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SEP/OCT 2014

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The Next 100 Years
Academic Housing
2014 Thought Leaders
Report, Part 1

PRESIDENT RANDOLPH HARE

KICKS OFF

APPA'S SECOND CENTURY

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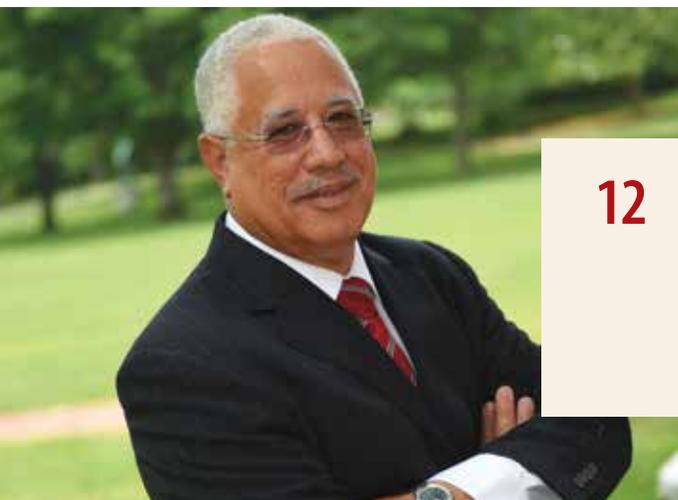


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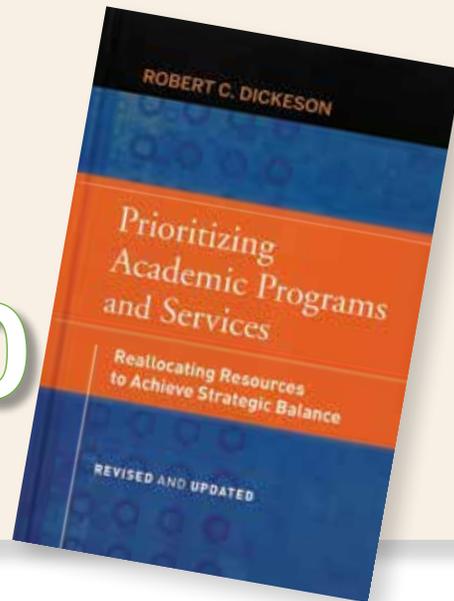
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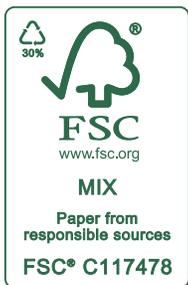


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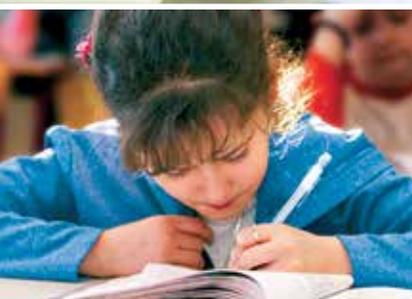
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forward thinking



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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.

APPA'S CENTENNIAL CELEBRATION A GREAT SUCCESS

As APPA begins its second century

as the association of choice for educational facilities professionals, we look back at the July 21-23 conference as the culmination of our first century of change, growth, and challenge. More than 900 attended APPA 2014 in San Diego, and we had a great time.

Fourteen past APPA presidents were in attendance, as well as visitors from Australia, South Africa, the United Kingdom, Finland, and Mexico. We heard tremendous plenary sessions from UT Austin professor Jeremi Suri, Richard Katz and Mo Qayoumi, and a panel of seasoned and emerging professionals who discussed the facilities management profession and their involvement in APPA.

Conference attendees also had the opportunity to view a fascinating database of images and memories from APPA's history through a set of touch-screen monitors loaded with nearly 3,000 photos from APPA's archives. Members could view by decade, browse by people, regions, or campuses, and listen to short testimonials from APPA members past and present.

We've collected videos of the plenary sessions and history articles from recent issues of *Facilities Manager* on the APPA website, and we invite you to visit the page and view these useful and entertaining features. Just go to http://www.appa.org/APPA_Celebrates100years.cfm.

Photo highlights from the conference can be found elsewhere in this issue, as well as an article on APPA's strategic direction written by Lander Medlin, APPA's executive vice president, who this year celebrates 20 years of service on the APPA staff. We also proudly feature all five recipients of the 2014 Award for Excellence in

Facilities Management: Philadelphia University; Soka University of America; University of Michigan; University of New Mexico; and University of North Carolina Charlotte.

We're also proud to profile our new APPA President, Randolph Hare of Washington and Lee University. Randolph has a long career at W&L and has served on APPA's Information and Research Committee (both as an elected vice president and as a rep from SRAPPA) and the APPA Board of Directors. Read more about Randolph's background and plans for APPA.

Finally, we direct you to the back of the book to read Part 1 of the 2014 Thought Leaders report, *Leveraging Facilities for Institutional Success*. It is a valuable resource for you and your senior administrators, and we urge everyone to read and use the document at your institutions. Part 2 will be published in the November/December issue, and you can download the full report by going to APPA's bookstore at www.appa.org/bookstore. 



Coming in Nov/Dec 2014

- Investing in Administrative IT
- How the History of Higher Education Can Help Us Think About the Future
- The Hidden Power of Lean
- 2014 Thought Leaders Report, Part 2

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facilities digest

By Anita Dosik

APPA 2015 CALL FOR PAPERS: SUBMISSION DEADLINE IS NOVEMBER 14, 2014

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 2015 annual conference offers an opportunity for you to be part of the outstanding professional development program, and 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. Topical areas to be addressed, are:

Future of the Built Environment

- Changing Landscape of Renewable Energy—Sustainability of the Physical of Aspect
- Safety...Changes that Coming—Access Control/Awareness
- Dealing with the Rising Costs of Higher Education
- Staying Ahead of the Curve—What's Next in Regulatory Codes?

Disruptive Innovations & Technology

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

Creative Approaches to Justifying/Obtaining Resources

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

Taking Care of Business – Day-to-Day Stuff

- A World of Many Hats...The Professional Facilities Professional Juggler—The Art of Success Planning

- Put Me In, Coach—Building the Best Team for Success
- Invest Now—Or Pay Later...Professional Development Your Best Investment

The slate descriptions above are provided as a guideline to those wishing to submit. APPA's goal each year is to provide topical material that is cutting edge and key to the success of all facilities professionals throughout our membership. If you have a topic that you feel is key for consideration, but may not align exactly with the proposed guidelines for this year's conference, we encourage you to submit it for review.

Proposals are being accepted for 60-minute concurrent sessions. Programming will occur August 4-6, 2015 in Chicago, Illinois. Six to eight educational sessions will run concurrently in two to three time slots per day.

Additional Guidelines for Submissions are available on the conference website at <http://www.appa.org/training/APPA2015/conferencehighlights.cfm>.

Here are a few required aspects for your submission as you prepare your proposal:

- Submission of program title that is 5-7 words in length along with your abstract that is 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 5-7 sentence biographical introduction only;
- Submissions from business partners must 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.



APPA 2014, APPA's Annual Conference and also its 100-year anniversary celebration, took place in San Diego July 21-23. For those of you who couldn't attend, all plenary sessions and additional videos are available on YouTube:

- *Edifice Rex: The Place of Place*
- How the History of Higher Education in the United States

Can Help Us Think About the Future

- The Place of Place in Higher Education's Next 100 Years
- Looking Back, Moving Forward: Our Profession...Our Purpose...Our Future!

You will also find access to the APPA 100 Years Shutterfly photo albums at <https://appa100years.shutterfly.com/>

MEET AT EDSPACES TO PLAN HIGH-PERFORMING EDUCATIONAL FACILITIES

APPA members are invited to participate in the EDspaces Conference & Expo, October 29-31 in Tampa, FL. EDspaces is for professionals who design, equip, and manage creative learning environments. Featuring visionary speakers, groundbreaking ideas, innovative new products, and valuable connections, EDspaces provides strategies for 21st century facilities, improving performance, driving innovation and lowering expenses for your districts.

- Take advantage of the APPA Credentialing Program on Wednesday, October 29 and Thursday, October 30 from 9:30 a.m. to 1:00 p.m. in the Tampa Convention Center.
- Discover the most innovative products that are reshaping the future in learning spaces, including the winners of the 2014 EDspaces Innovation Awards.
- Stay at the forefront of the industry and learn the latest trends and hot topics.
- Connect with peers from schools and colleges who may already have answers to your facility's issues.
- Hear the solutions formulated when educators, designers, and architects collaborate through the American Architectural Foundation's Design for Learning program.

For more information and to register, visit www.ed-spaces.com.



FPI SURVEY NOW OPEN FOR 2013-14 DATA

The 2013-14 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 your capital asset realities, compare your facilities operations with other institutions, and more. The survey is also enhanced with the ability to answer questions for Detailed or Express version from the same screen.

While the deadline doesn't close until December 15, 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.



APPA EVENTS

- Sept 7-11, 2014 APPA U: Institute for Facilities Management and Leadership Academy, Orlando, FL**
- Sept 22-26, 2014 Supervisor's Toolkit, Florida Institute of Technology**
- Sept 29-Oct 3, 2014 Supervisor's Toolkit, Louisiana State University**
- Sept 30, 2014 Drive-In Workshop, Xavier University of Louisiana**
- Oct 1, 2014 Drive-In Workshop, University of Alabama**
- Oct 2, 2014 Drive-In Workshop, Spelman College**
- Oct 9, 2014 Drive-In Workshop, Cleveland State University**
- Oct 13-17, 2014 Supervisor's Toolkit, Georgia Institute of Technology**
- Oct 20-24, 2014 Supervisor's Toolkit, University of Richmond**
- Oct 27-30, 2014 ACUHO-I/APPA Housing Facilities Conference, Kansas City, MO**
- Nov 3-7, 2014 Supervisor's Toolkit, University of Tennessee**
- Jan 18-22, 2015 APPA U: Institute for Facilities Management and Leadership Academy, Tampa, FL**

REGIONAL EVENTS

- Sept 16-20, 2014 MAPPA 2014 Conference, West Lafayette, IN**
- Sept 21-24, 2014 ERAPPA 2014 Conference, Atlantic City, NJ**
- Sept 22-24, 2014 RMA 2014 Conference, Santa Fe, NM**
- Oct 4-7, 2014 SRAPPA 2014 Conference, Huntington, WV**
- Oct 4-8, 2014 PCAPPA 2014 Conference, Vancouver, BC, Canada**
- Oct 11-15, 2014 CAPP 2014 Conference, El Paso, TX**

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

2015 AWARD NOMINATIONS APPLICATIONS DUE NOVEMBER 30, 2014

Nominations and applications are now being taken for APPA's 2015 institutional and individual awards:

- Award for Excellence
- Sustainability Award
- Effective and Innovative Practices Award
- APPA Fellow
- Meritorious Service Award
- Pacesetter Award

Awards nominations submitted after November 30, 2014 will be held and considered in the 2016 award cycle. To find out details and particulars about each award, visit <http://www.appa.org/membershipawards/index.cfm> or contact Christina Hills at christina@appa.org.

BECOME AN APPA OFFICER: NOMINATIONS FOR 2015 NOW OPEN

APPA's strong and steady volunteer leadership is one of the core forces making it the association of choice for educational facilities professionals. Consider becoming a candidate for an elected APPA officer.

Elected officers gain enormous leadership skills and a chance to develop professionally in many meaningful ways, as being an officer provides a major opportunity to give back to the entire profession. Being an APPA elected official does require a personal commitment of time and energy. However, past elected officers will tell you the personal rewards and professional benefits outweigh the costs of engagement and time commitments. There are five elected officer leadership positions, three of which will be on the 2015 ballot:

- President-Elect
- VP for Information and Research
- VP for Professional Development

Consider nominating yourself—or others—for the one that best matches your passion and areas of expertise. Learn more at www.appa.org/board/cfm.

All applications and nominations for APPA office are due no later than **December 15, 2014**.

APPA CONGRATULATES CEFP & EFP RECIPIENTS

The following professionals have successfully completed the requirements for APPA's CEFP and EFP credentials, from June 16–August 15, 2014. Congratulations on their personal accomplishments.



CEFP RECIPIENTS

Bill Bagnell, *East Carolina University*
 Sam Bertolino, *Pennsylvania State University*
 Joe Fullerton, *San Mateo County Community College District*
 Ron Lester, *Southern Nazarene University*
 Joseph Lonjin, *Pennsylvania State University*
 Laura Miller, *Pennsylvania State University*
 Eric Nulton, *Pennsylvania State University*
 Donald Partsch, *Pennsylvania State University*
 Ronald Perttu, *Pennsylvania State University*
 Robyn Pierce, *Portland State University*
 Thomas Poole, *University of Virginia*
 John Ramirez, *California State University/Fullerton*
 Richard Riccardo, *Pennsylvania State University*
 Jason Shoumaker, *University of Texas/Austin School of Law*
 Bruce Smith, *Pennsylvania State University*
 Keith Tate, *Eastern Kentucky University*
 Joe Viola, *Central Oregon Community College*
 Steven Watson, *Pennsylvania State University*
 David Williams, *Eastern Kentucky University*



EFP RECIPIENTS

Brendan Bagley, *Pennsylvania State University*
 Clay Barkley, *Pennsylvania State University*
 Allen Bonsell, *Pennsylvania State University*
 David Brown, *Pennsylvania State University*
 Michelle Carr, *Pennsylvania State University*
 Bruce Cifelli, *Pennsylvania State University*
 Marlin Donahey, *Pennsylvania State University*
 Mark Gates, *Pennsylvania State University*
 Robert Gavlock, *Pennsylvania State University*
 Joshua Harkins, *Pennsylvania State University*
 Andrew Hughes, *Pennsylvania State University*
 Huoy-Jii Khoo, *Pennsylvania State University*
 Kraig Kinsey, *Montgomery College*
 Sam Levis, *Montana State University/Billings*
 John Molnar, *Pennsylvania State University*
 Larry Murray, *Pennsylvania State University*
 Jerome Rork, *University of Michigan/Ann Arbor*
 Todd Webber, *Pennsylvania State University*
 Tammy Zeigler, *Pennsylvania State University*

Prep Course and Exam Schedule

September 17 *West Lafayette, IN (MAPPA Conference)*
 September 22 *Santa Fe, NM (RMA Conference)*
 September 24 *Atlantic City, NJ (ERAPPA Conference)*
 October 4 *Huntington, WV (SRAPPA Conference)*
 October 9 and 10 *Vancouver, BC (PCAPPA Conference)*
 October 11 *El Paso, TX (CAPPA Conference)*
 October 18-19 *Norfolk, VA (VSPMA Conference)*
 October 31 and November 1 *Kansas City, MO (ACUHO-I/APPA Housing Facilities Conference)*
 January 23 and 24 *Tampa, FL (APPA U)*

For further details, go to www.appa.org/ and click on training.

NEW APPA AWARDS

CEFP/EFP

This year, three new awards were introduced by the APPA Certification Board of Directors. These awards recognize the significant effort an institution, chapter, and region have taken during the previous year to support the credentialing program:

APPA Institutional Certification Award

Institution with the Highest Number of CEFP and EFP Recipients
Penn State University, 2013

APPA State Chapter Certification Award

APPA Chapter with the Highest Number of CEFP and EFP Recipients
Michigan APPA (MiAPPA), 2013

APPA Region Certification Award

APPA Region with the Highest Percentage of CEFP and EFP Recipients
Rocky Mountain (RMA), 2013

For more information about the APPA EFP and CEFP credentialing programs, please visit <http://credentialing.appa.org/> or contact Christina Hills at christina@appa.org.

Distinguished Leadership and Ethics Award

Another new APPA award presented this year is the Distinguished Leadership & Ethics award. This award is to be presented to an individual member who has made significant, and lifelong contributions to the profession of education facilities management and demonstrated the principles of ethical leadership in all he or she does. This individual adheres to the highest ethical standards of honesty, integrity, and consistency. He or she maintains an unwavering commitment to do good, holding steadfast to his/her beliefs, yet always capable of giving more for the benefit of all. By demonstrating respect for different ideas, teachings, and cultures, this individual is a consummate professional, sought after role model and mentor, and the ultimate ambassador for the entire profession within the education enterprise.

The first **Distinguished Leadership & Ethics award** was bestowed on **Doug Christensen**, now retired from Brigham Young University, yet still amazingly active in APPA.

For information about APPA's member awards and recognition, please visit <http://www.appa.org/membershipawards/index.cfm>.



CEFP graduates.



EFP graduates.



Doug Christensen, center, receives his award at the APPA 2014 banquet.



The Advantage of Not Knowing Everything

By Joe Whitefield

A local newspaper was doing a story on education that featured a first-grade teacher. When asked by the reporter to describe the teacher, one of her current students replied, “She teaches us things we never knew.” That truly says a lot about the teacher’s ability to teach and the great relationship she developed with her students. It also says something important about the mindset of the student who seems to enjoy learning new things.

Do you remember the feelings associat-

ed with learning new things? The process of gaining knowledge brings a sense of accomplishment for the effort required to learn, as well as empowerment from the knowledge itself. When we learn new information about a subject, more options are available and the potential for success is greater. Hopefully, your desire to learn “things you never knew” is still strong today. There certainly is a lot to know to be a successful facilities manager. If you are anything like me, continuous learning is not only a desire, it is a must.

In their new book, *Think Like a Freak*, authors Steven Levitt and Stephen Dubner speak to the many facets of thinking (and learning) in order to encourage the readers to tackle the diverse, challenging questions they face. In addition to the global economic and environmental questions that affect us all at some level, there are several personal questions for consideration including:

- Should I quit my job?
- Should I go back to school?
- Should I go on a diet?
- Should I sell my motorcycle?
- Should I grow a beard or mustache?
- Should I splurge on something fun?

GET EDUCATED

The answers to these and all questions have some cost and consequences for those asking. They definitely require some thought and consideration of relevant trade-offs. Of course, knowledge of the subjects and understanding of the issues would go a long way in answering these types of questions effectively. Suppose a person does not possess enough knowledge or information to make an informed decision. Clearly, it is time to get educated. With a superabundance of resources today, that should be easy, right? Turns out, it may not be as easy as you might think.

Levitt and Dubner highlight a particular barrier to learning things that we do not know—namely, *failing to acknowledge what we do not know*. They go so far as to say the three hardest words in the English language are “I don’t know.” There are many reasons for people



wanting to appear more knowledgeable than they truly are. Regardless of the reasons, the real problem, as the authors put it, is, "Until you admit what you don't yet know, it's virtually impossible to learn what you need to."

For me, the learning process typically takes one of three forms: explanation, example, or personal experience. Whether hearing from others, observing the experiences of others, or experiencing something firsthand, each form of learning has a set of accompanying benefits while also imposing certain costs or risks. These costs, perceived or real, can serve as the reason for people bluffing their way through situations and not pursuing the appropriate information they need to make better decisions.

No one wants to display a lack of knowledge on any subject to their peers. I suspect the greatest fear of acknowledging you don't know something is that others will possibly develop a diminished view of you or your abilities. Taken too far, this fear could have detrimental effects because we cut ourselves off from the usefulness of knowledge obtained by others' communications or experiences. Ironically, the knowledge-bluffing process could produce the same results when poor outcomes reveal the lack of knowledge all along.

RESOLVE AND DESIRE

How prevalent is this barrier for you or others in your organization? Let me suggest that the first step in confronting this fear-based barrier is to rephrase the problem to an issue of timing rather than intellectual capacity. Consider the difference between the statements "I don't know" and "I don't yet know." The former suggests defeat, while the latter suggests resolve and the desire to know.

Learning is best achieved when resolve and the desire to know are the drivers. So, strive to foster an organizational culture of learning and innovation. When learning and discovery are the goals, knowledge is the byproduct. Then, knowledge in the form of directly

applicable information and feedback that proves/disproves can be used for the good of the individual, organization, and institution.

Knowledge gained through any process can be applied to improve our decisions today, providing better outcomes and additional benefits to our institutions both today and tomorrow. Admit-

ting that you do not know something (or everything) may be the breakthrough first step that leads to learning something you never knew. ☺

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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While APPA's new president may be unique in several ways, he prefers to be thought of as simply one of the many dedicated members of both the educational facilities management profession and its leading association.

As APPA enters its second century, **Randolph Hare**, APPA's 2014-15 president, is the association's first African American top volunteer leader. Coming from a smaller institution—he's director of maintenance and operations at Washington and Lee University in Lexington, Virginia—also makes him stand out from the crowd.

"It's an honor and privilege to serve as APPA president, *period*," said Hare. "To be associated with one of the association's significant milestones is also gratifying. It is rewarding to be affiliated with an organization that embraces diversity. The fact that it just so happens that I'm the first African American APPA president—if that is a milestone, that's fine—but to me, it's simply an example that APPA embraces diversity. I am in no way the only person qualified to be president. I don't feel I'm special."

DEVELOPING A LEADERSHIP STYLE

Working at a smaller institution has been important to Hare's management and leadership



Washington and Lee University was named for George Washington and Robert E. Lee, who served as its president after the Civil War.

PHOTOS BY KEVIN R. REMINGTON, UNIVERSITY PHOTOGRAPHER

RANDOLPH HARE

Pledges Collaboration and Engagement as New APPA President

By Ruth E. Thaler-Carter

style. “My style of leadership has always been collaborative,” he said. “I believe in reaching out to engage people and foster grassroots efforts and initiatives. I think that, as a leader, you should set the tone and work to get others to embrace your goals and move forward.”

Hare sees the environment of a smaller college as one that fosters a certain way of interacting with colleagues in facilities and throughout the campus that translates well to the association environment. “My professional experience at a smaller university has allowed me to become involved in all aspects of university life and deal with the full gamut of issues facing the institution,” he said. “We face the same issues as larger institutions, but the issues are scalable. Not different, just scalable.”

Hare has found that being at a smaller school also provides an opportunity to develop relationships throughout the university, rather than be isolated within the facilities department. “The environment fosters collegiality,” he said. “You get to know the full range of the community and develop personal relationships, which helps in resolving issues—it’s an advantage.” Yet another plus is that “you have to wear many, many hats,” Hare said. “You have to develop competencies in many areas.” Being involved in APPA has helped him face similar challenges and develop such multiple competencies, he added.

Hare has developed his leadership style in his role at Washington and Lee University, which he has held since 2008. Before that, he was assistant director and then associate director of facilities management. He came to the university after leaving the “corporate jungle” of New York City’s Madison Avenue, and he found that his background in management made him a good fit for a career opportunity at Washington and Lee. Since then, he has become certified in HVAC Mechanical Systems and earned an Electrical Systems Certificate from North Carolina State University and certification from the Professional Construction Estimators Association and the Association for Facilities Engineering (AFE).

Hare has seen recent economic realities forcing the school to reexamine its delivery of services and the way it uses and maintains its assets—challenges that, among others, he says “reinforce the need for the resources of APPA as never before.”

At Washington and Lee, Hare has managed maintenance, renovations, and construction projects totaling into the tens of millions of dollars. He has served on the Presidential Search Committee for the university and its Presidential Task Force on Women, and as a Discrimination Policy Adviser. He has also worked with faculty and board members on strategic planning for the university.

GETTING INVOLVED

Like many APPA colleagues, APPA’s new president came to the association through a coworker, and it only took one exposure to the offerings of APPA to make him a believer. “In the sum-

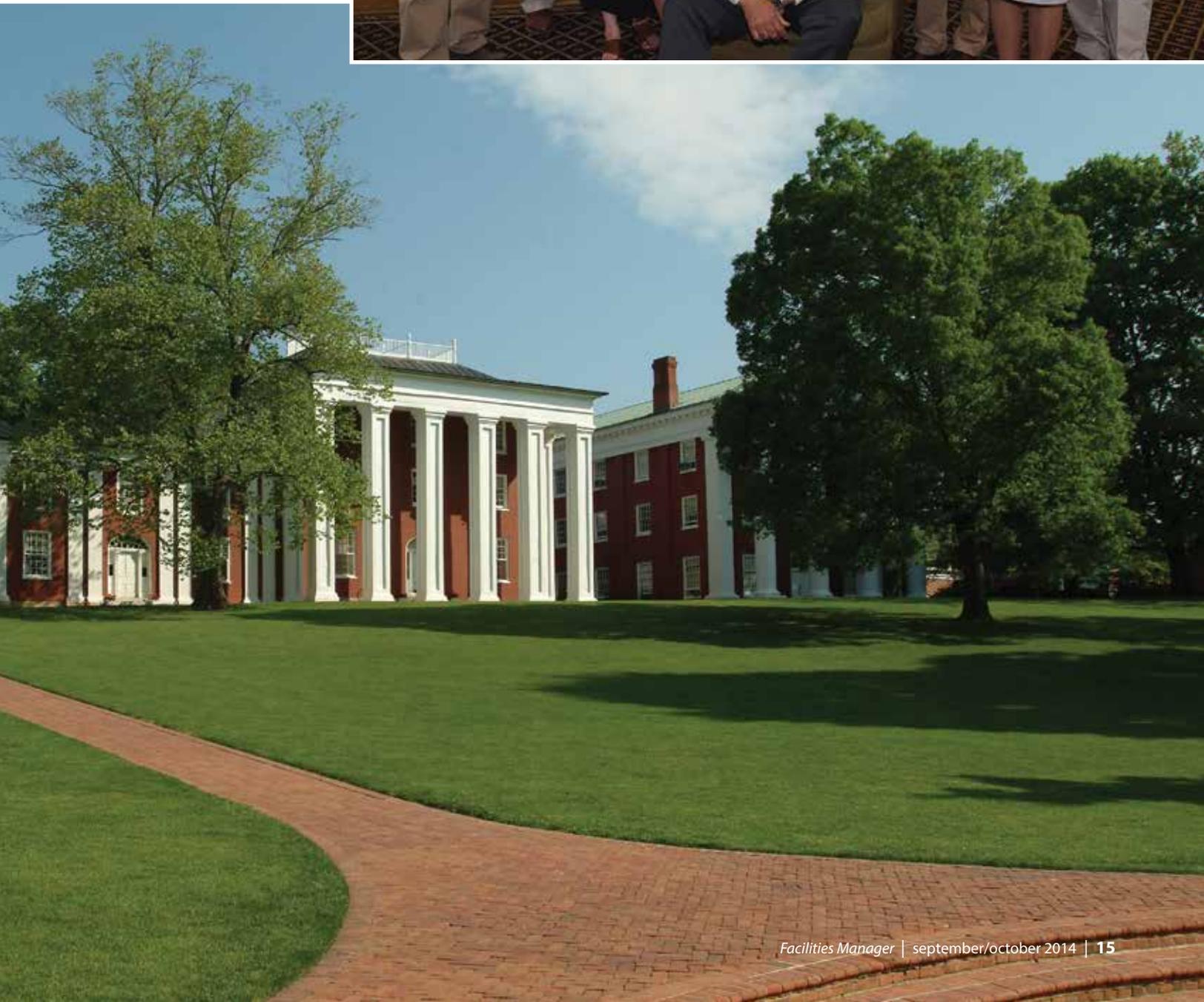
mer of 1992, my boss took me to an APPA annual meeting in St. Louis,” Hare recalled. “It was an amazing opening experience! I met with other colleagues facing the same issues and challenges. It was a great networking experience, too, and a resource for all the information and tools I needed. It brought together business partners. I was hooked on the organization and started attending more conferences and events, and getting involved.”

And involved he has been for the past 25 years. He served on the Information and Research Committee (2002-2006) as a representative of the Southeastern region (SRAPPA) during the period of transition from Comparative Costs and Staffing (CCAS) and Strategic Assessment Model (SAM) to the Facilities Performance Indicators (FPI) survey and report. As a result of his involvement in helping to develop and evaluate the FPI, he has a unique perspective on how to use and market this valuable



Right: Hare and the W&L facilities leadership team.

Below: The Collonnade at Washington and Lee.





Above: The Washington and Lee facilities department serves 2,200 full-time students on 400 acres in Lexington, Virginia.

Right: Lee Chapel, Washington and Lee University



tool for continual internal assessment and benchmarking with institutional peers. He also served as APPA's Vice President for Information and Research for two terms. While serving on the Executive Committee and working closely with the full Board of Directors, he was involved in developing APPA's Strategic Plan for 2011-2014.

Hare has co-presented at both SRAPPA regional meetings and CAUBO, the Canadian Association of University Business Officers. He is a member of AFE, a graduate of APPA's Institute for Facilities Management, and served as APPA's Board Representative on APPA's Center for Facilities Research Advisory Council. In addition, he participated in the 2012 Thought Leaders symposium.

Hare sees his APPA involvement as a natural extension of the value of belonging to the association. "APPA has given so much to me, as it does to every member, that, when presented with the opportunity to give back, I welcomed it without hesitation," he said in his election platform.

THE VALUE OF APPA

Over the years, Hare has only increased his appreciation for what APPA means to the profession of educational facilities officer. "I've discovered that APPA is the complete resource for educational facilities operations," he said. "The Body of Knowledge and the Institute for Facilities Management, for instance, cover every aspect of facilities operations. They're comprehensive, from organizational structure to management to HR to communications to technical competencies to financial aspects. As members, we're presented with best practices, business partner connections, and much more."

Hare values those programs and services on his own behalf, as well as seeing them as important for colleagues and institutions.

"APPA has been a tremendous resources for my own professional development and ability to be successful in my own career," he noted.

Because Hare sees APPA as good for his colleagues both on the institutional and individual levels, he has made a point of weaving association resources into his department and institution. "APPA is good for where you work," he said. "Our institution has immersed itself in APPA resources. We've hosted a regional meeting, a Drive-In Workshop, and the Supervisor's Toolkit, and are scheduled to cohost the Virginia state chapter conference next spring. Our staff attend the Institute and Leadership Academy, use the Supervisor's Toolkit, and are planning to get involved in the Emerging Professionals [EP] initiative." The Toolkit alone, he said, "has helped our entire facilities staff and elevated both our staff and our institution." Younger staff members are "very excited" about the EP initiative.

PORTRAIT OF AN INSTITUTION

Hare's institution may be on the smaller end of the scale compared to other APPA member campuses, but has a proud history and plans for growth. Founded in 1749, Washington and Lee is the ninth-oldest institution of higher learning in the United States and the first located off of the eastern seaboard. "At the time, it was out in the wilderness," Hare said. Its name-

sakes were two influential figures in American history; as the W&L website explains: “George Washington, whose generous endowment of \$20,000 in 1796 helped the fledgling school (then known as Liberty Hall Academy) survive, and Robert E. Lee, whose presidency and innovative leadership brought the University into the national limelight.” Washington and Lee University is known for its Williams School of Commerce, Economics, and Politics, as well as its graduate school of law.

“What’s attractive about our institution is that our alumni has distinguished themselves as leaders in the nation,” Hare said. They include a chief justice, senator, governor, and more. “We’re recognized as one of the top-tier liberal arts colleges and have a strong academic reputation.”

The school has 2.2 million square feet of facilities on more than 400 acres and 2,200 full-time students. It is adding a natatorium and 300 new beds, and is restoring the historic core of the campus.

Among the aspects of Washington and Lee that Hare finds valuable is its culture, which he aims to encourage at APPA as well. “Washington and Lee embraces work/life balance and is serious about sustainability,” he said. The school’s president signed the Presidents’ Climate Commitment in 2007 and the Talloires Declaration, a ten-point plan to incorporate sustainability and environmental literacy in teaching, research, operations, and outreach to other colleges and universities. A student-run honor system fosters a climate of trust. In addition, “We have a ‘speaking tradition’—members of the campus community regularly say ‘hello’ to each other and visitors—that reflects the warmth and civility of the school,” Hare said.

Just as APPA commits to providing professional development to its members and the profession as a whole, Hare’s institution invests in its people. “We have a commitment to professional development that goes beyond programmatic needs, which is huge,” he said. “As a department, we embrace a core values statement that involves mutual respect, teamwork, commitment, honor, customer service, and professionalism.”

One expression of Hare’s commitment to his institution is that he goes beyond the facilities arena to be involved in other aspects of campus life. He serves on the university safety and public functions committees, and has served on various standing and ad hoc committees, including a presidential search committee and most recently a work/life focus group. “It’s gratifying to focus on areas of work/life balance and implement things that enhance the quality of life and create benefits to employees,” he said.

Hare also appreciates the natural setting of Washington and Lee: “It’s gorgeous—we’re in the Shenandoah Valley. It’s just stunning and beautiful.” All in all, he says, “It’s a tremendous place to work!”

PERSONAL INTERESTS

Beyond his deep involvement in his campus and in APPA, Hare also participates in community activities. He serves on a committee that plans and organizes construction and renovation of religious buildings. He has also helped with organizing relief efforts in the wake of natural disasters such as hurricanes Katrina and Sandy.

Hare is married to Milli, who was a music major, teaches piano, does community service work, and is “very supportive of my APPA involvement.” They have three sons; the oldest is a website developer, the middle one works for Agilent Technologies, and the youngest sells life insurance.

WIDE-RANGING GOALS FOR APPA

With such a positive perspective on the value of APPA, it isn’t surprising that Hare has wide-ranging goals for his term as president of the association. The theme for his leadership year will be “A Path to the Next 100 Years,” reflecting the fact that he took office in APPA’s centenary year and that his perspective has always been on looking to the future while serving the present.

Regardless of APPA’s success to date in serving the profession and its campuses, Hare doesn’t plan to rest on any laurels. “We have rightly celebrated the tremendous milestone of our 100th



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Hare enjoys a light moment at a staff meeting.

anniversary,” he said. “This year has been an opportunity to look back on our growth and accomplishments, but we have to avoid any risk of becoming complacent. We have to look at what APPA will be like in 2030, 2040, and beyond.”

One important way of keeping APPA focused and successful will be its new strategic plan, Hare said. “Certain elements of the current plan are absolute bedrock and will remain in place,” he noted. These include APPA’s mission, vision, and principles. The new plan must be “data-driven” and reach out to members

to identify what they want and need. To develop the necessary data, APPA will do a new member survey, hold focus groups, and gather input through other outlets under his presidency.

Hare sees APPA’s current training, development, and research offerings as cutting edge and essential to the profession, and expects them to remain in place, with the potential to expand where appropriate. He also plans to continue supporting at least one cause that is close to his heart. “One particular focus in the year that I served as president-elect is our HBCU initiative,”

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Hare said. APPA has already implemented strategies to take its training and leadership offerings to historically black colleges and universities and offer scholarships so HBCU facilities staff can attend programs and events more easily. Hare aims to see these efforts continue.

Since APPA, like every association and organization these days, needs to not only retain but grow its membership, Hare looks forward to reaching out to Generation X, Y, and Z as president. “We have to fully engage our Emerging Professionals and make sure they’re included” in programming, he said. He outlined his concerns about growing the organization and the profession in his election platform, noting that “the challenges facing educational facility professionals are varied and daunting. There is an urgent need to address our aging buildings and infrastructure. The aging workforce is another challenge. Over 30 percent of APPA’s senior and institutional members will retire within the next five years, and recruiting, retaining, and engaging young professionals will be critical to APPA’s continued growth.”

Hare also plans to leverage the concept of integrated institutional membership. “Students, staff, and administrators of a member institution can also be APPA members,” he explained. “We are looking at increasing our membership significantly, so we have to make [people outside facilities] aware of our offerings and how APPA adds a tremendous value for professional development.”

Ensuring that APPA remains in a position to respond to current and new challenges will also be a focus for Hare. “APPA is anchored by its vision, mission, and principles and values,” he said in his platform. “These fundamentals will not change. However, in an ever-changing world, we are constantly presented with new challenges and opportunities. APPA must remain flexible in this highly competitive market.” That will include continuing to strengthen APPA’s international presence and offerings as well.

As APPA’s president, “I will be very engaged and active with the board and in reaching out to members for support, engagement, and counsel,” said Hare. As he said in his election platform, “Effective leadership can bring our strategic initia-

tives to fruition and harness the best collective and collaborative efforts of our chapters, regions, and APPA International. It is always an honor to serve as leader of a professional organization of your peers. When that organization is APPA, the honor is all the more special.” ☎

Ruth Thaler-Carter is a freelance writer based in Rochester, NY. She can be reached through her website, www.writerruth.com.

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UNIVERSITY



Meet the Winners of APPA's 2014 Award for Excellence

By Mark Crawford

We all know how challenging facilities management can be—that's why it is such an honor to receive APPA's 2014 Award for Excellence in Facilities Management. Established in 1988, the award recognizes educational institutions for their outstanding achievements in facilities management.

The four-stage Facilities Management Evaluation Program (FMEP) and application for the Award for Excellence (AFE) are modeled after the Malcolm Baldrige National Excellence Award. The comprehensive FMEP/AFE process evaluates facilities management performance in seven major categories: leadership, strategic and operational planning, customer focus, information and analysis, development and management of human resources, process management, and performance results. Fifty-seven criteria are designed to critically evaluate all aspects of facilities management.

The 2014 winners are Philadelphia University, Soka University of America, University of Michigan, University of New Mexico, and University of North Carolina Charlotte.

These universities (and past winners) have proven they are highly effective in managing their facilities: evaluating all systems and processes without bias, identifying and improving areas of weakness, and creating a culture of continuous improvement with the ultimate goal of always adding value to the student experience.

Undertaking the FMEP/AFE is an educational, eye-opening process that requires time, commitment, and resources—but the payoff is huge. Don't miss out—the application deadline for the next award is November 30, 2014.



PHILADELPHIA
UNIVERSITY



PHILADELPHIA UNIVERSITY

Founded in 1884, Philadelphia University is a private institution with 3,500 students located in Philadelphia, Pennsylvania. The physical plant department is responsible for the basic operation and managed care of 50 buildings on the 100-acre main campus. Buildings total about 1.2 million square feet, with some dating back to 1779. “Our goal for comprehensive stewardship allows our historic 100-plus-year-old mansions to be enjoyed alongside more recently constructed modern and architecturally award-winning academic buildings,” says J. Thomas Becker, associate vice president for operations at the university.

Philadelphia University first underwent an FMEP in 2002; the action plan for that FMEP culminated with the award of its first AFE in 2009. “It was highly gratifying to receive, but that was not our end goal,” says Becker. “Since then we have leveraged our resources, lowered our energy dependence, improved our reliability, and repurposed those resources.” Other improvements include staff development, improved energy efficiency, and the construction of two LEED-certified buildings. “We have also invested heavily in our historic structures and our infrastructure, as well as audited and digitized space utilization as part of our strategic facilities planning,” he continues.

The ultimate purpose in undertaking FMEPs and pursuing AFEs is to sustain excellence. “The AFE is a five-year distinction of which the department was quite proud. To be considered for that distinction again in 2014, we knew we could not maintain excellence by just doing the same thing,” says Becker. “Instead, we utilized internal and external partnerships with faculty, students, and corporations to foster continual improvement.”

Becker urges educational institutions not to let the lack of resources interfere with getting started on making improvements. “Of the 40 things that we began working on in 2002, the largest impacts required little additional cost,” he says. “Once you demonstrate the commitment to change, gain customer support, and increase efficiency, the resources will become more available.” ☛



SOKA UNIVERSITY OF AMERICA

Soka University of America (SUA) is a private, four-year, liberal-arts college that was founded in 1997 on the Buddhist principles of peace, human rights, and the sanctity of life. The Facilities Services Department (SUFB) provides building maintenance and custodial, landscape, and mail services for the university campus in Aliso Viejo, California. SUFB maintains 19 buildings and 817,000 square feet of space, as well as 60 acres of landscaped area. Because the only SUFB individuals employed by the university are the chief of operations and mailroom staff, much of the work is outsourced to maintenance and landscaping services organizations.

Benchmarking performance indicators and customer satisfaction surveys are some of the tools used to track performance. The university's senior administrators are aware of these indicators "because they always keep a 'seat at the table' for the inclusion of facilities management leadership staff to participate in key discussions and decisions regarding the strategic development of campus facilities and emerging academic programs," says Tom Harkenrider, chief of operations for SUA.

A major highlight for Harkenrider during the on-campus visit by AFE examiners actually had nothing to do with the evaluation criteria that were being scored.

"The application process has two distinctive elements—a self-assessment with respect to Baldrige-based categories, supported with FMEP-based operational criteria," says

Harkenrider. "The site visit, which is intended to verify and clarify the responses in the application, was even more revealing in the sense that the APPA AFE examiners discovered something highly significant and beyond the scope of the application. They commented on the clear continuity of the Soka (Japanese word for "creating value") culture among everyone they met—a commitment to academic achievement, open dialogue, and an appreciation for human diversity."

Soka University of America won the AFE with its first application for the award, without the benefit of previous FMEP program efforts. "This demonstrates to this newly established institution that its mission and vision of performance excellence carries beyond academics to the culture of its service organizations," Harkenrider adds. 





UNIVERSITY OF MICHIGAN

Plant Operations at the University of Michigan is a department within the Business and Finance Department. These employees provide building and grounds maintenance, construction, plant engineering, waste management, utilities, custodial services, and operations for the 15 million square feet of general fund space on the Ann Arbor campus. They also provide these services on a fee basis for the university's hospitals, housing, athletic complexes, student services, and other auxiliary units in and around the campus—comprising a total of more than 35 million square feet, one of the largest campuses in North America.

High-priority programs initiated by the plant operations department over the past five years include total cost of ownership reduction, facilities management restructuring, and implementing a reliability-centered maintenance (RCM) system—a method of identifying what equipment is required to be maintained on a preventive maintenance mode, rather than a run-to-failure mode.

“Over the past four years we have moved from a mildly reactive facilities management system to one that is highly proactive,” states Richard W. Robben, executive director of plant operations for the University of Michigan. “This includes a fully planned and scheduled maintenance and custodial workforce, transparent work order system for our customers, dramatic energy savings program, and aggressive code and standards advocacy.”

Robben indicates that winning the award is a source of deep pride for the workforce and a reason for celebration.

“The entire business and finance department has a strategic goal to demonstrate deep expertise,” he says. “The AFE is the preeminent recognition in the higher education facilities arena for deep expertise in our field.” ☛





PHOTO COURTESY OF RACHEL STONE, UNM.



UNIVERSITY OF NEW MEXICO

Located in Albuquerque, the University of New Mexico (UNM) serves over 27,000 students with more than 12 million square feet of facilities on 680 total acres. The Physical Plant Department (PPD) employs 450 staff, has an annual operating budget of \$70 million, and maintains the physical campus environment. PPD has made impressive achievements in the areas of energy management and conservation, alternative energy and fuel sources, water conservation and water safety, sustainability and recycling, employee professional development, technological advances, and facilities portfolio management.

For example, recently completed energy conservation projects are expected to save over \$100,000 annually in utility costs, providing an overall 29 percent return on investment. Maintenance has also been reduced due to system renewals being integrated with energy conservation projects. Ongoing energy savings attributed to engineering and energy services projects now exceed \$1.1 million per year.

“Winning this award is a validation and confirmation that the physical plant department at the University of New Mexico recognizes the importance of its role in the mission of higher education and research,” comments Mary Vosevich, former director of UNM’s Physical Plant Department. “This award is for every person in the physical plant department. Beyond that, it also says that UNM is a safe, well-run, aesthetically pleasing place to be that provides students with an outstanding academic experience.”

Vosevich stresses that, after winning the award, the PPD will not “rest on its laurels.” “We are a cohesive operation that is comprehensive in our approach to facilities,” she says. “We consider all our stakeholders and the university’s mission while setting our direction. There are always changes in technology and [in] how education is delivered, how students learn, and how research is conducted. Facilities people must stay on top of these changes if we are truly supporting our educational institutions.” ☛



UNIVERSITY OF NORTH CAROLINA CHARLOTTE

With more than 26,500 students, the University of North Carolina Charlotte is the fourth-largest institution in the UNC system. The Facilities Management Department within the Business Affairs Division employs more than 420 staff and operates on an annual budget of \$25 million.

The department consists of dedicated teams in the areas of planning and construction, building operations, grounds and landscaping, custodial and waste reduction, energy management, real estate services, business services, and facilities information systems. Since 1999, facilities management has led and supported several campus sustainability initiatives. Accomplishments include the development of a comprehensive sustainability plan in 2010, a climate action plan in 2012, and the provision of leadership for student-led initiatives.

Philip M. Jones, associate vice chancellor for facilities management at UNC Charlotte, is especially proud of the way his department has managed the university's dramatic growth and expansion over the past decade. UNC Charlotte's total student enrollment has increased from 16,995 in 2000 to 26,571 in fall 2013—a 13-year enrollment growth of 56.3 percent. The institution's total building square footage increased by 51.9 percent over the same period. During this time, facilities management successfully led the planning, design, and construction management for over \$1.1 billion in construction.

"The way our organization has been able to manage the phenomenal growth of our university has been most rewarding," says Jones. "This includes managing a huge capital construction program while ensuring that campus standards and aesthetics were maintained. The result is that the campus has been transformed into a unified whole. Equally impressive has been the way our facilities organization has been able to grow, change, and adapt as the campus has grown—staying true to our key business drivers of teamwork, customer service, and continuous improvement."

Where will facilities management go from here, now that UNC Charlotte has won an AFE award?

"The AFE has given us a 'mark on the wall,'" says Jones. "We know this is where we stand today. It also shows us where we need to work to get better in the future. The award gives us the information we need to prioritize our improvement efforts going forward—not just focusing on our weaknesses, but also reinforcing our successes." 

GO FOR IT!

Going through the Facilities Management Evaluation Program (FMEP) and applying for the APFA Award for Excellence in Facilities Management (AFE) is not just about winning the award—it is also about the journey. There is no better way to learn about your facilities management program at the deepest levels—what you do well, what needs improving, and how to move forward to create the best possible student experience. Here are a few words from the 2014 winners:

"Facilities organizations that intend to be responsive and responsible stewards for their institution's capital assets need a process for assessing their level of performance in areas of importance to the institution. Competing for the award helps maintain an institution's strengths, as well as creates focus for improvement."—*Tom Harkenrider*

"Facility managers should continually challenge their knowledge base and be on the outlook for better processes or technologies that can improve efficiency and effectiveness. The FMEP process provides invaluable insights into strengths and weaknesses of the FM department."—*Richard W. Robben*

"I would encourage organizations to use the FMEP standards and the FMEP process, but to be very honest with themselves about their performance related to those standards before applying for consideration of the AFE—these are difficult standards to achieve."—*J. Thomas Becker*

"The application process is very thorough and comprehensive. I don't think it really matters where you are on the spectrum in each area assessed, because no organization can be good in everything. What's important is establishing a culture of continuous improvement where everyone in the organization is committed to getting better every day."—*Philip M. Jones*

"The process starts with the strategic planning, goal setting, and direction that were laid out by our department and stakeholders years ago. Through that effort we evaluated our department at every level and implemented strategies that have served our institution extremely well. I would definitely recommend this process."—*Mary Vosevich*

Next deadline: November 30, 2014

Mark Crawford is a freelance writer based in Madison, WI. He can be reached at mark.crawford@charter.net.



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100 Years

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 understands the vital role of facilities professionals in both managing the facilities' assets, as well as pursuing proper organization alignment with the institutional vision and mission.

It is difficult to comprehend or even imagine the sheer numbers of people—fellow professionals, students, administrators, faculty and staff members, and campus communities—that APPA has touched over ten decades. APPA has impacted careers, influenced thinking, advanced research, and supported its member institutions in fulfilling their educational missions. APPA fully expects to do this, and more, over another 100 years.

With one eye on providing excellence in today's educational environment, and another always trained on adapting, enhancing, and transforming the facilities of the future, APPA seeks to create positive impact in educational facilities on three important levels:

- APPA transforms individual facilities professionals into higher performing managers and leaders, which...
- Helps transform member institutions into more inviting and supportive learning environments, which...
- Elevates the recognition and value of educational facilities and their direct impact on the recruitment and retention of students, faculty, and staff.

THE IMPACT OF TECHNOLOGICAL CHANGE

However, this work cannot be done in a vacuum. As the association of choice for educational facilities professionals and their institutions, we must recognize and understand the rapidly evolving impacts of economic, financial, demographic, social, and technological change globally and locally.

From an economic perspective, Ian Davis, worldwide managing director for McKinsey & Company, stated, "It is increasingly clear that the current downturn is fundamentally different from the recession of recent decades. We are experiencing not merely another turn of the business cycle, but a restructuring of the economic order." We are indeed experiencing a "new normal." A world filled with heightened competition in the face of a convergence of fundamental changes in markets, member engagement preferences, and technology.

From the financial perspective, the opening statement of the Executive Summary of the 2014 Thought Leaders Series monograph *Leveraging Facilities for Institutional Success*, captures the financial situation succinctly: "Higher education isn't where it wants to be. North American colleges and universities struggle to focus on their mission of educating students and advancing knowledge in the face of (significant) distractions such as slashed budgets, ballooning costs, and increased state and federal scrutiny. Expectations are growing at the same time resources are dwindling." Indeed, it's all about less! And, given the global economic restructuring, that's not going to change moving forward. [Ed. Note: Read Part 1 of the 2014 Thought Leaders report elsewhere in this issue.]

As for both demographic and social shifts of the student populations we serve (or served in the past), the evolution of student expectations is aptly described by Richard Katz, president of Richard N. Katz & Associates, and writer/producer of a stellar video titled *Edifice Rex: The "Place of Place"* for APPA's 2014 Conference plenary session. (View the video at www.youtube.com/user/APPALeadership.) You'll want to use this video clip with your senior institutional officers and staff alike.

GI Bill students were soldiers. They reported for duty, had families to feed, and took orders (from their professors). Students from the '60s, demanded relevance through protest, but still hewed to the 50-minute

lecture and even loved alma mater (in their own way). Gen Xers had a different attitude toward authority and began to feel the pinch of student loans. They saw themselves as consumers and expected to be served. Today's students are fully consumers and they want value for money. They too want the people and place, but they are also products of the Internet age and want to learn in their way, where they want to learn, from whom they want to learn. Mobility is the air they breathe and everything is "social." It's a palpable tension between the enduring power of people, place, and space, AND the increasingly demanding, consumer oriented, mobile student. The "answer" lies in the "evolutions" of university or college as "campus" to university or college as "network" expanding student access to people, place, and space.

Katz delicately weaves these demographic/generational and social impacts into their collision with technology by stating:

Furthermore, while technologies are changing the places where learning happens and even how we learn, our colleges and universities must, can, and will evolve just as they always have. Our digital future extends the boundaries and expands the institution's role and reach as an outfitter. Now, as we come of age both on the ground and in cyberspace, we still come home to the Mother Ship—the place, the people, and the ideas that nourished us, inspired us, equipped us, and evolved with us. Now, as then, the campus transforms us, and we transform the campus. And, ultimately, the campus will endure, IF the campus continues to evolve.

So the "good old days" are gone...a time when we were just physical plant administrators—the blue-collar steam plant operators that provided heat in the winter, A/C in the summer, and electricity year-round...but that has become an outdated perception. Today, we actively manage the investment of more money every year (if not every day) than any other department on campus. That demands we be recognized and treated as professionals—leaders in education, not just buildings and grounds.

MORE THAN A PASSIVE BACKDROP

The buildings and utilities infrastructure we proudly build, operate, and maintain are a critical part of the educational enterprise. One important take-away from the 2014 Thought Leaders symposium monograph emphasized

this very point. “Higher education facilities can help colleges and universities achieve their goals. The campus built environment is more than a passive backdrop. Facilities contribute in meaningful, measurable ways to the mission of the institution. Successful campuses will be those that leverage their facilities and infrastructure assets and operations to maximize their potential.”

APPA has aided in this transformation of individual and organizational effectiveness for the past 100 years. However, some particularly noteworthy accomplishments over the past few years could best be codified against the four objectives of APPA’s Strategic Plan.

- **Engagement**—APPA has become an active and viable force in the purposeful and inclusive involvement of a diverse group of stakeholders. Some examples are:
 - The second delivery of the Emerging Professionals (EP) Summit was well-attended and positively nurtured the development of future leaders.
 - Local delivery of programs such as the business partner hosted Drive-In Workshops, the Leadership “Academy-on-Campus,” and Supervisor’s Toolkit are expanding their reach to staff not able to travel for such high-quality professional training and development.
 - Increased communication channels within and between International APPA and its regions and chapters are enhancing the smooth and consistent flow of information and use of programs, products, and services.
- **Market Share**—In order to touch 70+ percent of our diverse and targeted niche markets, we must ensure greater value to our stakeholders. We have done so lately in the following ways:
 - Implementation of an Integrated Institutional Membership effective this dues cycle (fiscal year 2014–2015 beginning April 1, 2014). Over the past three years, International APPA has been working with all six regions to achieve implementation of a membership integration and dues alignment strategy. This means that employees of a member institution (or for that matter interested individuals at a member institution) can now take full advantage of APPA and their respective region’s membership benefits. That’s right—this is an all-inclusive dues membership approach resulting in “unlimited Associate membership” for individuals at member institutions. Now that’s VALUE!
 - Engagement in a complete overhaul of our Credentialing Program to include updating the course and exam content,



online delivery of the exams and preparatory course (coming soon), and the Credentialing website.

- Useful and meaningful nuggets of information from APPA’s revitalized website, renewed FPI survey tools and reports, peer-reviewed BOK (Body of Knowledge), updated, revised staffing guidelines, a focus on TCO (Total Cost of Ownership), along with new publications (such as *Effective and Innovative Practices for the Strategic Facilities Manager*, two Critical Issues books on energy and sustainability, e-book versions of the Operational Guidelines Trilogy, and the book on *Strategic Capital Investment*).
 - Collaborative programming with regions and other associations/agencies to ensure content meets stakeholder needs.
 - Targeted career planning through our infamous “professional development continuum.”
- **Synergistic Relationships**—The perception of a single, unified entity across all levels of the organization is becoming more pervasive as we strategically align ourselves with the theme of “*We Are APPA*.” Certainly implementation of the Integrated Institutional Membership is helping to ensure this is well understood.
 - Increased collaboration with the regions—their boards and members—in a more intentional and integrated way is paying huge dividends for all of us. It’s one of the most important things we could be doing for the future of the profession and the association.
 - Engaging Mexico institutions as chapters within the regions has redefined International APPA as the association of choice for institutions across the North American continent.
 - The creation of a permanent Business Partner Advisory Committee will improve our collective channels of communication with all business partners.
 - Increased collaboration with external organizations and agencies from the NACUBO Energy/Sustainability benchmarking survey, to delivery of the Thought Leaders Series (TLS) monographs to NACUBO and SCUP, and continued article placement in allied trade journals is extending greater value to member institutions and increasing the awareness of the facilities profession with senior institutional officers.
 - Our international strategic alliance partnerships (AUDE, TEFMA, and HEFMA) have grown and are having a positive effect on the entirety of the facilities management industry.

- **Credibility & Influence**—Is being achieved throughout the educational enterprise in such ways as:
 - A measurable uptake of the FMEP (Facilities Management Evaluation Program) reviews.
 - A fresh, vibrant, and up-to-date BOK.
 - Credentials (CEFP & EFP) that are setting the standard for the profession.
 - APPA is becoming the “go-to” resource for educational facilities questions.
 - Increased efforts to develop, support, and publish new research.
 - Creating and delivering the strategic futures video by Richard Katz (*Edifice Rex: The “Place of Place”*).
 - Becoming the strategic voice on standards and codes affecting the facilities profession and the educational enterprise.

NOT ALL THINGS HAVE CHANGED

Yet in this fast paced, rapidly changing world, we cannot rest on our laurels. It is critical that we now move ahead with a diligent focus on the future to meet the continued, evolving needs of all educational facilities professionals and ensure the future

relevance of the association.

To that end, we are preparing to launch a General Membership Survey this fall along with several more focus group sessions at the fall regional meetings, the September delivery of APPA U, and additional targeted stakeholder groups by phone (beyond those we did at the APPA 2014 Conference in San Diego). All of this data and information along with an education industry environmental scan will be used to update the strategic plan to ensure we continue to deliver the best value for everyone.

As I reflect on where we’ve been, where we are, and where we’re going, I can see that in some ways everything has changed, and dramatically! But I know one that hasn’t changed—APPA is here to help members work less stressfully, more effectively, and more productively. To sum it up in two words, APPA will continue to provide “hope and optimism” for a better and brighter future for educational facilities professionals for the next 100 years. ☺

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



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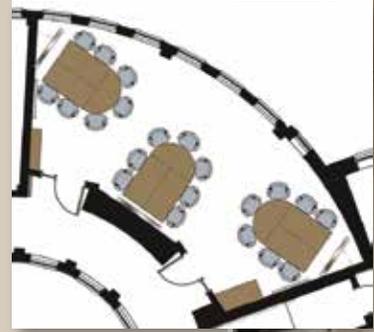
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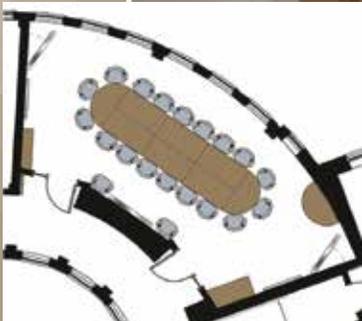


By Joseph A. D'Alù, PE., LEED AP BD+C, CEM, and Calvert S. Bowie, AIA, NCARB



THE FUTURE OF ACADEMIC HOUSING

*Extending Life Cycles
for the 21st Century*



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Flexible common area arranged for independent study.

WHAT MAKES A COLLEGIATE CAMPUS REALLY “WORK”?

Ask a range of potential clients (students) and you’re likely to get a variety of responses. But what happens when you narrow that target audience to, say, the 16 to 22 year olds? Before you answer, remember that this group rests at the core of the millennials, America’s largest-ever generation, which this year is reported to surpass even the baby boomers in both numbers and outright cultural influence.

What is non-negotiable to these children of the 1990s as they move through postsecondary academia? The experts¹ suggest that millennials are most interested in making certain their lives are optimized for convenience, flexibility, and access.

One can argue that there is no other university facility more influenced by the sum of these factors than the residence hall.

Even though America’s stock of higher education housing has grown at an impressive rate to meet the needs of growing student populations², this growth has not necessarily occurred through simple “architectural attrition.” The demand for on-campus housing has simply not allowed for the wholesale replacement of existing and aging facilities. Although the enrollment forecast³ seems to predict a somewhat slower growth rate through 2022, there is no foreseen reversal in the trend of ever-expanding collegiate enrollment.

As a result, institutions are being forced to manage real estate assets that range from new construction to mid-20th century

and pre-World War II housing. That’s a pretty wide slice of collegiate home-steading, and the task presents some unique challenges. Architectural diversity is a phenomenal thing, so long as 50-year-old dormitories can still meet the demands of incoming students, maintain the requirements of facilities management, and keep pace with a culture focused on sustainability. In many ways, the mandate to optimize energy efficiency flies directly in the face of the day-to-day need to maintain and repair existing building systems.

What does this mean for institutions from Albright College to Zane State? There’s a critical choice to be made:

Demolish and Rebuild or...*Commit to Extending Life Cycles in Existing Facilities.*

Bringing new life to buildings requires a thoughtful approach and mandates a hard and holistic look at how best to transform existing housing into something exciting, efficient, attractive, and, most of all, useful for the *next* 50 years. The extra planning and design effort is worth it! The opportunity for institutions to effectively and affordably reinvigorate these facilities is real—the key is knowing where to look and understanding what to avoid.

TRENDS IN INSTITUTIONAL HOUSING

It should come as no surprise that the current trends in academic residential design and programming are a balanced mix between the market demands of the millennials and the preferences and opinions of the institutions. Largely, this influence has fueled a move toward the *integration of living and learning*.

While traditional study spaces have been centered in classroom buildings, libraries, student unions, and other formally designated areas, enhancement of residence halls to accommodate current needs is becoming the model rather than the exception.

The merging of student life and academics with residence halls has become a universal constant; this combination increases convenience for students and creates vibrant, exciting, “totally student” environments. Promotion of learning through group study is another obvious goal of this program, and with the addition of technology support, flexible building systems, and movable furnishings, modern housing can adapt to suit a wide range of learning and social situations.

Potential uses for these flexible spaces include: group study, club meetings, tutoring, social events, independent study, and even scheduled uses by campus entities beyond the housing



Left and Below: University of Mary Washington common space connector “The Link” in construction and after completion.”



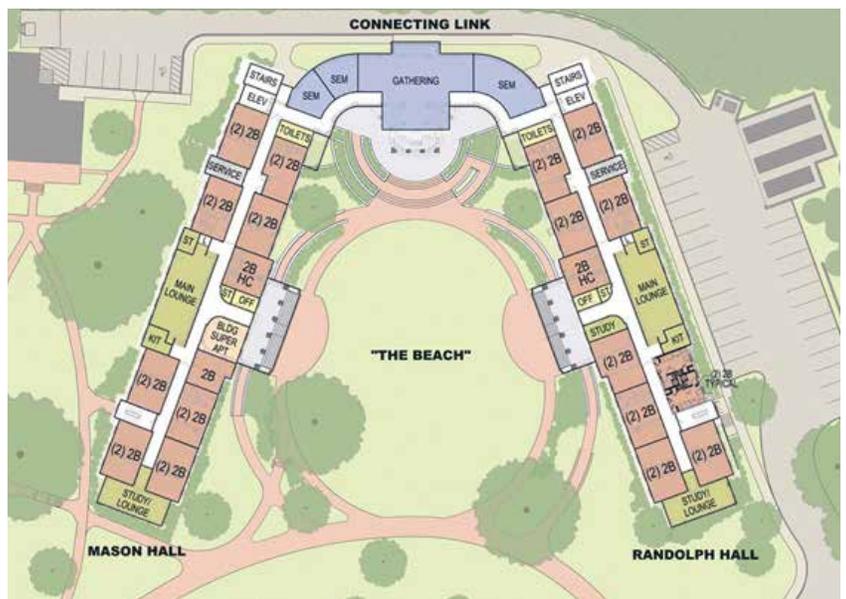
community. Providing this level of flexibility has impacts well beyond interiors and space planning, as it directly influences the design and engineering of mechanical, electrical, lighting, and data infrastructure as well. When incorporated effectively, these flexible spaces provide a greater opportunity for resident interaction and increased connectivity between residents and remote campus elements.

When a building becomes recognized for providing a unique campus function, it can actually influence and invigorate campus culture as it becomes as much a destination as a home.

VERTICAL TRANSPORTATION— MAKING ALL THE RIGHT MOVES

There is every possibility that vintage housing is ill-equipped to manage the necessary vertical transport of people and systems required in a modern building. When a plan is identified to increase the allotment of public areas, how do these spaces begin to communicate and relate to the base program (living quarters)? Egress is a major issue, and it’s frequently found not to be compliant with the current code. Some expected shortcomings such as noncompliant stair handrails, lack of elevator support, and issues with the Americans with Disabilities Act (ADA) are common, too.

Frequently, older buildings lack vertical chase space, making the routing of building infrastructure systems a real challenge. The good news is



University of Mary Washington Randolph and Mason Halls site redevelopment plan.

that the need to create better vertical pathways for systems and occupants can sometimes result in unique opportunities. These moments can not only improve building utilization, but can also enhance a sense of “inter-floor community” for residents.

Sacrificing lease space. This is the notion of losing some stacked, leasable occupant space to incorporate new vertical service cores. If this is an option, there remains a concern that the existing structure may not allow for the simple removal of floor plates where most needed. Necessary structural alterations may affect the project budget, rendering this “cut-new-openings” concept a nonstarter. Beyond the structural pitfalls, locating new vertical elements requires coordination with existing site utility entrances, fire protection systems, and public spaces. Often this involves the creation of new fire-rated assemblies.

Incorporating a new addition. Integrating the vertical necessities into a new addition to preserve lease space may be the best solution. If this solution is feasible, caution should be exercised to assure that the new element is complementary to the character of the existing building, which may have partly inspired the renovation in the first place.

Assuming that the aesthetics can be addressed, there are real benefits to be had: ancillary vertical transport (e.g., plumbing, outdoor air ductwork, power, fire protection) can be integrated into this new construction easily; new construction can be designed without structural compromises; and there is minimal impact on the base building. This approach can also improve accessibility, egress, and safety by adding new elevator towers, ramps, and connections that better integrate new spaces while improving functionality.

MATERIALS—OUT WITH THE BAD AND MAINTAINING WHAT’S GREAT

Although a renovation can strongly enhance a building’s appeal and even contribute to the general and historic character of a campus, this undertaking may also trigger the need to abate harmful, existing materials or to perform costly façade improvements or window replacements.

Ensuring the building is free of



University of Mary Washington addition facilitating new vertical transport.

hazardous materials is an obvious mandate and can be a costly undertaking. With luck, the building has already undergone full or partial remediation at some point in its history. Before suffering “sticker-shock” at added remediation costs, consider that

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College of William & Mary Barrett Hall—HVAC infrastructure and window replacement to original 1937 construction.

the cost of abatement likely totals far less than the cost of total demolition of the building and clearing and preparation of the site for a new construction.

In terms of existing glazing systems, a full and proper assessment is the best course of action. If glazing systems are marginal in terms of operation, sash/frame condition, or even materials type, an upgrade is money well spent. Benefits to overall energy and comfort are significant, especially when viewed in parallel with capital costs for new mechanical systems. Reasonable pay-backs can be demonstrated in most cases as a highly improved building envelope drives the coincident downsizing of HVAC equipment. Even in the most stringent historic environments, suitable and accurate window replacement materials can be successfully sourced and specified.

OPTIMIZING OCCUPANCY—THERE ARE NEVER TOO MANY BEDS

Residence halls greater than 30 years old comprise, in high percentage, double occupancy rooms on double-loaded corridors (sometimes with individual lavatories, often with communal showers). Due to window rhythm and placement, there is little opportunity to rearrange these two-student rooms in a more efficient manner. Sometimes it is easy to create a more efficient plan by morphing standard two-student rooms into higher occupancy suites. This is especially true when common space and amenities such as communal bath and shower facilities, study areas, and kitchens can be moved to new, adjacent additions.



University of Mary Washington: new amenities located, contextually, in original porch locations.



UNDERUTILIZED SPACES—THE DARKEST CORNERS ENLIVENED

Aging dormitories often have an incredible amount of underutilized space. These areas are often designated as “storage” or “utility” and can house decades of forgotten materials. Found program spaces like these can be vital to the success of any dormitory renovation.

When these spaces are at attic and basement levels, converting them to common-use space is a challenge, but it is possible to capture these spaces as living quarters and therefore increase bed counts. In attic locations, natural daylighting, campus views, and even premium housing opportunities are all potential benefits. In basement spaces (subgrade or semi-subgrade), manipulating the grade to achieve better daylighting and realizing direct

Original attic space with great potential for an adapted reprogramming/occupancy.

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Energy dashboard interface provides a visible teaching moment at UMW for students and faculty alike.

access is a great strategy. The grade-revision concept lends itself especially well to faculty residence quarters as well as to indoor-outdoor, common gathering spaces. Whatever the program, improving staff interaction and campus access for residents is a key strategy.

REACHING FOR SUSTAINABILITY—BENCHMARKING MANDATES VS. TRUE EFFICIENCY

As the International Energy Conservation Code (IECC) has been ratified by 48 U.S. states⁴, the District of Columbia, New York City, and a handful of other jurisdictions, the adoption of the International Green Construction Code (IgCC) is similarly spreading across the United States, with 13 states now having full or limited enforcement. Beyond this, many jurisdictions have now mandated a minimum LEED requirement for all publicly funded constructions. No matter what sustainable benchmarking tool⁵ might be utilized, the message is clear: our buildings need to run lean in terms of energy consumption.

The opportunities to achieve sustainable design are plentiful and attainable.

The following are favorable existing building attributes:

- **Heavy architectural mass** provides thermal benefits in terms of heat transfer through the building envelope, and can significantly reduce HVAC demands. Energy costs can often be curtailed by controlling the peak HVAC load, thus reducing either internal or utility-provided demand charges.
- **Large punched window openings** enable extensive use of daylighting controls where ambient light can be used to supplement powered lighting systems.
- **Existing building construction materials (reuse)** recycles a percentage of materials that would otherwise be produced,

packaged, shipped, unloaded, and installed on (or hauled away from) the site. This reuse of existing materials can result in huge reductions in fuel usage and carbon footprints during construction. Further, the project's impact on stormwater runoff due to the addition of impervious pavement can be minimized.

- **Operable windows** allow the ability for partial mixed-mode⁶ HVAC operation and for a code-allowed alternate to mechanical ventilation. If the outdoor ventilation air volume (cfm) is governed by a need to maintain building overall positive pressure and not by an ASHRAE 62.1-mandated fresh air volume, there is opportunity to downsize outdoor air systems and to reduce fan energy consumption. Adding Building Automation Systems (BAS) monitoring of window position (open/closed) can yield even greater savings.

LEED certification can present some challenges. One hurdle is compliance with the basic requirements for the LEED Energy & Atmosphere category, which is now a prerequisite to project registration with the U.S. Green Building Council (USGBC) for LEED consideration.

One LEED option is to pursue certification of a major renovation under LEED Building Design & Construction (BD+C). This path will lead to mandatory compliance with Energy & Atmosphere Prerequisite 2 (EA2) under which a major renovation's energy performance must improve 5 percent beyond that described for a typical dormitory per ASHRAE 90.1-2007 (comparison of a "base" and an "as-designed" energy model). This path requires significant documentation but is wholly attainable, especially when the renovation is a comprehensive one.

A second avenue is to pursue LEED certification under LEED BD+C (or ID+C) by prescriptive energy compliance, which must be in accord with the *Advanced Buildings Core Performance Guide*. This approach is available as an alternative to complete, comparative energy modeling, assuming the fulfillment of criteria including stated minimum equipment efficiencies and a total building area not exceeding 100,000 square feet.

Whether the building ultimately wears a LEED shield or not, a goal of true and verifiable energy performance is always paramount. Operating efficiency is not only about producing reams of data for facility managers to utilize, but can also be about providing a real opportunity for a visible teaching moment. Real-time energy “dashboards” with interactive features for students and faculty are an effective way to advertise building energy performance enhancements. Typical dashboarded metrics include live reporting of HVAC, lighting, and convenience energy consumption and even current building occupancy. The best of these metrics can actually compare a building’s live energy consumption versus nearby buildings, creating a bit of a rivalry for residents and a coincident reminder that learning doesn’t always have to occur in the classroom!

SUMMARY/CONCLUSION

The demand for academic housing is ever-present and on the rise. There is clearly the potential to fulfill the demand in an ordinary way or in an extraordinary way.

Bringing new vitality to cherished campus buildings—even those that may have already been “written off”—is an exciting, economical, and sustainable way to meet this need. The planning and execution of “the extraordinary dormitory renovation” demands skilled decision making and careful consideration, but the effort can be enormously rewarding both for residents and for the institution.

Even the U.S. Green Building Council will concede that “the greenest building is the one already built,” and we completely agree.

ENDNOTES

1. William Draves, author, *Nine Shift*; Jean Twenge, author, *Generation Me*.
2. Up 45% from 1997 to 2011, according to the U.S. Department of Education.

3. Predicted 17% from 2011 through 2020, according to the U.S. Department of Education.
4. Current “hold-outs” are California, Indiana, Minnesota, and Oklahoma.
5. Sustainability watchdog Environmental Policy Alliance recently reports (Mar 2014) that many LEED certified buildings in Washington, D.C. actually perform below the national average in terms of total energy consumption.
6. “Mixed-Mode” refers to a building’s ability to operate with or without the benefit of a mechanical HVAC system based upon outdoor air conditions. ☺

Joe D’Alù is a project manager for RMF Engineering, Inc., Charlottesville, VA. He can be reached at joseph.dalu@rmf.com. Cal Bowie is principal for Bowie Gridley Architects, Washington, DC. He can be reached at cbowie@bowiegridley.com. This is their first article for *Facilities Manager*.

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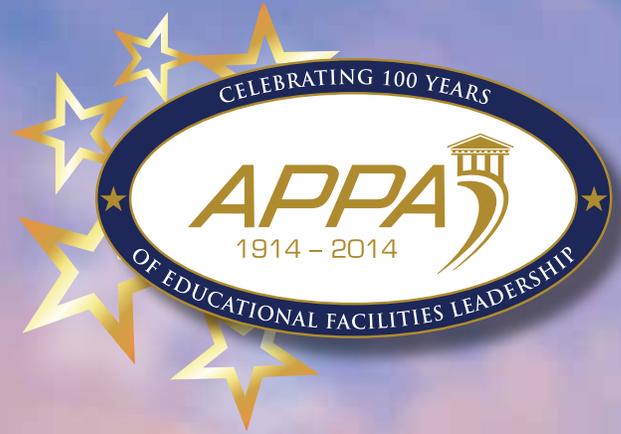
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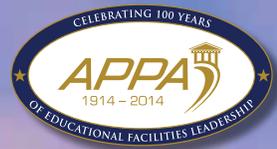
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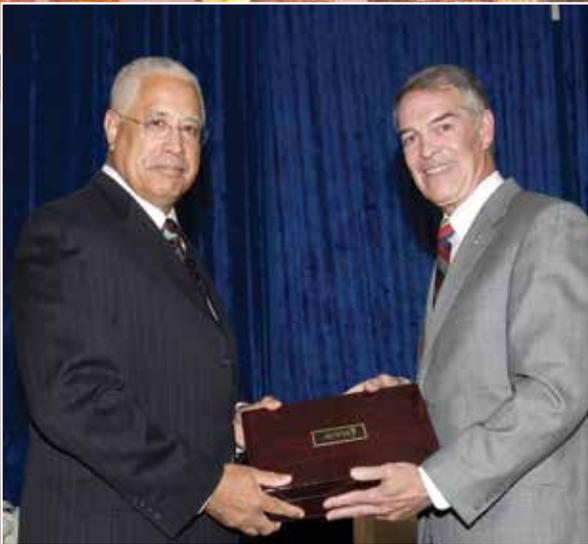


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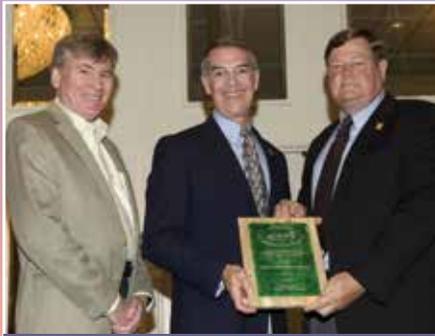




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First Draft Report on NFPA 13 Released

By Dana Peterson

The National Fire Protection Association (NFPA) has released the First Draft Report of the new proposed standard for the 2016 edition of NFPA 13. The First Draft Report may be viewed at www.nfpa.org/13.

Public comments (proposed changes) on the First Draft Report were received until May 16, 2014.

Discussion on the First Draft Report and public comments began during the NFPA 13 Technical Committee at the Second Draft meetings held June 18 and 25 in San Diego, California.

The Second Draft Report will become the final version of the 2016 edition to be voted on by the NFPA membership at the annual meeting in June 2015. It is scheduled to be released for public comment on January 16, 2015. Comments can only be made through preregistered motions from the floor of the annual meeting, can only address previous comments, and cannot add new content.

As this particular code is employed broadly across the country, affecting many APPA member institutions, the APPA Standards and Codes Council wishes to report on the changes that are proposed in the currently available First Draft Report that is under consideration by the Technical Committee.

The changes outlined below are the Council's best assessment and interpretation of the most impactful changes found in the First Draft

Report. Although there is a possibility that some of these changes may vary to some extent, this is intended as a good overview of what will likely be coming up. This is by no means guaranteed to be complete or error free. Changes that on the surface appear to be simply a restatement of current language, minor changes in terminology, or grammatical corrections have not been included. APPA members are encouraged to view the First Draft Report if details and exact language are desired.

Please remember that unless you are in a jurisdiction that automatically updates the code to "the latest edition," the 2016 edition will require adoption through a public process in your jurisdiction and have an effective date established. Typically this occurs a year or more after the date of edition.

CHAPTER 3

- New definitions established for "concealed space," "extension fitting," and "CMDA sprinkler."
- Deletes definitions of "available height for storage" and "low piled storage."
- Clarification on what determines if shelving is considered open or closed.

CHAPTER 5

- New wording for determining classification of materials and packaging by type and amount.
- Deletes references to Group A plas-

tics by weight or volume to determine if Class IV is in favor of table.

CHAPTER 6

- Changes requirements for compatibility information from being a part of the manufacture's listing instructions to being available from manufacturer.
- New requirements for stainless steel pipe.
- Changes requirements for combination systems using steel pipe and fittings with corrosion inhibitors from being certified by a testing laboratory investigation to being a listed product.

CHAPTER 7

- Sets air venting and means of relief requirements for wet pipe systems with black pipe or galvanized steel pipe.
- Requires dry pipe systems to have an air maintenance device.
- Deletes a figure showing arrangement of supply piping with relief valve and backflow device.
- Deletes all language covering circulating closed loop systems in its entirety.

CHAPTER 8

- Requires floor control valve assemblies in multi-story buildings.
- Adds Control Mode Specific Application (CMSA) and (ESFR) sprinklers as acceptable types in light hazard occupancies.
- Eliminates area separation require-

ments where sprinklers listed for both standard response and quick response are used.

- Permits extended coverage sprinklers to cover areas below an overhead door.
- Eliminates language about galvanized pipe in 8.4.7.2.
- Establishes sprinkler requirements when dealing with obstructions.
- Exempts minimum pressure requirements for certain hip type roofs.
- Provides new figure for obstructions against walls.
- Specifies positioning of deflectors above and below obstructions.
- Sets sprinkler type required below round ducts.
- Deletes requirement that sidewall sprinklers in soffits must be within 4" of soffit bottom and project no more than 8 inches (or 12 inches if over a wall cabinet).
- Notes that roofs with pitches less than 2 in 12 should be considered as flat.
- Provides new figure for "Positioning of sprinklers to avoid obstruction."
- Prohibits sprinklers on ceilings with slopes greater than 8 in 12, or higher than 24 feet.
- Guidance on how to determine if groups of pipes or conduits should be treated individually or in aggregate as an obstruction.
- Specifies when sprinklers can be deleted from soffits, eaves, and overhangs.
- Sprinklers shall not be required in bathrooms not exceeding 55 square feet built of non-combustible materials with a 15 minute rating, except in nursing homes.
- Deletes requirement that shields installed to protect electrical equipment must be non-combustible.
- Exempts revolving doors from having to have sprinkler coverage.
- Exempts areas above the water's surface in indoor pools from requiring sprinkler protection except if the pool is able to be covered.
- Establishes requirements for main

drain test connection locations.

- Establishes requirement that if heat trace is used, it must be electronically supervised to a constantly attended location.
- Makes a requirement to provide an automatic drain valve for NFPA 25 testing.

- Stipulates that sprinkler piping shall not be used for electrical grounding.

CHAPTER 9

- Provides new standards for ferrous hanger rods.
- Gives a new table for section moduli for trapeze hangers.



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- Establishes new requirements for slotted holes.
- Specifies use of pipe diameter instead of line type for determination of minimum penetration of screws.
- New requirements for the maximum unsupported length of pipe at the end of a run.
- New requirements for pipe stands.
- New requirements for pipe clearances from structure.
- Additional limitations for when material requirements for pipe hangers do not apply.
- New seismic coefficient table.
- Establishes seismic coefficients for nipple risers of various lengths less than 4 feet.
- New table for maximum spacing of steel pipe restraints.

CHAPTER 10

- Chapter 10 has undergone a substantial rewrite. It is not possible to produce a succinct summary of changes for this compilation. Refer to the actual NFPA text.

CHAPTER 11

- Adds draft curtains as a means to avoid extending the more demanding sprinkler load protective area where two hazards are adjacent to each other and only one requires delayed fusing.
- Revisions to determining the required discharge for residential sprinklers.

CHAPTER 12

- How to measure roof heights with corrugated decks and with insulation in various configurations.
- Same draft curtain language

from Chapter 11.

- Deletes language requiring ESFR sprinklers to only be wet pipe, and language that limits the system area of operation increase to no more than 3,500 square feet for dry pipe and preaction systems.
- Allows certain types of storage occupancies to be protected by ESFR and CMSA systems.
- Clarifies the component data points for determining minimum water supply for hydraulically designed systems and revises the table for hose stream allowance and water supply duration.
- Removes several types of joist spaces from not requiring a minimum design area of sprinkler operation.
- Revised table for control mode for density per area for protection of wood pallets.

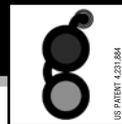
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CHAPTER 14

- Changes to table for some head orientations for ESFR protection of palletized and solid piled Class I to Class IV commodities.

CHAPTER 16

- Adds in-rack sprinklers as an additional means to protect structural columns enclosed within storage racks.
- Requires a sprinkler density increase where various commodity classes are encapsulated.
- Requires sprinklers for every row of shelving where solid shelves are utilized.
- Tables for single- or double-row racks for Class I to Class IV commodities greater than 25 feet delete references to figures.

CHAPTER 17

- Deletes reference to “decision tree” figure.
- Same in-rack sprinkler requirement as in Chapter 16.
- Deletes references to figure for five tables covering storage of various heights with various ceiling clearances.
- New provisions for the protection of exposed expanded group A plastics.

CHAPTER 20

- New requirements for sprinkler location and spacing in transverse flues.

CHAPTER 21

- Specifies the parameters to be used to calculate the sprinkler design area and numbers on a branch line.
- Permits the use of sprinklers tested in accordance with the requirements, but not specifically listed.
- Revises two tables for extended coverage with CMSA sprinkler design.
- Deletes the table covering the storage of palletized, solid-piled, bin box, shelf, or back-to-back unexpanded plastic commodities.
- Deletes table for storage of unexpanded plastic commodities in open racks.

CHAPTER 23

- Deletes figure of summary sheet.
- Deletes requirement for needing to include several items on the summary sheet.
- Adds a number of additional required entries on the summary sheet.
- Stipulates that water flow velocity shall not be limited when hydraulic calculations are done under certain methods.
- Requires increasing the design area in systems that have insufficient head in a branch line.
- Removes provision that allows relaxed requirements where ESFR sprinklers are used above or below an obstruction.
- Revises requirements for in-rack sprinklers.

- Revises entire section, figures, and tables for pipe schedules.

CHAPTER 25

- Extends relief from having to retest after a modification to all existing systems (except pressure test).
- Stipulates the testing requirements for additions to existing systems.
- Adds noting the location of the venting valve, and the results of the dry pipe preaction valve test to the system signage requirements. 

Dana Peterson is associate university architect at the University of New Hampshire and a member of APPA's Standards and Codes Council; he can be reached at dana.peterson@unh.edu.



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Typical Campus Dilemmas Addressed by CFaR Research

By Maggie Kinnaman, APPA Fellow

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Facilities Research

As part of my Information and Research Committee duties, I was recently asked to identify some of the reasons APPA members might want to draw on projects completed under the Center for Facilities Research (CFaR) umbrella. I know each of you can identify with one or two of the dilemmas listed below. The IT world says, “There’s an app for that,” while in the APPA world we say, “There’s a research project for that.” Take a look at the dilemmas presented below, and the solutions offered through CFaR. More importantly, when you are faced with a real-world challenge on your campus, remember all of the resources that are available as part of your APPA membership.

Dilemma 1:

The Dean of the School of Social Work is pressing for some major upgrades to space to better serve your institution’s academic programs. On the other hand, your student governance leaders are pushing for an upgrade of outdoor spaces within the campus. Where do you go for assistance? APPA has a research project for that!

The Development of an Instrument Measuring Elements of the Outdoor Physical Campus Environment for Student Satisfaction and Perceived Importance

Principal Investigator:

Erica Eckert, Ph.D., Kent State University

ABSTRACT:

With limited resources, it is difficult to justify expenditures that fail to yield results. Assessment provides for the investigation of initiatives for their relative success or effectiveness with a specific population. An institution’s outdoor physical campus environment is rarely the object of careful assessment, and yet is an area of great expense. As campus planners prioritize projects, there is value in knowing which ones net the greatest satisfaction and are of the most importance to current students, which can serve as proxy for prospects. As institutions are charged with the task of bringing the most qualified prospects to fruition as enrolled students, and at the same time retaining the ones who do enroll, expenditures should be considered as they relate to increasing satisfaction of prospective and current students in an efficient way. Assessing the outdoor physical campus

environment will allow administrators to understand the level of satisfaction students have with the physical campus environment and which areas, if improved or left to languish, would have the greatest impact.

The purpose of this study was to develop an instrument that asks current students about their satisfaction with elements of the outdoor campus environment as defined by campus design and campus ecology literature. Additionally, the participants were asked to rate the importance of these elements, which provided a sense of magnitude not necessarily found in a simple measure of satisfaction. The information collected through the developed questionnaire provided valuable feedback for campus planners and facilities managers, and may even be useful as a tool for benchmarking or competitor analysis.

Dilemma 2:

It’s Monday morning and your vice president is asking you to give feedback regarding conflicting capital requirements. Where do you turn for guidance? APPA has a research project for that!

Strategic Capital Development: The New Model for Campus Investment

Principal Investigators:

Harvey H. Kaiser, Harvey H. Kaiser Associates, Inc.; Eva Klein, Eva Klein & Associates, Ltd.

ABSTRACT:

This research presents a bold approach for planning capital investments from a strategic and long-range perspective. The researchers define stewardship principles necessary to create and sustain a built environment that is responsive to institutional strategies and functions; remains attractive to faculty and students; and optimizes available resources.

The report, published in book form in 2010, provides a summary of how capital planning and funding practices in higher education have evolved from the late 1940s to the present; makes the case for why change is needed, based on an examination of environment/context factors; and provides the proposed model for improved campus investment.

Dilemma 3:

Your boss comes to you with the 2013 FPI report and wants to know what might be positive outcomes from raising our service levels in the custodial arena from a Level 3 of cleanliness to a Level 2. He knows that this shift will require a significant influx of funding and that he will have to develop a case for the necessary funding. APPA has a research project for that!

The Impact of Levels of Cleanliness on the Academic Achievement of Students

Principal Investigators:

Alan S. Bigger, member emeritus; Jeffrey L. Campbell, Brigham Young University

ABSTRACT:

The purpose of this study was to

determine if there is a direct correlation between cleanliness and the resulting academic grade(s) of students. In 1992, APPA published the first edition of *Custodial Staffing Guidelines for Educational Facilities*; the second edition was published in 1998, and the third edition was published in 2011. This seminal

document set the precedent for correlating levels of productivity and cleaning of facilities and has been used as justification for appropriate staffing levels at institutions. In addition, ISSA has long established cleaning times and guidelines that also address productivity issues.

However, such data is now being

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brought into question as performance indicators are being used to address specific outcomes of maintenance programs. The principal investigators led a team of researchers representing APPA and ISSA to collect data, review and research relevant literature, and determine whether levels of staffing and cleaning have an effect on the academic achievement of students.

Dilemma 4:

Your vice president is coming to you with a request from the Dean of the School of Nursing that a donor is willing to give the university a building for its future use. You are being asked to develop a white paper about the pros and cons of accepting this donation. Where do you turn for guidance? APPA has a research project for that!

Buildings...The Gifts That Keep on Taking: A Framework for Integrated Decision Making

Principal Investigators:

Douglas K. Christensen, Brigham Young University; Rod Rose, STRATUS—A Heery Company; Terry W. Ruprecht, University of Illinois, Urbana-Champaign

ABSTRACT:

APPAs Center for Facilities Research (CFaR) has sponsored and conducted research that is expected to produce a widely accepted model for understanding the total cost of investing in and maintaining college and university facilities. This Strategic Investment Model and Asset Investment Strategy is intended to assist higher education policy makers (e.g., presidents and chancellors, boards of trustees, legislators, etc.) to better

understand the impact of major decisions on such key issues as resource allocation, building design criteria, recruitment and retention of faculty and students, construction strategies, the nature of the learning and research environment, and accountability measures. Completed and published in book form in July 2007. 

For more information about APPAs CFaR program, please go to <http://www.appa.org/Research/CFaR/index.cfm>.

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

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Georgia Tech Adds Tonnage, Reduces Water Costs

By Greg Carnathan, P.E., CEM, LEED AP, and Vance P. Nall, P.E.

Georgia Tech's vision to develop a biomedical research facility on its downtown Atlanta campus is quickly becoming a reality as the \$98 million Engineered Biosystems Building (EBB) is brought online in April 2015. To support the cooling needs of the facility, Georgia Tech has completed a 3,000-ton expansion of the existing 10th Street Chilled Water Plant.

The 10th Street Chilled Water Plant was originally constructed in 1995 as part of the development associated with the 1996 Olympic Games. Expanded incrementally over the years, the plant capacity prior to this project was approaching 9,000 tons. Although the plant expansion was initially driven by the need for increased capacity on the north end of campus to serve the EBB, a major goal for Georgia Tech was to increase energy efficiency and reduce water consumption at the plant. Driving the goal for water reduction are the highest water rates in the nation at approximately \$29 per 1,000 gallons for water and sewer.

Georgia Tech has explored many water conservation options on campus and at their district energy facilities in order to reduce the strain placed on their energy budget by high municipal water rates. One such avenue applied with moderate success was using an on-site well to supply cooling tower make-up water.

The well at the 10th Street Chilled Water Plant is capable of producing over 50 GPM of water and could provide a large percentage of the plant's water

needs throughout the year. However, the well water contained a high level of silica and became problematic to use with the traditional index chemistry water treatment system in place at the plant.

The design for the 3,000-ton chiller addition and various plant upgrades included a variable speed chiller, a field-erected cooling tower and various auxiliaries including a 1,700-ton waterside economizer. The single compressor chiller is designed to be the base-load machine in the facility, providing many run-hours at less than 0.4 kW/ton. Coupled with the composite field erected tower, redundant condenser

water pumps (VFD), and GT's first medium voltage variable frequency drive, chilled water production at the plant will approach a new level of efficiency.

However in addition to the high productivity of this equipment, the most unique aspect of the design was the inclusion of a "Zero Liquid Discharge" condenser water system designed by Water Conservation Technologies, Inc. (WCTI). The system utilizes high-efficiency water softeners to deliver make-up water to the system. The water softeners remove the existing dissolved solids and the system relies on poly-



Chiller—GT's first medium voltage VFD chiller is a highly efficient 3,000T York YK-EP, R-134a machine. It was slotted into a bay originally designed for a 2,000T chiller.



Tower – A new 3,000T field erected, FRP, counterflow tower includes low sound fan, double wall panel construction, access stair, and lightweight basin screens. The tower is designed at 80F wet-bulb and 85-100F temperature split.

merized silica to inhibit corrosion making the existing high-silica well water a perfect fit. The high-pH system is biostatic and requires no chemical biocides, a pleasing side benefit.

Coupled with a parallel system installed on the city water main, the dual water treatment systems are capable of providing all of the make-up water needs at the 10th Street Plant and are designed to use a minimal amount of water in the softener backwash cycle, effectively reducing condenser water system blowdown from a standard 10 percent to less than 2 percent. Reducing the system blowdown is anticipated to save over 5M gallons of water per year. However, the largest factor in the cost savings is the ability to utilize the existing well water.

Considering water usage in 2011 as a baseline year, the 10th Street Plant used 48M gallons of water with traditional index chemistry condenser water treatment at a cost of \$550,000. Assuming the 2011 load profile with an added 2,000 tons of load on the system, water usage would project to 57.6M gallons at a total cost of \$660,000.



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Implementing the WCTI system is projected to reduce the total water usage from 57.6M to 52.4M gallons (through reduced blow-down) and the existing on-site well can provide 20.0M gallons of this total, requiring only 32.4M gallons of city water at a total cost of \$371,000. This produces a projected annual savings of \$289,000.

System installation costs are approximately \$350,000 for all components, piping, controls and finishes, and the system requires a proprietary monitoring contract. The system is relatively simple, relying on the proper operation of a water softener which by design has a fully redundant backup. As compared to a traditional index chemistry system that has multiple single points of failure and is not monitored, WCTI reliability is very high.

Georgia Tech is currently evaluating the system for potential installation at other chilled water production facilities. In a market where water can consume upwards of 30 percent of a campus utility budget, strategies to reduce water consumption can make a huge difference in the bottom line—and better yet, Georgia Tech is doing their part to reduce chemical usage and conserve a precious natural resource. ☺

Greg Carnathan is associate at RMF Engineering and can be reached at greg.carnathan@rmf.com. Vance Nall is division manager at RMF Engineering and can be reached at vance.nall@rmf.com. This is their first article for *Facilities Manager*. If you'd like to write for Power Tools, contact Bill Johnson at wcjohnson2@terracon.com.

Left: Softeners – WCTI water softeners treat both well water and city water for condenser make-up. The patented technology substantially reduces water and sewer costs on campus while eliminating the use of biocides.

Right: Free Cooling – A new 1,700T plate and frame free cooling heat exchanger utilizes a connected tower capacity of 4,000Ts to maximize operational hours in Atlanta.

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

It could be argued that this column is a personal soapbox

to present materials to APPA readership. It may also be due to a lack of awareness that as editor, I will accept submissions from others. I learned this following receipt of a suggestion to review a book one member had recently read; he was pleasantly surprised that I offered to publish his own review. As a reminder, I function primarily as an editor and not an authority on what APPA members should be reading. I encourage everyone to read books and write a review if so inclined. Don't be afraid of your writing skills; I'm a gentle critic and willing to help if you're unsure. So, don't be shy! The door is open for voluntary submissions.

Now, back to the soapbox; this issue covers just one book. It's not because there aren't plenty of books to read and review; it's just more important and timely. Happy reading!

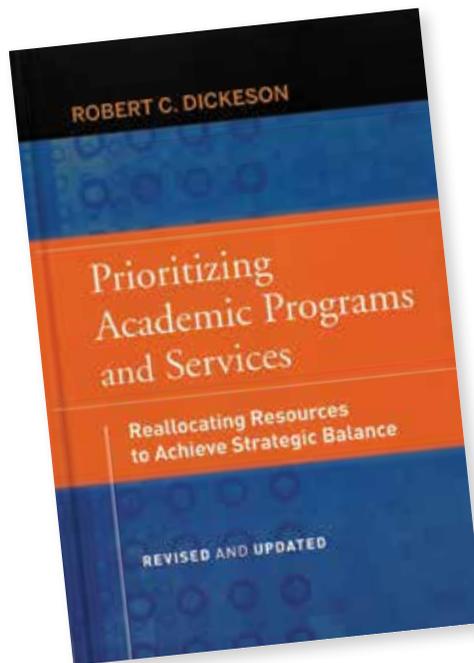
PRIORITIZING ACADEMIC PROGRAMS AND SERVICES: REALLOCATING RESOURCES TO ACHIEVE STRATEGIC BALANCE, 2ND ED.

by Robert C. Dickeson, Jossey-Bass, San Francisco, 2010, 256 pp., \$38.13 hardcover (Amazon), \$36.22 Kindle.

At first glance, *Prioritizing Academic Programs and Services* is for academics and institutional leaders. However, it provides an important perspective and tools for non-academics and is worth the effort. The issue is, why and how does something like this fit in with APPA member concerns?

Two years ago, as a panelist for a general session at the APPA conference, I presented some issues facing facility officers in the coming years. Although those issues were important from an operational perspective, including the ongoing diminution of budgets, I didn't place as much emphasis on an issue my colleague, Don Guckert of the University of Iowa, presented during the Q&A.

Don's question centered on the concerns of increasing costs of higher education for students and their families and increasing attacks in the press and elsewhere. I was somewhat dismissive in my response, and that in hindsight was a mistake. Though they were an issue



for many years before, higher education costs have grown to be nearly an outsized issue now.

Student debt has grown to exceed consumer debt. Financial wonks are blaming student debt on slowing the economy, because graduates can't buy homes or even spend enough to support the U.S. consumer economy. Legislators in both state and federal governments are calling on more accountability for higher education. They're looking for outcomes, i.e., clear ROI data! How much do graduates

earn, how quickly is their education dollar paid off in terms of annual salary, and how quickly can they get out of debt and start "real" spending? No more discussion about average time to graduation; they stopped hearing faculty talk about the tangible benefits and personal fulfillment through love of learning a long time ago.

All of these issues are hitting higher education hard and deep. As facility officers, we have lots of experience with budget cutting. In my 30 years of facilities management, I can count on one hand the number of years when I wasn't involved in cutting budgets. Facilities are a cost and always looked at first to squeeze out budget dollars. But things are starting to change, if they haven't changed for many of us already.

Faculty have begun to realize that cuts to the facilities organization always trickle down to be cuts to the things affecting the faculty (and students). Things like emptying the trash or office cleaning on a daily basis have long disappeared; classrooms may not be cleaned daily either. Faculty notice the effects of these cuts and are starting to push back. But against what?

I experienced some tension at a recent consulting assignment when interviewing the academic representatives. One professor started the conversation by asking if we were there to outsource the facilities operation because it was done in the custodial area 30 years ago and it didn't work; they didn't want it to happen again! When we got past that issue we learned that faculty opinions about the facilities organization were high, and they alluded to taking some cuts elsewhere in order to avoid further cuts in the facilities organization. Wow! What a change from several years ago! This was a campus with beautiful grounds and immaculate interiors. The trades group was under significant strain, but overall the facilities

were in great shape. Compared to other institutions, this campus left a very positive impression.

What does all this mean and what does it have to do with *Prioritizing Academic Programs and Services*? If your campus hasn't started prioritizing programs, there's a good chance it will. As a facility officer, there will be some expectations to provide data and justification for continued operation. Sure, there's the make/buy process many campuses experienced years ago, but this is a much more significant exercise. Every academic program needs facilities. This description from the Williams College website is poetic but not practical: "The ideal college is Mark Hopkins at one end of a log and a student on the other." Have you been to Williamstown, Massachusetts during the academic year? A log just doesn't cut it.

As a result, it is necessary for the facility officer to be prepared to address the cost of program delivery from a facility perspective and support details about academic program costs when asked. While institution-wide costs may be acceptable in some cases, achieving savings on a per-square-foot basis for a non-laboratory academic program likely does not equate to a laboratory program. The facility officer must know costs down to programs (custodial, maintenance, landscape, etc.) but should also know those costs by building; it's even more preferable to know costs down to the academic program.

Prioritizing Academic Programs and Services addresses many subjects: why prioritization is more important than across-the-board cuts, resistance to change, communication, data organization, outsourcing, evaluation criteria, and case studies. These are addressed in chapters and an extensive appendix (resources). Despite the title and the introductory notes, this is an excellent resource for the facilities organization predominately because academic programs are delivered in facilities; very few need no facilities.

APPA has not been ignorant of the need to address program prioritization. There are numerous tools available to help the

facility officer understand and respond to such a campus-wide initiative. These include APPA's Facilities Performance Indicators (FPI), *Custodial Staffing Guidelines*, total cost of ownership, and numerous publications. Maybe the reason more members are not using these resources consistently is because they haven't had to trim their budget, or because the institution keeps trying to do "more with less" when prioritization is really needed.

That's not a surprise; I once had a university provost refuse to tell me which college buildings needed major capital renewals more than others, claiming I was asking her to choose her favorite child. As a result, capital renewal was focused on the buildings rather than the programs they supported—a bad use of resources in my opinion. I don't think I'd get the same response at that institution now.

Prioritizing Academic Programs and Services is an excellent resource. It takes

an institutional excellence focus, which is what we all prefer to do. It provides key concepts to steer through the process and suggests use of resources that APPA has available to members. Although it's impossible to predict the future, I have to believe more institutions are going to be looking at this approach in the coming years.

As your institution does look at prioritization, I recommend this book. I also recommend getting prepared by using tools like the FPI so you're prepared when asked some of the many questions posed in the process. ☎

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

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Compiled by Gerry Van Treeck

3M is expanding its chemical offering for its innovative Twist 'n Fill System™ to include a disinfectant that kills germs in three minutes or less. The 3M™ Disinfectant Cleaner RCT Concentrate 40L is specially formatted to cut cleaning time and quickly wipe out a broad spectrum of bacteria, viruses, and fungi. 3M Disinfectant Cleaner RCT Concentrate cleans, disinfects, and deodorizes frequently touched hard surfaces. For additional information on 3M products, visit www.3M.com.



Acuity Brands, Inc. introduces the RV Series retrofit commercial LED downlight from Lithonia Lighting®. The unique fixture design allows the RV Series LED downlights to be

installed into the existing mounting pans, requiring approximately five minutes or less to install each fixture. The newest member of the RELIGHT collection, the RV Series retrofit LED downlight is designed with unique mounting hardware that simultaneously



retains and centers the fixture into existing mounting pans, allowing replacement of 8-inch apertures. It features a one-piece housing and one-piece reflector that is optimal for replacing traditional source commercial downlights during lighting renovations and upgrades. For further information on Acuity Brands products, visit www.acuitybrands.com.

Maintenance Connection has just launched MC Express, a new mobile application to complement its powerful maintenance management (CMMS) software. This application gives maintenance departments the capability to have access to Maintenance Connection anytime on almost any device wherever a wireless signal is available. MC Express can easily be



configured to mirror any organization's business practices and is an invaluable tool when it comes to improving productivity. The application decreases workflow timeframes by providing both technicians and managers immediate access to real-time information. For greater information on Maintenance Connection, please visit www.MaintenanceConnection.com.

Worksaver, Inc., introduces new pallet forks designed for mini skid steers/compact tool carriers to increase productivity. Two models are available, with both models featuring universal mini mount type. Model MPF-900 features forks that are 1" x 3" x 31.5", mounted on a frame that is 30.5" wide with a rated capacity of 900 lbs. The rail-style Model MPF-2000 is rated at 2,000 lbs. and utilizes Class I tines of 1.18" x 3" x 42" on a 33.25" wide frame. For more information regarding Worksaver, Inc. visit www.worksaver.com.



GreenField Direct, LLC announces the launch of ionleaks.com. The Web-based product that comprehensively interfaces all functions and features of any compatible PipeBurst Pro system. PipeBurst Pro, the standard for quality, durability, and dependability among water protection systems, provides peace of mind against the possibility of catastrophic flooding. This system, originally introduced as a point of leak detection, has continually made strides in product development. PipeBurst Pro found a niche in an industry where detecting leaks consisted of sounding a local audible alarm when a sensor came into contact with water. GreenField Direct saw this as an opportunity to go a step further and incorporate a valve that would automatically turn the water off, stopping the flow of water from the leak. Now, with the launch of ionleaks.com, PipeBurst Pro once again raises the bar within the water protection industry. For additional information, visit GreenField Direct, LLC at www.GreenFieldDirect.com.

Megger now offers a rugged, handheld, battery-operated TTR tester (transformer turns ratio). The TTR20, a complement to the hand-cranked TTR, measures turns ratio, polarity, and excitation current in single-phase and three-phase transformers, and in current and potential transformers as well as voltage regulators. The handheld TTR20 design allows users to perform tests in less than five seconds after hook up to the transformer. This cost-effective TTR is easy to operate by simply pushing a



button and runs on replaceable AA batteries. Megger's TTR20 is capable of accurately measuring high turn ratios of 10,000:1 with the lowest excitation voltage and excitation current up to 100 mA. Users are able to connect the unit for testing easily without any complicated configurations. For further information on Megger, visit <http://www.megger.com>.

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PART 1



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Leveraging Facilities for Institutional Success

Section I: Executive summary

Higher education isn't where it wants to be. North American colleges and universities struggle to focus on their mission of educating students and advancing knowledge in the face of distractions such as slashed budgets, ballooning costs, and increased state and federal scrutiny. Expectations are growing at the same time resources are dwindling.

This is all the more frustrating because institutions have worked incredibly hard under difficult circumstances. Faculty, staff, and administrators have committed themselves to the painful process of reform during a period of economic hardship. Institutions from the smallest liberal arts college to the largest land-grant state universities—as well as urban community colleges, elite art schools, and advanced research institutes—have responded to the call for change. Considering the unprecedented circumstances of the Great Recession and its aftermath, they've accomplished a great deal, and their thoughtful, creative responses must be commended.

But the pressure isn't letting up. The demands keep growing. And colleges and universities must continue to adapt to their new reality.

APPA constructed the 2014 Thought Leaders symposium to examine the gap between where higher education wants to be and where it actually finds itself. Participants first examined the goals of colleges and universities. Rather than envisioning some imaginary ideal

institution, they sought to identify the key characteristics of successful campuses. Then they looked at what institutions are actually achieving – the disagreeable reality of unsustainable funding models, unsuccessful students, and poorly utilized resources.

Participants discussed how to bridge the gap between the goal and the reality. They proposed and evaluated numerous ways colleges and universities could position themselves for a successful future. True to APPA's role as leader of the higher education facilities community, the group considered the challenge from a facilities point of view alongside other institutional perspectives. The result is a list of strategies that can be adapted for individual campuses and combined to make real strides in tackling persistent higher education challenges.

The most important take-away from the 2014 symposium is this: **higher education facilities can help colleges and universities achieve their goals.** Facilities are more than a passive backdrop. They can contribute in meaningful, measurable ways to the mission of the institution. Successful campuses will be those that leverage their facilities assets and operations to maximize their potential.

Optimal versus actual higher education outcomes

Colleges and universities are failing to meet several critical goals for the future.

- Instead of **student success** they have frequently **inconsistent educational** outcomes.
- Instead of **high rates of recruitment and retention** they often have **poor recruitment and retention**.
- Instead of **affordable tuition and fees** many have limited access and **lack of affordability**.
- Instead of a **financially sustainable business plan** they have a **cumbersome and unsustainable business model**.
- Instead of **responsible use of space and other resources** they regularly experience **ineffective policies toward space management and utilization**.
- Instead of a **clear mission and focus** some suffer from **lack of focus and an unclear mission**.
- Instead of an **environmentally sustainable campus** they sometimes experience **failure to prioritize environmental sustainability**.

To bridge the gap and move the institution closer to its goals, colleges and universities need to adopt the following strategies:

- *Increase emphasis on student success.* Understand what gets in the way of a successful education and systematically tackle these barriers.
- *Improve affordability.* Employ a variety of strategies to cut costs, increase funding, and improve access for students, including streamlined degree programs, simplified approaches to tuition and discounting, and locked-in tuition prices.
- *Focus on the mission of the institution.* Instead of being all things to all people, focus on what the campus does best.
- *Allocate resources based on institutional priorities.* Align the use of resources with the mission of the college or university.
- *Increase reliance on data and business analytics to support decisions.* Identify the strategic questions that can be answered with data and use business intelligence systems to make smarter decisions.

- *Prioritize environmental sustainability.* Keep sustainability as a goal even as multiple issues compete for attention.

The facilities contribution to optimal outcomes

Facilities assets and operations can advance institutional goals in sometimes unexpected ways. The built environment may seem like it would have little effect on student learning, when in fact well-designed classrooms support new teaching strategies such as problem-based and team learning. Other ways facilities help colleges and universities achieve their goals include the following:

- *Higher rates of recruitment and retention.* The campus plays a major role in creating positive impressions and building student engagement.
- *More affordable tuition and fees.* Efficient facilities operations can significantly reduce costs for the institution.
- *Contribute to clear mission and focus.* Strategic facilities planning enables the built environment to support the institution's mission.
- *Responsible use of space and other resources.* Effective space management makes the most of the institution's single-greatest sunk cost.
- *Environmentally sustainable campus.* Rightsizing the campus and minimizing operational impacts is required to improve institutional sustainability.

To maximize their contribution to the institution, facilities organizations should adopt the following strategies:

1. **Understand how facilities affect student success and employ best practices for student recruitment and retention.** Facilities organizations can significantly contribute to student success through smart strategies and creative use of buildings and grounds. Facilities influence student success more than most administrators realize. Smart institutions recognize the value of the built environment in attracting, retaining, and teaching students; they invest in making their campus more student-friendly.

2. **Use total cost of ownership (TCO) as a guiding principle for all facilities decisions.** Employing TCO enables institutions to make better investments in buildings and systems. Discussion about the costs of facilities is usually divided into the same two categories that show up on balance sheets: initial construction costs and ongoing maintenance, operations, and renewal costs. What's missing is an understanding that the two costs are related. In fact, facilities can cost twice as much to maintain and renew as they do to build. TCO takes this fundamental fact into account by calculating and communicating the lifetime costs of a facility.
3. **Make better use of campus space.** Colleges and universities can cut costs and improve efficiency by maximizing the use of their space. Underutilized space is a wasted resource. Colleges and universities should be finding every opportunity to maximize the utilization of resources, and that means taking seriously the problem of space.
4. **Expand data collection and analysis to support decisions to cut costs and increase efficiency.** By increasing the amount of data they collect and providing new tools to analyze that data, institutions can strengthen their decision-making processes. Business analytics has enormous potential for institutions seeking to make their operational decisions more data-driven. Higher education has lagged behind other industries in adopting business intelligence systems, but well-designed analytics systems have the potential to help institutions measure progress on strategic and tactical goals, support decision making, provide rapid feedback on ongoing efforts, and validate or discredit assumptions.
5. **Use the campus as a classroom to expand awareness of sustainability and facilities best practices.** Facilities organizations can develop innovative ways to use the built environment as a teaching tool and directly involve students with sustainability and efficiency efforts. Facilities staff typically have only limited interaction with students, and most students have no idea what goes into keeping the campus run-

ning. Yet facilities play an important role in the educational experience, and a peek behind the curtain at facilities operations can give students greater insight into issues of sustainability and energy use and raise awareness of facilities throughout the institution.

The Thought Leaders process

The issues discussed in this 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, higher education experts both in facilities management and in operations from finance to HR meet to analyze issues, discuss the effect of these issues on the built environment, and propose strategies to prepare for the future. The yearly Thought Leaders report summarizes the discussions at the symposium as well as provides additional context about major trends.

The purpose of the report is both to inform and to prompt discussion. Senior campus facilities officers use this report as a resource both within their own departments and with their counterparts in space management, IT, finance, HR, student services, and administration. Past Thought Leaders reports have focused on the rising cost of higher education, space management and utilization, workplace demographics, the role of technology, and energy and sustainability.

Harnessing every available resource for the institution

Higher education has settled uncomfortably into the knowledge that the tight budgets and increased demands on their institutions aren't going away. All the quick fixes have been exhausted. Campuses must figure out how to succeed in this new normal.

One strategy that deserves more attention is to dig deep and make the most of existing resources. Colleges and universities have invested billions in their buildings, grounds and infrastructure. They continue to spend millions to operate, maintain, and renew their facilities.

The campus should be considered as valuable to the institution as its endowment. In fact, the campus is a sort of physical endowment, an investment that provides ongoing returns to the college or university. No institution would squander its financial endowment; careful

administration ensures the resource is preserved and managed to benefit future generations. The same should be true of facilities. Colleges and universities should leverage their facilities investment for the maximum return for the institution.

Section II: *Challenges for higher education institutions*

What will determine success?

Participants at the Thought Leaders symposium began with this goal in mind, and they set the parameters that will determine success in higher education.

In the future, successful colleges and universities will demonstrate the following:

Student success. No matter what else they seek to accomplish, the primary goal of colleges and universities is to educate their students. Symposium participants agreed a good education should be both broad and deep; it should provide specific skills and information in a chosen area of study as well as more generalized knowledge to be a well-rounded member of society.

Symposium participants emphasized goals such as “students leave the institution prepared for their careers,” “students show good citizenship and leadership,” and “students are critical thinkers.”

Similarly, the American Federation of Teachers proposes that student success has three elements: knowledge, intellectual ability, and professional/technical skills. Knowledge includes both an appropriate level of knowledge in a selected area of study and exposure to knowledge of the physical and natural world, cultural and intercultural knowledge, civic knowledge and engagement, and ethics. Intellectual abilities encompass critical thinking, problem solving, independent learning, analysis of information, and synthesis.

Data Point: Best practices in retention

Effective retention strategies by institution type

Four-year private	Four-year public	Two-year public
1. Academic support programs or services	1. Honors programs for academically advanced students	1. Tutoring
2. Programs designed specifically for first-year students	2. Programs designed specifically for first-year students	2. Academic support programs or services
3. Giving students practical work experiences in their intended major to apply their learning	3. Academic support programs or services	3. Honors programs for academically advanced students
4. Honors programs for academically advanced students	4. Providing supplementary instruction	4. Mandatory advising by professional staff, one-on-one
5. Tutoring	5. Learning communities	5. Giving students practical work experiences in their intended major to apply their learning

—Noel-Levitz, “2013 Student Retention and College Completion Practices Report for Four-Year and Two-Year Institutions,” *Noel-Levitz Benchmark Reports*, 2013.

Professional and technical skills include skills for specific areas of study as well as abilities such as written and oral communication, information literacy, and teamwork.

High rates of recruitment and retention. Retention is receiving increased attention in higher education, with several states adopting performance-based funding systems that allocate some degree of funding based on performance indicators, including course completion and time-to-graduation. Institutions have also recognized that it's far more cost-effective to retain existing students than to recruit new ones.

The most effective strategies for improving retention are related to academic goals, academic-related skills, and academic self-confidence. These strategies include high-quality academic advising, tutoring, and academic support programs. Successful institutions focus their efforts on programs for first-year students, since students are more likely to drop out of higher education during their first year than any other time. Programs designed for first-year students were identified as the second-most-important strategy for retention by a survey of four-year private institutions by educational consulting firm Noel-Levitz, right behind academic support programs and services.

Recruitment is an essential factor in institutional success. Smart colleges and universities will rely on data-driven marketing to appeal to students most likely to enroll. They'll focus on strategies that have proven successful, such as campus visits and open house events, rather than those with low rates of success, such as billboard and bus ads and radio promotions.

Affordable tuition and fees. Higher education affordability is tied to economic prosperity. A college degree provides greater economic security for individuals as well as entire nations. When access to higher education is constrained by ballooning costs, fewer people can reach the middle class, and the entire economy suffers. The situation will only become more extreme as the information and creative sectors of the economy grow; three-quarters of the fastest-growing occupations require education and training beyond a high school diploma. Without a de-

gree, many young adults will be shut out of the future.

Successful institutions will find creative, sustainable ways to ensure that a college education is within reach of every student, without the burden of crippling debt. Participants at the Thought Leaders symposium called for "higher education access to all those who want to go."

Financially sustainable business plan. Successful institutions will rely on an operating and funding model that is sustainable over the long term. The elements of this model remain unclear and will likely vary from institution to institution. However, it seems likely that major changes will be needed at many colleges and universities. Those institutions that will thrive going forward will be those that find ways to significantly cut costs and increase income over the long term.

Data Point: Rethinking the higher education business model

When the bag of tricks is empty

"[Higher education business officers] have been using a set of strategies to try to do what they already do better, but they've exhausted the bag of tricks they've been using to try to keep it all together. There's not another rabbit in there. They get that the business model isn't working, but they don't quite see the bridge to the next model. And they seem to have some concern that maybe there isn't a bridge."

—Richard Staisloff, founder of educational consulting firm RPK Group, quoted in "CFO Survey Reveals Doubts about Financial Sustainability," Inside Higher Ed, July 12, 2013.

Responsible use of space and other resources. Successful institutions will take nothing for granted. Every resource will be conserved and shepherded for the benefit of the institution. This will mean reevaluating long-term practices and policies—including unwritten policies—that have governed how colleges and universities use their space. Space will no longer be an abused resource

at successful institutions. Institutions will track the use of space and make data-driven decisions that take into account both costs and institutional priorities.

Other resources will be as carefully managed. Successful campuses will collect data on all aspects of their operations and rely on business intelligence technology to make informed, cost-effective decisions.

Clear mission and focus. Thought Leaders participants called for institutions to “demonstrate effective/meaningful concentration on the institution’s core mission.” Individual institutions need to evaluate their strengths, consider their core constituencies, and hone their mission. It’s as important for colleges to *stop* doing some things as it is for them to *start* doing others. For example, adding new majors that support the core mission is far easier than eliminating majors that distract from it, but this unpleasant task is critical to sharpen the focus of the college or university.

This process is paying off for savvy institutions such as Unity College, a private school in Maine with about 550 students. When Mitchell Thomashow became

president of the college in 2006, he felt the institution had too many vague, undefined majors. In an intensive process, the college developed a unifying vision of itself as a leader in sustainability and science-based liberal arts education; it organized its academic departments into five centers with 18 well-defined majors. Thomashow said about the process, “We had to clarify our strengths and amplify them. We couldn’t offer everything.” Today, Unity is widely recognized as a leader in sustainable higher education and is highly ranked in national surveys.

Environmentally sustainable campus and practices. Colleges and universities have made enormous strides in how they think about sustainability; it is now a core principle on most campuses. Successful colleges and universities will continue to strive toward greater sustainability that encompasses every aspect of the campus. Mitchell Thomashow’s recent book *The Nine Elements of a Sustainable Campus* describes sustainability as “a cultural process linked to the habits of everyday life. At its core, sustainability addresses how people live, think, and behave.” Thomashow calls for a profound shift in how institutions make decisions every day. Successful colleges and universities will make this shift not only for the financial benefits but also to fulfill their leadership mission within the global community.

Data Point:
Clarifying the institution’s mission
Finding focus

“Institutions need to evaluate everything—both in the short and long term—and reunite efforts to focus more directly on our core educational missions. We need to take a good, hard look at where our colleges and universities are headed, what central values we hold most dear, and then very purposefully connect all of the programs, practices, and initiatives back to the educational mission. ... We need to be bold, be honest, and, most importantly, involve the entire institution—all stakeholders—in this analysis.”

—Leo Higdon, president of Connecticut College, quoted in “Building a Strong Future for Higher Education: Strategies for Tough Economic Times,” Association of American Colleges and Universities, 2007.

Data Point:

Optimal outcomes for higher education

Student success
High rates of recruiting and retention
Affordable tuition and fees
Financially sustainable business plan
Responsible use of space and other resources
Clear mission and focus
Environmentally sustainable campus

What are we actually achieving?

The optimal outcomes described above are a long way from what colleges and universities are experiencing today:

Inconsistent educational outcomes. Some students get an excellent education and leave higher education prepared for the future, but many others do not. In a 2013 survey of about 700 U.S. employers by the public radio program *Marketplace*, in cooperation with *The Chronicle of Higher Education*, nearly a third said colleges and universities are doing a “fair” to “poor” job of producing “successful employees.” Despite high unemployment figures, more than half of employers said they had trouble finding qualified candidates for job openings. They specifically cited communication skills, problem solving, and decision making as lacking in recent graduates. “It’s not a matter of technical skill but of knowing how to think,” said David E. Boyes, president of Sine Nomine Associates, a tech consulting firm, in an interview with *Marketplace*.

Poor recruitment and retention. Retention is receiving attention across higher education for good reason. According to ongoing research by ACT, in 2013 only 65.8 percent of students entering college continued to their second year; the figure is lower, only 55 percent, for two-year public institutions. However, this data is actually somewhat misleading, since it only applies to stu-

dents attending full-time. Four out of ten public college students attend part-time, and research by Complete College America shows that only a quarter of part-time students graduate within an eight-year period. Low-income students and students of color especially struggle to get a diploma. And while half of students seeking an associate degree require remediation, fewer than 10 percent of remedial students graduate with a two-year diploma in three years.

Recruiting is a necessary expense for institutions, but it can be a costly one, especially for private colleges. While they may be able to bear the expense more than public institutions, a cost of \$2,433 per new student is a heavy burden. (In contrast, four-year public institutions spend \$457 and community colleges \$123 per student on average, according to educational consulting firm Noel-Levitz.) It’s especially important to consider recruiting costs alongside retention figures, since every student lost must be replaced, thus generating new recruiting expenses. No wonder a survey of higher education chief financial officers (CFOs) by *Inside Higher Ed* found that 92 percent ranked “retaining current students” among their top-five revenue-producing strategies.

Limited access and lack of affordability. The rate of annual tuition increases has slowed, at least at public insti-

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**Data Point:
Higher education retention**

The crisis in minority and low-income graduation rates

	Full-time students		Part-time students	
	2-year associate’s in 3 years	4-year bachelor’s in 6 years	2-year associate’s in 3 years	4-year bachelor’s in 6 years
African-American	7.5 percent	39.9 percent	2.1 percent	14.5 percent
Hispanic	11.1 percent	46.5 percent	2.6 percent	16.7 percent
Older student (25+ at entry)	14.4 percent	27.0 percent	4.6 percent	10.6 percent
Low-income (Pell Grant recipient)	11.8 percent	45.2 percent	4.3 percent	17.3 percent

—Time is the Enemy, *Complete College America*, September 2011.

tutions—the College Board reports a 2.9 percent increase in in-state tuition and fees at public four-year institutions in 2013-2014, the smallest percentage increase in more than 30 years. However, grant aid did *not* increase, so many students are still paying more per year. Furthermore, real incomes remained flat or declined for most Americans, so a college education is less affordable for most families.

The results are well known: crippling levels of student-loan debt, which now totals more than \$1 trillion and far outpaces wage growth for college graduates. Research by the Consumer Financial Protection Bureau reveals that this debt is significantly impacting the economy by limiting borrowers' ability to buy homes or cars, save for retirement, or start new businesses. The average college student graduated in 2012 owing \$29,400; less than a decade ago, in 2004, debt averaged less than \$19,000.

The concern is that rising tuition and high-debt burdens will limit access to higher education. In fact, enrollment declined slightly overall in 2014—by 0.8 percent from the previous spring—although the decline was greatest in four-year for-profits, skewing the numbers downward. (Enrollment actually increased on both public and private four-year campuses, according to the National Student Clearinghouse Research Center.) Economists believe this decline is the result of the improving economy and that, so far, high tuition has not put a brake on the demand for high education. However, students and families are finding their choices limited. Many are making more cost-conscious decisions when choosing institutions, selecting lower-cost public schools over small to mid-sized private colleges that depend on tuition dollars. While still able to get a degree, they might not be able to attend the college or university that best fits their needs and aspirations. If current trends continue, low-income students could find the cost of higher education beyond their resources and find themselves shut out of their best chance for moving to the middle class.

Unsustainable funding model. Most analysts of higher education agree that the numbers don't add up. Institutions can't go on raising tuition at rates outpacing inflation, states can't keep slashing higher education funding, and students can't keep taking on massive amounts of debt. The model is untenable. Higher education CFOs agree—in a survey by *Inside Higher Ed* and Gallup, nearly a third of CFOs at private institutions expressed lack of confidence in the viability of their business model over ten years. While most agreed that elite private universities and wealthy liberal arts colleges had good long-term prospects, CFOs lacked confidence in the financial sustainability of non-flagship public universities, for-profit colleges, and non-elite private colleges.

Data Point:
The financially unsustainable university

An unclear financial future

"If you are the president of a college or university that is not among the elites and does not have an endowment in the billions, chances are cash is becoming increasingly scarce—unless you're among the most innovative. The reason is simple: Approximately one-third of all colleges and universities have financial statements that are significantly weaker than they were several years ago..."

"In the past, colleges and universities tackled this problem by passing on additional costs to students and their families, or by getting more support from state and federal sources. Because those parties had the ability and the willingness to pay, they did. But the recession has left families with stagnant incomes, substantially reduced home equity, smaller nest eggs, and anxiety about job security. Regardless of whether or not families are willing to pay, they are no longer able to foot the ever-increasing bill, and state and federal sources can no longer make up the difference."

—Jeff Denneen and Tom Dretler, "The Financially Sustainable University," Bain Brief, Bain & Company, July 6, 2012.

Poor use of space and other resources. Campuses have a poor record of managing their space; in fact, some fail to treat space as a valuable resource. Traditional space practices, such as hoarding offices, labs, and classrooms, have real financial and operational consequences for campuses. The university pays to heat and cool offices that are rarely occupied; the institution builds new classrooms not realizing how many rooms sit empty. Most campuses are still pressed for space between 9:00 a.m. and 2:00 p.m. Monday through Friday, September through May, but are echoing and vacant any other time.

Other resources can also be abused when they aren't adequately tracked and managed. Data is the critical factor, as in the old management adage, "You can't manage what you can't measure." However, major barriers still stand in the way of adapting cutting-edge business intelligence for higher education, including stand-alone data silos, custom legacy systems, and lack of understanding of the requirements and benefits.

Lack of focus and unclear mission. Thought Leaders participants expressed deep frustration with the lack of focus on their campuses. "The mission is weakly defined," stated one participant. "We try to be everything to everyone," said another. When campuses lack a clear, distinctive mission, they risk losing their way. Different constituencies have different priorities. Some faculty want the institution to focus primarily on the task of educating students; others seek support for research. Parents want solid preparation for their kids' future careers; students want great housing, a cool gym, and reliable Wi-Fi everywhere. Alumni want the football team to win. Governments look to institutions for everything from economic development to urban renewal.

What's clear is that few universities have the resources to do everything—to support a classics department, a technology incubator, a law school, an architecture program, a teaching hospital, an archeological field school, and a winning football team. A few flagship institutions will continue to be comprehensive; the rest must narrow their focus.

Failure to prioritize environmental sustainability. Sustainability has made enormous strides on campuses. But

now it can be a victim of its own success. Sustainability now seems old hat and uninteresting; faculty and staff can have "green fatigue." A second challenge is that the low-hanging fruit has all been picked, and the next steps in greening the campus will be more costly and more painful. However, failing to take a leadership role in sustainability will have long-lasting consequences for institutions and for society. Colleges and universities are uniquely positioned to develop sustainability best practices that can be applied in other economic sectors. Failing to capitalize on previous investments and make further progress would be to squander a unique opportunity.

Data Point:

Optimal outcomes for higher education	Actual outcomes today
Student success	Inconsistent educational outcomes
High rates of recruiting and retention	Poor recruitment and retention
Affordable tuition and fees	Limited access and lack of affordability
Financially sustainable business plan	Unsustainable funding model
Responsible use of space and other resources	Poor use of space and other resources
Clear mission and focus	Lack of focus and unclear mission
Environmentally sustainable campus	Failure to prioritize environmental sustainability

What's getting in the way of success from within the institution?

If the real outcomes on campuses are so far from the optimal outcomes, what's generating the actual rather than desired results? In particular, what factors *within the institution's control* are hindering progress?

Inflexible and entrenched teaching methods. The "sage on a stage" model of education persists,

despite ample evidence it doesn't serve students. For all the new emphasis on undergraduate teaching and learning, institutions are taking few steps to improve teaching and student engagement, or else the measures they adopt are considered ineffective. "Development of faculty skills in instruction, advising, and other student in-

Data Point:
Innovation in freshmen retention
A community college keeps incoming students on track

Guttman Community College, the newest college in the City University of New York system, opened in 2012 with a new approach to retention. It would require incoming students adhere to a strict first-year program designed to improve student engagement and retention. First-year students must participate in a summer bridge program, must enroll full-time, and must take a required slate of classes. Students are placed in learning communities that are divided into cohorts of students; these students attend all of their classes together.

The system is rigorous, restrictive—and effective. The first-year retention rate was nearly 75 percent, a significant improvement from the 57 percent rate seen at comparable schools.

Other innovative elements of Guttman's program include "student-success advocates," staff that provide academic and social support, working alongside professors in the classroom. Students also have a network of peer mentors. Instructional teams meet weekly to discuss student progress and identify faltering students.

Guttman's program is the first of its kind at a community college. Its founders believe the approach has the potential to significantly improve graduation rates and better prepare students for jobs or further study.

—Excerpted from Seth Zweifler, "A New Community College Keeps Students on Track with Structure," *The Chronicle of Higher Education*, May 27, 2014.

teraction" was identified as one of the most *ineffective strategies* for improving student success and degree completion in a 2013 survey by Noel-Levitz. Equally ineffective were mentoring programs for new or adjunct faculty to improve their teaching skills.

Ineffective retention strategies. Despite the increased focus on retention, many institutions are still sorting out their strategies; a survey by Noel-Levitz revealed lack of agreement among faculty, staff, and administrators on the most basic retention issues, goals, concerns, and strategies. Less than a third of respondents reported having a current, written plan for student retention and college completion that they considered of good quality. Other findings show that retention data either isn't being collected or isn't shared across the campus.

Outdated space policies. Many institutions have reformed their space allocation and management policies, with some taking a cue from community colleges, who have led the way in making the most out of limited space. Others, however, continue to cling to practices almost guaranteed to result in inefficient use of space and unnecessary costs. For example, allowing departments to "own" space without any policies, guidelines, costs, or even opportunities to hand the space back to the institution if it is unused creates a situation where departments are allowed to be as dictatorial with space as they like. If the university builds new classrooms while existing classrooms sit vacant, space policies need immediate revision.

Unclear, unaligned mission. Most colleges and universities today have a mission statement. All too often, however, this mission statement is a lofty phrase that has little to do with the day-to-day operations of the campus. If a major percentage of the budget, or a sizable proportion of staff, is devoted to tasks not mentioned in the institutional mission, one or the other needs to be adjusted. In their report "The Financially Sustainable University," Jeff Denneen and Tom Dretler with Bain & Company wrote:

The healthiest organizations—from Fortune 500 companies to start-ups to academic institutions—

operate with a discipline that allows them to stay true to their core business. The core is where high-performing institutions invest the most and generate the greatest returns. It is the area where they are clearest about the value they add. It is the domain where they are the most differentiated and the place from which they derive their identity. In short, the core is the strategic anchor for the focused company or the focused university.

Too many campuses lack a clear core. Alternatively, they've articulated a core but have failed to align their assets and operations with that core. If sizable portions of the budget are going to side efforts, the institution is diluting its impact. This is a hard fact for many colleges and universities—it's hard to close down a program begun with high hopes, to lay off hardworking staff, or to hurt and offend alumni with enthusiasm for a particular sport. But if that program, department, or sport is dragging down the institution, sometimes the survival of the institution necessitates hard choices.

Data Point:
The financially unsustainable university

An unclear financial future

"The worst-case scenario for an institution is to be relatively expensive and completely undifferentiated. Who will pay \$40,000 per year to go to a school that is completely undistinguished on any dimension?"

—Jeff Denneen and Tom Dretler, "The Financially Sustainable University," Bain Brief, Bain & Company, July 6, 2012.

The arms race. Competition is a good thing—until it isn't. Many critics agree that the rating systems that rank colleges and universities are hurting institutions rather than helping them. Colleges determined to increase their standing can game the system by dramatically increasing the pool of applicants just to reject most of them and increase their "selectivity" rating—how does this indicate improved quality? (Not to mention that the

process increases the very real costs of recruiting and then rejecting all those applicants.) Even more critically, colleges and universities that spend more money rank higher than those that spend less, perversely incentivizing institutions to aim for higher expenses rather than increased efficiency. A 2009 report by the Center for College Affordability and Productivity noted:

Judging a school by its expenditures per students actually provides disincentives for cutting costs and keeping tuition down. In the *U.S. News* ranking, if two colleges provide the same academic quality but one does it while spending less, all other factors being equal this school would actually receive a lower ranking than the school that provided the same quality at greater cost to its students (and to taxpayers, if the school is public).

Aversion to risk. When a participant at the Thought Leaders symposium proposed that higher education is averse to change, it prompted a fascinating discussion and decision by the group that the real aversion is to risk rather than change. The costs of many institutional risks are so high that many faculty and administrators fear to make them. As Clayton Christensen and Henry J. Eyring note in a recent article, "No risk-averse department chair can think seriously about cutting courses or degree programs. Even if such a proposal could be pushed through the curriculum committee, the only reward to the chair would be collegial ostracism." Similarly, an athletic director has few rewards for dropping a popular sport, nor does a president refusing a donor's offer of a new building. Institutions do not reward risky but potentially highly rewarding decisions—especially when those decisions are unpopular.

Multiple challenges distract from sustainability efforts. With so many priorities jostling for attention, institutions can let their focus slip away from sustainability targets. Sustainability is at the stage where progress means continuing to push forward on hard-to-attain goals. It's easy to lose ground when you're not paying close attention.

What's getting in the way of success from *outside* the institution?

Other factors *outside the institution's control* are also blocking progress.

Underprepared students. Different measures of college-readiness agree that many students aren't up to the challenge of rigorous courses. The College Board reports that just less than half of the students who took the SAT in 2013 are ready to succeed in college. Only 43 percent of test-takers scored 1550 out of a possible 2400; research shows that students who score less than 1550 are more likely to average a C or below their first year of college and less likely to complete their degree within four years. Meanwhile, roughly 60 percent of the 6.5 million students who enroll in community colleges require remedial classes. Underprepared students take longer to graduate and many drop out altogether.

Changing demographics. The traditional college student—18 to 23 years old, attending a residential campus—is increasingly a minority. The classroom of 2020 will be far more diverse than today; enrollment is projected to increase by 25 percent each for African-American and Asian students and 46 percent for Hispanic students. Students will also be older; the greatest enrollment increases will come from students 25 to 34 years old (21 percent) or 35 and up (16 percent). Part-time enrollment will grow faster than full-time enrollment. Institutions need to be prepared for the nontraditional student to become traditional.

Declining resources. State funding for higher education continues well below pre-recession levels, according to the Center on Budget and Policy Priorities. On average, funding has risen by 7 percent, or roughly \$450 per student, but this is still 23 percent less than state institutions received in 2008. (Eight U.S. states actually continued to cut allocations for higher education in 2013.) Returns on endowments have risen along with the economy, but private institutions with small endowments can take no comfort in this fact. A large segment of the higher education sector is increasingly dependent on tuition, and tuition revenue was stagnant in FY 2013. A third of private and public institutions project that net

Data Point: Changing demographics and private institutions

Will residential private campuses be hardest hit?

"Demographic changes may be particularly challenging for some residential private colleges outside of major metropolitan areas. Some of these institutions are largely white and full of traditional college-age students at a time when demographers predict enrollment growth for part-time students, minority students, and students from urban areas. 'Historically these are not institutions that have been... visible in the minority community,' said Richard Kneedler, former president of Franklin & Marshall College. 'It means when their base shrinks it's really a challenge.'

"The president of Johnson C. Smith University, a historically black college in North Carolina, has similar worries.

"'Watch this space,' said President Ronald Carter, 'see how predominantly white institutions will struggle if there are fewer white Americans to fill their seats. Will they fill them with international students? How many minority students can they really afford with gap funding?'

"Carter said American higher ed needs to negotiate the demographic shift carefully. Minority students are generally coming with less money than white students, so colleges that are trying to plug their enrollment losses with minorities are going to have to find some way to help the students pay."

—Ry Rivard, "Private Distress," *Inside Higher Ed*, December 9, 2013.

tuition revenues will grow by less than 2 percent or decline, according to a survey by Moody's Investors Service. Many tuition-dependent institutions find themselves in a destructive spiral of discounting in order to land the "right" students—usually the most academically promising—so the stated price is only paid by a handful of new

enrollees. Every dollar discounted is a dollar that isn't collected and used for education purposes.

Rising costs. The cost to run the average campus has gone up, in part due to the same factors that have driven up costs for businesses. The cost of health benefits, for example, has risen over the past decade for all organizations. Cost increases specific to higher education include a sizable increase in administrative staff. The higher education workforce grew by 28 percent between 2002 and 2014, with the most significant growth in administrative positions such as HR benefits administrators, admissions staff, IT analysts, and counselors, according to the Delta Cost Project. Certainly, the increase in administrative staff is not necessarily negative; many of the new employees provide critical student services, deal with regulatory mandates, and raise and manage funds from a wide variety of sources. The point

is that institutions need to understand and adjust to the larger slice of the pie going to administration. (Faculty salaries, on the other hand, have remained flat since 2002, smashing the theory that high salaries are pushing up tuition.)

Research institutions have seen some of the greatest cost increases; a study of spending at Virginia's public colleges and universities found that colleges and universities have expanded the scope and size of institution-sponsored research. Research spending grew at Virginia's six research institutions by 62 percent. Construction of instructional and research space has also pushed up higher education costs. For example, a detailed analysis of nonacademic services and costs in Virginia found that, on average, 7 percent of the price of higher education to students was to pay for institutional debt service, primarily on nonacademic capital projects.

Data Point: Changing expectations

Preparing students for the right jobs

As expectations about higher education shift and evolve, a college education is no longer seen as an end in itself; instead, a degree has a clear purpose: to prepare students for employment. As this attitude has spread, policymakers have begun to insist that colleges and universities equip students not just for *any* jobs but for the *right* jobs—the careers that will benefit individuals and the economy the most.

A 2011 report by the National Governors Association makes this point strongly:

Recognizing that universities and colleges are critical to their state's growth and economic prosperity, many governors and state policymakers have been considering how best to get more students to both enter college and get college degrees. . . .

Recently, however, a growing number of governors and state policymakers have come to recognize that higher education, including community colleges, four-year colleges, and

research universities, cannot help drive economic growth in their states unless students' academic success is linked to the needs of the marketplace. Thus, some governors and state policymakers are beginning to move beyond their focus on getting more students to get "degrees" to asking: "Degrees for what jobs?"

The report encourages states to "set clear expectations for higher education's role in economic development," "encourage employers' input in higher education," and "emphasize performance as an essential factor in funding." Measures of success should include students' employment after graduation.

It's not clear how far this trend will go. (Will states penalize institutions that graduate too many English majors?) What is completely clear is that institutions must be ready to respond to the changing expectations of policymakers and prepared to answer when asked which jobs their students will be prepared for.

Changing expectations. Students, parents, businesses, and governments ask more of higher education than ever before. A recent presentation by Georgia Tech president Bud Petersen noted three ways in which expectations for colleges and universities have changed. First, institutions are expected to “ensure that graduates are both employable and prepared to adapt and lead in an ever-changing world.” Ensuring employability is a far higher standard than providing learning. A generation or two ago, colleges and universities focused on providing an education; now they are asked to almost guarantee a job for graduates. Furthermore, the value of a degree is measured in terms of future income potential, not in terms of what the student has learned or experienced.

Second, institutions are expected to promote economic development in their communities. Petersen specifically discussed how Georgia Tech moves research from the lab to the consumer via start-up support, busi-

ness incubators, and technology transfer, but an institution doesn't have to be a research university to be asked to promote the economy of its region.

Finally, institutions are expected to provide an education “to the world,” in Petersen's terms—but at least to a far more diverse group of students. For most of the twentieth century, higher education was reserved for a fairly elite group of students, and institutions could count on them to be prepared for college-level work. Today, a larger proportion of the population than ever before attends college, and the institution as a whole hasn't yet adapted to the arrival of the new normal—that is, students that are minority, low-income, part-time, older, and the first generation to attend higher education. These new expectations remain bewildering for some in higher education, and institutions often struggle to adjust to the new reality.

Data Point:

Optimal outcomes for higher education	Actual outcomes today	Barriers to success
Student success	Inconsistent educational outcomes	Inflexible and entrenched teaching methods
		Underprepared students
		Changing demographics
High rates of recruiting and retention	Poor recruitment and retention	Ineffective retention strategies
Affordable tuition and fees	Limited access and lack of affordability	The arms race
		Aversion to risk
Financially sustainable business plan	Unsustainable funding model	Declining resources
		Rising costs
Responsible use of space and other resources	Poor use of space and other resources	Outdated space policies
Clear mission and focus	Lack of focus and unclear mission	Unclear, unaligned mission
		Changing expectations
Environmentally sustainable campus	Failure to prioritize environmental sustainability	Multiple challenges and issues distracting from sustainability efforts

Section III: Strategies for improving institutional outcomes

Closing the gap between the desired outcomes and the current situation means confronting some of the most intractable problems in higher education. Solving these challenges will take time, persistence, and readiness to take risks, but institutions unwilling to innovate face an uncertain future.

1. Increase emphasis on student success.

The issue: When students thrive, the institution thrives; when they fail, so does the institution. Colleges and universities need to prioritize student success and seriously consider when, why, and how students stumble. A new focus on success will improve retention rates as well as better prepare students for their futures.

Strategies for success:

First, colleges and universities need to understand what limits success. According to a report by the American Federation of Teachers based on intensive focus groups with students, the biggest obstacles to success are as follows:

- **Lacking enough money and financial aid to go to school.** This is a larger concern for community college students than for those at four-year institutions, but nevertheless can affect students on any campus.
- **Receiving inadequate academic guidance and advising.** Students often don't understand academic requirements; they don't know how to set academic goals or execute coursework to meet these goals.
- **Lacking highly developed "soft skills."** Without strong reading and math abilities, study and time management skills, and adequate self-discipline and motivation, students can fail to advance through college-level coursework.

- **Inability to find time and "balance."** Coursework is only one of many roles for today's students, who often have jobs and family responsibilities.

Colleges and universities can't solve all of these problems for students, but they can do the following:

- **Create accessible and friendly financial aid offices.** Students can use all the help they can get navigating financial aid.
- **Adopt best practices for academic guidance and advising.** Academic advising is traditionally a low-priority activity on campus, but institutions are recognizing the value of effective advising and investing in improving their advising process.
- **Require orientation programs.** Students who attend summer orientation programs report learning better study and time-management skills, developing supportive peer and mentor relationships, and understanding expectations for coursework.
- **Simplify course selection.** Students are often overwhelmed by the variety of courses available and unclear about what they should and shouldn't take. They end up signing up for classes they don't need, delaying their time to graduation and increasing their costs. Research shows that limiting course selection and laying out a clear list of requirements is an effective retention strategy.
- **Normalize asking for help.** Students often don't realize how much help is available to them. Faculty need to encourage students to ask questions, come to office hours, use tutoring centers, and generally take advantage of the support network already in place.
- **Simplify course selection.** Students are often overwhelmed by the variety of courses available and unclear about what they should and shouldn't take. They end up signing up for classes they don't need, delaying their time to graduation and increasing their costs. Research shows that limiting course selection

and laying out a clear list of requirements is an effective retention strategy.

- **Create shorter, more flexible pathways to degrees.** On the other hand, course schedules should be as flexible as possible. Institutions should offer night classes, compressed courses, mini-terms, and summer courses. Aim for motivated students to complete a degree within three years.

Participants at the Thought Leaders symposium were clear on the importance of student success for higher education. All decisions at the institution, one

Data Point: **Improving student success**

Creating relationships with “intrusive” advising

When advisors at Zane State University need to talk to a student, they mean it. If polite invitations to chat are ignored by students identified as at-risk of dropping out, advisors will start sending more forceful e-mails; then letters; then show up in class and ask students to meet in person.

Retention rates rose under this new “intrusive advising” process, according to a report by the Center for Community College Student Engagement. Sometimes referred to more politely as “proactive advising,” the approach calls for early intervention at the first sign of difficulty. Intrusive advisors also help students identify their strengths and weaknesses, point them to academic support services (and check to see if they’re being used), and emphasize the importance of meeting deadlines and attending class. The most effective advisors are able to be intrusive without being rude by building relationships with students.

At-risk students are frequently in crisis, even if the crisis is only in their self-confidence, and are often in no position to go to a stranger and admit they’re struggling. Intrusive advising creates a relationship between the student and a representative of the institution who cares enough to show up at their class to ask how things are going.

participant urged, should be made based on whether or not the decision promotes student success.

Questions for institutional dialogue:

- How does our institution define student success? How do we measure the success of our students?
- What sort of systems are in place to monitor student progress? What happens if a student is at risk of failure? Is this system effective?
- What is our advising process? Do we have data that shows how well the process works? Does the process need to be revised to meet the needs of today’s students?
- How do we help students acquire “soft skills” such as time-management and study skills? Should these programs be expanded, better promoted, or made mandatory?
- Are we making it as easy as possible for students to get the classes they need to get to a diploma? Do we need to offer classes at different times? On different schedules?
- How can we help students develop personal connections on campus?

2. Improve affordability.

The issue: The higher education affordability crisis is a complex problem with multiple causes, and it will require a complex solution. Easy answers do a disservice to sincere college and university leaders seeking real strategies. The institutions that succeed will be those who strategize their approaches, build consensus with different constituencies, and clearly communicate their goals.

Strategies for success:

The following strategies can be considered a starting point for institutions looking to cut costs and increase revenues.

- **Stabilize state funding.** Higher education needs to engage in a frank conversation with elected officials and policymakers on the value of colleges and universities to the state and the level at which the state should fund postsecondary education. Commitments

need to be made that will allow administrators to plan for funding going forward. In return, state institutions can point to gains in productivity as well as ongoing productivity efforts to demonstrate their commitment to keeping down the cost of each degree produced. Colleges and universities need to acknowledge that the cost of education is *not* fixed—despite previous claims to the contrary. Some funding will come not from students or the state but be squeezed out of existing operations by improving efficiency.

- **Focus on retaining existing students.** Retention is a financial issue, since serving the students you already have costs less than bringing new students onto campus.
- **Clarify tuition by reducing discounting.** Institutions have dramatically raised tuition at the same time they've also increased the practice of discounting—aid from the institution—so that the net price of a year of instruction is on average 45 percent less than the sticker price. Many colleges and universities plan to raise revenue in coming years by reducing discount rates (51 percent of private institution CFOs noted this as a strategy in the *Inside Higher Ed* survey), but critics charge that discounting strategies have “hit a wall,” according to TIAA-CREF. A more sustainable approach is needed, and colleges and universities should revise stated tuitions close to the average discounted rate.
- **Develop new revenue streams.** Institutions should look to new programs—such as online courses and international campuses—to tap new markets and new sources of income. The challenge is to develop these programs in cost-effective ways that don't dilute the institution's core mission and that are economically sustainable. Careful cost-benefit analysis and customer surveying needs to take place to make sure programs will have users and earn back more than they cost.

At the same time, colleges and universities need to put in place policies and practices that improve affordability for students:

- **Lock in tuition prices.** Guaranteeing tuition rates for four years allows students to better plan their total costs.

- **Reduce time-to-graduation.** Getting students out of school faster by providing accelerated classes, offering a comprehensive summer schedule, ensuring required courses are available, and streamlining requirements allows students to maximize their investment in higher education and start their careers sooner.
- **Ease the transfer process.** Students move between institutions for multiple reasons, including financial ones. Spending even a single year at a low-tuition, in-state college or university can significantly reduce costs, but right now this process is fraught with anxiety, since schools have varying degree requirements, often require repetition of completed courses, and limit the number of transferable credits. Making transfers less painful could increase accessibility for many students.

Questions for institutional dialogue:

- How do we define affordability for our institution?
- How sustainable is the institution's financial model? What is our level of debt? Of discounting? If the model isn't sustainable, what needs to change?
- What programs are in place to retain existing students? How well are they working? What needs to be improved? Who is responsible for this task, and do they have the authority to be effective?

Data Point: High tuition, high discounts

The untenable discounting situation

“Schools wanted a high tuition on the assumption that families would say that if they're charging that high tuition, they must be right up there with the Ivys. So schools would set a high tuition, then discount it. But when the schools in your peer group all have discounts, it becomes an untenable competition for students, with everyone having to increase their discounts.”

—David L. Warren, president of the National Association of Independent Colleges and Universities, quoted in Tamar Lewin, “Getting out of the Discount Game, Small Colleges Lower the Price,” *The New York Times*, December 28, 2013.

- What is our current rate of discounting? Do we need to adjust our stated tuition to better reflect the real price of a degree?
- How do we identify and evaluate new funding sources?
- How can we adjust our policies to speed up time-to-graduation? To ease transfers?

3. Focus on the mission of the institution.

The issue: Many colleges and universities have tried to be all things to all people. They lack a core identity and mission that distinguishes them from other institutions. Narrowing the focus of the institution on a clearly defined and agreed-upon mission allows the college or university to start eliminating programs and staff that don't support that mission. The result is not only reduced costs by prioritizing facility investments, but also a strong identity and driving sense of purpose.

Strategies for success:

- **Identify and increase distinctiveness.** Institutions that can point to a key strength and then build on that strength are like consumer brands that can point to a unique benefit; they can differentiate themselves from the rest of the pack. Distinctiveness attracts new students, draws donors, motivates faculty and staff, and creates a sense of camaraderie on campus.
- **Reduce administrative staff.** CFOs surveyed by *Inside Higher Ed* identified this strategy as one of the most important to reduce costs for the following year, but cutting staff can do more than simply balance the budget. Administrative bureaucracies also bog down the institution, reduce efficiency, and limit interaction between students and senior administrators.
- **Share programs with other institutions.** Colleges and universities like the idea of their faculty teaching their students, but it doesn't always have to be that way. Institutions can share faculty and programs resources when they are too much for one campus to manage alone or fall outside of one institution's mission. This strategy is particularly appropriate for state institutions within systems; the use of the assets of the whole system to serve students on each campus is an underutilized strategy.

- **Eliminate unnecessary academic programs.** Underperforming, unnecessary academic programs distract from the goals of the institution and suck money away from essential operations. As painful as the program prioritization process might be, the step was the second-most agreed-upon strategy for reducing costs identified by higher education CFOs in the *Inside Higher Ed* survey.
- **Share programs with other institutions.** Colleges and universities like the idea of their faculty teaching their students, but it doesn't always have to be that way. Institutions can share faculty and programs resources when they are too much for one campus to manage alone or fall outside of one institution's mission. This strategy is particularly appropriate for state institutions within systems; the use of the assets of the whole system to serve students on each campus is an underutilized strategy.
- **Outsource business functions.** The college campus is expected to operate top-notch dining, residential, sports, and IT units even though these are not the institution's core functions. Businesses and nonprofits moved away from this model years ago—outsourcing is a mainstay of most modern businesses. Higher edu-

Data Point: Reducing administrative staff *The case for cutting staff positions*

"Administrative staff at colleges has grown in both absolute number and relative to student enrollments...Expenditures on education and related expenses are increasingly allocated to administrative and support services and less so to instruction, with expenditures on the former already outnumbering that of the latter in some sectors and approaching parity in the remainder.

"Administrative and support staffs in higher education should be reduced in order to lower the costs of providing a college education, to improve employee productivity, and to refocus the mission of colleges to the production and dissemination of knowledge."

—"25 Ways to Reduce the Cost of College," Center for College Affordability and Productivity, September 2010.

Data Point:

Optimal outcomes for higher education	Actual outcomes today	Barriers to success	Strategies for bridging the gap
Student success	Inconsistent educational outcomes	Inflexible and entrenched teaching methods	Increase emphasis on student success
		Underprepared students	
		Changing demographics	
High rates of recruiting and retention	Poor recruitment and retention	Ineffective retention strategies	
Affordable tuition and fees	Limited access and lack of affordability	The arms race	Improve affordability
		Aversion to risk	
Financially sustainable business plan	Unsustainable funding model	Declining resources	
		Rising costs	
Responsible use of space and other resources	Poor use of space and other resources	Outdated space policies	Allocate resources based on institutional priorities
			Increase reliance on data and business analytics to support decisions
Clear mission and focus	Lack of focus and unclear mission	Unclear, unaligned mission	Focus on the mission of the institution
		Changing expectations	
Environmentally sustainable campus	Failure to prioritize environmental sustainability	Multiple challenges and issues distracting from sustainability efforts	Prioritize environmental sustainability

cation needs to consider handing operations such as food service, housing, recreation, healthcare, IT, and custodial services to firms that can deliver better services at lower prices.

Questions for institutional dialogue:

- What type of institution are we? What do we do best? What programs are in the highest demand? Where do we deliver the most value?
- Does our stated mission really reflect who we are?
- Who are our students? What kinds of students constitute the market available to us? What kind of students are we best equipped to serve? Does our vision of our ideal student line up with reality?
- What is the current level of administrative staffing? Do these staff serve the mission of the institution?

How we do determine which staff positions can be eliminated?

- How do we evaluate programs/offerings to ensure they align with our mission? How do we create a process to shutter programs that offer little value?
- What is our institution's attitude toward outsourcing? What do we outsource now, and how well does that process work? What other operations could be outsourced? What would be required to make outsourcing an accepted alternative at our institution?
- How do we ensure new programs align with our mission?
- Do we have opportunities for either expanding markets or reducing costs that can be explored if the institution embraces new delivery models (online, competency-based, etc.)?

4. Allocate resources based on institutional priorities.

The issue: Higher education frequently allocates resources without making a case for the expense. Budgets and space assignments are a matter of standard operating procedure even when that procedure no longer makes educational or financial sense. Institutions need processes for determining the optimal allocation of resources, including space, capital funding, faculty, staff, and money. These processes should be driven by the college or university's mission and priorities and incorporate analysis of return on investment.

Colleges and universities can start improvements by looking seriously at the utilization of existing resources and assets, including facilities (how many classrooms are empty how often?); faculty (how many credit hours are taught by faculty members in different departments?); and programs (how many students have graduated in each of the last five year years?). Understanding the current state of affairs can point the institution toward areas where resources can be used more effectively.

Strategies for success:

The single-most important strategy for colleges and universities is to adopt the principle that resources are allocated to achieve the institution's mission. From that principle flows specific steps that colleges and universities can take to align resource use and campus goals.

- **Adopt a budgeting strategy that ties resources to mission.** Colleges and universities employ a wide variety of budget models, some of which do a better job than others of aligning resources and goals. Simply adjusting budgets up or down by percentage increments, for example, has no connection to institutional planning. Budgets need to be strategic, integrated across the institution, and aligned with agreed-upon priorities. For example, the Resource Allocation Mapping model requires projects and departments to prioritize expenses based on an assessment that encompasses the mission and strategic plan, the financial performance of the project/department, internal competencies (can the institution accomplish this

task and do it well?), and market trends (are others doing it?). Programs are ranked from most important (Drives the Enterprise) to least (Drains Resources) and funded accordingly.

- **Allocate space as carefully and strategically as any other resource.** Institutions have a track record of treating space like an entitlement, a free possession of departments and programs, rather than a limited, expense-generating resource. Colleges and universities should understand and communicate both the value and the cost of space.
- **Use return-on-investment (ROI) to drive resource deployment.** Measuring ROI in higher education is complicated—it's not a simple matter of how much money was made in a new factory. At some research institutions, ROI can be relatively straightforward for lab spaces; universities can calculate the amount of grant money per square foot of lab space. For classrooms, teaching labs, offices, and libraries, the equation is more complicated. Can the institution tie improved student learning to upgraded classrooms? Can administrative productivity gains be linked to an integrated, easy-to-use financial software system? Despite the difficulties, colleges and universities see a benefit to analyzing the return on institutional investments, even if they are more qualitative than quantitative.

Questions for institutional dialogue:

- What is the current budgeting model at the institution? Does it explicitly tie the college or university's mission to budget line items? How do departments or programs make the case that their expenditures support broader priorities?
- Do individual departments or programs "own" their space, or is it controlled at the college or institutional level?
- Is space allocation explicitly tied to the university's mission and goals? If not, how would the space allocation process need to change to align space use with institutional priorities?
- Are the users of space aware of the costs of that space? If awareness is low, how can the institution communicate the expenses associated with space?

- What sort of qualitative or quantitative measures can be used to measure the ROIs in facilities, operations, and administration? Can these measures be linked to the institutional mission and strategic plan?

Data Point: **Space allocation**

Changing the culture of space

“We need to make it clear that space is not owned by a department; it is allocated to a need or an activity, to contribute to that activity’s success. We need to set the expectation that as activities shift in priority, space reallocation will be necessary.”

—Phil Rouble, associate director of facilities planning & sustainability at Algonquin Colleges, quoted in “Changing the Culture of Space Allocation,” *Higher Ed Impact*, Academic Impressions, December 8, 2011.

5. Increase reliance on data and business analytics to support decisions and improve teaching and learning.

The issue: Colleges and universities should take advantage of every tool available to improve the performance of the institution, yet many have hesitated when it comes to business analytics and data-driven decision making. Other campuses have found success employing analytics to allocate resources, manage finances, and serve students. Institutions should make strategic investments in analytics and promote a culture of data-driven decision making.

At the same time, colleges and universities need to build on their investment in course management software by digging deeper into their data for insights on students and faculty. Programs can already alert faculty if a student’s engagement with a course suddenly declines (as measured by a marked decrease in online participation, for example). As systems develop they will be able to customize learning modules to best fit students’ learning styles, identify gaps in the mastery of material, and provide feedback on how to better present material.

Strategies for success:

- **Identify strategic questions that can be answered with data.** Research by EDUCAUSE shows that business analytics systems work best when they are developed to answer specific questions. Institutions should start by identifying strategic business problems and developing questions for the system to answer.
- **Start where you are, with the data you have.** Institutions often believe that their data won’t support analytics; in fact, business intelligence requires neither perfect data nor the perfect data culture. Campuses can begin with what they have and improve their data going forward.
- **Invest in people over tools.** Analytics are as much about people as programs. Without staff who understand the data, the tools, the strategic problem, and the institution, analytics will simply be costly software systems.
- **Employ analytics across the institution.** The most common use of analytics today is in enrollment management, finance and budgeting, and student progress. However, analytics systems can be used to support any activity that generates large quantities of data, including human resources, facilities, procurement, and research administration.
- **Incorporate analytics into student success efforts.** Data analysis has particular promise in student performance, recruitment, and retention. Take advantage of the data already available from existing course management systems to track student success and look for patterns.
- **Use student data to test the effectiveness of teaching and learning strategies.** It’s sometimes hard to know what works in teaching—there are too many variables, especially in a single classroom. However, learning management systems allow for strategies to be tested across large numbers of learners and offer almost instant feedback. For example, course software systems can provide a different experience—such as different study materials, homework, or quizzes—to different students. For example, half the students in one section of an introductory science course could receive experience A and half experience B, allowing faculty to quickly see which approach is the most successful.

Data Point: Data and analytics

Benefits of analytics for higher education

Institutions can potentially achieve significant benefits from analytics, according to a survey by EDUCAUSE of the organization's members and members of the Association for Institutional Research. Respondents agreed the following areas would see a large or major benefit from analytics; they are listed in order of their ranking by respondents:

- Understanding student demographics and behaviors
- Optimizing use of resources
- Recruiting students
- Helping students learn more effectively/graduate
- Creating data transparency/sharing/federation
- Demonstrating higher education's effectiveness/efficiency
- Improving administrative services
- Containing/lowering costs of education
- Improving faculty performance
- Reducing administrative costs

—*Jacqueline Bischel*. *Analytics in Higher Education: Benefits, Barriers, Progress, and Recommendations*, EDUCAUSE Center for Applied Research, August 2012.

Questions for institutional dialogue:

- What are the highest priority strategic questions confronting the institution? How can data and analytics help provide an answer?
- What data is the institution already collecting? Who is responsible for this data? What is the quality of the data? What processes can be put in place to improve the quality of data going forward?
- What is the level of institutional commitment to analytics? Is the institution ready to invest in both systems and people? Who will be responsible for analytics systems? How will the systems be managed?
- What data is available in our existing course management software? How can we better take advantage of the insights hidden in that data?

- What sort of questions about teaching and learning could we answer with creative use of learning software?

6. Prioritize environmental sustainability.

The issue: Issues of affordability, budgeting, and student success can easily distract colleges and universities from the goal of sustainability. But the environment isn't going to wait until the economy improves and institutions reform their financial operations. Sustainability must be tackled in the middle of everything else. A deep, lasting commitment to a green campus will have lasting benefits for the institution and the climate.

Strategies for success:

A model for the sustainable college or university was recently proposed by Mitchell Thomashow in his new book *The Nine Elements of a Sustainable Campus*. Mitchell divides his nine elements into three categories (infrastructure, community, and learning), and suggests strategies for each. These include the following:

■ **Infrastructure**

- **Energy:** Strive for zero-carbon energy use by adopting a mix of tactics, including renewable energy sources, rigorous conservation, and offsets. Track energy usage on a detailed level (by room, if possible) and make clear the connection between daily behaviors such as thermostat settings and institutional energy costs.
- **Materials:** Employ sustainable materials with a minimal ecological footprint in both buildings and operations.
- **Food:** Consider energy costs when sourcing foods and communicate these costs to students. Support local and organic farmers and look for opportunities to grow food on campus.

■ **Community**

- **Governance:** Incorporate sustainability into the mission, master plan, and strategic plan of the institution. Build alliances between all levels of administration and look for leaders with the passion and commitment to spearhead sustainability efforts.

- **Investment:** Support green businesses within the local community. Evaluate the institution's portfolio and consider focused investing in enterprises with a strong social and ecological commitment.
- **Wellness:** Provide a healthy workplace. Incorporate health and wellness into the curriculum.

■ Learning

- **Curriculum:** Encourage faculty across the institution to incorporate sustainability into their teaching. Create more sustainability majors.
- **Interpretation:** Communicate sustainability efforts to students, faculty, and visitors to the campus. Tell the story of environmental efforts in campus publications and marketing programs.
- **Aesthetics:** Encourage art students, faculty, and community members to treat the campus as a green canvas. Create architecture and landscape plans that are as sustainable as they are beautiful.

Questions for institutional dialogue:

- Where does sustainability rank among institutional goals? Has it lost momentum in recent years or remained a priority? How can your college or university keep up its commitment to environmental stewardship going forward?

- Among Thomashow's nine elements, where has your institution made the most progress? Where should it turn its attention?
- Is sustainability part of the institution's mission or vision? How does sustainability align with other elements of the mission? Does the mission need to be revised to incorporate sustainable elements?
- Are there untapped opportunities for developing curricula in a variety of academic areas that utilize the campus as a learning laboratory?

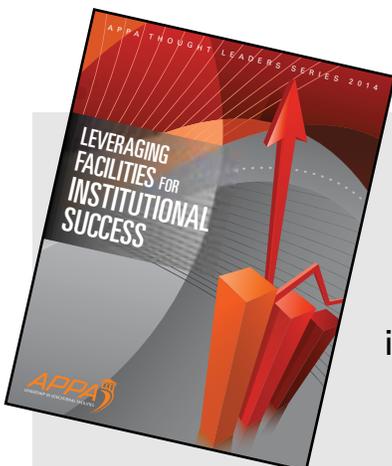
Data Point: Cutting academic programs

Hard choices at Pennsylvania colleges and universities

Several public institutions in Pennsylvania have proposed eliminating academic programs to cut costs while focusing on the core of their academic mission. The move is upsetting students and faculty, who charge that the cuts will diminish institutions, according to an October 2013 article in *The Chronicle of Higher Education* titled "The Liberal Arts Confront Fiscal Reality at Edinboro U."

Edinboro University faces the elimination of dozens of faculty members along with undergraduate programs in German, philosophy, and world languages and cultures. Julie E. Wollman, president of Edinboro, said the cuts are necessary in the face of declining state appropriations and shrinking enrollment; they will allow the university to remain on a sound financial footing. "In some areas, the number of majors is so low—typically, fewer than ten—that they are difficult to sustain," said Wollman, who added that the university needs to "shift the focus to the needs of the region."

Critics charge that the cuts will leave the institution "stunted." They also argue that the role of the university is not to create well-trained employees but to provide a well-rounded education. "What worries me is that we're not building citizens who know how to think, we're training workers," said Jean G. Jones, director of the Edinboro honors program and the faculty union's representative at the school.



Look for Part 2 of this series in the November/December 2014 issue of *Facilities Manager*. Download the full report at www.appa.org/bookstore

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