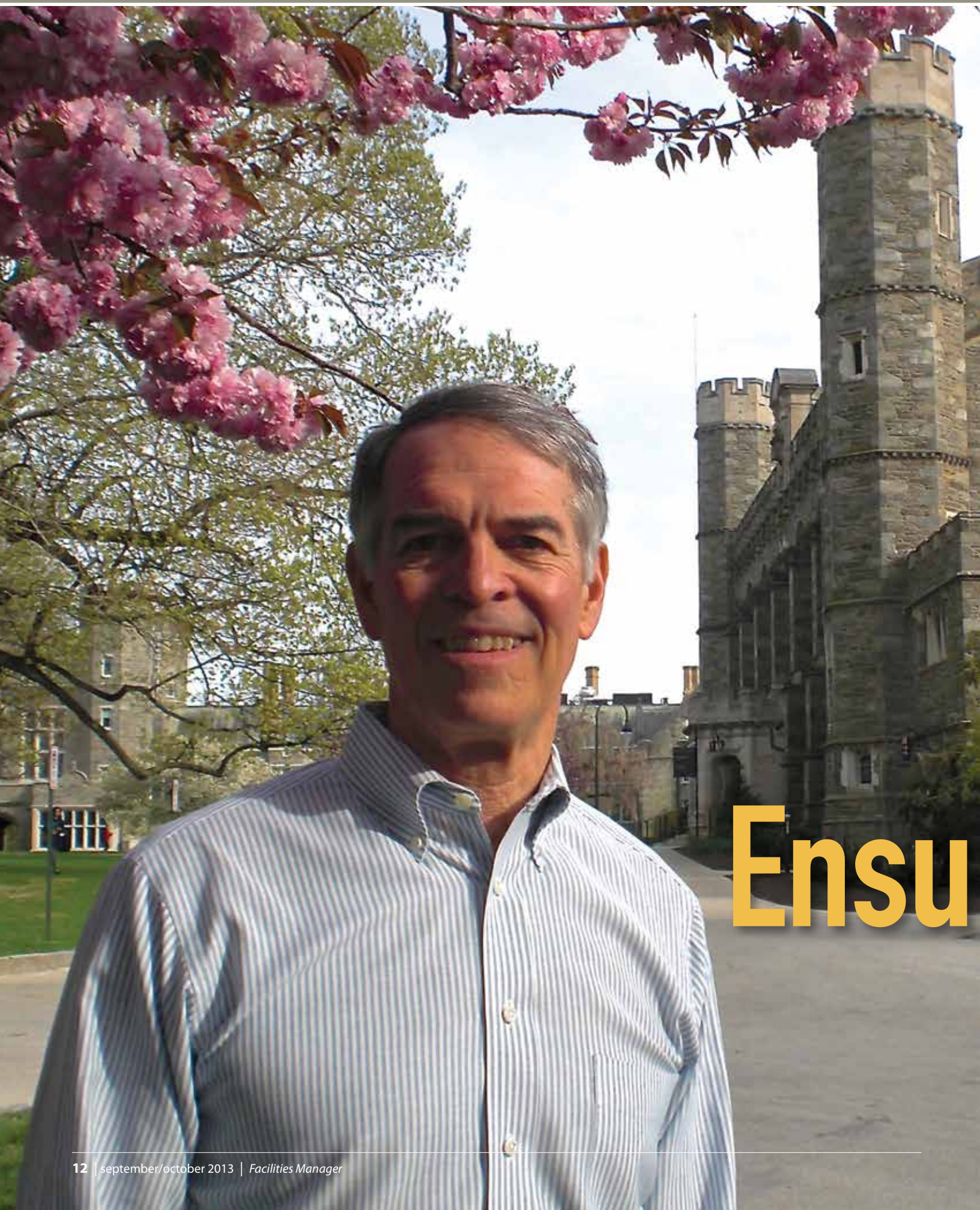
I have continued to expand my involvement with APPA/PCAPPA based on the continued benefits of membership, including the sharing of best practices, networking, educational training sessions, and collective problem solving. Along with these advantages members are able to develop long-lasting friendships and peer support within the industry.

REACHING OUT

As APPA celebrates 100 years of dedication to improving the facilities professional in 2014, I will celebrate 25 years of involvement with APPA/PCAPPA. I believe, as you do, that APPA is clearly the premier organization for furthering the goals of the professional facilities industry. I am fortunate that my boss encouraged and supported my involvement within the APPA organization so many years ago. In addition, I am thankful to John Amend for taking the time to reach out and welcome a newbie in 1990. That small, seemingly uneventful gesture provided me a warm welcome to the APPA family that attracted me to the organization throughout my career. This has made APPA my "professional organization of choice."

I encourage each APPA member to reach out and welcome new members. This small gesture can make a tremendous difference to newcomers and help develop friendships that will last for years to come, thereby strengthening our professional community.

Dan Park is director of physical plant at Whitman College in Walla Walla, WA and can be reached at *park@whitman.edu*. This is his first article for *Facilities Manager*.



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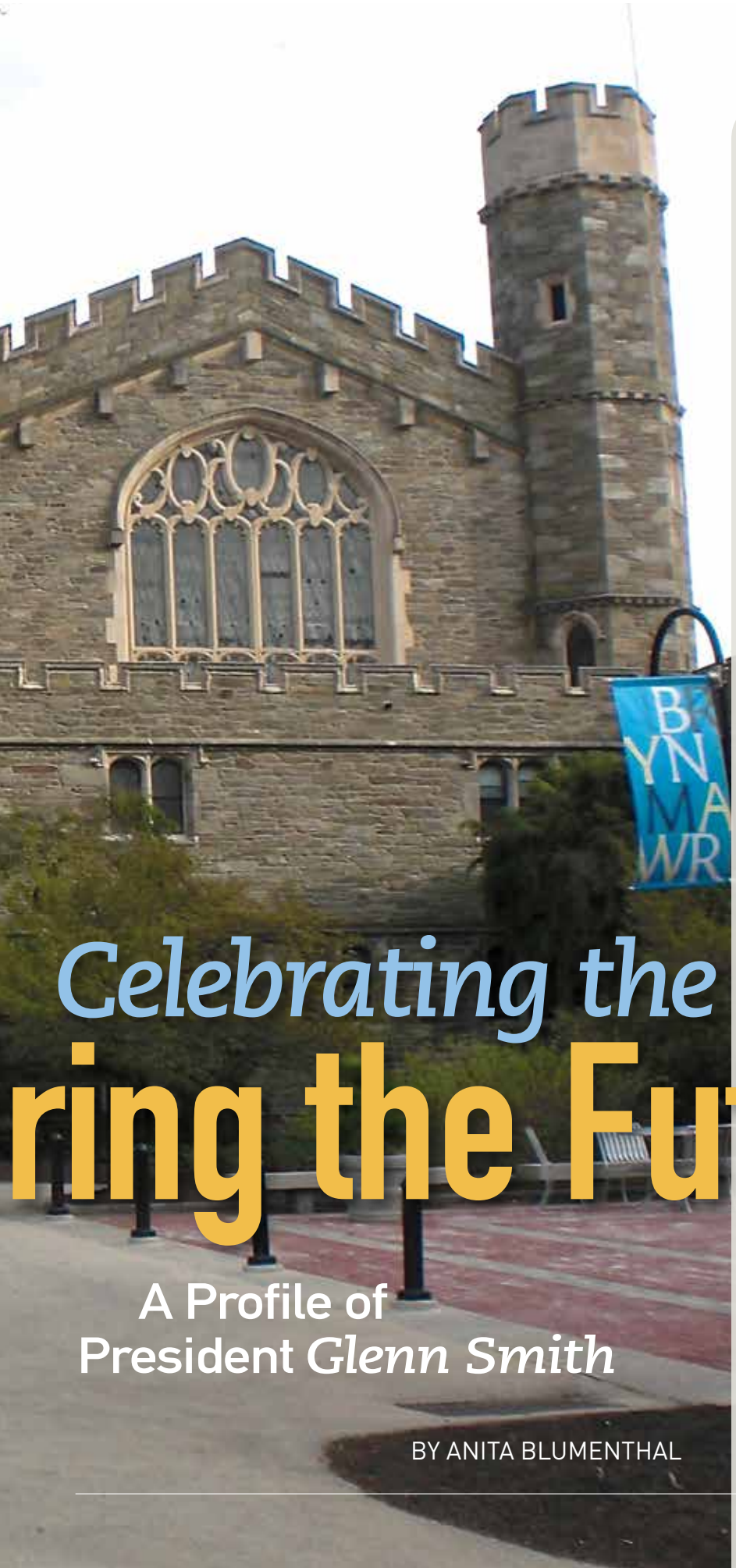

Celebrating the Past ring the Future

A Profile of President *Glenn Smith*

BY ANITA BLUMENTHAL

Glenn Smith had his first job interview at the age of 47—after 24 years in the Naval Civil Engineer Corps. That was in 1997, and he still remembers a certain apprehension. "I had no idea how to convince someone to hire me," he recalls. But he needn't have worried. That first interview was with Bryn Mawr College; he was hired as director of facilities services and has been there ever since.

Smith points out that a number of APPA colleagues are Navy CEC veterans, and with good reason. Many of the skills he developed in the Navy have served him well in his current career—especially leadership.

LEARNING LEADERSHIP

Raised in a small town in upstate New York, Smith attended Rensselaer Polytechnic Institute on a Navy ROTC scholarship. Freshman year, he met his future wife Susan; they were married after he graduated with a BS in civil engineering, and he stayed on for another year to earn a master's in the field.

Smith was commissioned as an ensign at age 23 and immediately thrown into leadership roles, with older people reporting to him. He had no formal leadership training. "I led by intuition," he says. Fortunately, his intuition was good and is still the basis of his approach. "I learned to rely on the expertise of people who worked for me. And by listening to them and supporting them I tried to earn their respect," he says.

About 15 years later, the Navy started to embrace Total Quality Leadership. Smith heard Dr. W. Edwards Deming talk about leadership. "His message," Smith says, "was simply this: Your job as a leader is to restore pride and joy in the workplace. Create an environment where people truly enjoy and take pride in what they do—where they become intrinsically motivated—and they will constantly amaze you." Subsequently, Smith augmented Deming's

philosophy with Stephen Covey's principle-centered leadership approach and became a certified facilitator of Covey's 7 Habits of Highly Effective People.

Meanwhile, at a dozen tours of duty, he managed day-to-day facilities maintenance, master planning, and administration of major construction projects. "Admittedly, these were Navy buildings," Smith says, "not historic collegiate gothic landmarks intended to endure forever."

By his twenty-fourth year in the Navy, Smith had reached the rank of captain, three of his four children were in college, and he felt the time was right to move on to something else. He considered becoming a leadership/management consultant but realized he would "rather be doing it than just talking about it." He was drawn to education and to the business of educating people. Also, he sought a position "with an ownership role."

In a neat piece of serendipity, Smith's final duty station was at the Navy Yard in Washington, D.C., just across the Potomac River from APPA's headquarters in Alexandria, Virginia. His relationship with APPA began when he visited the office, read the publications, used the Job Express service, and applied to listings, including Bryn Mawr.

LOVE AT FIRST SIGHT

A small, prestigious private college with Quaker roots, Bryn Mawr College is located 12 miles west of Philadelphia. The 120-acre campus has an enrollment of 1,300 undergraduate women and 450 graduate students. Not only did Smith fall in love with the campus on his first visit, but he also thought that a private college would offer a greater degree of freedom and less bureaucracy than a large public institution. In addition, he liked the idea of a small school, where he could be more involved in the day-to-day running of the campus.

Today, his responsibilities include the daily care and major renovation of buildings (excluding housekeeping/custodial functions), master planning, capital project design and construction, maintenance of grounds—including more than 3,600 trees—and operation of the high-voltage electricity systems that feed all buildings. Projects have run the gamut from rerouting streams to building a stormwater retention pond to adding modern additions to 100-year-old historic buildings.

All of this is accomplished by a facilities services staff of only 22 people, "but each a true professional in their respective field of responsibility," Smith says. "I inherited some talented mechanics and craftsmen and was able to hire or promote people in the early years who are still here and are the absolute best at what they do. When you are only 22-strong," he says, "each person's contributions and willingness to be part of a team are vital to success."

Smith's management style is a well-honed version of his early intuition filtered through Deming's philosophy and Covey training—to keep joy and pride in the workplace. "My style is hands-off leadership, "he says. "I hire people who are good at what they do, empower them to make decisions, and give them free rein to excel—only stepping in where there are gaps. We focus on building strengths—helping each other become even better at what we are already best at—and then supporting one another in those areas where specific skills are not as strong."

I HIRE PEOPLE WHO ARE GOOD AT WHAT THEY DO, EMPOWER THEM TO MAKE DECISIONS, AND GIVE THEM FREE REIN TO EXCEL—ONLY STEPPING IN WHERE THERE ARE GAPS.

But all this is not enough for a leader. Smith stresses that you will always have to deal with some one above your level, making decisions you will have to live with. "So the challenge," he says, "is to make sure you get a seat at the decision table."

Smith was able to gain a seat at the Board of Trustee's table on the Building and Grounds Committee and also was able to gain the respect of senior administrators. He admits he was lucky to arrive at Bryn Mawr the same time as a new incoming president. Both getting started at the same time, they grew into their jobs and developed a mutual respect.

CHANGING THE CULTURE

Smith learned that, before he arrived, the department frequently delivered bad news to the Board—capital projects had

developed a history of running late and over budget. He committed to delivering projects on time and on (preferably under) budget. Also, he has developed a clear view of the vital role of the facilities department in the financial well-being of the college.

"When the facilities management department is working well, we are in the business of cost avoidance, even though we actively manage and invest more money day to day than any other department," he says. "Our decisions have a major effect on the college's finances. If we do well, we avoid potentially huge expenses. For example, construction done right the first time means no litigation or rework down the road. Timely repair and preventive maintenance avoid major, more costly and disruptive breakdowns. Investment in slightly more expensive, but more energy efficient and sustainable solutions today can pay dividends downstream."

PHOTO BY KIT FARMAN

The Bryn Mawr Facilities Team.

As for sustainability, Smith explains his department is sensitive to the issues and takes a practical approach, incorporating LEED design principles wherever possible and looking for opportunities to reduce energy consumption and the college's overall carbon footprint. "Most importantly," he says, "we are engaging the faculty, students, staff, and senior administration in active dialogue and practical projects that promote sustainability. We are gradually changing the culture to one where sustainable solutions are part of every decision-making process."

MANAGING SPACE

Unlike many colleges, Smith says, "At Bryn Mawr, we are not focusing on additional buildings or new construction but on maintaining what we have and getting greater value from underused space. Some buildings were so neglected that faculty did not want to teach in them or students to go to classes in them. It is really satisfying to perform quality renovations to give a building an added 50- to 100-year lease on life. We are particularly proud of our dorms," Smith says. "We have a reputation of having dorms like palaces, even though most are over 100 years old. The current Harry Potter generation of students say the buildings feel a little like Hogwarts—gracious rooms with elegant, albeit nonworking, fireplaces and grand public spaces."

However, Bryn Mawr's location on a hill and the age and style of the buildings raise the issue of accessibility. Most dorms do not have elevators. The oldest, most iconic building on campus cannot be entered without climbing stairs. "But we're making progress every year," Smith says, while preserving the landscape and aesthetic signature of the campus. He thinks of his team as long-term stewards of the campus.

QUICK TO JOIN APPA, QUICK TO BENEFIT

Not surprisingly, given his success using APPA's job-listing service, Smith joined his local Delaware Valley Chapter (DVAPPA) almost immediately. "You get out what you put in," he says. "I have benefited from every service APPA provides. Early in my career, I found APPA's books to be invaluable references in transitioning. I was able to get better perspective on what I was getting into. And APPA has continued to publish excellent books on all aspects of facilities management."

APPA has also has also given Smith research, training, teaching, publishing, and leadership opportunities. He was part of an APPA research project that, he says, was "a deep exploration of institutional culture and its effect on people and on how people interact." He also joined the faculty of APPA's Leadership Academy. Given his experience as a Covey facilitator, he began teaching the first track of the program. "I enjoyed this outlet, which did not exist for me outside of APPA," he says. Recently he has been asked to teach leadership sessions to Bryn Mawr students. Another personal satisfaction has been the opportunity to publish articles in *Facilities Manager* magazine, "to share some thoughts and hopefully some wisdom with others," he says.

"Thinking what I would have missed out on if not actively involved in APPA is mind boggling," he says. "My career would not have been such a rich experience; I would not have been as good at my job, nor would I have had the opportunity to expose my staff to professional development opportunities. One of my staff has just become a Certified Education Facilities Professional. Two others are on the verge of graduating from the Institute for Facilities Management. Several have attended and taken part in conferences. It has been a richer experience for all of us."

JOURNEY TO THE PRESIDENCY

In 2003, Smith was chapter president and therefore co-chair of the planning committee as the Delaware Valley chapter hosted the regional conference that year. In 2007, he became president of the Eastern Region (ERAPPA). Because all regional presidents ultimately have a seat on the APPA Board, Smith

Glenn speaking at APPA 2013

Glenn and Susan Smith

became familiar with the international aspect of APPA and with the workings of a large national nonprofit.

By 2010, he was dean of the Leadership Academy and ran for APPA Vice President for Professional Development. In 2012, he ran for President-Elect.

As he begins his presidential year, Smith says, "My theme is *APPA's Celebrating and Building Upon APPA's 100 Years*. Each of us has a unique story of involvement with APPA and of the degree it has served us in our lives and professions." In part, he says, this is a year for "celebrating and for reflecting on our history—how far we have come, not just technologically, but professionally. The facilities manager just used to be the blue-collar power plant manager, not considered a professional, not college educated, with no voice when major decisions were being made. People should realize that an institution's buildings are as valuable as its endowment—perhaps more valuable," he says. "You have to have professionals managing them right."

Smith also wants to focus on keeping professional development vibrant and accessible and on finding and encouraging the next generation of facilities managers. "Professional development is the cornerstone of APPA," he says. "I am especially interested in the professional development continuum and wish to encourage those programs to grow." The problem is that, when institutional money is tight, training and professional development funds dry up. Yet, he says, it's precisely when money is tight that "you need the most educated workforce because you have to be able to work effectively.

"If, in the current economy, our members cannot afford to come to us for professional development, we want to be able to go to them," he says. "Locally delivered Drive-In Workshops, Supervisor's Toolkits, and Leadership Academy programs will reach more people and cut down on time away and travel. I want to make sure we move in that direction," he says. "Deferred professional development is more dangerous than deferred maintenance of buildings, and we know how dangerous that can be."

In addition, Smith wants to seek ways for APPA "to find and encourage the next generation of facilities managers. We are seeing the graying of senior facilities managers," he says, "and anytime the economy has a downturn, people postpone retirement. We really need to look at how we can reach out and recruit new people to come into the profession." While unusual career paths can add interest to APPA journeys, Smith says that APPA needs to come up with a better plan for a more direct path and make people aware this is a satisfying and stable career field. In pursuing this goal, Smith hit the ground running, hosting the first Emerging Professionals Summit at APPA's annual meeting in August.

Another focus will be to expand APPA's global outreach, particularly with increased collaboration with existing international alliance partners and the establishment of new APPA chapters in Mexico. Smith believes the time is right to reach out to our neighboring institutions south of the border, align them with APPA's existing regions, and embrace the many opportunities for mutual growth.

Often in his career, Smith has stretched himself to accomplish worthwhile ends. He hopes to continue to do this as president of APPA. He cites lines from *Flow* by Mihaly Csikszentmihalyi: "The best moments in our lives are not the passive, receptive, relaxing times….The best moments usually occur if a person's body or mind is stretched to its limits in a voluntary effort to accomplish something difficult and worthwhile…. Optimal experience is thus something we make happen.... For each person, there are thousands of opportunities, challenges to expand ourselves."

For Smith, it is all about the journey— constantly moving forward with a clear sense of direction while exploring opportunities, facing challenges, experiencing adventure, and gaining a sense of accomplishment along the way. "APPA has provided me an exciting journey thus far," he says, "and it's far from over."

Anita Blumenthal is a freelance writer based in Potomac, MD; she can be reached at *anitablu@earthlink.net*. To read *Flow* in its entirety, got to *www.pursuit-of-happiness.org/history-of-happiness/mihaly-csikszentmihalyi/*.

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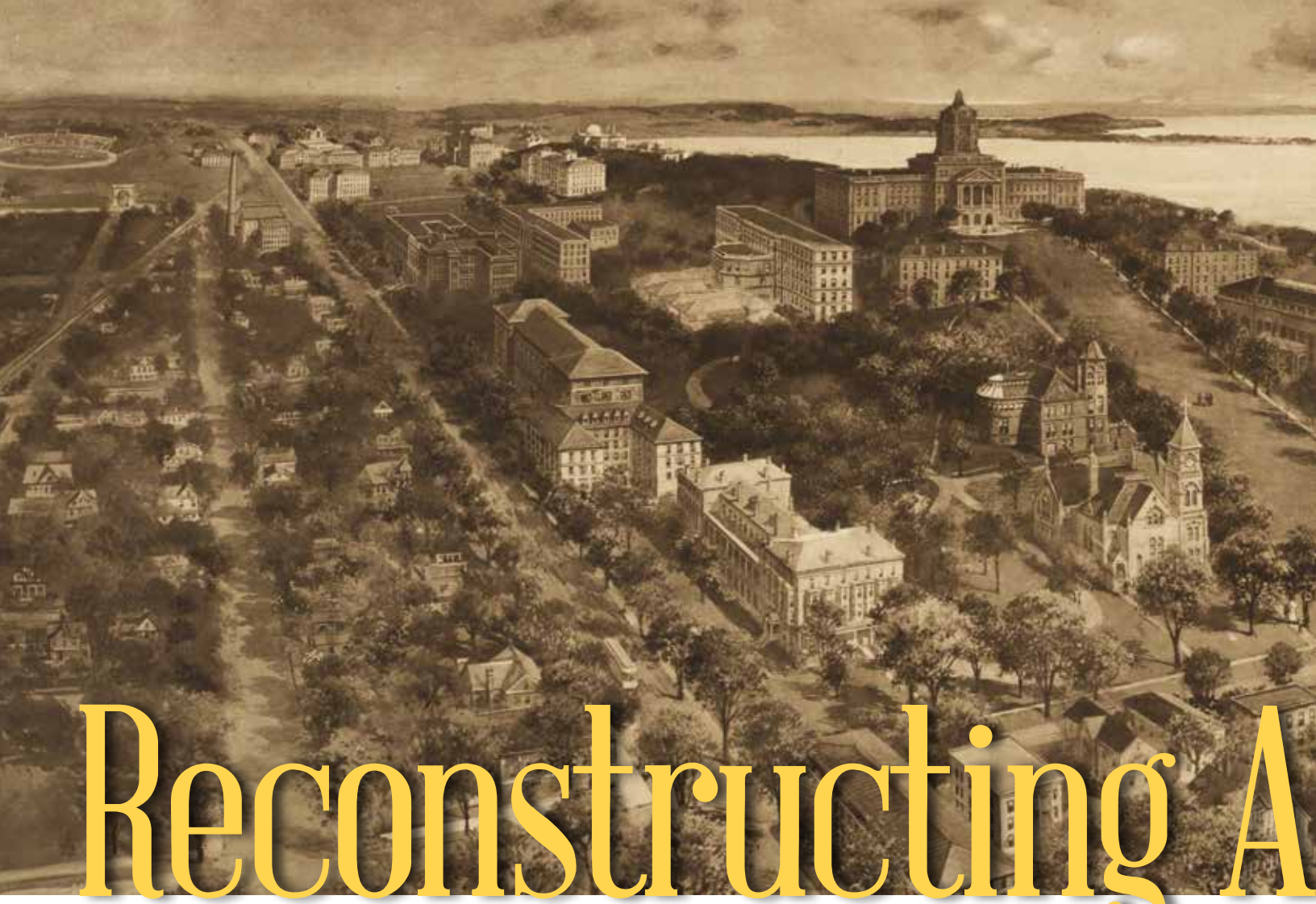


Reconstructing A

Founding Members Build Campuses and the Profession

By Peggy Ann Brown, Ph.D.

March 23, 1914 shone cold and clear as nearly a dozen university representatives gathered at the University of Chicago for the organizational meeting of what would become APPA. **John M. Fisk**, superintendent of grounds and buildings at the University of Iowa, convened the meeting, having written his Midwestern colleagues in late January to suggest the benefits of such a gathering.[1]

Fisk's proposal had met with "hearty approval" from his peers. Ohio State College (now University) Superintendent **William C. McCracken**'s response was typical:

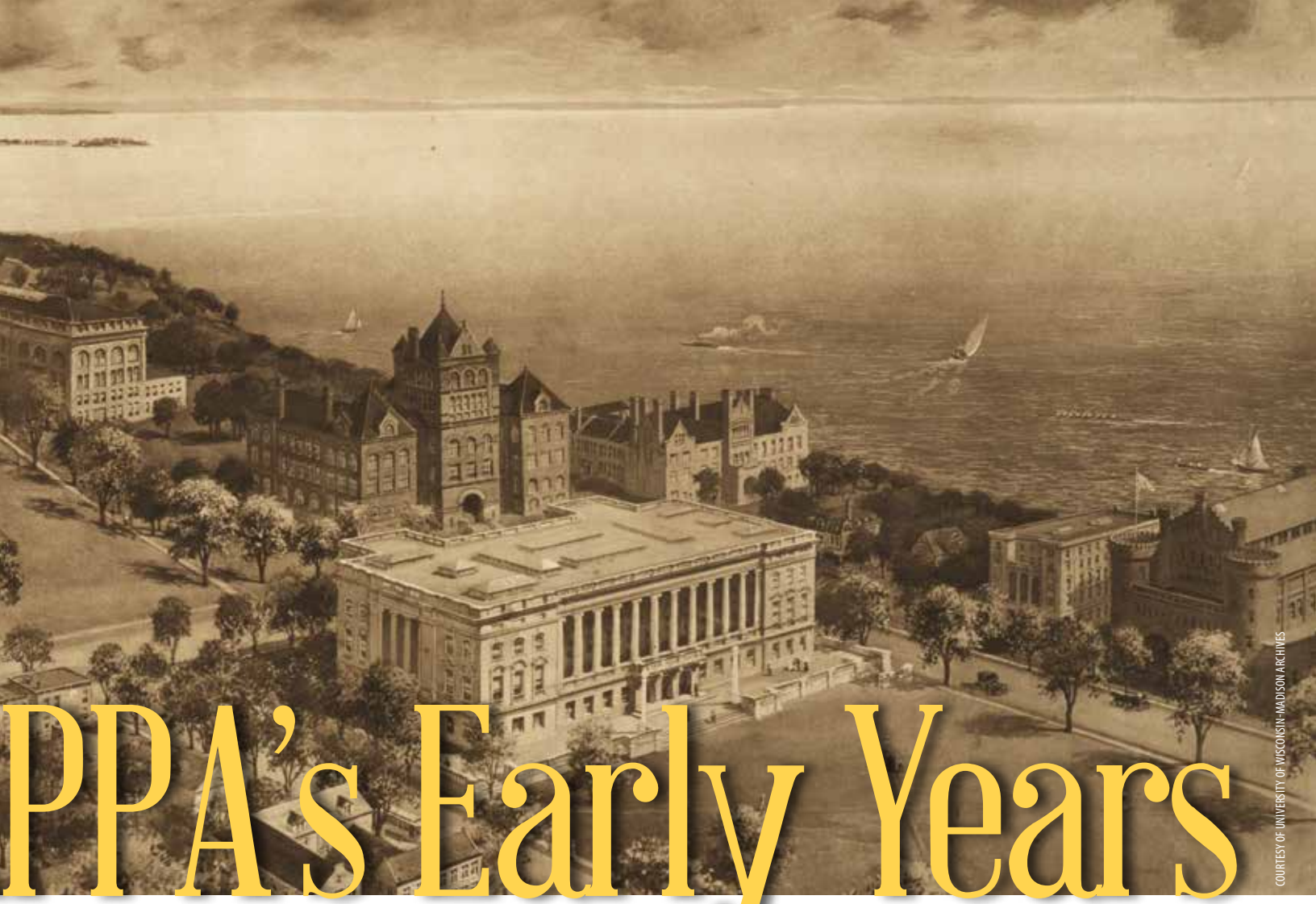
> . . . while we are all trying to do practically the same kind of work, we are probably each one doing it in a different way and by . . . exchanging our views, it may be possible . . . to gather information which will be of great value to our institutions and help solve problems which are continually arising, probably finding a more economical way than if we solved the problems ourselves.

Others were enthusiastic about an organization directed at university superintendents, finding the newly established Building Owners and Managers Association too focused on skyscrapers and offices.

Clyde M. Douglas, of the University of Chicago, volunteered to host the meeting, suggesting the group stay at the Sherman House. His recommendation suited men knowledgeable with the inner workings of power plants and intrigued with engineering advances. Opened in 1911, the luxury 15-story hotel boasted the latest in fireproofing, mechanical equipment, and plumbing systems.[2]

The 12-year-old University of Chicago itself may have been a draw. Founded by the American Baptist Society with generous funding from John D. Rockefeller, the campus featured collegiate gothic architecture, reported in 1910 to be "superior to that of any university."[3]

APPA Emeritus Member John M. Casey described the years from 1914 to 1926 as APPA's "hidden beginnings," in his 1994 dissertation on the association. Prior to 1926, the association did not maintain formal records. Details of the association's



COURTESY OF UNIVERSITY OF WISCONSIN-MADISON ARCHIVES

PPA's Early Years

origins come from later reports (including a 1934 report that transcribed the responses to Fisk's 1914 letter) and members' reminiscences. Recently discovered 1916 and 1917 articles on the association's meetings may more accurately report attendance than interviews conducted with members decades later and provide new information for this article.[4]

Additional universities represented at the 1914 meeting likely included the Universities of Nebraska, Kansas, and Wisconsin; Purdue University; Iowa State Teachers College (now University of Northern Iowa); and Northwestern University.

Reporting on the 1917 meeting, *Buildings and Building Management* commented that because superintendents "have big problems on their hands of both construction and maintenance the advantages of finding out how the other fellow is doing his work is beneficial to all of them. Improvements and remodeling is going on constantly in almost every group of college buildings in the country."

THE 1914 COLLEGE CAMPUS

In 1914 the average campus had seven buildings averaging 131, 200 square feet.[5] Professors and students were beginning to outgrow the lecture halls and laboratories that had defined colleges for decades. Expanded curricula would soon necessitate more sophisticated research facilities, buildings dedicated to specific disciplines, and office space for faculty and student services.

Along with the demand for improved facilities was an increase in the number of college students. In 1893, 595 U.S. colleges and universities enrolled 110,545 students; the number of institutions increased to 662 by 1916, while enrollments jumped to 329,387. That same year, the U.S. Education Bureau reported that "enormous expansion of State universities and state colleges of agriculture and mechanic arts [was] one of the outstanding features of the recent history of higher education."[6]

As representatives of major state universities, the founding APPA members' oversaw campuses at the forefront of this educational expansion. In 1914, the University of Iowa's 2,700 students could choose from ten colleges and four schools, located on a 50-acre campus boasting more than 30 buildings. Enrollment at the University of Wisconsin had nearly doubled between 1904 and 1914, reaching 3,830 undergraduates and 608 graduate students. To accommodate this growth, the university had expanded the campus to "36 large buildings, 43 of moderate size, and numerous small buildings."[7]

Purdue University's 2,399 undergraduate and graduate stu-

Above: Aerial view (artist rendition) of the University of Wisconsin ca. 1916.

Conference attendees at 1926 annual conference. Taken May 10, 1926 in front of the University of Michigan's south wing of the University Hospital; building is now known as North Hall and houses the U of M ROTC program. First occasion found in archives of a group photo and a record of conference proceedings; 11 of the 20 attendees are past APPA presidents.

From left:
August E. Wennerstrom, Culver Military Academy
A.H. Lavers, Michigan State College
C.D. Bushnell, Purdue University*
M.J. Miller, Michigan State College
J.J. Crutcher, University of Kentucky*
A.L. Wescott, University of Missouri
H.L. Garwood, Northwestern University
John M. Fisk, University of Iowa
C.A. Livingston, University of Rochester*
Charles E. Curtis, Cornell University*
E.C. Pardon, University of Michigan*
D.J. Griffiths, University of Pittsburgh
W.E. Brockway, University of Colorado*
Irving Truettner, University of Michigan
W.M. Hand, Culver Military Academy
A.F. Gallistel, University of Wisconsin*
Thomas Sloss, Iowa State College*
H.A. Hildebrandt, University of Minnesota*
Lyman R. Flook, University of Chicago*
W.A. Davenport, University of Michigan*

** Identifies those who had or would serve as APPA President*

dents had access to 29 buildings, on 279 acres of campus and farm. Iowa State Teachers College's 40-acre campus served 1,297 students, with 15 major buildings as well as a number of smaller structures such as stables, shops, and garages.[8]

Overseeing campus expansion were departments of superintendent of buildings and grounds, a "more or less recent development," according to a 1910 Carnegie Foundation for the Advancement of Teaching bulletin.[9]

That the superintendent profession was still in its infancy can be seen in a 1917 Association of American Colleges' treatise on the efficient college. The author reported that the average college staff—based on a study of 16 campuses averaging 165 students—included a head janitor, an assistant janitor, an engineer, and a fireman. In contrast, he described the "efficient college" of 500 students, in which "all forces of the institution are working adequately and with the least possible waste to accomplish its chief ends," and would include a superintendent of buildings and grounds, an engineer, two firemen, a head janitor, and four assistant janitors.[10]

The construction and maintenance needs of growing universities led APPA's founders to recognize the importance of professional leadership and oversight of their facilities and grounds. At the same time, the term "superintendent of buildings and grounds" had only been adopted around the turn of the century at many of the member schools. In 1904, for example, Northwestern University appointed **Gleason F. Starkweather** superintendent of its new Department of University Grounds and Buildings. The University of Illinois Board of Trustees established the superintendent position in 1895, placing all university janitors under his direction.[11]

APPA's pioneers implemented the technological innovations that were making life easier on campus and off. In 1893, Ohio State's McCracken helped replace gas lights with electricity in classrooms and laboratories.[12] Over careers that stretched from the late 1800s into the 1920s and '30s, the founding members witnessed the introduction of telephones, automobiles, and electric street lights.

CAMPUS CONCERNS

No specific details have been located on the early association meetings. Returning from the three-day 1916 meeting at the University of Wisconsin, Northwestern University Superintendent Starkweather told the campus newspaper that mornings featured tours of university and state buildings, while afternoons were devoted to discussions of common interests.

The one-day 1914 meeting may have centered on the association's establishment. The following year, **James H. Marks**, University of Michigan superintendent, would serve as APPA's first president. The initial meeting opened the lines of communication between the campuses. Seven months after the meeting, the University of Illinois architect wrote members to ask about their janitorial procedures, "not with the idea of standardizing the practices . . . but to bring out the methods employed by different institutions to accomplish the same purpose."[13]

OHIO STATE UNIVERSITY PHOTO ARCHIVES

Ohio State College (now University) power plant, 1917. The plant was expanded several times and renamed McCracken Power Plant for APPA's 1924 president William C. McCracken.

Beginning in 1926, the association—then called the Association of Superintendents of Buildings and Grounds of the Central Western Colleges and Universities—published its first meeting minutes. Topics ranged from power plant operation and the percentage of maintenance budgets used for grounds upkeep to campus parking and a comparison of maintenance costs for various types of flooring.[14]

Given Fisk's rationale for founding the association, such practical subjects were likely on the 1914 agenda. For instance, fireproofing would have been a topic of mutual concern. That year Iowa's Fisk warned the State Board of Education that the Old Capitol Building—the first campus building—was vulnerable to summer lightning storms. In 1911, University of Kansas Superintendent **Eben F. Crocker** had supervised the construction of a lake and pump house aimed at protecting new campus construction. Marks later recalled that during his tenure at Michigan a high-pressure fire protection system was installed although horse drawn trucks were still used to fight fires.[15]

Articles and advertisements in *Buildings and Building Management* during APPA's early years also may offer clues to members' interests. The magazine covered fireproofing, fire insurance, and fire codes and ran ads for fire retardants and fireproof doors, windows, and roofing. Writers also discussed efficient construction, exterior lighting, boiler room waste, and workmen's compensation. Advertisements promoted the latest in cleaning supplies and ventilation, plumbing, and lighting equipment.

1914 APPA MEMBERS

The men who gathered for the 1914 meeting held valued positions on their campuses (see the sidebar for details on APPA's earliest members). Responsible for much of their institutions' early twentieth century growth, they appreciated that there was much to learn by studying how their peers approached comparable challenges.

Other campus administrators drew similar conclusions on the benefits of professional affiliations. In 1916, the U.S. Bureau of Education reported on the increase in national or regional groups dealing with "college and university problems." The bureau listed 18 groups, including college registrars and business officers (but no APPA).[16]

APPA's earliest members reveal the range of education and experience of campus facilities officers in 1914. None of the participants over age 50 had formal education past high school, while most of the younger men had earned engineering degrees.

Prior to 1893, when the leading engineering societies met at

Bentley Image Bank, Bentley Historical Library, University of Michigan

James H. Marks, APPA's first president, supervised construction of the University of Michigan's Alumni Memorial Hall before he left the university to join the Packard Motor Company.

the World's Columbian Exposition to discuss engineering education, "a 'self-made' practical man was still considered more useful to industry than a college-educated engineer." Their efforts, along with increased industrialization and mechanical complexity, increased the popularity of engineering education, which tripled between 1890 and 1910. At the 1913 meeting of the Land Grant College Engineering Association, members debated the merits of relying on engineering faculty to oversee the physical plant.[17]

Fisk and **Arthur Dufty**, Purdue University superintendent, graduated from Purdue's engineering programs. Similarly, Marks became superintendent of his alma mater, the University of Michigan, where he earned an engineering degree and had spent several years helping to design and construct the campus's 37-inch reflecting telescope.[18]

The lack of a college degree did not deter Northwestern's Starkweather, at 71 the oldest 1914 attendee. A high school graduate, he had gained mechanical and managerial experience working for a railroad, foundry, and iron works over the course of 30 years. A letter of recommendation confirmed the breadth of Starkweather's background:

> . . . a man who can run whatever of steam engines, dynamos, elevators and so on, with gumption about gas pipes and water ditto. . . he can make an engine, a dynamo, mend an air pump, run an electric circuit, lead a prayer meeting, play an organ, put up a lightning rod, mind his business, or make other people mind theirs.[19]

James E. Robinson, of Iowa State Teachers College, came from a family of building contractors. Both his father and son had helped erect campus buildings, and he oversaw his first college project in 1890. Additional work led to his appointment in 1901 as superintendent. In this capacity, he assessed architectural plans and managed the construction of the campus's large brick and limestone buildings; designed and built smaller struc-

APPA's Earliest Members

Although it is difficult to identify who attended the initial 1914 association meeting, the following individuals most likely participated (*) or were reported at the time to have attended a meeting in 1916(#) or 1917 (+). The information below was compiled from the author's research and the kind assistance of university archivists.

Cornell University

+Charles E. Curtis (1862-1958). Education: BS in civil engineering, Cornell University, 1885. Prior experience: engineering positions for mines, steel company, railroad. Superintendent of Buildings and Grounds, 1915-1931, Cornell University. APPA: President, 1928. Supervised more than $12 million in construction at Cornell.

DePauw University

#Hubert Webster (1872-?) Education: AB, sociology, DePauw, 1913. Business Manager, DePauw, 1913-1918; minister, 1918-?

Iowa State College of Agricultural and Mechanic Arts (now Iowa State University)

[*?]#+Thomas Sloss (1859-1937). Education: Trained by his father, a master builder, emigrated from Scotland in 1884. Prior experience: building contractor; Iowa Railway and Light Co., 1890-1910. Superintendent of Buildings and Grounds, 1910-1936, Iowa State College. APPA: President, 1917, 1923, 1931. As superintendent, Sloss was said to personally respond to emergency calls day or night "just as the old family physician did."

Iowa State Teachers College (now University of Northern Iowa)

*+James E. Robinson (1857-1934). Prior experience: building contractor, including work on campus. Superintendent of Buildings and Grounds, 1901-1931, superintendent of maintenance, 1931-1935, Iowa State Teachers College. Praising his abilities as an architect, mechanic, and contractor, the college president said "he is competent to discover errors and correct them. . . (and) ingenious in devising the necessary construction in any problem, having due regard to the appearance and also to the function."

Northwestern University

Gleason F. Starkweather (1843-1926). Education: High School. Prior experience: Railroad mechanic; iron works manager; held two patents. Hired 1901 as university engineer and shop class instructor; Superintendent of Buildings and Grounds, Northwestern, 1904-1925. One of his responsibilities "was to stand behind the president on commencement days and deliver the graduates' diplomas."

Ohio State University

*#+William C. McCracken (1863-1959). Education: 2 years of high school. Prior experience: Railroad fireman. Hired as chief engineer and head janitor, position evolved into Superintendent of Buildings and Grounds, Ohio State University, 1886-1938; part-time, wrote four-volume History of the Physical Plant, Ohio State University, 1938-1946. APPA: President, 1924, Vice President, 1937. Honored at APPA's 23rd annual meeting, held in Columbus in 1937, for 50 years' service as a superintendent.

Purdue University

+Arthur Dufty (1874-1937). Education: BS in mechanical engineering, Purdue University, 1899. Prior experience: Machine shop apprentice; conducted experiments in the university's railroad shop. Superintendent of Buildings, Purdue, 1904-1919; Superintendent of Buildings and Grounds, Oberlin College, 1919-1921; engineer, private industry, 1921-?. APPA: Secretary-Treasurer, 1917; President, 1919. Wrote his college thesis on "tests to determine the relative strength of large and small bolt heads."

tures, such as shops and garages; and supervised the college's maintenance and janitorial staffs.

Likewise, **Charles E. Chowins**, University of Nebraska superintendent, served as architect for many of the utilitarian structures on campus, such as the machinery hall, tractor test lab, and barns constructed during his 21-year tenure. A tribute to three-time APPA President **Thomas Sloss**, of Iowa State College of Agricultural and Mechanic Arts (now Iowa State University), declared that "monuments to his skill and thoroughness are all over the campus." [20]

APPA founders, such as Ohio State's McCracken, were said to be familiar with "every pipe, conduit, tunnel, and power line" on campus. Hired in 1886 to make "ordinary repairs" and oversee the gas, water, and heating systems, McCracken would eventually preside over a physical plant that had grown from four buildings to more than seventy. [21]

UNIVERSITY OF CHICAGO PHOTOGRAPHIC ARCHIVE, APF2-01655, SPECIAL COLLECTIONS RESEARCH CENTER, UNIVERSITY OF CHICAGO LIBRARY

The first annual conference of the newly formed Association of Superintendents of Buildings and Grounds of the Central Western Colleges and Universities met in Chicago in spring 1914. Attendees stayed at the Sherman House, left, and met on the campus of the University of Chicago, where construction of a new classics building, right, was underway.

State University of Iowa (now University of Iowa)

*#+John Meeker Fisk (1875-1931). Education: BS, electrical engineering, Purdue University. Prior experience: electric company manager. Superintendent of Buildings and Grounds, State University of Iowa, 1910-1931. In January 1914, wrote building superintendents of Midwestern colleges to propose meeting and forming an association. Despite being the catalyst for APPA's founding, Fisk never served as president.

University of Chicago

*Clyde M. Douglas (1882-1919). Prior experience: Draftsman, 1908-1910; Superintendent of Buildings and Grounds, University of Chicago, 1910-1915. APPA: hosted first association meeting.

+C.C. Anderson. No information was located on Anderson.

University of Illinois

#+Joseph A. Morrow (1870-1932). Superintendent of Central Heating Plant, ?-1902, Superintendent of Buildings, 1902-1932. Died in a car accident on the way to buy coal for the university.

University of Kansas

*Eben F. Crocker (1850-1928). Superintendent of Buildings and Grounds, University of Kansas, 1903-1915; Supervisor of Public Schools, Lawrence, Kansas, 1915-? An unnamed KU representative attended the 1916 meeting at the University of Wisconsin.

University of Michigan

*#James H. Marks (1887-1979). Education: BS in engineering, University of Michigan, 1909. Prior experience: Draftsman, automobile plant; design and construction, University of Michigan telescope. Constructing Architect, University of Michigan, 1910-1911; Superintendent of Buildings and Grounds, University of Michigan, 1911-1916; Industrial Engineer, Vice President of Purchasing, Packard Motor Co., 1916-1946; management consultant, 1946-1965. APPA: First president, 1915. Provided a tour of the Detroit Packard Plant for attendees at 1926 meeting.

+Lyman R. Flook (1889-1969). Born in Canada, emigrated to the U.S. in 1893. Education: BS in engineering and architecture, University of Michigan, 1913. Chief draftsman, University of Michigan, 1913; Assistant Superintendent, Superintendent, University of Michigan, 1914-1917; First Lieutenant, U.S. Ordinance Department, 1917-1919; Superintendent of Buildings and Grounds, 1919-1953, University of Chicago. APPA: President, 1921, 1922, 1934. University of Chicago physical plant grew from 17 to 70 million cubic feet during his tenture.

University of Minnesota

[*?]#+Henry A. Hildebrandt (?) Education: BS in electrical engineering, University of Minnesota. 1898. Prior experience: in charge of electrical lighting of St. Peter, Minn., 1898-?; New York railroad; Superintendent of Buildings and Grounds, 1910-1928, University of Minnesota. APPA: President, 1927. Received permission from Minnesota Board of Regents to attend 1923 APPA meeting with expenses not to exceed $55.

University of Nebraska

*+Charles E. Chowins (1856-1922). Education: Probably trained by his father, a cabinet maker, emigrated to the U.S. from England in 1878. Hired 1896 as assistant, engineering laboratory and wood shops; construction supervisor, 1899-1904; superintendent of construction, grounds, and buildings, 1905-1921, University of Nebraska. His design masterpiece, the Plant Industry Building, was dedicated in 1913 and was the university's fourth largest permanent structure.

University of Wisconsin

*#+Albert W. McConnell (1867-1953). Superintendent of Buildings and Grounds, University of Wisconsin, 1906-1919; government mail contractor in Madison, 1920-?. Superintendent of grounds APPA: President, 1916, 1918. The 1930 U.S. Census lists him as living in Los Angeles and working as the superintendent of grounds at an unidentified university.

THE FIRST APPA MEETINGS

The men who gathered in Chicago in 1914 ranged in age from 71 (Starkweather) to 27 (Marks); their average age was just under 50. Their personal stories attest to the time span represented that day. Starkweather registered for the draft at the outset of the Civil War and recalled casting his first vote for Lincoln as president in 1864. Marks would later help retrofit the Packard Motor Company for production of Liberty airplane engines during World War I, and consulted with the War Production Board during World War II.[22]

University of Northern Iowa Archives

J.E. Robinson oversaw construction on many of the early buildings at Iowa State Teachers College (now University of Northern Iowa).

Along with the campus superintendents, representatives from Indianapolis Public Schools attended the 1916 meeting, joined by Culver Military Academy in 1917. (Culver's **August Wennerstrom** attended many early APPA conferences and was a survivor of the Titanic disaster.) By 1926, other institutions had begun to recognize the association's value, including several outside its self-designated "central western" borders, including Cornell University, University of Rochester, University of Colorado, and the University of Pittsburgh.

As the United States prepared to enter World War I to "make the world safe for democracy," higher education opened campuses for military drills and government research. Schools faced budget deficits as young men left to join the fight, while the increase in women necessitated new female dormitories.[23]

Coursework and extracurricular activities reflected Progressivism's belief in the value of scientific research, service, and government responsibility. Students chose from an increasing array of electives and attended classes year-round.

Through these changing times, APPA's founding members ensured that facilities and grounds were ready to meet the new challenges. The "Mr. Mac" and "Hurry Up" of campus lore (Ohio State and Northwestern, respectively) would never be completely replaced but would be joined by a professional staff of architects, engineers, and planners.[24] Since 1914, APPA has continued to bring together these facilities professionals to share expertise, discuss best practices, and take their place as indispensable, forward-thinking campus leaders.

> The good which has come to me, and I hope to others as well, is the real comradeship, one with the other, to be able to put aside all details of the job at home and to meet for a few days with those with whom I could sit and visit and confer with on some particular subject in which I was especially concerned and get some real good advice and information.[25]
>
> *—John M. Fisk, University of Iowa, 1930*

END NOTES

1. APPA did not keep minutes of its meetings until 1926. Information on the 1914 meeting is drawn from later reports. Of particular interest are the 1934 minutes, which reprinted letters responding to Fisk's 1914 proposal. *See Minutes of the Annual Meeting of the Association of Superintendents of Buildings and Grounds of the Universities and Colleges*, 1934, 14-17.
2. "The New Sherman Hotel," *Construction News*, 6 August 1910.
3. Edwin E. Slosson, *Great American Universities* (New York City: Macmillan, 1910), 427, quoted in John Michael Casey, "The Association of Higher Education Facilities Officers: An Historical Evaluation of its Contributions to the Academy 1914 to 1990." Ph.D. diss., University of Georgia, 1994, 23.
4. Ibid.; "Superintendent is Back from Meeting," *Daily Northwestern*, 12 May 1916; "College Building Superintendents Meet," *Buildings and Building Management*, June 1917.
5. Casey, 207.
6. Samuel Capen and Walter John, *Higher education before and after the war*. U.S. Bureau of Education Bulletin, 1919, no. 88 (Washington, D.C. U.S. Bureau of Education, 1921), 6-7.
7. "On the Campus," *Bulletin of the State University of Iowa*, 7 February 1914; David Null, Director, University Archives, University of Wisconsin, E-mail to author, 16 July 2013.
8. Jonnie McConnell, Graduate Assistant, Karnes Archives and Special Collections, E-mail to author, Purdue University, 18 July 2013; Gerry Peterson, University Archivist, University of Northern Iowa, Email to author, 17 July 2013.
9. Morris Llewellyn Cooke, *Academic and Industrial Efficiency*. The Carnegie Foundation for the Advancement of Teaching, Bulletin 5. 1910, 42-43.
10. Calvin H. French, "The Efficient College," *Association of American Colleges Bulletin* 3 (March 1917), 19-36.
11. "Organize New Department," *The Northwestern*, 30 September 1904; *Statutes of the University of Illinois*. Urbana, Ill.: University of Illinois, 1896, 16.
12. "William C. McCracken" The Ohio State University Archives, Biographical Files, William C. McCracken [hereafter cited as OSU Bio Files, McCracken].
13. 1914 October 12 Letter from James M. White, Supervising Architect, University of Illinois, to Superintendent of Buildings, Northwestern, quoted in *Minutes of the Annual Meeting, 1934*, 18-19.
14. See *Minutes of the Annual Meeting of the Association of Superintendents*

of Buildings and Grounds of the Central Western Colleges & Universities, 1926.
15. John M. Fisk, [Superintendent's Report], *Biennial Report of the State Board of Education to the Governor* 3 (June 30, 1914), 88; Douglas Harvey, "A Lake's Progress," kuhistory.com. *http://kuhistory.com/articles/a-lakes-progress/* (accessed July 17, 2013); James H. Marks, *Challenges! Challenges!* Ann Arbor, Mich.: James Harmon Marks, 1976, 46.
16. Samuel Paul Capen, *Recent Movements in College and University Administration*. Department of the Interior, Bureau of Education Bulletin, 1916, no. 46 (Washington: GPO, 1917), 7.
17. Lawrence P. Grayson, *The Making of an Engineer. An Illustrated History of Engineering Education in the United States and Canada* (New York: John Wiley & Sons, 1993), 67-77; A. Marston, "Engineering of the College Plant," *Proceedings of the Organization Meeting of the Land Grant College Engineering Association*, 1913, 72-73.
18. Marks, *Challenges*, 1-11.
19. 1897 March 30 Letter from Arthur Edwards to [Frank] Crandon, Northwestern University Archives Biographical Files Collection, Gleason F. Starkweather.
20. "Charles Chowins, Architect," historicbuildings.unl.edu. *http://historicbuildings.unl.edu/people.php?peopleID=22&cid=14* (accessed July 16, 2013); W.R. Boyd, "Thomas Sloss – A Tribute," Iowa State University, University Archives Record Series Number 4/8/2, Facilities Planning and Management Personnel Files, Box 2, Thomas Sloss file.
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Peggy Ann Brown is a Washington, DC-based independent historian and can be reached at *www.peggyannbrown.net*. This is her first article for *Facilities Manager*.

Texas Tech & University of Arizona Win APPA's 2013 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 two most recent recipients—Texas Tech University in Lubbock, Texas, and the University of Arizona in Tucson, Arizona—were honored at the awards banquet during the APPA 2013 conference held in August in Minneapolis, Minnesota. This year APPA celebrated the 25th anniversary of the Award for Excellence.

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 includes:

- 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 2014 Award for Excellence is January 31, 2014. Successful candidates will be honored at APPA's Centennial Celebration July 21-23, 2014 in San Diego, California.

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

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

—Steve Glazner

TEXAS TECH UNIVERSITY
Operations Division

Texas Tech University

By Joanie Clendenning

Joanie Clendenning is administrative assistant for the operations division at Texas Tech University, Lubbock, TX. She can be reached at joanie.clendenning@ttu.edu*; this is her first article for* Facilities Manager. *Texas Tech also won the AFE in 2001 and 1990 and is the first institution to have received the award three times.*

Hugh Cronin accepts the AFE from Mary Vosevich on behalf of Texas Tech.

Founded in 1923, Texas Tech University is located on the South Plains of West Texas and carries the distinction of being the largest comprehensive higher education institution in the western two-thirds of the state of Texas. As the second largest contiguous university campus in the U.S., Texas Tech has more than 1,100 faculty members and more than 32,000 students hailing from every county in Texas, all 50 states, and more than 90 foreign countries. Tech offers 150 undergraduate degree programs through 11 academic colleges, a graduate school, and a school of law.

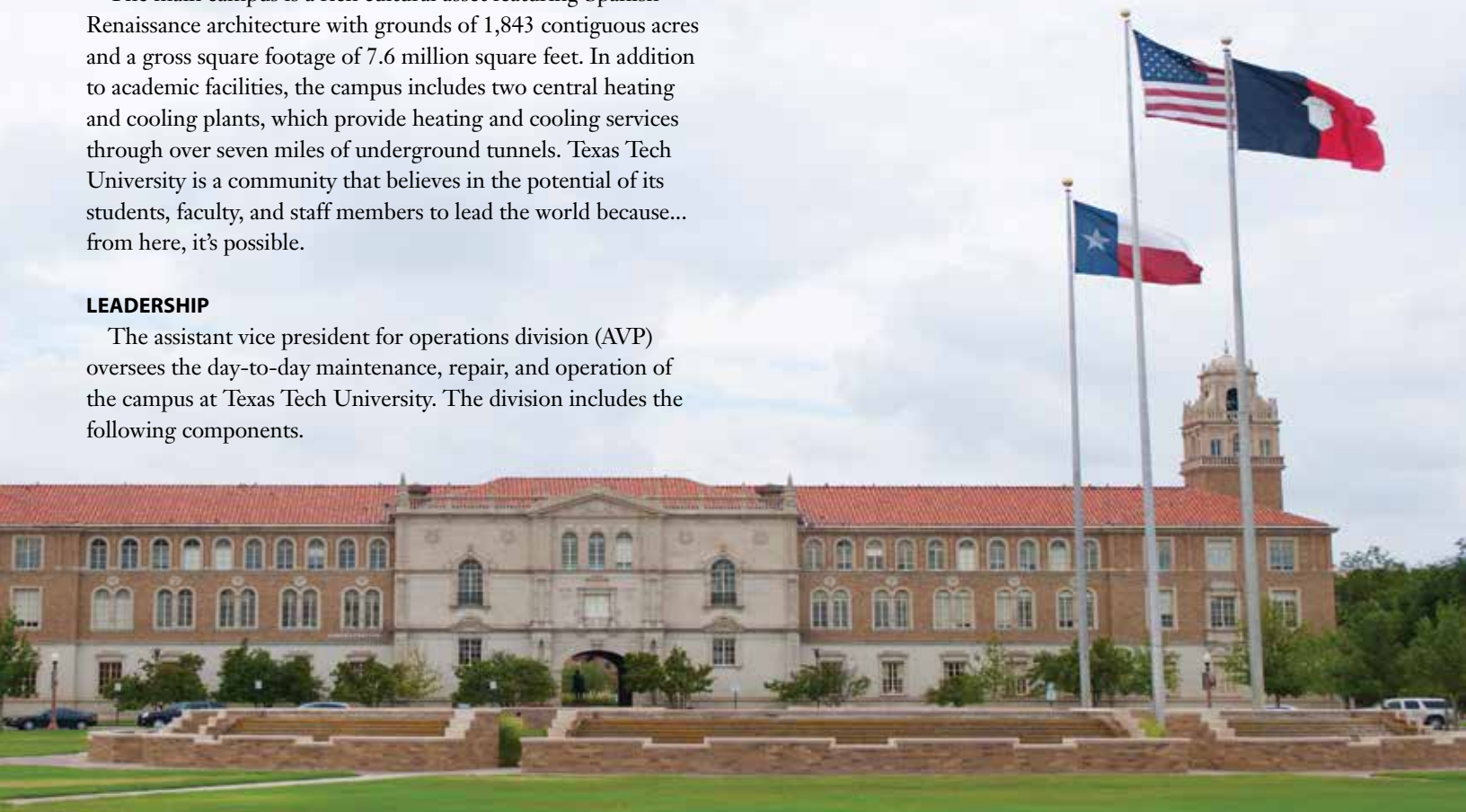
The main campus is a rich cultural asset featuring Spanish Renaissance architecture with grounds of 1,843 contiguous acres and a gross square footage of 7.6 million square feet. In addition to academic facilities, the campus includes two central heating and cooling plants, which provide heating and cooling services through over seven miles of underground tunnels. Texas Tech University is a community that believes in the potential of its students, faculty, and staff members to lead the world because... from here, it's possible.

LEADERSHIP

The assistant vice president for operations division (AVP) oversees the day-to-day maintenance, repair, and operation of the campus at Texas Tech University. The division includes the following components.

Director of Engineering Services: Provides services to execute limited engineering, architectural and interior design, perform technical analysis, project cost estimates, construction inspection, project management, and contract management.

Director of Building Maintenance and Construction: Responsible for the maintenance and repair of education and general (E&G) building structural, mechanical, utility, and electrical



infrastructures. Services are tailored to meet the changing needs of our students, faculty, and staff who occupy a wide variety of facility types.

Director of Business Services: Provides financial and budgeting services to include utility cost distribution, central warehouse, central shipping and receiving, purchasing, and storage facilities.

Director of Services: Ensures daily custodial services are available to E&G buildings, provides contract custodial services to auxiliary facilities as required, maintains the university's vehicle fleet, operates a vehicle rental fleet, and provides trash retrieval and disposal throughout campus.

Director of Utilities: Provides manufactured utilities to the campus and Health Sciences Center in the form of steam, chilled water, compressed air, and treated water. CHACP #1 serves the main campus and CHACP #2 serves the Health Sciences Center and University Medical Center. This department also includes emergency maintenance, which deals with after-hours maintenance support and continuous environmental control.

Director of Grounds Maintenance: Provides an aesthetically safe and functional campus for all students, faculty, staff, and the community.

Director of Planning and Administration: Manages university Facilities Inventory and reports Facilities Inventory to the State. Maintains campus base maps and building floor plans, provides recommendations and automated systems that can be used to monitor and manage departmental facilities information, and tracks research projects and facilities associated with each project.

Energy Manager: Plans and administers all long- and short-term aspects of the university's energy management program. Provides professional expertise, knowledge, capability, and continuity in support of Texas Tech's Energy Management Plan. Identifies opportunities for optimizing energy usage on campus and makes recommendations for energy conservation measures to reduce energy costs.

Sustainability Coordinator: Advocates for sustainability practices and facilitates interaction and collaboration among various groups on campus. Identifies, promotes, and

monitors sustainability initiatives. Prepares and disseminates information in print and electronic media on and off campus.

STRATEGIC AND OPERATIONAL PLANNING

Operations Division provides building and service environments conducive to achieving the highest standards of excellence in teaching, research, and public service activities. To achieve this goal the division is continuously engaged in the development and implementation of a strategic plan. This plan includes the strategic objectives and assessments for each department.

The "living" plan requires review and update on an annual basis. Development and review of the strategic plan encompasses input from all areas and levels of the organization, and feedback from the campus community. Input for the plan is attained through regularly held staff meetings, customer surveys, and verbal interactions with staff and customers.

We are committed and strive to practice the following values on a daily basis:

- Customer Service: anticipate the needs of our customers and meet or exceed customers' expectations;
- Integrity: be honest and foster integrity in others;
- Mutual Trust and Respect: treat everyone with courtesy and respect;
- Professionalism: maintain the highest standards of excellence in every endeavor;
- Stewardship of Resources: use resources effectively and efficiently; and
- Work environment: maintain a safe work environment for all employees and visitors.

CUSTOMER FOCUS

All areas of the Operations Division measure customer satisfaction as a means of setting the strategic direction for determining whether customer needs and expectations have been met.

Customer satisfaction surveys are collected for the following assessments:

- Quality of services provided to BMC customers via customer evaluations on finished service calls/work orders.
- Percent of service calls/work orders completed within time goal.
- Quality of BMC project completions via customer service appraisals.
- Quality of services provided by Custodial Services via customer service appraisals.
- Quality of services provided by Vehicle Rental (Services section) via customer service appraisals.
- Quality of services provided by Vehicle Maintenance (Services section) via customer service appraisals.
- Quality of services provided by MailTech (Business Services section) via customer service appraisals.
- Percent of project Opinion of Probable Costs (Engineering Services section) returned to customers within designated time.
- Percent of scheduled project designs (Engineering Services section) completed per month.
- Number of days between mechanical failures for all elevator cars (BMC section).
- Number of valid elevator entrapment calls (BMC section).
- Quality of services provided by Central Warehouse (Business Services section) via customer service appraisals.

Left: The UA Facilities Team celebrates their AFE win.

Below: Chris Kopach, right, and staff accept the AFE in Minneapolis.

The University of Arizona

Facilities Management Department

By Christopher M. Kopach, CEFP

Chris Kopach is assistant vice president of facilities management at the University of Arizona, Tucson, AZ. He can be reached at ckopach@email.arizona.edu. *This is his first article for* Facilities Manager.

CULTURE TRANSFORMATION INTO ONE TEAM

The University of Arizona resides in Tucson, Arizona, the Grand Canyon State. Like hiking the Grand Canyon, the quest for excellence started with one step along the trail to transforming the Facilities Management Department into One Team and receiving the 2013 Award for Excellence.

The University of Arizona Facilities Management Team is very proud to be selected for APPA's 2013 Award for Excellence. The 550-member team maintains over 11 million square feet of building space and over 350 acres that are classified as an Arboretum. The University of Arizona is rated a top ten Research University with over 40,000 students and over 15,000 employees.

The transformation of our department started three years ago with the commitment of all leaders to follow the **Ten Commandments of Leadership.**

1. Treat everyone with respect and dignity
2. Set the example for others to follow
3. Be an active coach
4. Maintain the highest standards of honesty and integrity
5. Insist on excellence and hold your people accountable
6. Build group cohesiveness and pride
7. Show confidence in your people
8. Maintain a strong sense of urgency
9. Be available and visible to your staff
10. Develop yourself to your highest potential

APPA AND THE U OF A FACILITIES MANAGEMENT TEAM HIKING TO THE TOP

Along the trail, The University of Arizona Facilities Management Department embraced the One Team concept with all our units from custodial services, grounds, trades, utilities, support services to the management staff all working as One Team and One Facilities Family. Having the right team members, in the right positions, has allowed everyone to be successful.

In creating this successful team we have utilized the vast tools that APPA provides:

- APPA Institute for Facilities Management
- Leadership Academy Training
- Supervisor's Toolkit
- Scholarships
- Networking Connections
- Drive-In Workshops
- Webinars
- CEFP/EFP Certifications

With APPA's proven training record and some of the best instructors in the field, APPA has provided the knowledge to develop our future leaders and enhance the skills of our current leaders. This resulted in the benefit of providing solid professional leadership to the hard working employees of the University of Arizona Facilities Management Department.

TRAILS ANALYZED AND IMPROVED WHILE HIKING TO THE TOP

While hiking to the top, the entire department was analyzed through a SWOT analysis and follow up improvement meetings. Total Quality principles are used to meet with staff routinely to seek input on improving the overall operation and Plan-Do-Check-Adjust methods are used to improve all processes.

Luis Rocha, Associate Director of Facilities Management, who oversees the Custodial Services, Grounds, Recycling, Moving/Setups, Work Control and Garage/Motor Pool, assisted in conducting detailed reviews of his operation to improve the overall efficiencies and effectiveness of these operational units. Purchasing practices were reviewed and streamlined to reduce cost and reduce steps. Our Custodial and Grounds staff understand how important first impressions are to our students and their families and work extremely hard and efficient to create a beautiful campus.

Rodger Barnard, Assistant Director of Maintenance and Renovation Services, assisted in analyzing his operation and doubled the amount of Renovation Services work performed on campus within the first two years. The ability to increase work load during budget cuts was critical in providing a cost-effective means of renovation work to the campus community.

During this period a **Keyless Access Program** for the entire campus has been implemented. With the completion of Phase III and the beginning of Phase IV in the near future, this program will allow for all entrance doors to be locked down in case of an emergency.

Richard Knott, Assistant Director of Building Systems and Utilities, assisted in the complete review of our entire utility system, equipment, contracts, capacity loads, and projections. Included in this review was the complete overhaul of our entire metering program of over 800 chilled water and steam meters. With the support of the meter team, four software programs were implemented to review all meters on campus, provide variance reports, electronic billing and allow all equipment to be computerized.

Simon White, Assistant Director of Business Services, and his staff have provided detailed financial analysis to make sure every dollar is being used as effectively and efficiently as pos-

sible. This analysis consisted of an annual O&M review, benchmarking to see how efficient the department has been running, and some financial opportunities to reallocate funds to address deferred maintenance and preventive maintenance. All data is also reviewed to make sure cost reductions are being achieved.

John Powers, Manager Informational Technology, and his staff have led the department down a number of trails to review how technology can make our Facilities Management Department even more efficient. From iPads for our utility staff to iPhones for maintenance staff to track quality assurance inspections, the use of technology continues to be integrated in everything we do. New computerized portals have been developed to track over 10,000 work requests a month to measure areas and timely responses.

Jenna Elmer, Assistant Director of Human Resources, and APPA Emerging Professional and Supervisor's Toolkit trainer, has brought her positive attitude and tireless work ethic to our department and continued developing an Apprenticeship Program to address the loss of 60 percent of skilled trade positions in the next ten years. In addition, she has assisted in developing an outstanding customer service program, **FM CARES**, which is focused on providing outstanding service to our customers.

Mark St. Onge, Superintendent of HVAC, Plumbing, Maintenance, and Plants and APPA Emerging Professional, is a true success story within APPA. Developing through the years and taking on more responsibility, Mark has attended the APPA Institute, Leadership Academy, and the Emerging Professional training.

Administrative Support Staff led by Renee Cota have provided the professionalism and quality of work expected of an APPA Award of Excellence Team. This is evident by the detailed administrative project support provided by Kathia Gin, along with the support provided by Veronica Castro, Alejandra Zell, Hope Bejarano, and Andrea Lawyer to their leaders by providing quality customer service and timely reporting. The ability of our support staff has been critical in taking the right trail for positive and timely results.

ONE TEAM ALL ON THE SAME TRAIL TO THE TOP

As One Team, the University of Arizona Facilities Management Staff continues to work together to improve processes, run our department as effectively and efficiently as possible, and provide outstanding customer service while utilizing APPA's support during this journey.

Thank you U of A Facilities Management and APPA!

Awards Deadline: January 31, 2014
www.appa.org/recognition

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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 year we have been actively focused on the accomplishment of numerous initiatives in support of APPA's Strategic Plan and engaged in the launch of APPA's 100-year anniversary. The Strategic Plan is intended to strengthen the overall position of the organization, the profession, and the institutions we support and represent. This plan contains **Objectives** that articulate the desired results, **Five Leading Strategies** that define actions, and **Five Foundational Elements** that buttress each strategy in the achievement of our stated objectives.

APPA's financial stability is critical to the achievement of our objectives. Our diverse portfolio of programs, products, and services continues to ensure a stable financial position so that we remain that strategic voice for the educational facilities profession. This has proven to be an effective strategy over time. I am pleased to report that we closed this fiscal year 2012-2013 with a surplus balance of $74,285 from our annual operating funds. Targeted revenue enhancements in such areas as the APPA 2012 conference in Denver; publications sales and Job Express advertising; and the array of educational offerings (in particular the latest local deliveries of the Academy-on-Campus) contributed to this positive 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) continues to rise in value now at $2.4 million.

By strategically targeting our actions and effectively utilizing and leveraging our resources, we are on track to achieve our stated Objectives:

- 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 influ-

ence and credibility throughout the entire educational enterprise; and ultimately,

- Increase overall 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 focus 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—and the alignment of the online BOK (Body of Knowledge), which updated and replaced the *Facilities Management* manual as an institutional member benefit. This gives *any and all* individuals at your institution full access (24/7) to this wealth of information. In addition, if your resource library does not include the Web-based *Facilities Performance Indicators* (FPI) report and dashboards and our books *Strategic Capital Investment*, *The Green Campus*, the *Environmental Compliance Assistance Guide* (published in collaboration with the Campus Safety Health and Environmental Management Association-CSHEMA), along with *Buildings. . .The Gifts That Keep On Taking: A Framework for Integrated Decision-Making*, *The Impact of Facilities on Student Recruitment and Retention*, and *Stewardship & Accountability in Campus Planning, Design & Construction*, 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 CAUBO) 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 (ESAT). 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 are 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*; *Inside APPA*, our biweekly electronic newsletter; our website, *www.appa.org*;

and the APPAinfo discussion list that boasts over 1,030 subscribers. 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 40 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 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.

Drive-In Workshops continue to expand and flourish. These locally-delivered programs are 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 (simply called "APPA 20XX"). 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 the conference and ensures differentiation from regional and state or chapter meetings. Co-located with APPA 20XX, we continue to deliver a distinct and successful program for senior facilities officers and their senior leadership called the SFO Summit. This one-day, pre-conference program is really hitting the mark. In addition, we developed an Emerging Professionals (EP) Summit for inaugural delivery at the APPA 2013 conference. This is an exciting new pre-conference program that brought together EPs in a face-to-face setting, aligned with the SFOs for a session, and helped them grow further in the profession. These programs are essential to provide a continuum of professional development career opportunities for all educational facilities professionals.

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 credential is a knowledge-based credential called the EFP (Educational Facilities Professional) targeted to the less experienced/emerging educational facilities professional. As a result, over 350 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 knowledge has been applied at the institutional level. More than 180 individuals have earned 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, but will soon be offered online. The exams are already offered online, so you can sit for the exam right now at your institution! For more information, visit the newly designed website.

COLLABORATION

Strategic collaboration and partnering enhances your membership value and increases the depth and breadth of research and information. APPA's work with NACUBO, SCUP, AASHE, and the EPA through the Smart & Sustainable Campuses Conference and 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 and further strengthen facilities professional's efforts at their respective institutions. The joint ACUHO-I/APPA Housing Facilities Conference is an important program offering for both the campus housing and facilities professional (offered annually and collectively each fall). The Women's Leadership Institute is offered collaboratively each December by 13 higher education associations.

Treasurer's Annual Report — 2012-13

Peter Strazdas
APPA Secretary-Treasurer
Western Michigan University

Our membership should again be pleased with APPA's financial success. This year ending March 31, 2013, APPA posted a surplus of $74,285. The APPA staff and the Board of Directors understand the budget pressures our members face in this challenging economy. Therefore, we continue to take a conservative approach with our budget while focusing on offering value and quality services for our members.

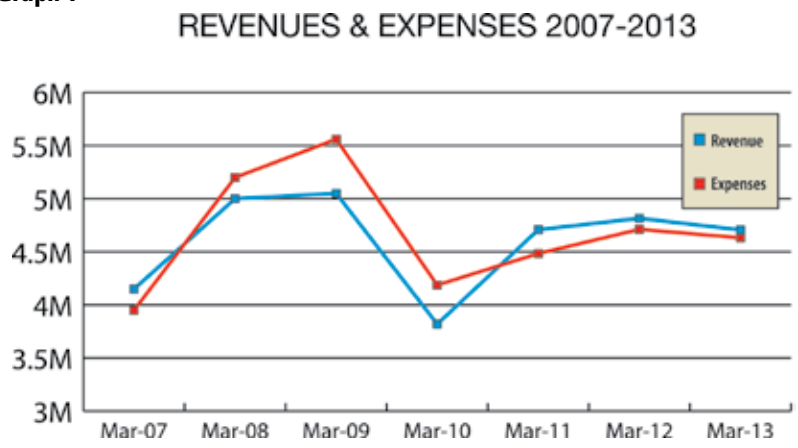
APPA experienced an operating surplus given a good turnout of registrants for the annual conference in Denver last year along with significant support from our business partners. Our face-to-face educational programs did better in terms or registrants and hotel contract management along with the newly added area of local delivery of the Academy-on-Campus, thereby positively adding to the net bottom line. Additional revenue from publications and job advertising sales also contributed to this surplus. We will continue to focus on and further recalibrate all programs and their cost of delivery for this coming fiscal year (2013-2014) 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 not only held its value but appreciated somewhat with an assessment at approximately $2.4 million as of February 2013 by the City of Alexandria. APPA owns its headquarters offices outright.

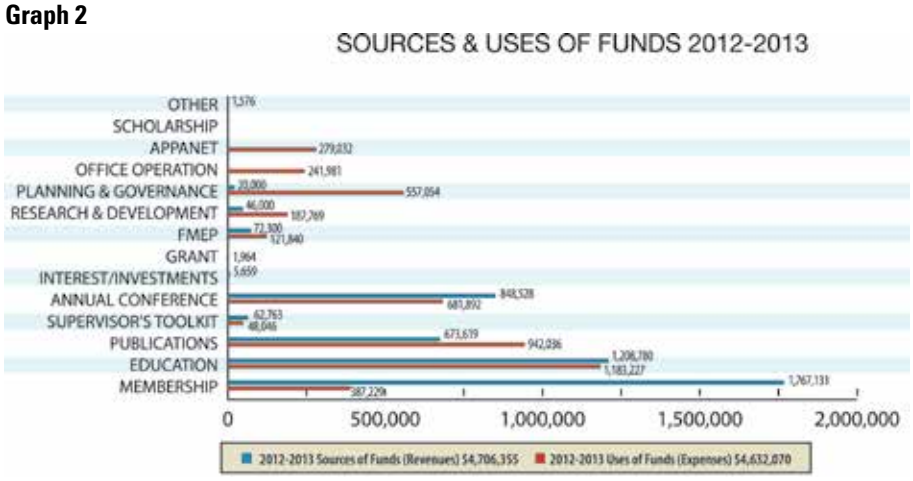
Graph 1 shows the six-year history of revenues and expenses for APPA. Graph 2 shows the year's revenues and expenses by activity/program. Membership expenses, totaling $387,229, reflects the direct cost of membership department salaries and benefits, travel and outreach efforts, printing, production, 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.

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.

Graph 1



Graph 2



In addition, we have targeted K-12 schools with SRAPPA's regional efforts and through the Virginia School 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; TEFMA-Tertiary Education Facilities Management Association; and HEFMA-Higher Education Facilities Management Association of Southern Africa).

Thanks to the funding received from ASHRAE for a major research project on the principles of Total Cost of Ownership (TCO), we have engaged members, organizations, associations, and federal agencies across the entire field of facilities management. We continue to roll out more details on this project and are attempting to link TCO to the FPI and ESAT tools.

These strategic alliances and partnerships help APPA leverage its resources to provide cost-effective, 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 furthered our efforts to target the emerging facilities professional—someone who has recently begun a career in the field of facilities management at an educational institution. Beyond the monthly regular "exchange" via conference call (all EPs invited), these individuals gain insight from and provide input to senior APPA leadership. Their ideas and perspectives are being readily adopted.

CREDIBILITY

As part of our strategy to expand knowledge and research, APPA, with generous support from both DTZ, a subsidiary of UGL, and Jacobs, delivered its eighth annual Thought Leaders symposium this past April 2013. 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 for fiscal years 2006 through 2012 have been published as monographs and disseminated to facilities professionals and senior institutional officers. We also presented and/or disseminated the 2012 monograph on "Campus Space…An Asset and a Burden" to members of CAUBO, NACUBO, and SCUP, respectively. The 2013 Thought Leaders symposium focused on the criticality of ONE trend in higher education: the rising cost of higher education with particular respect to the built environment. This new monograph can be ordered from the APPA bookstore, and Part 1 is included in this issue of *Facilities Manager*. Those who attended the SFO Summit in Minneapolis received a sneak preview of the Executive Summary.

It is just this type of research and information 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.

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.

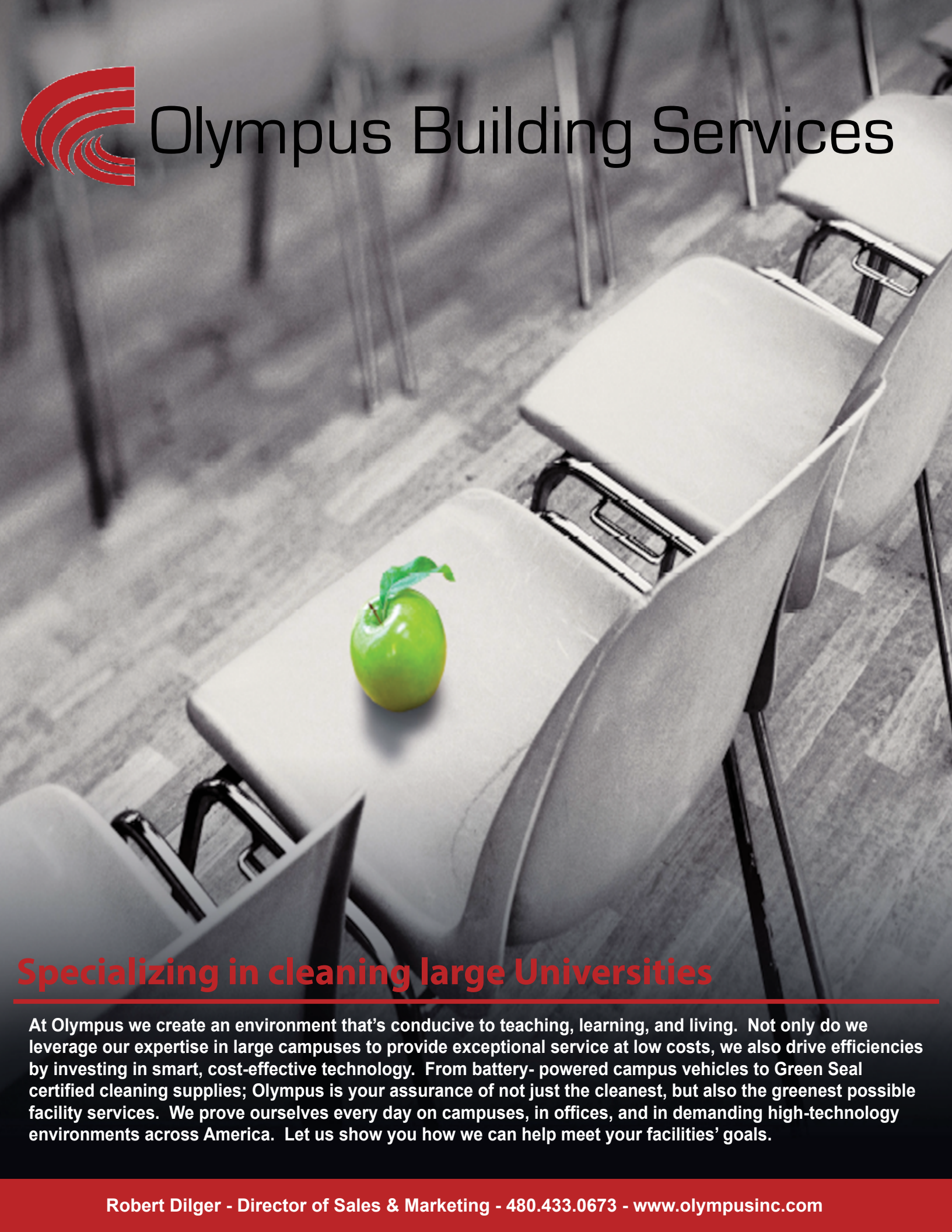
Environmental issues and compliance concerns remain an important part of our public policy agenda. The explosion of regulatory issues and code compliance signals the renewed importance of the Board's decision to establish a Standards and Codes Council reporting to the President of the association. The Council established a "standards portal" through the APPA website and successfully advocated policy positions with the NFPA, NEC, and ASHRAE, thereby avoiding additional costs and/or saving educational institutions millions of dollars. The Council is now exploring a path forward for creating a standards and codes setting body for the education sector. Working groups at all levels of the APPA organization will be needed for broad-based input and engagement. 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*.

Deferring professional development in whatever form is no more an alternative for you and your staff than deferring facilities maintenance/renewal is for your institutions. 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.

Therefore, 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.

Through this 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. Rely on APPA as the strategic voice across the educational enterprise for the facilities profession. Just as your contributions will be key to help shape the future of education at your institution, APPA's contributions will be key as a significant voice on strategic institutional issues for the facilities profession.

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



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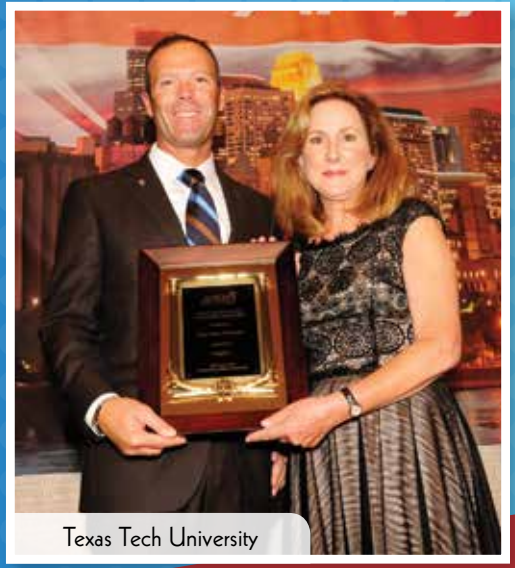
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ACADEMIC BUILDING

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What's the Meaning of This?

Rediscovering the Value of Our Efforts

By Joe Whitefield

"Plan your work and work your plan." That was a well-known phrase a former manager of mine used often to keep his staff focused on the thinking aspects, as well as the execution aspects, of our work. Like most facilities managers I know, he believed that planning and execution were inseparably linked and interdependent. I agree. Successful projects involve appropriate levels of thoughtful planning and competent execution. Unsuccessful projects typically are lacking in one area. Disasters typically are lacking both.

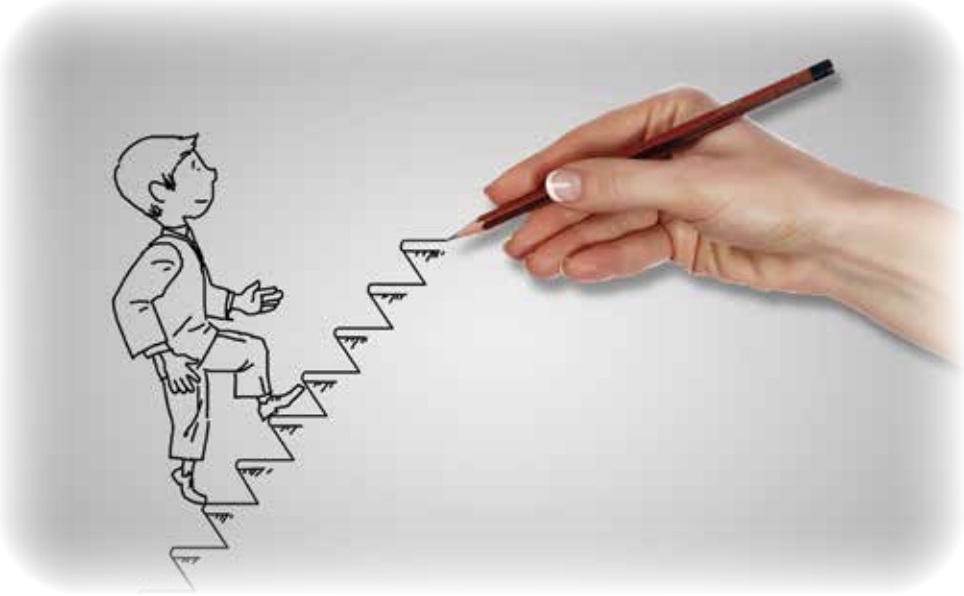
WILLING TO BE WILLING

While this phrase is useful in that it speaks to the mechanics of a project, it is also limited in that it is not particularly inspirational. It speaks primarily to the mental abilities and physical skills required of people to accomplish work. To take it one step further, there must also be a *willingness* to accomplish the work.

Willingness draws on the intrinsic qualities of individuals such as attitude, desire, pride, and stick-to-itiveness. Willingness is the energy that fuels critical and creative thinking and morale that drives the physical efforts. And there is a cyclical nature to this type of work environment. Positive morale contributes to successful work and accomplishment which, in turn, boosts morale. Make no mistake, willingness and ability (or Will and Able) are the dynamic duo of accomplishment.

So, if your workplace morale is sagging a bit, what can be done to prop it up? To answer that question let's look at a major cause of the problem: namely, tasks that are perceived as meaningless by the people who perform them. Think back for a moment. Have you ever prepared a report or presentation for a meeting that was cancelled at the last minute? Perhaps you spent a lot of time and creative energy in your final product. It may have even been some of your best work. How did you feel when the demand for your work disappeared and your work was never read or seen? Even if it was part of the job and you received appropriate compensation for the effort, there was still something wrong. The term is *demoralized*. If you are like most people, this feeling had an immediate deflating effect on your attitude, energy, and morale. It may have even had a recurring negative affect the next time you were asked to prepare for a similar event. All because the meaning of the work dissipated and it became a simple task instead of an important contribution.

C	Completion
O	Organization
I	Innovation
N	Being Nice



POINT OUT MEANINGFUL WORK

Demoralization undercuts the will and saps energy from people. Taken too far, it can be damaging. Remember the old prison movies where the prisoners dug holes in the morning just to fill them up in the afternoon? They performed mindless, busy work that held no value for them or anyone else. Day after day—simply to break their spirits. How awful.

While this is not the case in facilities management, there are, however, situations where meaningful work can seem meaningless to the employee if we are not conscientious. Be on guard for the following:

- Repetitive work—physical work that becomes so second nature that it is practically mindless. People need the intellectual stimulation of critical and creative thinking. Look for change, improvements, and new uses for old systems.
- Out of sight work—work that is scheduled during unoccupied or down times disconnects the workers from the customers who benefit from the service. The pride that comes naturally from seeing a satisfied customer is not available to these employees.
- Thankless work—this is typically a work environment that does not express appreciation enough. A penny's worth of appreciation can produce a pound's worth of good will and motivation.

The antidote to the demoralizing environment is to find the meaning, value, or purpose in the tasks we all perform every day. Remind your employees often that they are part of something large and important. Help them see their work more in terms of providing services that are in need than that of performing simple tasks. And always take advantage of an opportunity to encourage them and say "thank you." Being needed, appreciated, and respected are definite boosters.

SHOWCASE THE IMPACT

I have recently seen a commercial that had a creative way of injecting meaning in the work of the employees and subsequently boosting their morale. The workers were from a plant that manufactures medical equipment. The employer hosted an event where the workers got to meet several cancer survivors who were treated with the medical equipment manufactured by the employees. The impact on the workers was immense as they were thanked by the recovered patients and reminded, face-to-face, that their work was contributing to saving lives.

Tomorrow, try not to look at your calendar and to-do lists the same as you did today. Whether you are planning your work or working your plan, take a few moments to consider the good that will result from a job well done. Help your co-workers do the same. When you boost up Will see what happens with Able.

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

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Current Trends in Commercial Energy Codes

By James J. Sebesta, P.E., Robert Diemer, P.E., and James Ierardi, P.E.

In his 2013 State of the Union address President Obama pledged to double energy efficiency by the year 2030. His strategy for accomplishing this, based on a report from the Alliance to Save Energy entitled "Energy 2030," encourages federal, state, and local officials to make policy decisions that will unleash investment in energy productivity while simultaneously increasing energy security. The report recommends, among other measures, that jurisdictions "steadily and aggressively increase the stringency of building energy codes, with quick adoption and effective compliance measures."

ADOPTING ENERGY CONSERVATION STANDARDS

Mandatory energy requirements were introduced into model building codes in the 1970s following the crisis brought on by OPEC oil embargoes. Starting in 1978 the Energy Policy and Conservation Act (EPCA) began requiring any state receiving federal financial assistance to adopt energy conservation standards for new construction. The potential for condensation in building assemblies resulting from new insulation requirements resulted in the introduction of vapor barriers and mandatory ventilation for uninsulated attics and crawl spaces.

The adoption of federal efficiency standards for appliances improved HVAC equipment performance, and building codes incorporated these requirements. Incremental increases in required thermal properties for envelope components gradually became standard practice in successive editions of the code, and in 2012 the International Energy Conservation Code (IECC) introduced a requirement for building thermal envelope sealing to limit infiltration, often referred to as an "air barrier."

Buildings consume approximately 40 percent of the energy used in the U.S., and efficiency is widely recognized to be the most effective means for containing demand and reducing use. Institutions of higher education make up a significant proportion of building area and annual energy and facility-related costs in the United States. The national model energy code applicable to commercial construction such as educational facilities is the IECC, which allows compliance with ASHRAE Standard 90.1 as one option for commercial buildings.

The recently published 2012 IECC achieves an approximate 15 percent increase in efficiency over the 2009 edition, and incorporates additional dimensions for efficiency such as the air barrier. The 2012 version achieves this higher level of performance through requirements for more insulation, a tighter envelope, tighter ducts, windows and skylights with higher solar heat gain coefficients and lower U-values, and more efficient lighting.

INCREMENTAL METHOD

While examples of net zero energy buildings and passive house construction establish a high bar for building performance, the incremental method of increasing requirements in the IECC may be approaching the limits of current technology and effective payback. A new edition of the IECC is scheduled to be published every three years, however past increases in efficiency are unlikely to be replicated in future energy code editions without significant innovations in building technology. A code requirement for net zero energy commercial buildings currently appears to be a distant likelihood, however building technology could follow in the footsteps of smartphone evolution with the right mix of regulatory incentives and market demand.

The International Code Council published the first edition of the International green Construction Code (IgCC) in 2012, which takes a different and more aggressive approach to energy efficiency and also regulates other dimensions of sustainability in the built environment. Central aspects of the IgCC include extensive requirements for commissioning, automated demand response infrastructure and monitoring requirements, and mandatory

renewable energy sources. While adoption of this new "green" code has been slow to occur, a recent vote to adopt the IgCC in Washington, D.C. may encourage other jurisdictions to follow suit. Rhode Island allows the use of the IgCC to meet green building requirements for state-owned buildings, and Delaware permits local jurisdictions to adopt the IgCC as a "stretch" or "reach" code beyond base code requirements.

CONNECTIONS TO CONSIDER

Embodied energy is a significant aspect of the overall efficiency issue, and the IgCC tentatively addresses this in several ways through requirements for recycled content and regional materials. The green code also allows the local authority to approve the use of a life-cycle analysis (LCA) as the basis for compliance, although such a process has yet to be standardized in a consensual form. The American National Standards Institute (ANSI) is in the process of developing a standard for LCA and this could be a significant alternative for future construction code compliance as designers become more comfortable with the use of this method and regulators learn to evaluate it properly.

The connection between water use and energy consumption is becoming increasingly evident to regulators and sustainability advocates. Because water use in buildings requires the expenditure of energy, reduction in use has important energy conservation implications. Several major cities have adopted requirements for energy and water use monitoring and reporting (benchmarking), and this process is likely to become mandated through code adoption in the near future. With these potential requirements for ongoing commissioning and benchmarking it seems inevitable that energy code requirements will soon require engineering involvement and code enforcement throughout the lifetime of all buildings.

THE FUTURE OF ENERGY CODES

Does the present trend in energy codes predict future developments? That is difficult to say. Until recently the stringency of energy codes and decisions regarding voluntary improvements to building performance, intended to reduce future energy consumption and the related costs, were predicated far more on the return in investment than they were on creating a less energy dependent, more sustainable built environment. In the current economic and political climate a cost benefit analysis may continue to exclude environmental impacts in favor of the financial bottom line, unless regulatory measures require otherwise.

Code changes are generally incremental and building technology has been able to keep up, although not without protest or concerns. Lighting manufacturers and lighting designers thought we had hit the lower limit for lighting energy, but now we have LED lighting being deployed in a wider range of facilities. Over the past 10 to 15 years, it was not uncommon to see lighting play a "lowest hanging fruit" role in any energy reduction program. Generally a three- to five-year cycle on replacement technology has been more the norm than not. Does it really matter that LEDs have a 30,000+ hour life if this technology will in turn be replaced with better technology in just a few years?

As lighting and internal heat gain loads continue to decrease to low levels, how long will it be before all air ventilation systems require reheat to accommodate the minimum ventilation loads for occupant comfort and safety? Will this then represent the ultimate in HVAC efficiency?

Now we are also starting to see the adoption of measures in the code that address "plug loads." Homes and businesses are increasingly filled with devices such as computers and TVs that

use energy even when not in use. These "vampire loads" can make up a significant percentage of a building's energy use, particularly as buildings become more efficient. It is possible to design these devices to operate more efficiently, but until this is mandated by energy codes this is unlikely to happen.

As we look forward, energy reduction goals will continue to be integrated into more aggressive codes and standards just as they have been through regulation in EPA emission standards and vehicle mileage efficiency goals.

- Engineers and architects will continue to model buildings to predict energy performance even as we see plenty of examples where typical building performance has little or no bearing on actual performance of the facility.
- Energy codes will be developed based on construction in various climate zones without clear understanding of the use of the facility or cost effectiveness of the standard.
- Buildings designed and constructed to be energy efficient will be operated and maintained in a manner that does not result in an energy efficient building.
- Higher education institutions will continue to make decisions balancing financial resources between program needs, and their goals for sustainability and energy efficiency.
- Technology and integration into the built environment will continue to evolve based on market forces and regulatory requirements.
- Professionals involved in building design, construction, and regulation will continue to passionately debate the evolution of standards and codes based on safety, economics, impact to the environment, manufactures capability, and personal experiences.

Higher education, with its significant footprint, impact to energy consumption, and financial contribution to a country's GDP, must continue to be involved in the development and evolution of building codes and standards as a steward of the environment and financial resources for future generations.

James Sebesta is national director for higher education services, AKF Group LLC, in New York, NY, and can be reached at *jsebesta@akfgroup.com*. James Ierardi is national director for code consulting services, AKF Group, in Boston, MA, and can be reached at *Jlerardi@akfgroup.com*. Robert Diemer is national director for sustainability services, In-Posse, LLC Philadelphia, in Philadelphia, PA (a wholly owned subsidiary of AKF Group, LLC) and can be reached at *rdiemer@in-posse.com*. This is the first article in *Facilities Manager* for Ierardi and Diemer.

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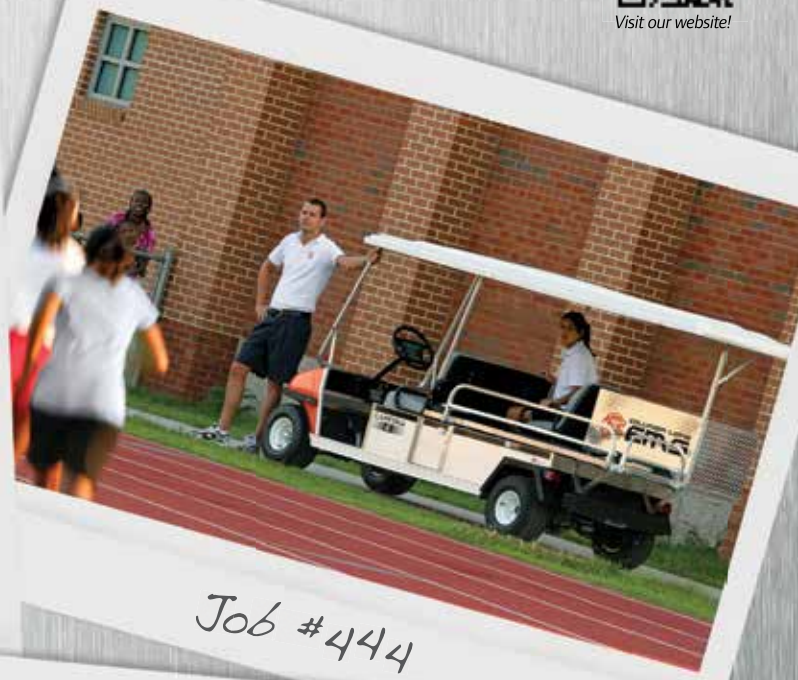

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APPA's BOK: Are You Ready to Participate?

By Gary L. Reynolds, APPA Fellow

LOOKING BACK

It is hard to believe that it has been nearly five years since we started the daunting task of putting our "handbook" online. Renamed the Body of Knowledge (BOK for short) the goal for updating APPA's *Facilities Management* manual was to provide information that would be readily available anywhere and anytime. Web media would allow the BOK to be updated as needed, and include links to additional resources. It was an ambitious project, and while the online approach faced many challenges, through the hard work of many, it is a reality today. And with the recent approval by the APPA Board, the BOK is now a membership benefit available to all at our institutions, making it not only anywhere and anytime but for anyone as well.

As you may know, the BOK is the basis for a number of other APPA programs. For instance, the Institute for Facilities Management four-week program aligns with the four sections of the BOK. Many of the chapters within the BOK are the basis for the core courses that are part of the Institute. Also, a number of the concepts in the Leadership Academy are documented in the BOK. In addition, and probably most important, the EFP and the CEFP required knowledge and exams are based on BOK material.

LOOKING FORWARD

Because the BOK has become an important part of APPA's knowledge base, and in keeping with the original goal of updating the BOK as needed, APPA recently launched an effort to update every chapter. Authors are being contacted and asked to review their chapters and to let their section editors know whether their chapters are still up to date and relevant, need some minor revision, or a major revision. Look for announcements of updated chapters.

As a section editor/content coordinator, and as part of the review and update process, I decided it was time to look through the chapters in the Operations and Maintenance (O&M) section. As I read some of the chapters I was reminded of just how talented and knowledgeable our members are. I have to admit that some of it is way beyond me (what is a var?), but I know that, for those who need to know about these things, a "var" may be very important.

I recently participated in a discussion with an interior designer on one of our projects, and we started talking about fluorescent lamp colors (warm white versus cool white) and the impact it has on our perceptions of color in a space. Well, it just so happens, that in the chapter on interior design in the BOK there is a great set of comparison photos showing the same space lit with different color fluorescent lamps. The difference is dramatic and it convinced the interior designer to work with the electrical engineer to specify appropriate lamp colors for the various spaces. It was a great practical example of "just-in-time" learning that the BOK provides (anywhere/anytime). I am truly appreciative of our members' knowledge and expertise in areas where my knowledge is limited.

YOUR TURN

So what does this mean to you? First, while each chapter has a specific author,

THERE ARE ENDLESS POSSIBILITIES TO ENHANCING THE LEARNING EXPERIENCE WITH THE BOK.

we are always open to suggestions for additions to the chapters. Perhaps you have some expertise in work management or operations and maintenance of building systems that would be valuable to share with our membership. In that case a quick note to Anita Dosik (*anita@appa.org*) at APPA to indicate your interest is all it would take, and she can put you in contact with the author about adding to the chapter.

With our online version this updating and editing process is quickly and easily done. And with the media capability of the BOK (photos, Web links, video clips) there are endless possibilities to enhancing the learning experience with the BOK. As members you may have some unique knowledge or have photos or Web links that would enhance the chapter. Please consider contributing these additions to the chapters.

Second, you may see that an entire area of knowledge is missing and that a chapter should be added to the BOK to cover that topic. If the need is deemed worthy, under the guidance of the appropriate section editor, you would be supported in getting the chapter published in the BOK. You would become a published author of a peer-reviewed chapter in the BOK—a fine addition to your resume.

Finally, now is the time to come forward. If you have thought about contributing to APPA, but are concerned about the time commitment, participating in the BOK may be a way for you to make that contribution. You will be able to work at your own pace in your own time and provide the chapter or chapter addition when you can. And since we are in the process of updating the BOK this year, now is the perfect time to get involved.

So use the Body of Knowledge, let your peers at your institution know that it exists, and show them how to access its content. But most importantly, think about contributing to the BOK and leaving your legacy for future facilities management professionals.

Gary Reynolds is the executive director of facilities services at the University of Colorado/Colorado Springs. He is the content coordinator for the operations and maintenance section of APPA's BOK, and can be reached at *greynold@uccs.edu*.



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Geoexchange: Getting it Right

By William C. Johnson and Paul Ormond

Here's a real-life scenario. A prestigious institution of higher education entered into an agreement with a developer to build new space on campus. They wanted to achieve LEED Gold certification, and to help meet this goal they incorporated a geoexchange system into the design. We're good so far.

Then, as is often the case, they applied misguided geoexchange design methods. Not only was the well field designed to be 30 to 50 percent larger than needed (translating to a million dollars in costs), but it was configured in a manner that would simply heat up over time. Entering water temperatures were predicted to be well over 120 degrees Fahrenheit within 10 to 15 years of operation. Ultimately, they ended up with a system that cost much more than it should, and that was designed to fail.

SO WHAT HAPPENED?

Unfortunately, many designers fail to conduct thoughtful analyses when determining how fields will perform over time, and many still rely on residential-scaled rules of thumb for even large-scale geoexchange systems. These practices were initially developed for small well fields and are inadequate to predict and analyze how larger institutional/commercial-sized systems will perform. This often results in well fields that are much larger than they need to be—and cost much more than necessary—that will still heat up over time and result in system failure.

It's one of the more unusual characteristics of large geothermal system design—bigger is not always better, and it's entirely possible for a system to be much larger than it needs to be, yet still fail over time. This can readily happen when the design tools developed for small residential systems are scaled up and applied to larger systems.

Practices which have been successful for small residential and small commercial systems completely miss the mark for larger-sized systems. Why does this happen? The long-used approaches do not adequately take into consideration heating and cooling load imbalance, which can have major implications to the design and performance of geoexchange systems.

BIGGER IS NOT ALWAYS BETTER

In this particular case, the annual cooling load was about seven times the annual heating load. Robust modeling and analysis would have readily revealed that the geoexchange system was destined to simply heat up and fail within about ten years. However, on this project, this kind of analysis was not performed.

Design techniques exist which can readily manage an imbalanced situation and will not only help ensure long term performance, but result in far less costly designs. For this project, however, one of the fundamental design issues, load imbalance, was not recognized or researched.

Another project setback was that the geoexchanger designer issued bid documents with non-specific provisions related to drilling and well installation procedures. During construction,

prescriptive well field installation specifications and constant on-site supervision of the installation contractors is required, and is not optional, based on extensive forensic evidence of why systems ultimately fail.

Within the first week of this particular project, it was found that each 500-ft well was only 480 ft deep, a 20 ft discrepancy on each well. Some may say, "So what's the big deal?" The big deal is that when applied to over 200 wells, this translates to some 4,000 ft of lost heat exchanger,

> IT'S ENTIRELY POSSIBLE FOR A SYSTEM TO BE MUCH LARGER THAN IT NEEDS TO BE, YET STILL FAIL OVER TIME.

not to mention the extra $32,000 (at $8/ft) in profit to the installer.

Short drills are common for several reasons: 1) the driller comes to the site with the wrong equipment, often because the specifications and project subsurface information wasn't specific enough; 2) high yielding rock fractures are encountered and, without the right capacity lift equipment to get the tailings out, they stop; and 3) there isn't anyone supervising the process. There are only two ways to prevent these things from happening: tight specifications and constant supervision—both of which will guarantee a properly installed field. Remember, there is only one opportunity to get this right.

LESSONS LEARNED

Ultimately, for this project, an independent design consultant well versed in design and optimization techniques was able to rescue the project from failure. The drilling contractor was held to a higher level of performance and the system was redesigned with additional equipment which, not only addressed design deficiencies, but actually decreased project costs. This resulted in improved long-term thermal and financial performance.

Accurately quantifying field performance is an important step in designing a system that is the proper size and capacity. If done right, optimized geoexchange systems can be one of the most cost-effective, powerful options to accomplish the goal of improved energy efficiency and reduced carbon emissions.

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The authors wish to thank Susan Kleinman for her editorial assistance with this article.

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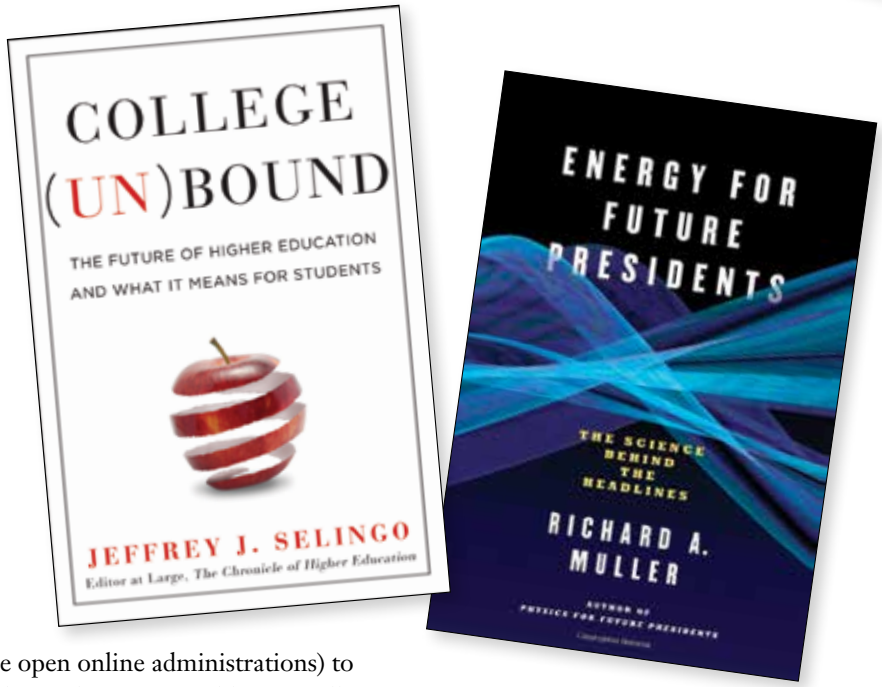

We're in a time of transition, and paying attention to the transition means surviving in our business or not. I'm not talking about personal survival but corporate survival. The last thing I want is to become the most recent "buggy whip" manager. That's why I try to keep on the lookout for books that challenge our industry or "attack" preconceived notions. In this issue there are two more such books that I hope you'll enjoy.

COLLEGE (UN)BOUND, THE FUTURE OF HIGHER EDUCATION AND WHAT IT MEANS FOR STUDENTS

Jeffrey J. Selingo, Houghton Mifflin Harcourt, New York, 2013, 256 pages, $26.00 hardcover, $5.99 Kindle.

Previously, I reviewed *The Innovative University*, which discussed the development of higher education in the United States and how some campuses are finding their own niche, rather than attempting to emulate Harvard University. Throughout that analysis there was the general recognition that higher education provides an opportunity for a better economic future for individual students, but that the typical college student participating in higher education is still tradition-bound and costly.

College (Un)Bound presents many of the challenges facing higher education: high costs, shrinking public support, a failing cost model, MOOCs, and cost/benefits. How will colleges face these challenges, and what are the likely outcomes if only traditional solutions are used? It isn't pretty.

The discussion about MOOCs (massive open online courses) can be frightening to faculty. In June 2013, Prof. Benjamin Ginsberg of Johns Hopkins University lashed out against MOOCs and proposed MOOAs (massive open online administrations) to address administrative bloat in colleges. In his proposal, MOOAs would handle administrative tasks "more efficiently" by using a single administrator for many campuses. Whether his comments were a sign of frustration with the attacks at higher education costs or not, he has forgotten or ignored outsourced campus services that facility officers have been using already. Whether faculty or college staff like it or not, costs are driving students to cheaper, alternative educational venues. The *ivory tower* is getting soot-stained, and not just the faculty will feel the effects.

> UNLESS YOU'RE WORKING FOR AN ELITE INSTITUTION WITH SIGNIFICANT ENDOWMENT PER STUDENT, YOUR INSTITUTION MAY BE AFFECTED.

I'm not arguing for or against a particular model; I am arguing the need to pay attention to the external forces that are affecting all of higher education. Unless you're working for an elite institution with significant endowment per student, your institution may be affected. I recommend keeping an eye on the issues that are driving our institutional leaders, and being prepared to respond to the changing landscape quickly. *College (Un) Bound* should be on your reading list so you're prepared.

ENERGY FOR FUTURE PRESIDENTS: THE SCIENCE BEHIND THE HEADLINES

Richard A Muller, W. W. Norton & Company, New York, 2013, 368 pages, $16.95 softcover, $12.82 Kindle.

Through both personal and work experience, I have learned that paying attention to energy, where it comes from, and how it is used is important for future success. Paying attention doesn't just mean knowing what was consumed and how much it cost, although those are both important data elements. One must also pay attention to what comprimise the energy providers' costs and systems.

Energy costs are volatile, but knowing the energy value (typically expressed in British thermal units (BTU), kilowatt-hours (kWh), and gigajoules (GJ) is necessary. Whatever unit used, it is important to know the cost of that unit for the fuel selected (electricity, natural gas, coal, propane, gasoline, nuclear) and associated costs of the waste products of the fuel. The unit costs are relatively easy to understand, even though they vary depending on a number of factors. However, there are a lot of misconceptions regarding the costs associated with the waste of some fuels (e.g., is nuclear waste more dangerous than coal ash?).

Energy for Future Presidents is clearly written for politicians attempting to dispel, with factual data, the publicly perceived risks and benefits of different energy sources. As with many authors writing about energy alternatives, Richard Muller believes in global warming and has testified before a congressional committee about his concerns. He has also been somewhat prescient, if what he says in the book is correct, when in the 1980s he warned the Sierra Club about its opposition to nuclear energy and the potential for global warming as a result.

Many of the issues discussed in the book are for a national or international scale rather than campus-scaled. There's significant discussion about nuclear energy, risks, benefits, fission vs. fusion, and waste. There are some statistics on deaths due to radiation, both natural and from nuclear accidents, compared to other risks. Ignoring the political energy issues, the concepts presented are scalable for any setting. Mueller looks at the costs, reliability, efficiency, portability, and other factors that drive people to choose a fuel. For instance, why aren't personal vehicles using CNG (compressed natural gas) more readily available? Is a plug-in hybrid vehicle worth the money?

As facility officers we are constantly faced with challenges associated with sustainability, energy consumption, utility costs, and others. Rather than consider these as insurmountable, complex issues, Muller does an excellent job explaining the physics associated with energy and the pros and cons for each. It is an excellent reference for energy facts. There's also an extensive index to quickly access details (in the printed book) for your next meeting on utility costs, as well as new opportunities for sustainability. I'm going to make extensive use of my e-book version for the next project that involves energy choices.

Ted Weidner is president of Facility Asset Consulting, Lafayette, IN, and can be reached at *ted@weidnerfac.com*.

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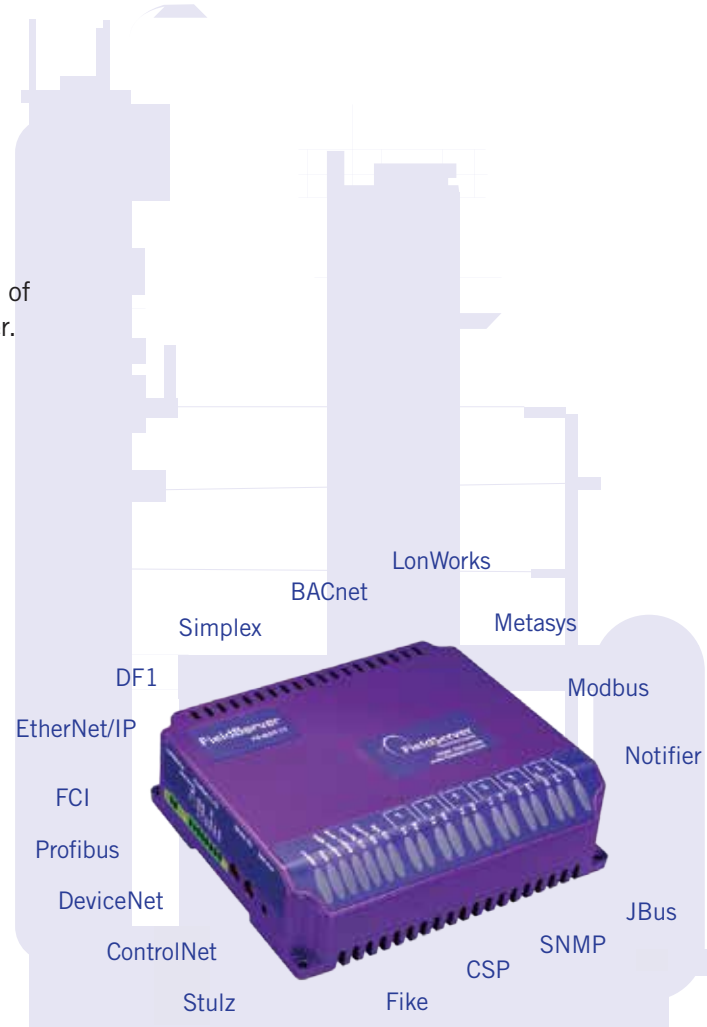

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DENT Instruments, a manufacturer of power and energy measurement instruments, announced the introduction of three new products: The ELITEpro XC, the PowerScout 24, and the PowerScout 3 Ethernet. The ELITEpro XC, which succeeds the ELITEpro SP, is a portable power meter designed for measurement and verification projects or temporary loads studies. The PowerScout 24 is an all-new multi-channel power meter which replaces the PowerScout 18. The PowerScout 24 offers the lowest-cost per meter point versus comparable industrial multi-channel power meters. The PowerScout 3 Plus is now available as an Ethernet device. PowerScout 3 Plus Ethernet communicates using Modbus TCP or BACnet IP over Ethernet instead of an RS-485 connection. For more information contact DENT Instruments at *www.DENTinstruments.com*.

Purifad, LLC has invented the world's first sub-floor cleaning robot. Many raised floor environments utilize the space below for cable distribution and HVAC. Over time, these spaces become contaminated with many harmful materials such as combustible dust and vermin. Purifad's robots simultaneously clean, record video footage and map out the area below a raised floor. Robot technicians can efficiently identify and remove all contaminates that threaten a building's indoor air quality. Purifad's technology gives their company the ability to provide a service that saves their customers on average 75 percent of the costs compared to conventional methods. To see the robot in action or request an appointment, visit *www.Purifad.com*.

Edgetite Products Inc. introduces Edgetite™ Paver Edging Spikes. Edgetite™ spikes help solve the separation problem that can occur when installing paver edging with common spikes. Edgetite™ spikes are unique because of the patent pending angled tip design. As an Edgetite™ spike is hammered into the compacted base, the angled tip deflects away from the installation while the head pushes the edge restraint tightly against the brick. The angled final position of an installed Edgetite™ spike resists frost heave while adding strength and longevity to your brick project. For more information regarding Edgetite Products Inc. visit their website at *www.edgetite.com*.

Excel Dryer, Inc. announced that its best-selling XLERATOR® high-speed, energy-efficient hand dryer is now available with a certified HEPA Filtration System. XLERATOR offers the only certified HEPA filtration system proven to remove 99.97 percent of potentially present bacteria and particulates from the air in the room, and the only one with a washable pre-filter for reliable performance and extended filter life. XLERATOR with HEPA settles the debate about hand dryer hygiene by delivering clean, filtered, purified air as only XLERATOR can—fast and efficiently. The HEPA filtration system is now available as an optional XLERATOR feature, or can easily be retrofitted into existing units. For additional information please contact Excel Dryer at *www.exceldryer.com*.

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2013

APPA THOUGHT LEADERS

The Rising Cost of Higher Education

PART 1

APPA

LEADERSHIP IN EDUCATIONAL FACILITIES

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The Rising Cost of Higher Education

Including the Top Facilities Issues

Section I: Executive Summary

While many issues in higher education are only discussed among members of the education community, the sharp rise in costs is no longer a topic solely for academia. Parents and politicians alike are fuming over the apparently unstoppable climb of the cost of a college education. It seems every day a new magazine article or newspaper story bemoans the trend, attempts to explain it, or proposes a solution. A quick Internet search of one month's news stories with the keywords *rising costs of higher education* yielded more than 24,000 hits with headlines like "The True Cost of Rising Tuition," "Two-thirds of Pupils 'Alarmed' by Rising Cost of a Degree," and "Something Needs to Stop the Rising Cost of Education."

Indeed, everyone seems to agree that something needs to quell the rising cost of higher education—the question is *how*.

APPA chose to focus its entire 2013 Thought Leaders symposium on this very question. True to its position as a leader in the higher education facilities community, APPA considered the challenge from a facilities point of view, but also expanded its perspective to encompass the entire higher education system.

Of course, there is no miraculous solution to the higher education cost problem. However, participants in the symposium proposed a mix of strategies that could be adapted to individual campuses and combined to make real strides. It will take innovative thinking and determination to challenge conventional thinking and educate consumers, yet with strong leadership and foresight, discerning institutions will be able to reinvent themselves for a future in which costs are no longer the leading story about higher education.

The challenge of rising higher education costs

Multiple trends and factors along with traditional or outdated ways of doing business have combined to create a perfect storm of cost inflation. These include the following:

- Declining state support
- High tuition discount rates
- A marked decrease in endowment returns
- Rapid changes in pedagogy that make it difficult for institutional facilities to keep up with teaching models and delivery systems to meet specific demands and needs of the private sector
- Continued demand for new and upgraded facilities to improve student and faculty recruitment and maximize school rankings
- Growing labor concerns, including an aging workforce, lack of flexibility in human resource policies and practices, and need for higher skill levels among technical staff
- Lack of incentives for improved faculty productivity
- Unexamined assumptions about spending, quality, competition, and budgeting
- Inefficient use of existing space

The Thought Leaders participants proposed strategies for addressing these challenges that can essentially be grouped into the following categories:

- **Focus** – Focus the efforts of the institution so that priorities and programs are in alignment with the institution's mission. Carefully examine the entire institution to discover which areas of expense no longer support the organization's goals and take the bold step of eliminating outdated programs or unnecessary costs.
- **Collaboration** – Increase collaboration across the institution, between institutions, and with the private sector. Break down the walls of institutional silos to share information and reduce costs, and consider new partnerships that will increase efficiency and effectiveness.
- **Technology** – Employ technology to cut costs and improve instruction. Massive open online courses (MOOCs) are the trend right now, but technology can be used in many ways to improve operational efficiency and support and improve student progress.
- **Space management** – Get the most out of the space the campus already has. Think of space as one of the institution's most valuable assets, and manage in innovative ways to get the most out of sunk costs.
- **Revenue enhancement** – Seek out alternative ways to bring revenue to the institution or improve existing revenue streams. Consider adjusting traditional models of tuition and funding to incentivize desired results such as improved graduation rates and better utilization of facilities and campus space.

Employing innovation

Participants at the 2013 Thought Leaders symposium all agreed that the challenge of rising higher education costs will not be solved without innovative thinking. The problems are too deeply rooted within the model or mores of the institution to be easily or quickly fixed; the forces opposing change are too strong. In fact, if costs were easy to control, someone would have done it by now. Higher education will require creative thinking from determined leaders to overcome its current cost realities.

Participants first considered what made innovators different. Research reveals innovators are characterized by the following:

- Associating seemingly unrelated facts and ideas to come up with new approaches
- Questioning assumptions and challenging conventional wisdom
- Applying lessons learned in one context to different problems
- Experimenting with new ideas and approaches and tolerating a certain degree of failure
- Networking with others with different knowledge, skills, and perspectives to gain new insights

The Thought Leaders then stretched themselves to employ innovation. They developed strategies that could push many institutions out of their comfort zones but that might be a game changer for a courageous campus. These included the following:

- Replace the credit-hour model with an outcome-based model.
- Streamline programs with fewer requirements and fewer choices.
- Increase collaboration with other area or state institutions.
- Consider outsourcing whenever possible and practicable.
- Get serious about implementing Total Cost of Ownership (TCO) strategies for facilities.
- Make athletics entirely self-sufficient.
- Reexamine the academic calendar to make better use of facilities and students' time.
- Do a better job of monitoring students' progress to catch them before they fail.

Top facilities issues

Drawing on the discussion of higher education costs, participants in the Thought Leaders symposium developed a list of the top critical facilities issues for higher education institutions in 2013 along with key strategies to address these issues.

1. **Align the programs and priorities of the institution with its mission and vision.** Today's colleges and universities cannot be all things to all people—they must continue to hone in and focus on their unique mission and vision.

2. **Build campus-wide understanding of the "arms race" between institutions on campus.** Take a rigorous approach to this issue so the institution can make an informed choice about how important rankings and recruitment should be in its decision-making and recruitment strategy.

3. **Better utilize and manage space.** Empty classrooms, offices, and labs cost money. An effective space management system not only increases efficiency, it also helps the institution make better decisions going forward.

4. **Involve faculty in decisions about facilities and space.** On many campuses, a disconnect between faculty, facilities, and space planning and management causes friction and reduces efficiency.

5. **Identify programs and facilities that need investment.** The costs of neglected buildings, programs, and systems can snowball. Institutions should seek out areas where investment is not being made, understand what is happening and why, and seek to reprioritize when investment is needed.

6. **Understand the challenges posed by increasingly complex buildings.** Building systems continue to be ever more sophisticated. Institutions should assess the costs and benefits of "smart" buildings and develop strategies for managing them going forward.

7. **Manage rising labor costs.** The largest portion of the facilities annual operating budget is labor costs. Colleges and universities need strategies to negotiate with unions, find qualified workers, and remain flexible in a challenging labor market.

8. **Limit rising costs associated with complying with codes and regulations.** Numerous standards and codes impact higher education, and institutions should ensure they understand the costs and take steps to keep these expenses from skyrocketing.

9. **Reduce the cost of unfunded mandates on the institution.** Different types of campuses face different types of federal, state, and local mandates, but these directives all create rising expenses.

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 the United States and Canada. At a two-day symposium, senior institutional officers and facilities management professionals—from university presidents to chief financial officers, trustees, provosts, student affairs professionals, experts from external allied agencies, and senior facilities officers—met 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 finance, HR, procurement, space management, IT, and student services.

Changing the conversation about costs

An element of anxiety—even despair—has crept into the discussion about higher education costs. Many within the industry are worried the situation will never improve, or that they will be swept up in some arbitrary, uninformed cost-slashing mandate from the state, provincial, or federal government.

Institutions should be worried, but it is not time for despair. Rather, it is time for engagement, innovation, and leadership. The rising costs of higher education can be stemmed, if not reduced, if members of the higher education community take necessary steps—steps that might sometimes be uncomfortable or even painful but will position institutions to face the next few decades with confidence.

In fact, most of the steps encouraged by Thought Leaders participants are not just good ideas for controlling costs—they are good ideas, period. Improving space management, aligning programs and plans, and increasing collaboration will make campuses more efficient, more effective, and more vibrant learning environments. The goal should be to take higher education through this difficult period and reemerge stronger and more resilient.

Section II: The challenge of rising costs in higher education

The problem: Rising costs, declining revenues, and lack of flexibility to address the problem

The current cost crisis in higher education cannot be traced to a single cause. Instead, a pattern of cultural shifts, a steady decline of state/federal support, technological innovations, and economic cycles has combined to inflate the price of a college degree. Individuals within the higher education community have been concerned about this trend for several years, but with the advent of the worldwide recession, the issue has received attention from parents, business leaders, high-ranking government officials, and seemingly every newspaper and cable news channel.

The outlines of the situation are well known: Costs have gone up while revenue streams have declined. A review of the contributing factors can help point the way to possible solutions.

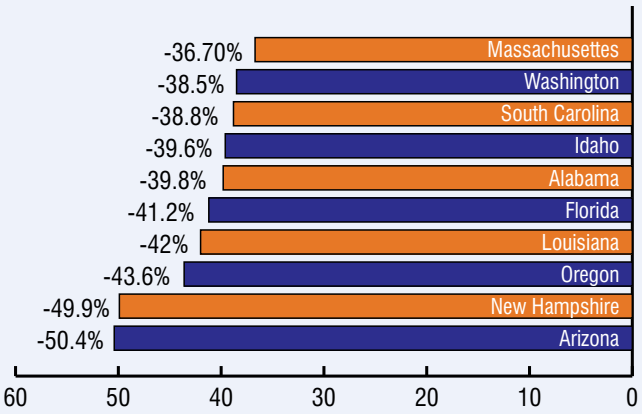
Declining revenues

State support for higher education has dropped significantly in the last decade. According to the Delta Cost Project, appropriations have declined by 28 percent. These figures are national averages—support varies widely between states. While North Dakota and Wyoming actually increased spending, every other state is contributing less. Thirty-six U.S. states have cut funding by more than 20 percent per student, eleven states by more than one-third, and Arizona and New Hampshire by one-half.

States began trimming support in the mid-1980s, but began slashing higher education appropriations when their own revenues fell dramatically in the recession. The slow recovery has kept tax revenues low—they remain on average 6 percent below 2008 levels after adjusting for inflation. At the same time, enrollment in state institutions has risen, the result of a population bulge (the echo boomers—children of baby boomers) now entering college and increased demand for retraining and new degrees from people affected by the economic downturn. In the last five years, the same or lesser amount of state funding has had to cover more than 15 percent additional full-time equivalent (FTE) students. In comparison, government support for higher education in Canada has risen along with enrollment rates; Canada now ranks third in the world in the percentage of total public expenditure on higher education.

U.S. community colleges have borne the brunt of reduced state appropriations—a situation exacerbated by cuts in local funding from counties and municipalities. Between 2009 and 2010, total operating revenues per student declined by 7 percent, or approximately $1,000 per FTE student. However, enrollment increases have also been the greatest at community colleges, up an average of 9 percent year over year.

Data Point: Reduced state support for higher education



Percent change in state spending per student, 2008–2013

—Center on Budget and Policy Priorities using data from Illinois State University's annual Grapevine Report.

Returns from endowments remain low as the economic recovery remains sluggish. The National Association of College and University Business Officers (NACUBO)–Commonfund 2012 study found that the average return on endowments was negative for the third time in five years, dropping 0.3 percent for the 2012 fiscal year.

These low returns have raised concerns about institutions' ability to continue to spend endowment funds at historic rates. To maintain the traditional 4.5 to 5 percent spending rate, institutions need returns of about 7.4 percent annually to keep up with inflation. Only the wealthiest colleges and universities have been able to achieve returns of that level over the past ten years. As a result, the average proportion of endowments spent in 2012 was only 4.2 percent.

Tuition discount rates have soared as colleges and universities seek to attract students. While stated tuition rates are on the rise, the actual price students pay often has little relationship to the sticker price. The average discount rate reached almost 40 percent in 2012, according to a NACUBO study; the discount for full-time freshmen at private institutions topped 45 percent.

More than 85 percent of first-time, full-time freshmen received some form of financial aid, and that aid averaged 53.1 percent of the sticker price. Small institutions were more likely to grant financial aid to their students, but research universities generally awarded larger aid packages.

Schools have responded by trying to limit their discount rates, but that can result in reduced enrollment. Increasingly, students are selecting the institutions that give them best deals—colleges and universities that grant the most aid have the greatest success attracting students.

Tuition has become an increasingly critical source of funding for all types of institutions. With less money coming in from states and endowments, institutions have turned to tuition to make up the difference. Since 1978, college tuition across all types of institutions has increased 1,120 percent. In comparison, the Consumer Price Index rose by 275 percent and the frequently deplored cost of medical care by 600 percent.

Between the academic years 2000–01 and 2010–11, prices for undergraduate tuition, fees, and room and board at public institutions rose by 42 percent, and at private institutions by 31 percent—after adjusting for inflation. Tuition has always been a significant source of funding for private colleges and universities, but public institutions that once relied on state funding to cover the bulk of their expenses now also must rely on tuition revenues. (Tuition has also risen at public Canadian colleges and universities; average tuition and fees have gone up from $1,744 in inflation-adjusted Canadian dollars in 1990-91 to $6,454 in 2012-13, according to a 2012 report by the Canadian Centre for Policy Alternatives. However, a Canadian degree still costs less than a U.S. degree, where tuition and fees average $8,655 for public four-year institutions.)

In the past 25 years, the share of revenues at public schools from tuition and fees has climbed from 23 percent in 1987 to 47 percent in 2012. Tuition changes have varied widely by state; while Maryland and Ohio have kept their increases below 3 percent, in seven states, rates have risen more than 50 percent between 2008 and 2013. At the top of the list are Florida, at 67.3 percent; California, at 72 percent; and Arizona, as high as 78.4 percent.

The result is that a college education has become less affordable, and student debt has become a major burden. The Pew Research Center estimates that nearly 1 in 5 U.S. households is paying off student loan debt;

Data Point:
Reduced state funding and rising tuition

The numbers don't add up

"Tuition revenues are up substantially due to higher prices and more enrollments, but not enough to offset losses of public funding. Students are paying more, while public institutions are receiving substantially less money to educate them. These one-year decreases in funding and increases in student costs are unprecedented over my 40-year career in higher education."

—Paul Lingenfelter, President of the State Higher Education Executive Officers Association, quoted in "Financing for Colleges Declines as Costs Rise," New York Times, March 6, 2013.

Data Point:
Rising tuition

Net tuition as a percent of higher education total revenue

1987	23.3 percent
2002	30.2 percent
2008	36.4 percent
2012	47.0 percent

—State Higher Education Finance Report, FY 2012.

total debt is up 51 percent since 2008. The average debt at graduation in 2012 reached $27,500, and 35 percent of students under 30 are delinquent on their payments.

The timing could not be worse. U.S. households are struggling to hold on to their middle-class lifestyles as long-term economic trends gradually erode their earnings. The U.S. share of households earning a middle-class income has declined from 50 percent in 1970 to 42 percent in 2010. A college education is essential to get ahead, but the cost of that education is becoming a harder burden to bear.

Rising costs

Rising labor costs put pressure on campus budgets. Colleges and universities are labor-intensive businesses. Unlike industries that can improve productivity through technology, no one has figured out how to replace a history professor with a machine (at least not yet). Faculty salaries are expensive, especially in competitive fields such as business and engineering, and tenured faculty are especially costly.

Many critics have identified administrative costs as a particular challenge for higher education. A study by the Center for College Affordability and Productivity (CCAP) found that the number of support and management positions on campus has exploded in the last two decades relative to enrollment. Support staff have increased 86 percent, while FTE enrollment has risen 39.7 percent. ***Back-office degree productivity***, measured by dividing the number of degrees awarded by the the number of support staff at the institution, declined in all sectors by more than 15 percent.

Critics have drawn particular attention to rising numbers of senior administrators and the salaries they receive. At a Midwestern research university, for example, the dean of the faculty senate recently spoke out against the campus's leadership, which includes a $313,000-a-year acting provost, six vice and associate vice provosts, 16 deans, and 11 vice presidents. "We're a public university," complained a professor, quoted in an article by *Bloomberg News*. "Why is it that we can't find any money for more faculty, but there seems to be an almost unlimited budget for administrators?"

Several causes contribute to the rise in support expenses, including the cost of administering government and industry research grants, complying with mandates from state and federal governments, and managing complex systems and technologies. This challenge is particularly pressing for facilities departments, that now must maintain high-tech "smart" buildings with complex systems for tracking energy consumption, reducing water use, and monitoring temperatures. Similarly, information technology has become a major line item for colleges and universities, which must invest not only in up-to-date and ever-changing systems but also skilled staff.

In addition, the entire campus workforce—from professors to maintenance staff—is aging, increasing not only average salaries but also benefit costs. This problem is particularly pressing in facilities departments; on many campuses, the average age is now over 50.

Competition among institutions has driven up spending on facilities, recreation, dining, and athletics to unsustainable levels. Competition between businesses tends to reduce costs and improve offerings, but competition between colleges and universities has increased costs and only brought improvement in some unessential areas, critics complain. Many within the higher education community deplore the "arms race" to get higher rankings on influential lists and secure superstar faculty, but so far no one seems to have a solution to stop the cycle.

Glamorous facilities are one of the most obvious expressions of campus competition. Institutions have poured millions into top-notch gyms, hotel-like dorms, and gourmet dining halls. A recent study by economists at the University of Michigan at Ann Arbor found

"country club campuses" provide a real benefit to institutions in recruiting students. It is easy to show off the sushi bar and the Olympic-size swimming pool to prospective freshmen; it is not so easy to demonstrate academic excellence. With so many institutions showcasing cutting-edge facilities, parents and students have come to expect and demand such amenities.

However, the "arms race" has worrisome long-term implications. Funding for a new luxury dorm might have been better invested in long-deferred maintenance and renewal of aging academic buildings and campus utilities. However, different funding sources ("colors of money") don't allow such crossovers. Furthermore, the building boom has left many colleges and universities deeply in debt. Overall debt levels more than doubled from 2000 to 2011 at the more than 500 institutions ranked by Moody's credit rating agency. Harvard has $6 billion in debt; Julliard, which recently completed a major renovation program, carries $195 million; and Miami University in Ohio, in the midst of an overhaul of its dorms and student union, owes $326 million.

Debt can come to account for a sizable proportion of an institution's expenses. Ramapo College of New Jersey, with $281 million in debt, spends 13 percent of its budget on debt payments. Overall, long-term debt at private institutions grew 12 percent a year from 2002 to 2008, according to a study by Bain & Company and Sterling Partners, a private-equity firm. In comparison, the same study found that the cost of instruction grew by 5 percent over the same period.

It is important to remember that publically financed revenue bonds pay for the cost of dorms that meet student expectations. These projects do not affect an institution's "public position." Debt management is an issue, but for many public institutions these projects fit into the budget differently than they do for private institutions.

Other costs have also been driven by competition. In-demand faculty, usually in science, engineering, or business, command high salaries, research support, and reduced teaching loads. Furthermore, some critics claim there is no real incentive to lower costs since a widespread perception holds that price equals quality. Few within the academic community have anything good to say about the rankings systems, even though they shape spending on campuses across the country. The president of a liberal arts college was quoted in a recent Davis Educational Foundation report stating, "I believe that the *U.S. News* rankings have been one of the most powerful (and pernicious) forces driving colleges toward deliberate inefficiencies."

Rapid changes in pedagogy have made it difficult for institutions to support these new teaching models. Given existing physical spaces, students still must troop

Data Point: Cutting costs

Top strategies to reduce operational expenses

The "2012 *Inside Higher Ed* Survey of College & University Business Officers" asked participants to identify the top strategies for cost-cutting over the next two to three years. Here are some of the top results:

- Eliminating low-enrollment academic programs – 51.5 percent
- Making effective use of facilities – 44.2 percent
- Using technology tools (e.g., business analytic technologies) to analyze programs and identify problems and potential improvements – 41.3 percent
- Using technology to reduce instructional costs – 39.1 percent
- Centralizing/consolidating administrative functions – 36.3 percent
- Increasing teaching loads for full-time faculty – 31.4 percent
- Centralizing/consolidating IT resources and services – 31.4 percent
- Sharing more health insurance costs with employees – 25.8 percent
- Moving more core campus operations and support services to the Web/cloud – 24.5 percent
- Sharing administrative services in partnership with other colleges – 23.7 percent

—Kenneth C. Green with Scott Jaschik and Doug Lederman, "2012 Inside Higher Ed *Survey of College & University Business Officers,"* Inside Higher Ed*, July 2012.*

Data Point: Changing pedagogy

Updating space to meet new needs

A 2012 survey of facilities managers in higher education by Academic Impressions found that 61 percent of respondents saw a pressing need to update classroom space to meet changing needs. The survey also generated several suggestions for better aligning existing space with new priorities:

- Develop a five-year plan for replacing classroom furniture to allow for more flexible use.
- Talk to faculty about how and where they teach.
- Survey departments about the types of space that are most in demand, and then compare their needs with the existing inventory. Where are there gaps? Where is there too much of the wrong kind of space?
- Consider residential academic programs, where learning spaces are included in residential facilities. This can free up classroom space elsewhere on campus.

—Daniel Fusch, "Seeing Success in Space Optimization," Higher Ed Impact*, Academic Impressions, September 14, 2012.*

into enormous lecture halls, while this model of delivery is rapidly being supplanted. Today's pedagogy is more engaged, more interactive, and more hands-on. Previous models were faculty focused—the "sage on the stage." Today's models are student focused (the "guide on the side")—they emphasize competency, mastery, and engagement with the material.

While, on the whole, the new pedagogy is a bright spot in the current higher education environment, promising to revitalize learning for a new generation, it also poses challenges for the institution. Faculty must adjust traditional methods and learn how to teach in new ways. IT departments must work with academic programs to identify the best ways to support flipped classrooms and the role of MOOCs (massive open online courses) within the institution. Legal departments must sort out tricky issues of intellectual property and the question of who owns lectures delivered online. There are also continuing debates about offering credit or garnering potential revenue from the courses.

Facilities departments face some of the biggest challenges. Most classrooms and lecture halls were designed to support traditionally delivered courses. That means thousands of professors are attempting to find a way to accommodate small-group discussions in tiered lecture halls. Even traditional desks can get in the way of current approaches—try fitting a laptop or full-size tablet onto an old-fashioned narrow student desktop. Institutions would be wise to address Clay Christensen's notion that technology changes will be truly disruptive and push middle-tier institutions to very different delivery models that reduce the importance of campus-based interaction.

Architects, engineers, interior designers, and even furniture makers have developed classrooms attuned to new teaching models—classrooms with desks that can move around the room on casters, reconfiguring within a few minutes into circles, small groups, or rows; interactive whiteboards; lecterns with built-in AV connections, Web cameras, and USB ports; and lots of electrical outlets. However, these classrooms cost additional money. Between higher energy costs and basic maintenance to keep aging facilities operational (don't even mention the maintenance backlog), facilities departments have few resources to spare to renovate classrooms. Most members of the academic community want to support and encourage new teaching approaches, but this creates new cost pressures.

Two additional costs should be mentioned: 1) the cost of student success for underprepared students, and 2) the increasing number of students who bring special needs to campus…from substance abuse to the Autism spectrum. These two factors have most recently emerged with the corresponding need, if not demand, for increased institutional support services, hence increased administrative program costs.

Lack of flexibility within the institution

Institutions offer ***few incentives for faculty to improve productivity***. The issue of productivity is a sensitive one; part of the challenge is that "faculty productivity" sounds like a simple concept but is in fact notoriously difficult to define and measure. How do you compare the productivity of a chemical engineer who

brings in millions in grant dollars and holds dozens of patents against that of a comparative literature professor who teaches a handful of graduate students in intensive seminars?

Most measures of productivity look at some combination of the number of students taught and grant dollars generated. For example, in the 2011 report, "Higher Education's Productivity Gap: The Cost to Students, Parents & Taxpayers," Richard F. O'Donnell analyzes raw data on faculty productivity from the University of Texas (UT) and Texas A&M University. He categorizes faculty according to their teaching course load (low versus high) and research dollar value awarded (low versus high). According to this standard, he groups faculty into five categories: Stars (high teaching, high research dollars), Sherpas (high teaching, low research dollars), Pioneers (low teaching, high research dollars), Coasters (low teaching, low research dollars), and Dodgers (extremely low teaching and research dollars). O'Donnell notes that at the University of Texas, 1,748 faculty members consume 54 percent of instructional costs but teach only 27 percent of student hours and generate no external research funding. He claims that by eliminating Dodgers altogether and increasing the teaching load of Coasters by an average of 97 students a year, the university would save $573 million and eliminate all its financial worries.

However, critics point to what they consider flaws in O'Donnell's analysis. First, many of the faculty identified as "unproductive" were actually part-time adjuncts and therefore not expected to teach as many credit hours;

Data Point:
Design for the modern classroom

The headache of electrical outlets

People pay little attention to electrical outlets—until the little bar indicating their remaining battery life starts to dip dangerously low. Then nothing else becomes as critical.

Larry MacPhee, associate director of e-learning at Northern Arizona University, pays significant attention to electrical outlets all the time. In "Learning Spaces," his detailed 2013 study of design for the modern classroom, he includes a lengthy discussion on the placement of outlets. With outlets in the wrong place, "it may be impossible to make proper use of the space, or very expensive to move switches, data ports, and power outlets. Placement of conduits and power outlets constrains the way furniture can be arranged, so getting it right is important."

MacPhee illustrates his discussion with photos of negative examples. For example, in a row of workstations, why would you locate the outlets beneath the work surface, forcing people to lean underneath to find them? Why would you put outlets along one wall in a wide corridor and furniture along the opposite wall, forcing people to stretch cords across the walkway? Why would floor conduits be positioned right in the middle of an aisle, making them at best difficult to use and at worse a tripping hazard?

MacPhee notes most of the problems were the result of the room's designers not knowing how the space will actually be used. "To get this right, someone who knows how the space is intended to be used would need to walk through the building during construction and mark the spots where outlets need to be placed. This rarely happens," says MacPhee, and in fact should be determined prior to construction. He encourages asking detailed questions about the placement of lecterns, whiteboards and projector screens, and tables and desks. Situating outlets for spaces with movable furniture must take into account various possible configurations.

Beyond the classroom, institutions should look at adding outlets to almost any space under renovation. Everyone on campus is likely hauling around multiple devices, and they will want to charge them in dining areas, libraries, labs, and essentially any open space where people congregate. The goal should be to make sure students use their mental energy on what they are learning, not how long their battery will last.

other "unproductive" faculty also held nonteaching duties such as student services. Second, the analysis looked at only one year's worth of data; a faculty member who devoted that year to teaching graduate and/or upper-level courses with a small number of students would appear unproductive while in fact he or she might spend another year teaching introductory courses to large numbers of students. Many departments rotate faculty between different types of courses in different years.

A breakdown of the teaching loads by departments and disciplines revealed other complexities. Some colleges at UT actually exceeded proposed productivity guidelines; faculty in the colleges of Business, Communication, and Natural Sciences all taught an average of more than 150 students per year. The colleges in which faculty taught below this level were either programs exclusively or heavily oriented to graduate work (including Law and Public Affairs) or those in which the subject matter required close supervision of students and small class sizes (including Architecture and Nursing).

This is not to say that the goal of improving faculty productivity should be abandoned; rather, it is to emphasize that measuring faculty productivity is complex and requires a nuanced approach. Participants at the Thought Leaders symposium agreed that the issue is problematic, but they found consensus on a few points:

- The tenure system can have the unintended consequence of discouraging productivity. Tenure was never intended to be a job-security program—rather, it was a way to encourage independent thinking and free speech.
- Faculty accomplish a wide variety of goals in a wide variety of ways. Comparing the role of science, humanities, and business faculty is like comparing apples to oranges to bananas. Both measures of productivity and incentives to improve it will need to account for this fact.
- Colleges and universities need to get a better handle on what their faculty actually accomplish, with measurements taking a broad view and avoiding over-reliance on overly simplistic metrics.
- None of the systems to measure faculty productivity have found a way to address the quality of research or instruction. Institutions must find a way to encourage and reward high-quality work while improving productivity; the university is not a factory, and students are not widgets that should roll off the assembly line for the cheapest price.

Data Point: Institutional productivity

Principles for measures of productivity

The National Research Council recently convened a panel on measuring higher education productivity and wrestled with some of the challenges this presents. The panel presented its principles for improving and implementing productivity metrics:

- Productivity should be a central part of the higher education conversation.
- Conversations about the sector's performance will lack coherence in the absence of a well-vetted and agreed-upon set of metrics, among which productivity is essential.
- Quality should always be a core part of productivity conversations, even when it cannot be fully captured by the metrics.
- The inevitable presence of difficult-to-quantify elements in a measure should not be used as an excuse to ignore those elements.

—Teresa A. Sullivan, Christopher Mackie, William F. Massy, and Esha Sinha, "Panel on Measuring Higher Education Productivity: Conceptual Framework and Data Needs," Committee on National Statistics, Board on Testing and Assessment, National Research Council, 2012.

Overall institutional productivity also needs to be improved to increase graduation rates, speed time to graduation, and provide a quality education while slowing tuition increases. Demand for a college education is growing. The share of the population with at least a bachelor's degree has increased steadily for decades, and studies show that it will only need to increase to meet labor market demand. The current goal of the White House is for 60 percent of adults to hold an associate's or bachelor's degree by 2020, up from 38.7 percent today. According to the Lumina

Foundation, this level of educational attainment will be critical for the nation's economic health; by 2020, 65 percent of U.S. jobs will require some form of postsecondary education.

Already, education beyond high school is a leading indicator of economic security, but it is clear that having some kind of degree will soon be critical to having any kind of job. Between December 2007 and January 2010, the economy lost 5.6 million jobs for Americans with a high school education or less. While the situation has improved somewhat since then, jobs for high school–only graduates have continued to decline while the rate of demand for bachelor's-level graduates has accelerated.

To address future demand, the nation will need an additional one million college graduates every year by 2020, according to researchers. That means upping the output of graduates by 3.5 percent a year. This is an appalling figure for many institutions, which find it difficult now to cope with the number of students today at current funding levels. To come close to this goal, institutions will need to find new ways of graduating more students on a smaller budget.

Unexamined assumptions about spending, quality, competition, and budgeting need to be reexamined to confront current challenges. Higher education is one of the oldest institutions in Western culture, and it is not surprising that certain ways of doing business have become so entrenched that they are rarely addressed. However, these traditional ways of operating can increase costs and reduce opportunities for improved efficiency, productivity, and quality.

For example, the budget process at many institutions has been in place for decades. Now that it has become clear that funding levels will not be rebounding any time soon, colleges and universities must take a harder look at long-standing budget allocation methods and models. State institutions are often limited in how much flexibility they have over their own budgets. Laws restrict the ways campuses can make purchases; multiple agencies are often involved. Different "colors of money" further complicate the ability of senior institutional officers to make the best decisions. Regulations and unfunded mandates bog down the campus budget; at the same time, best practices, such as Total Cost of Ownership strategies for facilities, are difficult to implement.

Inefficient space utilization costs colleges and universities by making poor use of institutions' greatest sunk cost, their campuses. Traditional college schedules make poor use of facilities. Running the air conditioning full blast the entire summer for a nearly empty building is an inefficient use of the institution's

Data Point:
Higher education budgeting

State budget officers' recommendations on higher education finance reform

In the Spring 2013 report from the National Association of State Budget Officers, the organization presented five guiding principles to reform the higher education financial model:

- **Focus more on funding incentives to improve performance and results.** Performance funding can help align university missions with public goals.
- **Limit tuition and fee increases.** Student tuition policies in public institutions should be based on a shared understanding of the appropriate role of tuition in relation to student costs and benefits, not just a reflection of what the market will bear.
- **Create incentives for expanding access.** Increase postsecondary access and degree attainment by strengthening need-based grant aid programs, encouraging institutions to educate low-income and at-risk students, and investing in vocational and technical education.
- **Develop useful information about higher education spending and results.** Develop a consensus on how to account for spending and revenues and share this information with the public.
- **Increase value, productivity, and efficiency.** Control rising costs through consolidation, streamlining, and leveraging technologies.

—"Summary of Report on Higher Education Finance Reform," National Association of State Budget Officers, Spring 2013.

Data Point: Space utilization

Improving data about space at the University of Texas

In 2006, the University of Texas realized its space management system was hampered by the lack of consistent, credible data. The vast campus—with 618 buildings, 47,561 rooms, and nearly 15 million assignable square feet—endured redundant data stores, lack of coordination among reporting entities, limited communication with space occupants, and an inflexible process for integrating facilities data with budget and academic information.

The university embarked on a multi-year program known as the Space Management Initiative to improve space and facility reporting, increase accessibility to information, streamline data collection, reduce costs, and better utilize space. Their goals were to establish a central, authoritative data repository, identify and document critical business processes that require space data, and identify existing and new information needs regarding space.

UT staff then went to work. They were able to synch various databases that control space information and create Web portals for classroom scheduling, space reporting, and inventory management. Results included a more effective program for space allocation and a new system for auditing space quality. In addition, the accuracy of facilities data resulted in a significant long-term increase in the university's negotiated Facilities and Administrative (F&A) Recovery Rate.

UT continues to improve its space management systems. In the next few years, the university seeks to better incorporate space and budget data, integrate with the Registrar's course scheduling system, and support master planning and forecasting.

resources. Increased enrollment and slashed budgets have brought home the issue of space utilization, along with the realization that many colleges and universities do not have good metrics in place to measure their space. The National Center for Education Statistics (NCES) Room Codes are widely employed to categorize space, but the system is limited, particularly for mixed-use space, and fails to take into account the quality of space.

Furthermore, space management policies are often outdated, weak, and highly political. Departments cling to space as a resource that should be protected at all costs; the culture promotes the view that space is "owned" and strongly discourages attempts to shift to a campus-wide monitoring and allocation system. This culture is based on the mistaken belief that space is free—it costs nothing to the department or faculty member who controls it. In fact, space is increasingly expensive. The cost of construction has risen from $120 per square foot for academic buildings in 1997 to $339 in 2012; costs for science buildings have reached $500 per square foot. Operations costs have also risen in 2012 from an average of $1,726 per FTE student to $2,073 in 2009, reflecting both increasing complexity in buildings and rising fuel and energy costs.

Essential strategies: Smart thinking about higher education costs, revenues, and productivity

Addressing the cost challenge will require institutions to rethink many systems and processes that have been in place for decades. On a few campuses, the necessary changes will be minor, but at many colleges and universities the changes will be transformational—and require seismic shifts in how the institution operates.

Participants at the Thought Leaders symposium assigned the most essential strategies to broader categories. While areas of emphasis will differ from campus to campus, colleges and universities should consider the significance of all these approaches.

Focus. Colleges and universities that try to be all things to all people are likely spending money where it is not needed, say Thought Leaders participants. Institutions can have programs in place that might have been important when they were created—or at least seemed important—along with initiatives that never panned out and courses that are no longer needed. These misplaced efforts are not necessarily limited to academic programs—administrative units and functions

can continue to operate long after their usefulness has ended.

"Mission drift" was identified by college and university presidents as one of their most pressing concerns in a study by the Davis Educational Foundation. The study notes, "[C]olleges and universities have added new majors, programs, centers and institutes at dizzying rates. In the quest to be bigger and better and to create branded 'signature' programs, the additions have been promoted as bolstering institutional quality." However, institutions seem to believe they can continue creating new initiatives indefinitely—"the new economic reality has some educational leaders questioning the practice of 'adding' without making corresponding 'adjustments' to programs and resource allocations." In other words, something needs to go.

The solution is for the institution to identify its unique identity. Ideally, this identity should be reflected in the college or university's mission and vision, which can then be used as a guide going forward. For example, Pepperdine University has developed a comprehensive system for aligning educational programs and student learning with the institution's mission. Pepperdine segmented its mission into component parts and then developed student learning outcomes based on that mission. Pepperdine programs can engage in a five-year review process to assess how they are doing in achieving the desired student learning outcomes. The process also helps program leaders articulate desired results, gather and report outcomes, and make decisions going forward.

Ultimately, strategies such as Pepperdine's should also help institutions identify programs that no longer align with the mission and justify the termination of these programs. Naturally, many within academia worry about program termination—are the classics to be abandoned because they do not bring in grant money? Establishing a system in which programs are carefully and deliberately assessed based on agreed-upon standards can help allay these concerns and ultimately achieve buy-in. The goal is to save money, yes, but ultimately the purpose of program alignment is to help the institution achieve a unique identity that can help it distinguish itself. "Distinctiveness matters," notes the Institute for Public Policy in its 2013 report "An Avalanche Is Coming: Higher Education and the Revolution Ahead." The distinction could be a matter of approach (individual mentorship, for example, or interdisciplinary focus), academic emphasis, student experience, or some combination of the above. What matters is that universities "demonstrate their quality in whatever roles they choose to play or fields they choose to lead."

Collaboration. Thought Leaders participants pointed to collaboration as a critical strategy for increasing efficiency and productivity and cutting costs within higher education. Collaboration should be expanded on many levels—within the institution, across institutions, and with the private sector.

Internal collaboration can help both the bottom line and institutional effectiveness. Departments can become silos in which information is closely guarded; administrative functions can overlap; and academic programs can work at cross-purposes. Many higher education business officers believe there is potential for

Data Point: Mission drift

Time to focus in on what matters

"Like other institutions, we may well have experienced 'mission drift' by straying into new areas in response to specific opportunities, yet without the depth of resources needed to sustain both new and continuing programs. The challenges of supporting a much wider array of academic programs were not apparent during a period of robust economic growth combined with enrollment increases. But now it is abundantly clear that neither [we] nor most higher education institutions can sustain the patterns established over recent decades. We must focus strongly on those programs for which there is a demand, programs for which there is a compelling case for University involvement."

-- Anonymous professor, quoted in "An Inquiry into the Rising Cost of Higher Education: Summary of Responses from Seventy College and University Presidents," Davis Educational Foundation, November 2012.

Data Point:
Focusing the institution

New models for higher education

The idea of the university as all things to all people has had its day, says the Institute for Public Policy Research. Instead, institutions will need to focus on their strengths and distinctive qualities to attract students. The Institute suggests that in the next few decades, institutions will settle into one of five models:

1. **The elite university.** Colleges and universities with a global reputation, a strong endowment, and a stellar track record will be able to continue much as they have for years. They will attract the most talented students and prestigious faculty.
2. **The mass university.** These institutions will take advantage of technology to provide a solid education to the growing middle class. They will focus on real-world workplace skills and supplement their faculty with practitioners from business and other fields.
3. **The niche university.** Colleges and universities in this sector will naturally be highly varied, but the most successful will do the best job at identifying and playing to their strengths. The classic U.S. liberal arts college will fit into this category, as will prestigious arts institutions and military schools.
4. **The local university.** Campuses highly attuned to local needs will contribute to local economies while attracting students. This model is already active around the world; for example, the India Institutes of Technology are recognized as high-quality engineering programs but serve an almost entirely local undergraduate community; in addition, all faculty are required to be Indian citizens.
5. **The life-long learning institution.** Education does not stop after high school or college graduation. More adults are attending college every year to change careers, acquire new certifications or skills, demonstrate their worth to employers, or expand their minds. While many types of institutions will offer life-long learning opportunities, others will focus on this growing market, employing technology and providing highly flexible course offerings.

—Michael Barber, Katelyn Donnelly, and Saad Rizvi, "An Avalanche Is Coming: Higher Education and the Revolution Ahead," Institute for Public Policy Research.

cost savings in collaboration and consolidation in administration and student services, with 59 percent of all institutions—and nearly 70 percent of public institutions—currently discussing ways to implement such consolidation.

Savvy institutions are looking at ways to collaborate across campuses. In Ohio, for example, the Innovation Alliance between the University of Akron, Lorain County Community College, and Stark State College has consolidated essential business functions into a common support organization. Currently the program uses a shared HR system and is working toward shared student administration, human capital management, and financial management. The Alliance has also focused on job creation and academic collaboration projects, including a shared campus where all three members of the Alliance offer courses; involvement with a regional IT program to increase the number of skilled technology workers in the region; and the streamlining of transfers between member institutions.

Collaboration with the private sector can take many forms; the most successful today involve partnerships between science and engineering programs and industry. However, Thought Leaders participants urged colleges and universities to explore other areas of possible collaboration, including shared services and outsourcing. One area of collaboration receiving particular attention today is focused on job skills. Business and government leaders note that employers are desperately searching for skilled candidates while the unemployment rate remains high; in Michigan, for example, the unemployment rate in April was greater

Data Point: Collaboration

Higher education collaboration success stories

- **Centralized print management functions.** The Northeast Ohio Universities Collaboration & Innovation Study Commission sought out administrative functions that could be consolidated and soon hit upon print management. Each campus within the commission, including Cleveland State University, Northeastern Ohio Universities Colleges of Medicine & Pharmacy, Kent State University, The University of Akron, and Youngstown State University, incurs costs to lease printers, copiers, and faxes as well as maintenance contracts, supplies, and disposal costs. A program is underway to centralize this function by pursuing vendor contracts across institutions. Anticipated cost savings are estimated at $3.5 million.
- **Shared campus police force.** Three Massachusetts colleges recently teamed up to share security forces; Smith, Hampshire, and Mount Holyoke colleges each have student populations less than 2,700 and are located about ten miles apart, making the program possible. Sharing services has allowed the institutions to create a central dispatch center, streamline operations by sharing administrative staff, reduce costs—especially overtime—for patrol, and provide specialized services more effectively.
- **Industry partnership to develop new engineering program.** Cullen College of Engineering at the University of Houston was recently recognized as a model industry/academic partnership by the Business–Higher Education Forum. The undergraduate Petroleum Engineering Program was developed in 2009 in response to demand from the private sector for new bachelor's-level staff; the industry was concerned about its aging workforce and the number of engineering and technical personnel due to retire within the next two decades. Petroleum companies provided not only funding for labs, classrooms, and scholarships but also input into what employers are looking for from graduates. Since its launch, the program has grown from 20 students to 400, all likely to be greeted upon graduation with job opportunities.

than 8 percent, but roughly 60,000 open jobs were listed on the state's Michigan Talent Connect website. Michigan's governor Rick Snyder has urged higher education and business to do a better job working together to ensure graduates have the skills and knowledge employers need.

Technology. Participants at the Thought Leaders symposium believe creative use of technology can help colleges and universities cut costs, increase revenues, and improve learning outcomes for students.

The hot topic in higher education technology today is the potential of MOOCs (massive open online courses.) A handful of highly publicized MOOC initiatives are underway, many involving prestigious institutions like MIT, Stanford, Harvard, and the University of California, Berkeley. The appeal is simple: MOOCs promise to provide high-quality courses to an unlimited number of students at little or no expense. MOOC promoters point to the advantage of students around the world receiving instruction from the very best professors; they envision every student taking a handful of undergraduate courses via MOOCs, saving both themselves and the institution sizable sums. MOOCs are the newest manifestation of online education, which is already well established; research shows that more than 6.7 million students took at least one online course in the fall 2011 term, according to the "2012 Survey of Online Learning" from the Babson Survey Research Group and the College Board.

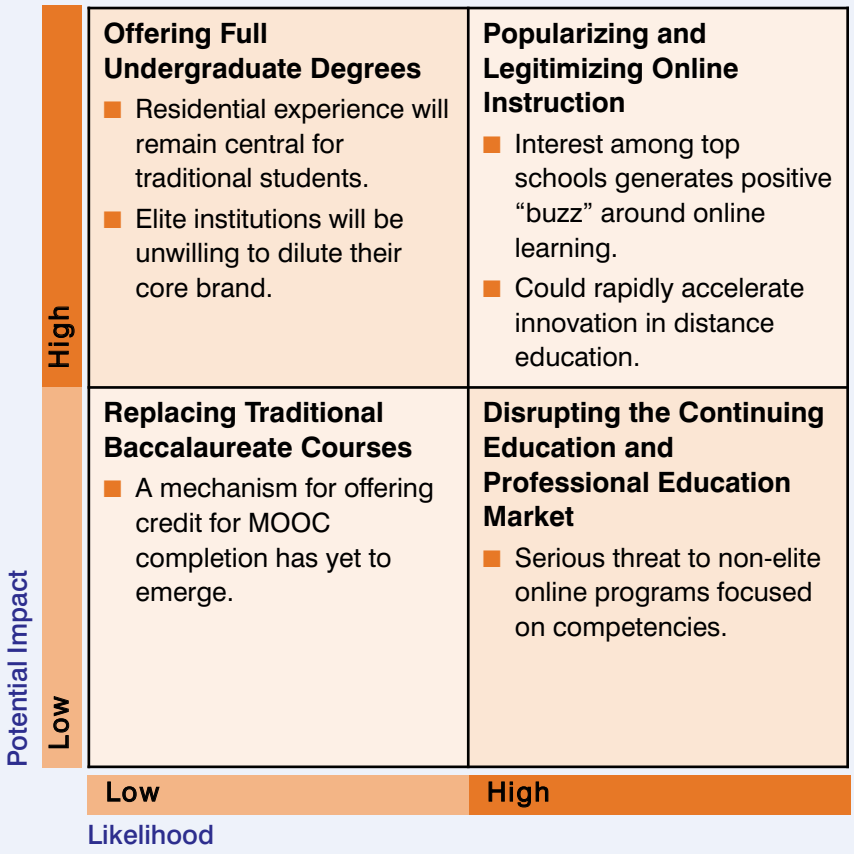
On the other hand, the same survey also revealed that academic leaders are unconvinced that MOOCs represent a sustainable method for offering online courses; after all, MOOCs are only free for the students taking them, not the institutions creating and hosting them. Survey respondents also noted that credentialing from a MOOC is likely to cause confusion, since completing a MOOC session is not the same as passing a final exam and receiving a grade. Further, the educational model of MOOCs is based on the traditional lecture format rather than the more interactive pedagogy most institutions are now encouraging. The future of MOOCs remains unclear, but they have undeniably generated enormous discussion and interest. The 2013 Horizon Report from the New Media Consortium and the EDUCAUSE Learning Initiative put MOOCs at the top of its list of technologies to watch and

Data Point: The potential of MOOCs

Are MOOCs overhyped or truly innovative?

The Education Advisory Board asked this question about MOOCs and came up with conflicting answers. In its assessment, while MOOCs will likely popularize online instruction and disrupt the continuing education market, they're unlikely to replace traditional courses or provide a means for students to obtain full undergraduate degrees.

—Adapted from "The Promise and Perils of Innovation: Competitive Challenges to Traditional Higher Education," Education Advisory Board, 2012.



predicts they will continue to grow in number and popularity.

MOOCs were only one of six technologies identified in the Horizon Report. Another promising trend is learning analytics, systems that compile student data and enable faculty and administrators to use it to help students succeed. Mining data from learning management programs, analytical systems can identify at-risk students before faculty are aware of a problem as well as help students advance toward their degrees.

For-profit institutions have had these systems in place for some time; the software in use at the American Public University System, for example, ranks students according to probable success with coursework. These programs are particularly useful for high-enrollment courses and can include analysis of markers of student involvement beyond quizzes and homework—for example, log-in frequency and involvement in discussion forums. As pressure grows on institutions to retain students and encourage faster time-to-graduation, learning analytics can play an important role in catching at-risk students before they fail.

Space management. Better management of space has the potential to significantly save costs for the institution and make more productive use of its single greatest sunk cost. Participants at the Thought Leaders symposium agreed that colleges and universities need to change their entire thinking around space and begin valuing it as an institutional asset.

The entire Thought Leaders symposium in 2012 focused on space, and participants identified several best practices for colleges and universities:

- **Establish metrics to better measure how space is used.** Look beyond NCES codes to create flexible systems for assessing multi-use spaces, evaluating space quality, and tracking space according to a variety of categories such as grant revenue and productivity.

- **Develop effective policies, decision-making processes, and standards.** Create firm policies that are rooted in the institution's mission and vision, and ensure that decisions are fair, consistent, and transparent. Many within the institution complain that space standards are confusing and biased. Only when systems are clear to all participants will faculty and staff support the process.
- **Create effective organizational structures.** Establish a campus-wide system for allocating and managing space. The structure of this system will vary depending on the institution, but it needs authority to enforce its decisions and the backing of the campus leadership.
- **Implement incentives to encourage effective space management.** The most effective space management programs encourage desired behaviors. The nature of these incentives can vary. On some campuses, academic units are charged for space, encouraging them to use it efficiently. At other institutions, the college or university offers to renovate classrooms if they are turned over to the general pool. Schools might also encourage use of classrooms outside peak times.
- **Design spaces that are easy to manage.** Create buildings that can adapt to changing pedagogies and institutional needs. Avoid single-use spaces that restrict future options.

Several colleges and universities have begun making more intensive use of their space, and they are seeing results. Many large community colleges, confronting record enrollment increases in recent years, offer

Data Point:
Improved space utilization

Abandoning the traditional academic calendar?

Most cultural practices that date to before the Industrial Revolution have been abandoned in modern-day North America, but not the academic calendar. It persists in giving students time off in the summer, time that originally would have been devoted to work in the fields.

Most campuses offer summer sessions, but these are typically nonessential courses; faculty are not required to teach them, and students are under no obligation to take them. In fact, many students are discouraged from taking summer courses. The federal government introduced year-round Pell Grants in 2009 but eliminated the program in 2012 as part of a budget-cutting deal. More than 800,000 students used the program in 2011 to pay for summer classes.

The result is that most campuses are empty in June, July, and August. Academic innovators deplore this practice, noting the inefficiency of operating and maintaining empty buildings for three months of the year. They also point out that by taking summer sessions every year, students could graduate within three years, allowing them to get into the workforce more quickly.

Proposals for a year-round academic calendar have been knocking around for years, but one of the few institutions that has embraced the concept is BYU-Idaho. The campus offers three 14-week semesters every year, plus a summer session. Students can begin any semester. BYU-Idaho considers the program a success, pointing out that it allows highly productive use of its facilities and enables the campus to serve more students; enrollment at the school has increased by 50 percent since it began rolling out the year-round calendar. Even concerns from students that they will have trouble finding summer internships has turned out not to be a problem, according to BYU-Idaho; interns report they have less competition in the fall and winter and employers like having interns in off-seasons.

The University of Minnesota recently announced plans to offer year-round courses, and students entering two academic programs in the spring of 2013 will be able to participate in a pilot program that will allow them to graduate in three years. Other institutions are watching Minnesota and BYU-Idaho closely to see how their programs fare going forward.

courses year-round, with compressed sessions over traditional breaks in the winter and spring. These strategies make productive use of institutional assets and do a better job than traditional campuses of keeping classrooms full all day long and into the evening. In fact, some students prefer courses held only on Fridays, over winter break, or late at night (after 10:00 p.m.). Midnight courses won't be a viable option for most campuses, but steps to improve space management need to be carefully examined on all campuses.

Revenue enhancement. Prudent institutions will not allow themselves to be constrained by the broken financial model of higher education; they will look beyond state appropriations and tuition for opportunities to diversify the campus's income stream.

Many critics of higher education have argued that cost cutting will never be enough to sustainably balance the budget on many campuses. Institutions are understandably leery of trying to squeeze more dollars out of hard-pressed students, but some campuses have realized that a balanced approach to revenue generation can be combined with strategies to incentivize productive and efficient use of campus resources.

For example, an examination of revenue-enhancement strategies for the California State University System included proposals for several income-producing programs that would encourage desired behaviors:

- **Add a third tier to tuition structure.** Charge more for students taking more than 16 hours/semester.
- **Adopt incentive fees.** Charge additional fees to "super seniors" taking more than five years to graduate or for multiple class repeats.
- **Vary tuition rates by campus.** Allow high-demand campuses to charge more.
- **Assess the value of differential tuition strategies.**

Crafting a balanced approach to revenue will require creativity and courage from campus leaders. The successful solution will not only bring in extra dollars but also promote institutional goals.

Data Point: Revenue enhancement

Do winning athletic programs benefit universities?

A recent analysis of college and university athletic programs revealed mixed results on how much sports help the bottom line. The take-away message? The idea that sports are a financial boost to their institutions is a myth.

A few key points:

- Success in Division I college athletics results in priceless advertising, but there is little evidence a winning program boosts applications. In best-case scenarios, a winning football program will increase applications for a year or two.
- Spending on athletic programs varies widely between Division I schools, but on average it has increased significantly. Schools in the Football Bowl Subdivision (FBS) increased athletic costs by about 50 percent between 2005 and 2010.
- Most athletic programs are not self-supporting. Even among FBS programs, student fees and institutional subsidies provided between 4 and 14 percent of total athletic revenues. Only one in four FBS programs generated more money than it spent, and two-thirds of these profitable programs still received subsidies from the institution.

—*"Academic Spending Versus Athletics: Who Wins?" Delta Cost Project Report, January 2013.*

Harnessing innovation to reinvent higher education

"Innovation" is in vogue in academia today. Campuses around North America are seeking ways to employ "disruptive innovation" that will transform higher education, cut the cost of a college degree, and increase the financial stability of institutions. However, what different people mean by innovation varies widely. Many strategies proposed as disruptive would actually do little to change the nature of the campus.

However, most people both within higher education and in the wider community agree that change is mandatory. According to a recent survey conducted by FTI Consulting for Northeastern University, 7 in 10

Americans believe higher education is "extremely" or "very important" to achieving the American dream. But 83 percent also believe that the U.S. education system must change in order to remain competitive. The finding was even more pronounced among younger Americans, who often are dealing with the challenge of a costly degree firsthand; 9 out of 10 respondents believe higher education needs to change.

In order to generate truly innovative ideas, participants at the Thought Leaders symposium analyzed what makes innovators different, based on current research. They found that innovators are characterized by the following traits:

- Associating seemingly unrelated facts and ideas to come up with new approaches
- Questioning assumptions and challenging conventional wisdom
- Applying lessons learned in one context to different solutions
- Experimenting with new ideas and approaches and tolerating a certain degree of failure
- Networking with others with different knowledge, skills, and perspectives to gain new insights

Participants in the symposium developed innovative ideas and strategies that, while pushing some institutions out of their comfort zones, might be game changers for others. Although not all these ideas are feasible on all campuses (some would be considered radical), they are presented here to inspire thinking about change on campus.

Academics:

- Eliminate credit hours. Switch to an outcome-based model where students pay for what they have mastered.
- Create programs with industry input so that graduates have the skills that employers want.
- Identify elements of courses that could be shifted to MOOCs or other online offerings. Remove those elements that can be better provided elsewhere and allow faculty to add more value to their courses. It may well be that more content will be delivered through electronic means, and staff (not necessarily faculty) will ensure that students make progress.
- Reexamine the boundary between K–12 and higher education. If students are ready for college, allow them to transfer in.
- Adjust tuition based on market forces. Consider charging more for in-demand degrees.
- Increase the ability to transfer credits. Consider the concept of the universal degree that allows students to mix and match schools as needed.
- Award credit for experience and knowledge.
- Streamline programs. Reduce requirements to make it easier for students to graduate within four years.

Faculty:

- Reduce course choice within programs to give students a clear path to graduation and reduce the number of courses that are being taught.

Data Point: Innovation in higher education

New proposals from an innovation leader

The father of the term "disruptive innovation," Clayton Christensen, has written extensively about how to transform higher education. At a recent seminar, the Harvard Business School professor suggested several innovative concepts he believes could shake up the academy:

- **Disaggregated universities.** Separate courses and package them individually to students or other institutions.
- **A "modular-based" university.** Limit the number of programs and pathways to keep costs low, then use technology to personalize and individualize advanced work on specific subjects.
- **Low-cost first-year courses.** Reduce the risk for students in their first few courses by reducing the profit level on entry-level classes.

—Jeff Selingo, "How Will Colleges Innovate as the Market Is Disrupted?" Chronicle of Higher Education, July 11, 2011.

- Link faculty compensation to contact hours with students. Let research support itself; if the number of contact hours drops because faculty members are doing more research, they should support themselves with grant funds.
- Split teaching and research functions. Let good researchers focus on their work while good teachers spend more time interacting with students.
- Abolish tenure.

Student services:

- Identify students who are not doing well. Use technology to identify those who are falling behind.
- Teach students how to learn. Online learning requires self-discipline and motivation. Offer boot camps to help students learn these skills.
- Create modular remediation programs. Identify specific areas where students are unprepared and focus instruction exactly where it is needed.

Administration:

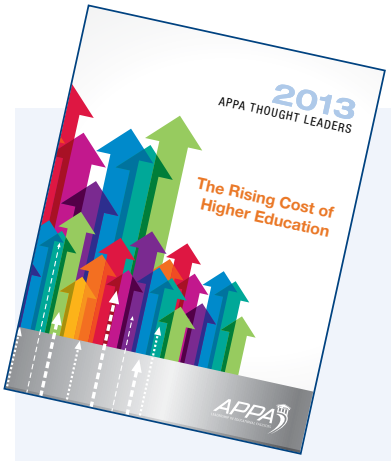
- Consolidate back-office services such as HR, accounting, and IT across institutions, systems, and regions.
- Be more open to outsourcing. Help vendors create services that higher education needs.

Facilities:

- Implement a Total Cost of Ownership approach to all facilities to drive down costs and improve long-term performance.
- Reduce the campus built environment. Tear down buildings that are no longer needed or that are too expensive to maintain.
- Make new facilities as flexible as possible. Create "black box" spaces that can be adapted to meet future needs.
- Implement a "no new space" mandate for a fixed period. Help the institution grow within its current limits.

Institution-wide:

- Eliminate low-enrollment, low-demand programs.
- Make athletics truly self-sufficient. Move toward athletics as a profit center.
- Throw out the traditional academic calendar. Keep the campus productive year-round.
- Evaluate statewide systems for overlaps and inefficiencies. How many duplicate programs do these states really need? Identify institutional strengths and focus on the mission.



Look for Part 2 of this series in the November/ December 2013 issue of *Facilities Manager*. Download the full report at **www.appa.org/bookstore**.

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