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FACILITIES manager

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Ryan Kmetz Selected 2017 Recipient of Rex Dillow Award for Outstanding Article

APPA Vice President for Information and Research Norm Young recently announced that the 2017 Recipient of the Rex Dillow Award for Outstanding Article in *Facilities Manager* is **Ryan M. Kmetz**, SNV SP, assistant director of sustainability and energy management at St. Lawrence University in Canton, New York.


Ryan M. Kmetz

Ryan's winning article, "Designing a Resilient Campus," was published in the November/December 2016 issue. Ryan wrote and published his article while serving as the sustainability coordinator for Christopher Newport University in Virginia.

The article defines and explains the concept of "resiliency" in campus facilities and focuses on its important components and processes, such as:

- Identifying hazards
- Developing a plan
- Hardening buildings and infrastructure
- Developing built environment policies
- Writing natural environment policies
- Planning a continuity of operations
- Assessing cost considerations

The article was selected by the members of APPA's Information and Research Committee from the eligible articles published in the six issues of Facilities Manager within the past year. Ryan received his award at the Awards Reception at the APPA/PCAPPA/BayAPPA conference in San Francisco.

To read Ryan's article, visit *http://www.appa.org/files/FMArticles/(18-23)%20FM_ND16_F11.pdf*. Congratulations to Ryan Kmetz on receiving the 2017 Rex Dillow Award.

If you have an article, case study, or ideas to share with fellow APPA members and readers of *Facilities Manager*, please contact me directly at *steve@appa.org*. I welcome your contributions.

APPA WELCOMES SUMMER INTERN

APPA intern **Sarah Dosik** is assisting APPA on a number of publications and communications projects this summer. She will start her junior year at Christopher Newport University, Newport News, Virginia, in August, and is pursuing a major in communications with a minor in philosophy of law.


Sarah Dosik

Sarah is passionate about animal rights and is looking into working at an association where she can combine those interests after she graduates in spring 2019. She is a member of the CNU chapter of *Her Campus*, an online magazine for college women, where she has had some articles published.

We are glad to have her with us!

COMING IN SEP/OCT 2017

- Profile of President Chris Kopach
- Highlighting the Award for Excellence recipients and new APPA Fellows
- APPA 2017 Conference Highlights
- 2017 Thought Leaders Report, Part 1

FACILITIES manager

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

About APPA

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

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APPA 2017 Award Winners

2017 AWARD FOR EXCELLENCE

- Universidad Panamericana Mexico
- University of Colorado Anschutz Medical Campus

2017 EFFECTIVE AND INNOVATIVE PRACTICES AWARD

- **Grand Valley State University**
  Electric Solar Panel Array Garden: A Consumers Energy/GVSU Partnership
- **Oklahoma State University**
  The Next Level Project: A Model for Effective Change
- **Penn State University**
  Penn State's APPA Credentialing Cohort Program
- **University of British Columbia**
  Energy Conservation Using Campus WiFi Data
- **The University of Texas at San Antonio**
  The Development and Use of Portable Variable Frequency Drives (VFDs)

2017 SUSTAINABILITY AWARD

Public

- Arizona State University
- The Ohio State University
- University of British Columbia

Small Colleges and Universities

- University of Washington Bothell

Community College

- San Mateo County Community College District

2017 MERITORIOUS SERVICE AWARD

- Shelton Riley (CAPPA)
- Jodie Sweat (SRAPPA)
- Keith Woodward (ERAPPA)

2017 PACESETTER AWARD

- Robert A. Boyette, *North Carolina State University*
- Emmet Boyle, *University of Regina*
- Rebecca Griffith, *Embry-Riddle Aeronautical University*
- Michael Hamilton, *Iowa State University*
- Winnie Kwofie, *Stanford University*
- Lee McQueen, *University of Nebraska Kearney*
- Julius R. Williams, *University of Maryland College Park*

2017 APPA FELLOW AWARD

- Joseph K. Han, *Central Washington University*
- Jeri Ripley King, *University of Iowa*

2017 REX DILLOW AWARD FOR OUTSTANDING ARTICLE

- Ryan Kmetz, *St. Lawrence University*

APPA Makes Changes to Sustainability Award

APPA's Professional Affairs Committee, led by VP Paul Wuebold of the University of Alabama, has announced several changes for the annual institutional sustainability awards. Effective immediately and applicable to the next APPA awards cycle, the award has been renamed the **Sustainability Innovation Award**. According to the new criteria, the award will be presented to "educational institutions that have implemented programs and processes that enhance service delivery, lower costs, create a green and/or sustainable environment, or otherwise benefit the educational institution supporting student success and environmental stewardship."

These are the first criteria changes since the award was established in 2012. To read the full description of criteria, eligibility, and process for the new Sustainability Innovation Award, go to the APPA Awards page. The deadline to apply for this and all APPA institutional and individual awards is November 30, 2017.

2018 APPLICATIONS DUE NOVEMBER 30

Nominations and applications are now being taken for APPA's 2018 institutional and individual awards. Awards nominations submitted after November 30, 2017 will be held and considered in the 2019 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*.

New Content Coordinators for the BOK

APPA welcomes two new content coordinators to the APPA Body of Knowledge (BOK).


Brad Boser

Brad Boser, director at Southern Alberta Institute of Technology, has taken over duties from Victoria Drummond as the new content coordinator for Part 1, General Administration and Management.


Emmet Boyle

Emmet Boyle, director, maintenance & utilities at the University of Regina, will be replacing Darryl Boyce as content coordinator for Part 3, Energy, Utilities, and Environmental Stewardship.

The time, dedication, and hard work that Victoria and Darryl put forth while shepherding the chapters into what the BOK is today are greatly appreciated. We look forward to Brad and Emmet's contributions to the future BOK.

APPA Lands' End Store Open for Business

Show the world you are part of the educational facilities world's top professional organization. At the APPA Land's End store, you can purchase high-quality apparel and other gear of your choice and have it personalized with the APPA logo. All personalized products are backed 100 percent by the Land's End's product guarantee. Polo shirts and caps are now available. They are ready to have the APPA logo added—and product offerings are growing. Visit *http://ces.landsend.com/APPASTORE* today to fulfill your APPA gear needs—and those of your staff—at the APPA Land's End store.

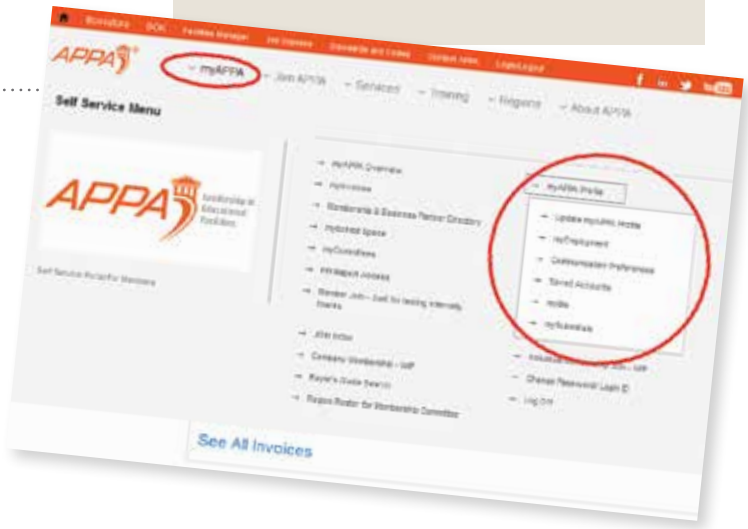
Update Your APPA Profile

One of the great new features available to APPA members is the ability to update their APPA profile online.

Simply sign in to **myAPPA**, and then click on **myAPPA Profile**.

There, you will be able to update your contact information, credentials (e.g., P.E., AIA, LEED, etc.), as well as your employment history, your bio, preferences on communications from APPA, and other options.

If you have any questions, please contact *membership@appa.org*.



CALENDAR OF EVENTS

APPA Events

July 20, 2017
EP and SFO Summits, *San Francisco, CA*

July 21-23, 2017
APPA/PCAPPA/BayAPPA 2017 Annual Meeting & Exposition, *San Francisco, CA*

Sep 10-14, 2017
APPA U (Institute and Academy), *Providence, RI*

Oct 16-19, 2017
ACUHO-I/APPA Housing Facilities Conference, *Atlanta, GA*

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

Regional/Chapter Events

Jul 21-23, 2017
PCAPPA 2017 Conference in conjunction with APPA and BayAPPA, *San Francisco, CA*

Sep 17-21, 2017
Joint MAPPA/CAPPA 2017 Conference, *St. Louis, MO*

Sep 18-20, 2017
RMA 2017 Conference, *Jackson, WY*

Oct 25-28, 2017
SRAPPA 2017 Conference, *Charlotte, NC*

Oct 29-Nov 1, 2017
ERAPPA 2017 Conference, *Washington, DC*

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

facilities digest

EFM Training Seminar a Success at Colorado State

Nearly 60 campus and auxiliary facilities professionals from 43 institutions met and networked recently in Fort Collins, Colorado, at the third annual **Essentials of Facilities Management Training Seminar**, co-sponsored and presented by APPA and ACUI, the Association of College Unions International.

In addition to sessions on leadership, campus safety, staff development, capital planning, smart buildings, sustainability and energy efficiencies, and more, attendees experienced a hard-hat tour of the new stadium under construction on the Colorado State University campus.

Participants intent on absorbing information.

Hard-hat tour.

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Back to the Future: Transforming Facilities to Achieve Student Success

By E. Lander Medlin

If I had a time machine (like the DeLorean in the movie *Back to the Future*), I could jump in, set the date forward to 2037, fire up the afterburners, and actually see what the University of the Future might look like 20 years from now. Otherwise, predicting the future of the university is beyond bewildering, and illustrates physicist Niels Bohr's point that "prediction is very difficult, especially if it is about the future."

Nonetheless, we find ourselves at that moment in time when we should be asking, "What should the ideal university of the future look like?" Some possible answers could be: One that you would want to send your child to…one that is more inviting and stimulating for students and faculty…one that captures and piques student interest…one that uses technology to create fully immersive learning environments…one that uses artificial intelligence (AI)-based platforms for all students…one that provides coaching and intervention…one that results in better learning, and fosters life-long learning as a way of life.

THE DRIVING FORCES OF CHANGE

I would suggest that we are constrained by traditional approaches and need to challenge ourselves in innovative ways to imagine and create new learning models and facilities that match these goals. Sitting Bull had it right when he said, "Let us put our minds together and see what life we can make for our children." This may not sound like the facilities professional's role, but indeed we are at the crossroads, where it is everyone's task to envision a better future for our college and university environments, intellectually and socially, virtually and physically. John Cavanaugh, President and CEO of the Consortium of Universities of the Washington Metropolitan Area, wrote about this very topic in the *EDUCAUSE Review,* in an article entitled "Alchemy, Innovation, and Learning, in 2025." He stated, "We are either on the verge of true transformation (if you are a believer) or on the edge of the abyss (if you are not)." Where are you? I believe we can do much better and contribute greatly to our students' success!

Suffice it to say that the landscape of higher education remains eerily similar to that of 30 to 40 years ago—resource constraints! Similar yes, but nonetheless the pressures and challenges of today are occurring amidst the rapid rate of change of three driving forces: Technology, Globalization, and the Environment. And all three of these forces are accelerating simultaneously, interdependently, and exponentially!

This phenomenon is described in detail in Thomas Friedman's book, *Thank You for Being Late: An Optimist's Guide to Thriving in the Age of Accelerations.* Certainly this age of accelerations has resulted in the disconcerting feeling of dislocation; and it is outstripping the speed at which human beings, institutions, and societies can normally adapt. Higher education must help people understand what kind of world we are living in and help them adapt to that world. As an industry, colleges and universities are again being asked to step up and adapt, and the shift is from student "access" to student "success."

Certainly if traditional postsecondary institutions are going to remain relevant in a world where every-

one will need lifelong learning, we need to provide those opportunities at a viable speed, price point, and level of on-demand mobility.

APPA'S THOUGHT LEADERS SERIES 2017

Herein lies our topic for the Thought Leaders symposium this year: *Transforming Facilities to Achieve Student Success.* Why this topic and why now? Simply because the quality of facilities is directly related to the quality of education and the student experience! That's where the simplicity ends. There is pressure to demonstrate value given the state of facilities and the need for facilities modernization and revitalization. In addition, and not coincidentally, student success has emerged as one of the most important goals for higher education institutions as well as our sister associations encompassing academic affairs (presidents and provosts), administrative affairs (chief business officers and chief information officers), and student affairs (vice presidents and deans of students) alike. Colleges and universities are investing in programs to help identify at-risk students, improve academic support, and expand student services. It's time facilities professionals focused on aligning facilities with student success outcomes as well.

This does beg the question, "How is student success defined?" Across TLS participants alone, we found a broad range of views and perspectives from "practical and measurable" to "abstract and subjective." Ultimately, each institution must define student success on its own terms. Here are some factors that contribute:

- Student retention
- Graduation rates
- Education attainment
- Occupational achievement
- Personal achievement (intellectual, social, ethical)

Friedman tells us that, "at a minimum, our educational systems must be retooled to maximize these needed skills and attributes: strong fundamentals in writing, reading, coding, and math; creativity, critical thinking, communication, and collaboration; grit, self-motivation, and lifelong learning habits; and entrepreneurship and improvisation—at every level." Because, you see, vastly improved student learning is at stake. Facilities professionals must understand their institution's definition of student success and ensure that its facilities modernization and revitalization plans are aligned accordingly. The TLS monograph provides greater detail.

How can the facilities organization assist? We have an important role to play in fostering student success by:

- Providing safe, accessible, clean, and functional spaces
- Ensuring appropriate pedagogy
- Offering technology connectivity everywhere
- Creating "makerspaces" or learning neighborhoods
- Demonstrating sustainable living, learning labs
- Offering internship programs

Yet the average age of facilities professionals across the United States and Canada is cresting 50 years old—followed by a concomitant high cost of repair and upkeep of educational facilities. In addition, we have an "overbuilt" space portfolio in targeted geographic sectors where high school graduate enrollments are declining (Northeast and Midwest, in particular).

COLLABORATION: THE KEY TO SUCCESS

So where do we start? Strategic investments in capital renewal to modernize and revitalize facilities that specifically focus on student success outcomes will have the greatest impact. However, real collaboration across the entire campus community of stakeholders is key to achieving our collective success. Therefore, facilities modernization and revitalization through effective collaboration are considered the two filters or tools most crucial to attaining student success for facilities and ensuring further alignment with institutional strategies and goals.

So maybe the daily question isn't "What problems are you solving today?" but "What problems are you causing today?" That question forces us to focus differently on what we are (or are not) doing to support our students. The TLS monograph will provide a series of questions you can use at your institution to refine your thinking and programs and set you on a path to success—hopefully student success!

With all this in mind, Doc (from *Back to the Future*) might crank up that DeLorean and say, "Great Scott—the future is in our hands!"

Lander Medlin is APPA's executive vice president and can be reached at *lander@appa.org*. The 2017 Thought Leaders report will be available in mid-September.

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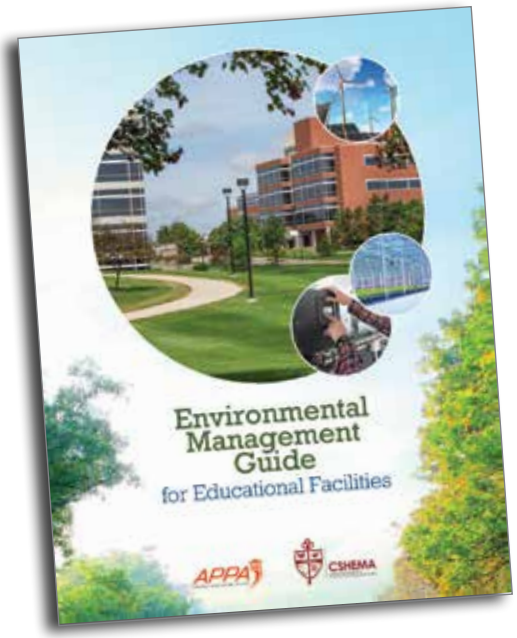

APPA LEADERSHIP IN EDUCATIONAL FACILITIES

CSHEMA

Environmental Management Guide for Educational Facilities

Getting in Front of Environmental Compliance

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

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

Contents:

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

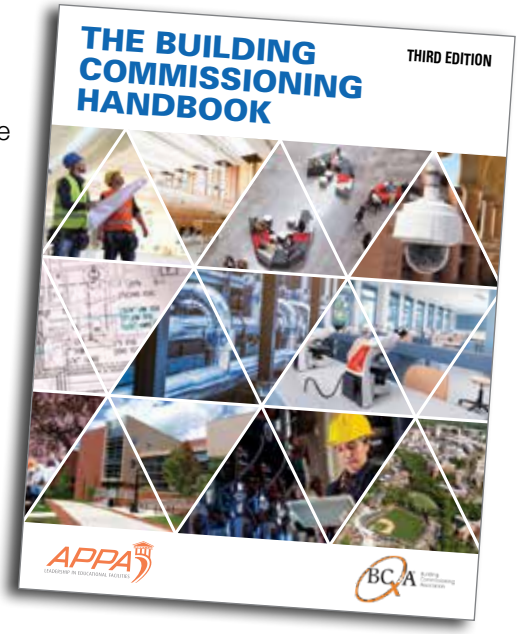
Coming Soon!

The Building Commissioning Handbook Third Edition

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

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

Contents:



APPA LEADERSHIP IN EDUCATIONAL FACILITIES

BCA Building Commissioning Association

Members: The Strength of an Association

By Charles Scott, CEFP
APPA President, 2016-17

I recently received a call from Louis Galante of the University of Iowa. Lou was inquiring about the process necessary to create an APPA chapter for facilities professionals in Iowa. He had learned that I created ILAPPA (Illinois APPA) a few years ago, and thought my experience could help to guide him along this journey. As we chatted, I couldn't help but think about the value of APPA's local chapters, and how they support our six regions—and APPA as a whole. I sent some materials to Lou, and he has discussed the concept of creating an Iowa chapter with his local peers. The idea was met with overwhelming enthusiasm. I think Lou is well on his way to creating a new chapter!

This recent call naturally caused my mind to wander back to the first few ILAPPA meetings I attended, my regional experiences, and certainly to my journey with APPA over the past three decades. My years with APPA have been extraordinary, providing me experiences and taking me to locations I only imagined early in my career as a facilities professional. I also recognize that all APPA members have their own unique journey to relate.

THE UNIQUE APPA MEMBER

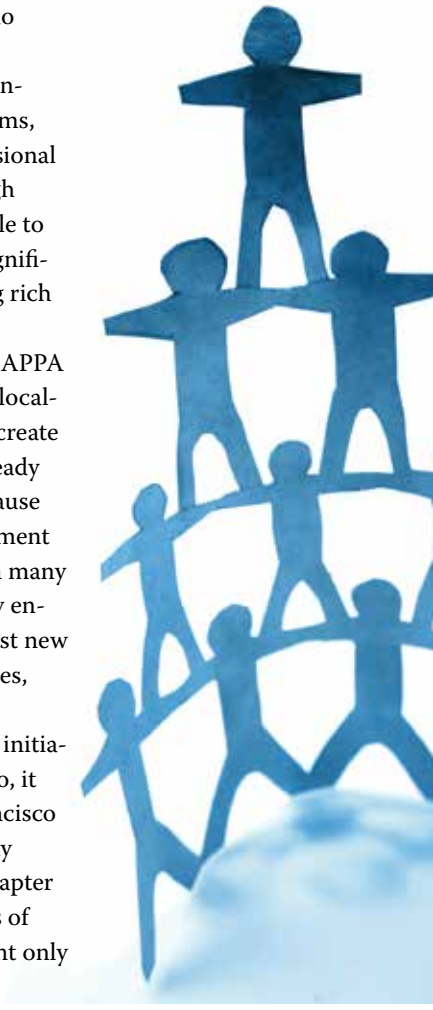
The notion of unique journeys made me stop to ponder, "Why have nearly 14,000 facilities professionals taken this path themselves?" And that number increases significantly when considering previous members over APPA's 103-year history. Are we all just curious and hungry for knowledge? Do we have specific projects or concerns we need to research in order to better perform on the job? Is it because of the rich relationships we develop along the way? I suspect for all of us, the answer to these questions is "yes."

The facilities professional is indeed a unique person. Rarely have any of us entered into our work deliberately. I, for one, was a horticulture student who apparently did my job well and was in the right place at the right time to grow my career at Illinois State University. Others in the field have had similar good fortune. But very few of us actually studied facilities management in our curriculum because it was simply not offered. I am continually encouraged when I read about universities that have expanded their educational offerings to include facilities management. I know that Lander Medlin, APPA Executive Vice President, hopes to have our major institutions recognize the industry by having a College of Facilities embedded into their academic arena. I am confident that one day, we will see just that!

Now I go back to the question above—why do we take this journey? APPA offers so much for so many in such a positive and professional manner. Along with its research and awards programs, some of APPA's hallmarks are the many professional development opportunities it provides. Through these programs, we satisfy our curiosity, are able to research solutions to our concerns, and find significant opportunities for networking and building rich relationships.

For Lou to create a new chapter in Iowa, the APPA offerings need to become readily available to a localized group of facilities professionals. But, why create a chapter for this purpose when that group already meets annually to discuss facilities topics? Because chapters support regional goals, and the attainment of these goals supports APPA. Our chapters, in many cases, are the lifeblood of this association. They engage the grassroots members of APPA and enlist new members. New members bring new perspectives, new curiosities, and new relationships.

Today my hat goes off to Lou Galante for his initiative and his push for a new chapter. Months ago, it was to Winnie Kwofie for creating the San Francisco Bay Area Chapter (BayAPPA). Before that, Tony Guerrero for building the Northwest APPA Chapter (NWAPPA). There are so many other examples of work being done by passionate people who want only the best for their facilities peers.



For those of you who are active with facilities groups in your local area, I encourage you to support APPA by stepping up, initiating the conversation, and considering the creation of yet another APPA chapter, if one does not yet exist. The strength of any association comes from its members. It is incumbent upon each of us to support this association; this happens to be just one method for doing so.

MY OWN APPA JOURNEY

To change gears a bit, I would like to comment on my year as your APPA President. The story mentioned above is but one small example of the many opportunities I have had in my APPA journey. This past year has truly been remarkable and has given back so much more to me than what I have given to the association. One of the many highlights for me is to have installed every new APPA Regional Board of Directors. I am pleased to personally know each individual within these groups of highly dedicated professionals; knowing that they are in charge of our regions and supporting APPA is gratifying. I can be sure that APPA is in good hands.

It has also been good to work closely with the APPA Board, Executive Committee, APPA U Deans, and the Presidential Triad. Pete Strazdas built upon foundations established by previous APPA Presidents and left me with a good footing for my past year's theme, "Creating a New Normal." Chris Kopach will soon be putting his personal fingerprints on APPA's future. And congratulations to Don Guckert for being recently chosen as APPA President-Elect! The strengths, knowledge, and experience of these individuals and our respective APPA boards will launch us well into future successes.

On a final note, I firmly believe that the strength of any association lies in its members. Yet at the same time I can say that APPA's greatest strength is found in its exceptional staff. Lander has built a team that is above and beyond any group of individuals I have ever had the pleasure of working with. I want to thank every one of the APPA staff members for your dedication to the profession, your loyalty to the association, and your hard work on behalf of APPA members. You are what truly makes this association succeed.

Chuck Scott, ending his year as APPA President, is executive director of facilities management, parking, and transportation at Illinois State University in Normal, IL. He can be reached at *cascott@ilstu.edu.*

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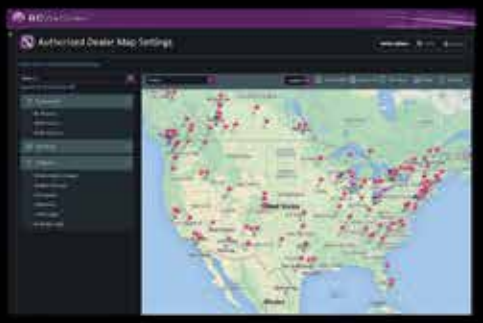

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The Connections You Make

By Gerald J. Carlson, CEFP

In July of 2014, I had the honor and privilege to assume the duties of APPA's Secretary-Treasurer. One of my most important duties in this position is to be the chairperson of the membership committee. Membership of the organization is its lifeblood—without a strong membership, APPA cannot exist.

I wrote my first article for the Membership Matters column in November 2014, where I expressed my feelings on what my APPA membership and journey had meant to me over the past 27 years. I indicated the importance of the relationships you build within APPA by meeting colleagues at local, regional, and international educational offerings and conferences.

MEMBERSHIP CAN MEAN DIFFERENT THINGS

Membership is what you make it; it can be different for each one of us. To me, it is all about the connections you make. I have made many great connections over the years by meeting friends, colleagues, acquaintances, and business partners. Those connections have helped me in so many ways. If I have an issue to deal with or a question I need an answer to, I just need to send an email, text, or make a phone call. The answer or assistance I need is at my fingertips.

To illustrate what I mean, I'd like to use an excerpt from my previous article. As George Wright once stated, "All of us are smarter than any one of us." With over 1,200 organizational members and over 13,000 individual members, APPA has a lot of experience and information to make available to us. We need to use the connections we make and the resources APPA offers to help us do our jobs better than ever, and to be responsive to the ever-changing facilities environment. Change is occurring all around us; just look at technology, globalization, and climate change. We need to use our APPA connections to provide the answers our administration is asking of us. With the correct answers, we have a seat at the table as a valuable resource. The APPA connections you make will continue to assist you in the performance of your duties.

TAKE ADVANTAGE OF OFFERINGS AT APPA

Membership in APPA provides a great deal of benefits. I encourage you to take advantage of all APPA has to offer. In this age where funding is limited and travel restrictions exist, more and more APPA educational offerings are being delivered locally, allowing your staff to receive important training at relatively low cost.

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The **Supervisor's Toolkit** is another popular training opportunity that is available for presentation on your campus. It has been specifically designed to meet the needs of the facilities management professional. More information about the Supervisor's Toolkit can be found at *https://www.appa.org/training/toolkit/campus.cfm*.

The **Leadership Academy** is available to your campus as the "Academy on Campus." The purpose of the Leadership Academy is to enhance and further develop leadership throughout the educational industry, and consists of four week-long levels. Level I focuses on Individual Effectiveness Skills. Level II covers Interpersonal Effectiveness Skills. Level III concentrates on Managerial Effectiveness Skills. Finally, Level IV centers on Organizational Effectiveness Skills—A Seat at the Table (contact APPA to

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Membership matters! Make sure you make your APPA membership work for you!

MEMBERSHIP COMMITTEE: DEDICATION AND COMMITMENT

On another subject, I have seen firsthand the hard work the membership committee does on behalf of APPA's membership and in support of the APPA staff. The committee members have changed somewhat over the past three years, but the committee's dedication has not. We meet monthly via teleconference calls and in person twice a year. We discuss ways to maintain, recruit, and grow APPA's membership.

The current APPA Membership Committee members are as follows: ERAPPA–**George Stooks**, SUNY Geneseo; CAPPA–**Randy Culver,** Black Hills State University; MAPPA–**Erin Marsh**, University of Iowa; PCAPPA–**Kimberly Case-Nichols**, University of Nevada, Las Vegas; SRAPPA–**Ray Mirizzi,** Northern Kentucky University; and RMA–**Tim Dobson**, New Mexico State University. I would like to offer my sincere thank you to the membership committee for all of their hard work during my three years as the committee chair.

Finally, I would like to thank **Kristin Witters**, APPA's director of membership and outreach, and **Direna Cousins**, APPA's membership coordinator, for all of their hard work on behalf of APPA. They have made my role as the membership chair a very rewarding and fulfilling experience.

Jerry Carlson completes his term as APPA Secretary-Treasurer and is director of maintenance services at Butler University in Indianapolis, IN. He can be reached at *gcarlson@butler.edu*.

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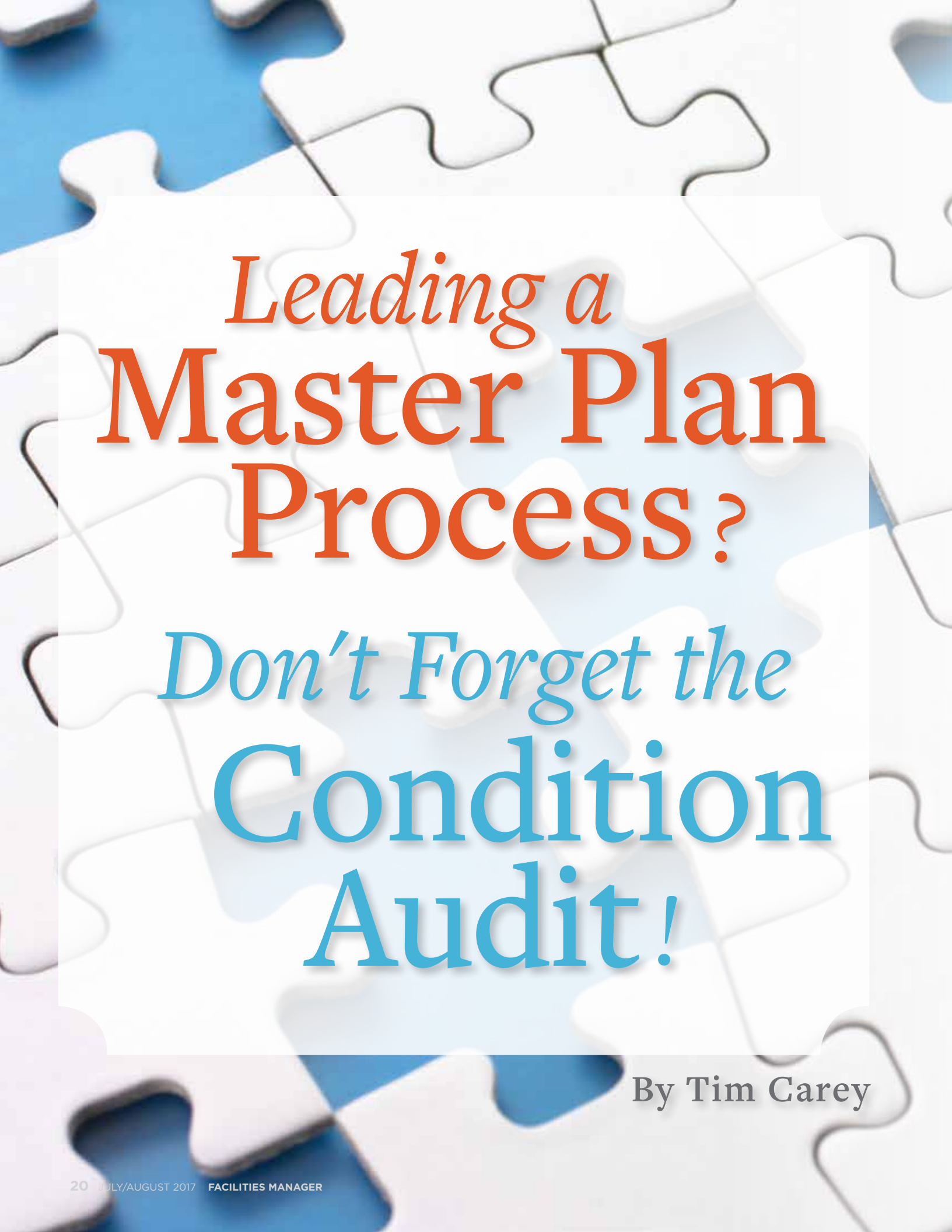


Leading a Master Plan Process?

Don't Forget the Condition Audit!

By Tim Carey

My first day on the job as Ithaca College (IC) associate vice president and chief facilities officer was March 24, 2014—a date to which I have since referred (with apologies to Franklin Delano Roosevelt) as "A date which will live in infamy." Obviously, the parallels are greatly exaggerated. I whimsically refer to this significant date in U.S. history only because the events on that typically snowy day and the initial weeks of my tenure at IC began a transformation in the way Ithaca College understood, responded to, and funded its deferred renewal (maintenance) backlog and facility modernization needs.

MASTER PLAN KICKOFF PERIOD

The Ithaca College Master Planning process kicked off on my first day on campus. Although the master planning firm had been selected before my arrival, my new colleagues and I were about to chart a course that would enable our campus to complete a comprehensive plan in just over a year's time. Our planning process was far more than simply setting some aspirational goals for building and modifying the campus for the next one to two decades—our approach resulted in a clear blueprint to effectively address a significant backlog of deferred maintenance, while simultaneously pursuing the larger Master Plan.

The journey began similarly to most institution's forays into the master planning process: a New York City consulting firm was hired to collaboratively develop the plan for the future of our physical campus. Reviews of existing programs, enrollment projections, and space evaluations (academic, residential, athletic, recreational, and administrative)—and their relevance to the college's strategic direction—were the focal point during the early stages of the process.

We placed a high value upon the active involvement of campus constituents during all phases of that process. To ensure a transparent and inclusive initiative, a Master Plan kickoff day was held, and school/department interview sessions, town hall meetings, and surveys allowed the plan to emerge with the input of all concerned parties. Feedback was critical—the feedback loop ensured input from the entire campus throughout the process.

Planning the future of our physical campus was an exciting and thought-provoking task for me.

Leading the undertaking as a first-time senior facilities officer was daunting; however, after a few weeks, I felt much better about it. I felt supported by my colleagues, who were passionate about the college's history and the wonderful potential we all saw for our campus. Nevertheless, there was a significant issue to deal with.

"BOSS, WE HAVE SOME PROBLEMS"

In the midst of the master plan kick-off and the accompanying activities, I was also holding initial "Shop Meetings with Tim" with each of the trades, grounds, and custodial teams. These meetings, which I continue to hold regularly, enabled me to share updates from the larger campus (regarding everything

A student offers some feedback during one of the Master Planning Town Hall meetings.

"Boss, we have some problems."

2015 photo of a mechanical system that has since been replaced.

from budget development parameters and human resources-related initiatives to upcoming cultural and athletic events). They also allowed me to hear directly from frontline team members about ideas for process improvements, suggestions for equipment purchases, or thoughts on how our department might reduce costs to minimize tuition increases for our valued students and their families.

From the outset of these meetings, I was hearing a familiar theme: Ithaca College had a significant deferred renewal problem; major portions of our envelope systems, building mechanical systems, and grounds infrastructure were in need of repairs and/or replacement. I recall during one meeting that as the list of deteriorating systems grew longer, one of the managers said, "Boss, we have some problems," to which I replied with a smile, "I don't recall you mentioning this during my interview!"

Nearly 70 percent of our campus was constructed during the 1960s and '70s, and was reaching or exceeding its life expectancy. This reality, coupled with the fact that the college had recently allocated most of its capital construction funds to new buildings, resulted in the original campus portfolio not receiving the resources necessary to keep it up to date.

At this juncture, I had the challenge of leading a comprehensive master planning process, while simultaneously collecting and sorting through a significant list of deferred renewal issues. It then occurred to me that I could not proceed in good conscience without ensuring that the senior administration—indeed the entire campus—completely understood the renewal backlog we faced, one that would certainly continue to grow if not strategically addressed. A master plan without this critical data would have been incomplete and misleading at best.

MERGING TWO MONUMENTAL PROCESSES: A SOLUTION FOR SUCCESS

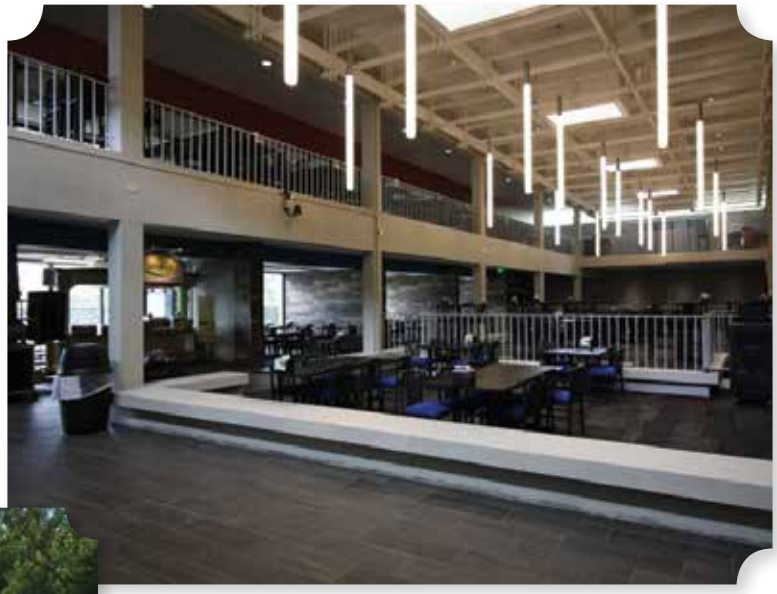
As the process gained momentum, I added a second major analysis to the mix: I engaged a nationally recognized higher education condition audit firm to assess the magnitude of our deferred renewal backlog. I envisioned a merger of two significant processes such that one could inform the other, and the resulting byproduct could inform me—and the leadership of the college—for the foreseeable future, so our mission could continue at the highest level of quality.

Two months into my tenure, I invited both the master planning firm and the condition audit firm to campus for a half-day meeting. Both firms told me they had never participated in a meeting with this level of collaboration. Indeed, during the next several months, each firm asked me on numerous occasions about the other firm's progress. Each firm wanted to share their findings, and to also learn more about the other firm's findings. To suggest that both analyses were enriched by this collaboration is a great understatement.

Excerpt from the 2015 Ithaca College Master Plan document:

Building need as net asset value. Red buildings have the greatest need; green the least.

Collaboration



Examples of deferred renewal at Ithaca College. Clockwise from top left: A new mechanical system; a renovated dining hall; one of numerous roof replacement projects.

"Ithaca College's independent condition audit consultant found that the College's facilities require $175M in deferred maintenance over the next 10 years in order to address deficiencies. For the Master Plan, these shortcomings can be seen as opportunities to reconfigure and update South Hill for the 21st Century."

OUTCOMES

In May 2015, the Ithaca College Board of Trustees voted to accept the Campus Master Plan. The plan was intentionally crafted to be adaptive rather than prescriptive. Essentially, our plan enables the college leadership to select particular components on a progressive basis, rather than being bound to a prescribed set of building and renovation projects.

Most important, however, is the plan's acknowledgment of a significant deferred renewal backlog. A slide from the audit firm's report (below) is embedded in the plan to illustrate that our most needy buildings from a deferred renewal perspective are residence halls. The fact that Ithaca is a residential college makes this finding significant, and also enables informed decision making.

Essentially, merging the master planning and condition audit processes has permitted both a pursuit of the future and a resurrection of the historic past on our campus. Perspectives and data gleaned from both exercises will help the college's current and future leadership during the life of the current master plan.

In the two years since the Master Plan's adoption, we have made significant progress on the deferred renewal front. In fact, the primary focus of activity—and capital funding—has been around the deferred renewal agenda. As we enter our third summer construction season since the plan's approval, our buildings and infrastructure have been greatly improved. Roof replacements, upgrades/replacements of mechanical systems, window replacements, residence-hall bathroom renovations, the college's emergency generator environment, concrete envelope system restorations, and other projects have resulted in noticeable positive impacts on campus.

While deferred renewal projects have been our primary focus, we have also pursued traditional master planning items. For example, several projects have enhanced indoor and outdoor gathering spaces, addressing two of the plan's important goals: enhancing opportunities for social encounters and making the campus easier to use year around. Additional components of the plan are being reviewed and considered for implementation on a continual basis.

BEST PRACTICE ADVICE

We viewed the Ithaca College Master Planning exercise as an opportunity to include a systematic strategy to address the building and system flaws that typically go unnoticed by students, faculty, and staff. Our goal, therefore, was to highlight the aspects of the current campus that required improvement, so the college could continue to fulfill its mission. There are a number of positive byproducts of the plan that I hope will assist other colleges and universities to do the same. Some possible steps to consider are:

- **Include a comprehensive condition audit of your existing campus in your master planning effort:** I cannot envision a master planning process without a condition audit. Institutional leadership deserves to have a full and detailed understanding of the shortcomings and challenges of their existing campus as they consider and pursue master plans with exciting growth and improvement potential.

- **Involve the facilities team in the condition audit process:** The valued employees who respond to work requests and interact regularly with students, faculty, and staff in your campus buildings are the experts on where serious issues reside. Work order data is another obvious means to determine where your envelope, mechanical, and other systems are most at risk. It was with these perspectives in mind that I ensured that staff input and work order data were gathered and included in the analysis. *(Note: The advantage of involving your team in the building-by-building condition audit and resultant triaging processes, to determine which buildings and systems are addressed and at what intervals, cannot be overstated. Valuing the perspectives of these loyal, hard-working employees boosts their morale and provides a sense of empowerment that can truly benefit your facilities culture.)*

- **Value transparency and inclusion in the master planning process:** Periodic updates, town hall-type meetings to share early findings and gather feedback, surveys, meetings with cohort groups, etc., all serve to keep the campus community involved and informed throughout the process.

- **Ensure that your master plan is a "living document":** Master plans are often met with a great deal of excitement by constituents on campus. However, these plans can sometimes fade into the background, compounded by other necessities such as strategic planning, budgetary challenges, and accreditation imperatives. It is my responsibility to ensure that our master plan is continually considered; therefore, each budget cycle I propose or suggest projects relating directly to the plan. Furthermore, I speak about deferred renewal needs and Master Plan components in periodic updates provided to trustees, departments, student groups, and others. This strategy has been successful so far.

- **Revisit and update your condition audit annually:** As a part of the initial audit, we triaged deferred renewal projects and produced a hierarchical project list. We have found that an annual review of the backlog results in important, ongoing adjustments to the list. Inevitably, some projects that were perceived to be urgently needed are able to be pushed further ahead. Conversely, a project originally believed to be years away can emerge as an immediate need. The annual review of the deferred renewal list, therefore, provides a reset of priorities, thereby increasing the success of the overall initiative.

TELL YOUR STORY

I have spent considerable time since the Master Plan's adoption informing the campus about its tenets and the implications and opportunities before us as it relates to the deferred renewal backlog. As a result, these important concepts are not simply a "facilities initiative." Rather, campus cohorts see the pursuit of the plan—and of the deferred renewal backlog—as important and necessary initiatives for the college. It's something we all own.

Dr. Tim Carey is the associate vice president and chief facilities officer at Ithaca College in upstate New York; he can be reached at *tcarey@ithaca.edu*. This is his first article for *Facilities Manager*.

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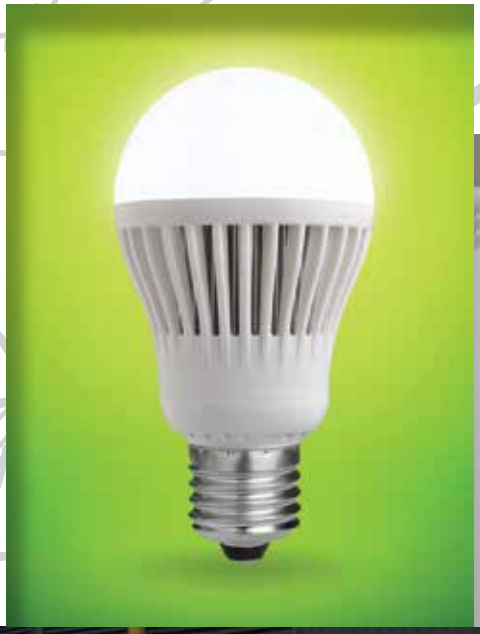
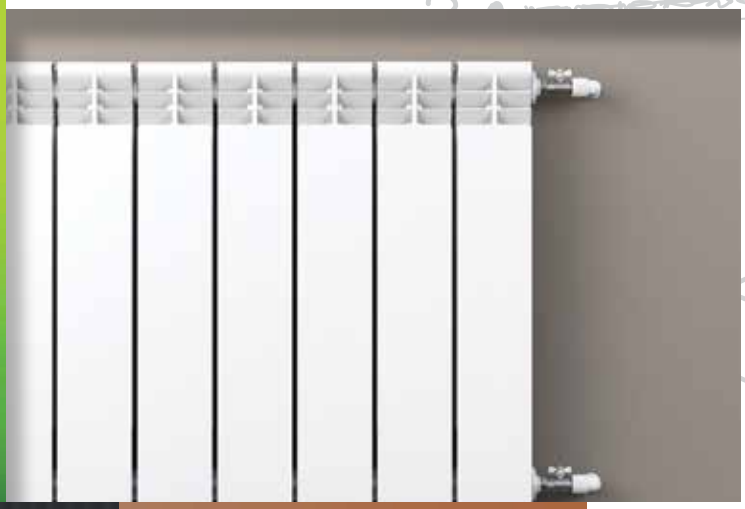
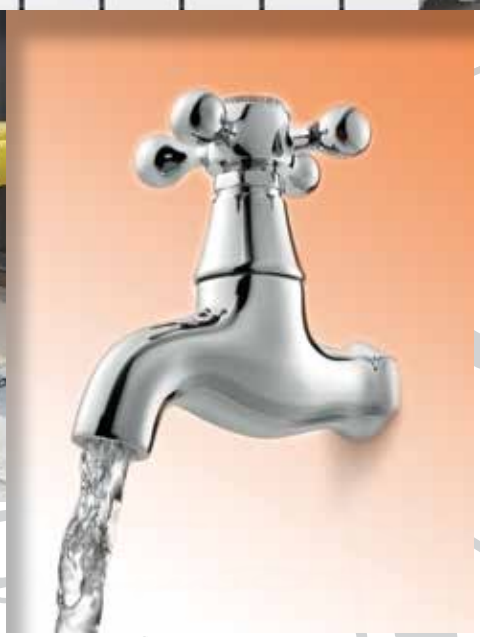






By James J. Sebesta, P.E.

UTILITY INFRASTRUCTURE

Operate It Like a Business

CFaR | Center for Facilities Research

Utility infrastructure has long been considered an overhead expense that can be arbitrarily maintained based on availability of funds after the academic and research portions of the university have been funded. However, the utility infrastructure, like the buildings and grounds of the university, requires strategic planning, vision, budgeting, and operational organization to function efficiently and effectively.

Over the past several decades, awareness of deferred maintenance and of needs for continual renewal and replacement funding for campus assets has improved dramatically. However, models for operating and funding the

utility infrastructure are not always considered with the same vigor and focus as the buildings themselves. It is not uncommon to hear that utility infrastructure is not the university's core business. Institutions should look inward and develop a program that maintains the sustainability of the infrastructure through sound business practices. After all, efficient, effective, and resilient utilities are core to the university's mission of education and research.

UNDERSTAND THE COST OF UTILITIES AND THE UTILITY INFRASTRUCTURE

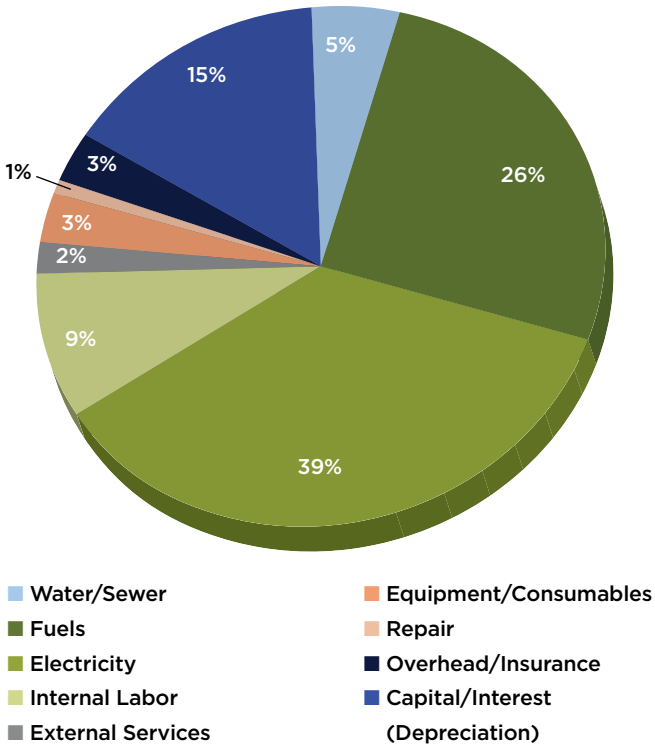
The cost of utilities at many institutions are hidden from the building users. Unlike the utility costs for our own homes, there is no correlation between the cost of tuition, or the department's budget, or the cost for energy-conserving improvements, or an academic's salary, and the users' behavior or efficiency in consuming the utility commodity (water, electricity, heating, cooling).

A first step when moving toward an effective business and funding model for the utility infrastructure is developing an awareness of the relative cost for the utilities on the campus. An important aspect of this review is to identify and document the *total* costs including debt, overhead costs, insurance, and other costs that are related to the utility systems. The analysis should result in a rate schedule that defines the revenue required to recover the total costs for each utility commodity and the cost for each utility. Examples of rate formats that could be developed for the institution are shown in the accompanying table. Each institution should review if there are any benefits for using rates that include both a demand and a commodity component to the rate structure, or if a simplified blended rate that is based on commodity is adequate.

For example, an institution I was involved in several years ago charged a flat rate for chilled water of approximately $0.20/ton hour, of which $0.13 was intended to pay for the capital and fixed costs of the central cooling system. To reduce costs, the departments began to implement free cooling modifications for their buildings that could reduce the use of the central cooling system in the winter and the utility cost to the building. As a result, the rate for chilled water had to increase for the remainder of the users, which drove additional users to install free cooling systems for the winter, accelerating the spiral. Eventually, the rate structure was changed to a fixed rate to accommodate the peak cooling demand in the winter and the associated fixed costs and capital required to meet that demand; and a variable rate to recognize the variable costs of producing the commodity throughout the year.

An institution may or may not actually charge the building, department, or entity for the costs of the utility; however, sharing the costs associated with utility consumption can be an important first step toward creating an awareness of the cost of the utility systems and relative impact to the institution's annual budget when consumption increases or decreases. Additional consideration should be given to understand the cost to connect new buildings and the impact on or contribution to future capital cost to increase capacity at the central plants.

Annual Utility Plant Costs



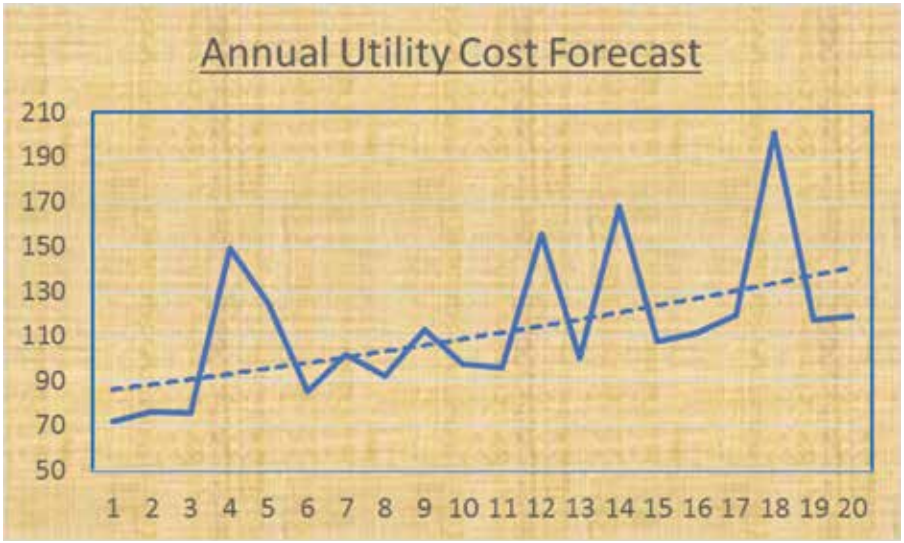
Rate Structure Components

Utility	Demand Charge (fixed charge each month)	Consumption Charge
Electricity	$/KW/Month	$0.xx/KWh
Steam	$/KPound/Month	$/Mlbor $/MMBTU Surcharge for loss of condensate return
Heating Water	$/Peak MMBTU demand	$/MMBTU Surcharge for low delta T
Chilled Water	$/Peak Tons cooling demand	$/MMBTU Surcharge for low delta T
Water/Sewer	N/A	$/100 cubic feet or $/1,000 gal.

PLAN FOR THE LONG TERM

Utility infrastructure investment is intended to last for several decades. Distribu-

Annual Utility Cost Volatility



tion systems can last 40 to 60 years or longer with high-quality installation and proper treatment and maintenance. Large capital items such as transformers, substations, boilers, chillers, and auxiliary systems are published with a normal expected life of 25 to 35 years. Yet with proper operation, equipment cycling, and proper preventive maintenance, it is not uncommon to exceed life expectancy by 25 percent or more.

Matt Adams further discussed the benefits of usage-based maintenance in the July/August 2016 issue of *Facilities Manager*. The challenge with planning utility capital expenditures is that the exact date when something should be replaced is not easily predicted, and "run to failure" is usually not a good option for the institution. Institutions prefer predictability over volatility when forecasting and planning annual, biennial, and five-year capital plans. Can the university operate with reasonable reserves and specific debt payment schedules to levelize the annual costs for each utility system? Are the resulting costs competitive with the local or peer institution's rates for similar utilities?

CLARIFY ALTERNATIVE BUSINESS MODELS

Once you know your up-front costs and then incorporate your total owning and operating cost—including capital requirements forecast forward for several years—the institution can research and identify the business model that will work best to meet your goals and objectives. Will the business model include both building energy consumption and utility plant and distribution system production and delivery systems? Consider and structure leadership or board oversight to manage annual utility rate adjustments, reserve account management, debt and bonding for capital improvements, and overall governance of the utility enterprise.

There are several different business models to consider for operating the utility infrastructure. The most prevalent forms for the utility infrastructure business entity used by both public and private nonprofit higher education institutions include:

- **Auxiliary Enterprise 501(c)3**, which is fully funded through utility rates and functions with its own bonding process and governance oversight.
- **Quasi-Auxiliary Enterprise**, which is not set up as a 501(c)3, but functions in a similar manner where capital bonds could be issued as general obligation for the institution or as revenue bonds funded through utility rate structures.
- **Self-funded through operating or capital funds**, which may compete with academics for capital.
- **Funded through capital campaigns/endowment proceeds**.
- **Institutionally funded through other means,** including internal loans, grants, or utility rebate programs.
- **Public-Private Partnerships** (P3s).

The perception of P3 arrangements and what they offer to an institution is better understood today than when they were started in the 1980s and '90s. Wikipedia describes P3 operation today as follows:

- The private party provides a public service or project and assumes substantial financial, technical, and operational risk
- The cost of using the service is borne by the users and not by the taxpayer
- Capital investment is made by the private sector
- Government contributions may be at no cost but for the transfer of existing assets
- P3s harness the expertise and efficiencies of the private sector
- The public body does not incur any borrowing
- Higher financing costs are offset by private-sector efficiency and better risk allocation

However, a deeper dive is required to fully understand and appreciate the positives and negatives associated with any P3 arrangement. Currently one can find institutions using a variety of different P3 agreements. These include **P3 Energy Services Contracts** (ESCO (Energy Service Company) Models), which capitalize on guarantees, expertise, and external funding using existing energy and operational budgets to fund the renewal and replacement activity; **P3 Build-Operate-Transfer Agreements** (similar to various forms of lease agreements), which bring external expertise to design, build, and guarantee certain aspects of utility renewal and operation while maintaining institutional ownership and tax structure; **P3 Concessionary Agreements**,

which attempt to monetize the utility asset and integrate a new financing and operating partner with long-term price stability, operating responsibility, and guarantees and risk reallocation, while retaining ownership, tax advantages, and reporting and governance approval and oversight responsibility; and **P3 Build-Own-Operate Agreements** (may also be considered as a sale of infrastructure to monetize those assets), which essentially convert the utility infrastructure to an external utility operation that may or may not have any governance and oversight from the institution.

Compare the P3 alternatives with internal options that essentially consist of running the utilities as an internal operating expense, using year-to-year budgeting and operation; paying what is required and funding capital requirements as they arise; or operating using a Full Cost Recovery Revenue Enterprise Entity, which allows the institution to function more like a utility, levelize annual payments, build reserves, and issue and pay debt.

UNDERSTAND LEADERSHIPS' CRITICAL ITEMS

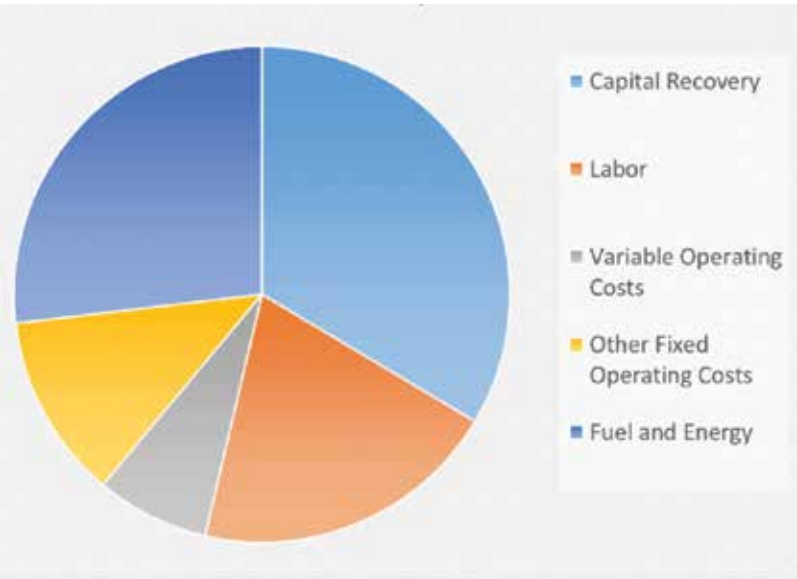
Leadership will be intimately involved in any utility infrastructure restructuring and business model development. It is important that the utility and infrastructure management and operations team fully understand leadership's critical issues and concerns related to operation of the utility infrastructure and the impact or contribution to the institution's long-term mission and vision. Simply put, is the utility infrastructure an expense or an asset?

The critical issues that affect leadership can be difficult to discuss. Internally, assess those items before approaching leadership about a new business model for the utility infrastructure. Consider the following:

- **Labor:** Are there labor issues that leadership believes could be resolved if the operations were conducted via a different business model including wage and benefit structure, cross-training restrictions, productivity concerns, turnover and training issues, worker shortages, and expertise?
- **Confidence:** Do you communicate clearly the challenges, successes, and needs of the utility team and listen to what your customers are saying about utility services? Is there a high level of trust and respect between leadership teams? Do you understand and communicate clearly the costs and impacts of regulatory and compliance issues impacting the utility infrastructure?
- **Overbuilding:** How are you balancing capacity expansion with programs to reduce utility demand and consumption on the campus? If N+1 is good, is N+2 better? What are the expectations for reliability: 99.9%, 99.9999%, or 100%? Are they reasonable, and what are the associated capital and operating costs to achieve them? Do the most critical buildings drive the costs of utilities for the entire campus?
- **Costs:** Are annual, short-term and long-term costs stable, predictable, and competitive with other benchmarks, or is the volatility and uncertainty of annual utility costs an issue affecting confidence in the institution's leadership? What are the total costs for utilities per student, and what percentage of base tuition does that represent?
- **Other inhibitors:** What other institutional constraints exist that might be improved with a different utility infrastructure business model, including procurement constraints, operational and performance guarantees, financing options, debt limitations, risk allocation, or operating reserves management?

Business Plan Elements

Cost Component



DOCUMENT THE BUSINESS MODEL

After the preferred business model is identified, develop the business plan. Colleges and universities are great at developing academic and facility master plans, campus use plans, sustainability plans and utility master plans. I would challenge institutions to expand beyond those and develop a *utility business plan*.

After decades of reviewing campus master plans, I am not sure I can identify even a few that gave the utility infrastructure more than an obligatory one or two paragraphs summarizing that "utilities should be extended to the new facilities." A campus master plan is not a utility business plan. Likewise, most campus utility master plans are not a utility business plan. They are focused on capacity requirements—including new equipment needs and anticipated timing for renewal of major equipment and distribution systems.

The utility master plan may identify, in round numbers, the capital required for capacity additions or for large capital equipment replacement. As shown previously, those costs are a small part of the overall total owning and operating costs for utility systems. Very seldom do they focus on the total owning costs of the systems, compare alternative systems, or compare the internal owning costs with those of peer institutions and similar local utility costs.

A question I like to ask early on during development of a utility business plan is, "If your electrical infrastructure were simply part of the local utility system, would the per kilowatt hour cost of electricity metered at each building be more or less expensive than the current total cost of ownership?" The answer should not be a surprise to anyone on the institution's utility system management team.

COMMUNICATE, COMMUNICATE, COMMUNICATE

A well-managed and operated utility system for the campus should exhibit the qualities of a world-class utility company. Many universities have utility budgets that rival a majority of the country's municipal utility systems. They deserve management and operational processes that represent those complexities and expectations for cost stability and system efficiency. Internal and external operating models, partnerships, and governance models will continue to evolve as utility costs increase and continue to impact the institution's tuition costs and sustainability goals and objectives.

Utility management must develop relationships with the institution's leadership and be comfortable communicating with the institution's business officer and trustees or governing board regarding infrastructure ROI, total owning cost recovery mechanisms, shared services, resilience, cost competitiveness, asset value, risk management, credit worthiness, financial instruments, and the cost of money.

It is recommended to develop business plans as if the utility is operated with a specific goal for net revenue or profit (even if the profit is zero) and operated within defined budgets with appropriate revenue streams, expenses, debt payments, and reserve allocation.

Operating the utilities in a manner that meets the institution's expectations and is cost-effective with other alternatives will result in leadership meeting their fiduciary duty to the stakeholders.

Jim Sebesta, the founder and former CEO of Sebesta Blomberg, is a senior consultant for FVB Energy in Bloomington, MN, specializing in utility infrastructure business planning, operations, and management optimization. He has been a business partner with APPA for more than 25 years. This article was based on his research conducted under the auspices of APPA's Center for Facilities Research, project CFaR032-15. Jim can be reached at *jsebesta@fvbenergy.com*.

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GRITS

Making Energy-Efficiency Projects Easier and More Collaborative

By Mark Orlowski and Aaron Karp

Today, more than 300 APPA member institutions are taking advantage of an innovative web platform for tracking project-level energy, financial, and carbon-savings data. Thanks to a partnership between APPA and the Sustainable Endowments Institute, APPA members have been able to access the **Green Revolving Investment Tracking System** (GRITS) tool for free, including the GRITS Library of more than 2,000 completed projects. In large part thanks to APPA members, the number of projects in the GRITS Library has grown by 700 percent over the past two years.

GRITS
Green Revolving Investment Tracking System

GRITS is used by a variety of administrators and staff at universities and other nonprofits in all 50 U.S. states and seven Canadian provinces. Facilities managers, energy engineers, sustainability coordinators, chief financial officers (CFOs), students, and other stakeholders are all tapping into GRITS to collaborate in pursuit of more resource-efficient operations.

For many GRITS users, the most important benefit is the increased spotlight on project successes. Unlike traditional tracking mechanisms, GRITS' intuitive user interface allows diverse stakeholders to work together and come to understand the tangible benefits of projects without the need for a technical background. "You manage what you measure, and GRITS offers us a convenient tool to evaluate and share the carbon and cost benefits of our portfolio of projects," writes John Pumilio, director of sustainability at Colgate University, in a recent email.

FUNCTIONS AND FEATURES

Since GRITS 1.0 was launched three years ago, the platform has grown significantly in terms of users and available features. Over that time, GRITS has continued to meet the needs of users across a range of cases. If your institution hasn't taken advantage of its free GRITS access as an APPA member benefit, or if you have not logged in recently, here's how GRITS supports resource-conservation work:

- The cloud-based platform allows all project data to be kept in one place and accessible from anywhere through a secure password-protected account system.
- Provides different levels of access to users including editor and read-only privileges.
- A dashboard displaying the amount of capital invested in projects and the amount saved from past projects for each fiscal year.
- Automatic calculation of a wide range of financial metrics for both proposed and completed projects including return on investment (ROI), internal rate of return (IRR), net present value (NPV), and payback period.
- Automatic calculation of each project's carbon savings and overall carbon savings achieved by your entire project portfolio.
- Enter proposed projects, view their anticipated impact, and create a portfolio of proposals for campus or climate-action planning.
- Bulk-upload projects via a provided spreadsheet template to save even more time.
- Tap into the GRITS Library of more than 2,000 already-completed projects at other institutions for project ideas and benchmarking.
- Generate project PDFs that contain various measures of your project's impact to share with the campus community or as part of a presentation to financial decision makers.

GRITS by the Numbers

- 300 institutions accessing GRITS through SEI's partnership with APPA
- 1,045 completed projects entered (for which there is complete data)
- Total-to-date financial savings: $58 million
- Total-to-date energy savings: 3.3 million MMBTUs
- Total-to-date emissions savings: 415,000 metric tons CO2e
- Total project investment: $96 million
- Median annual financial savings: $3,300
- Median payback period: 2.7 years
- Median annual return on investment: 27.1%

The newly launched GoGrits website includes a full description of the features and benefits of the platform.

GRITS 1.7

With the recent release of GRITS 1.7, we focused on developing new features that enable users to better customize the tool's functionality to their needs. Highlights include:

- Institutions that generate their own electricity, steam, or chilled water can now create custom carbon emissions factors for these resources and apply them to projects, either individually or as a group.
- Users can create custom resource-price scenarios to show how resource prices and financial savings would change under a given escalator rate or a fixed price over multiple years.
- GRITS can now group individual buildings/facilities into campuses.
- The addition of campuses is enhanced by another new feature, geolocation, which allows GRITS to find facilities and campuses on a map via an integration with Google Maps.
- A new affiliations filter has been added to the GRITS Library, which allows a user to find projects at other institutions that are part of the same network or association. For example,

APPA member institutions are able to filter projects completed only by other APPA members. Options for the Climate Leadership Network (an initiative of Second Nature) and for institutions with a green revolving fund have also been added.

- Users can now upload a cover photo for each project to illustrate the work being undertaken.
- A new live-chat feature has been added to GRITS. Just click the yellow "contact us" bar in the bottom right-hand corner of the screen, and a GRITS staff member will be available to answer questions in real-time, weekdays during business hours. At all other times, the chat bar is a convenient way to submit a question; and we'll respond the next business day.

Many of the new GRITS 1.7 features were conceived thanks to helpful user feedback. We're always working to make GRITS better and a significant portion of the development ideas that eventually become a new GRITS feature were originally suggested by users.

LOOKING AHEAD

So what's on deck for additional new GRITS features? Over the next few months, we will be developing an API (application programming interface) connection with the U.S. Environmental Protection Agency's Portfolio Manager, which will allow for instant data exchange between the two platforms.

Portfolio Manager is a free tool that many institutions use to track changes in energy use across a variety of buildings. Integrating it with GRITS will combine project-level tracking with the bigger picture of changing resource consumption from a baseline in a group of buildings, and ensure that common data points will only need to be entered once. For example, if an institution has 50 buildings being tracked in Portfolio Manager, a user will be able to instantly transfer all of the relevant data from all 50 buildings into GRITS instantly.

Another feature in development will allow users to easily share GRITS project data publicly. While GRITS currently offers charts and graphs that can easily be exported, as well as rendered in PDF reports for individual projects, this new feature will allow users to implement automatically updating dashboard type functionality. For institutions that want to more widely communicate the energy, financial, and carbon-savings impact of their projects, the new dashboard capability will allow for easy public display of GRITS data in real time on an existing facilities or sustainability office website.

As the GRITS user community continues to grow rapidly, we have recently begun reaching out to individual users to offer a personal screen-share walkthrough to help those who haven't logged in recently get up to speed with the newest GRITS features.

If you would like to activate your institution's free GRITS access through the APPA partnership or to schedule a GRITS tour, please email *support@gogrits.org*.

Mark Orlowski (*mark@endowmentinstitute.org*) is the founder and executive of the Sustainable Endowments Institute (SEI), a Boston-based nonprofit organization founded in 2005. Aaron Karp (*aaron@endowmentinstitute.org*) is GRITS director and a senior research fellow at SEI. This is their first article for *Facilities Manager*.

BY ERNEST R. HUNTER SR., P.E., ACP, MOS (MASTER)

Tracking Your Facilities Vital Signs

This is the fourth annual article to be published in *Facilities Manager* addressing salary analysis for campus facilities management (FM) organizations. The first article, "Six-Year Salary Trends for Facilities Professionals" (*Facilities Manager,* July/August 2014), looked at all 52 jobs reported on in the APPA **Facilities Performance Indicators (FPI) Report,** and introduced the idea of using the FPI Report, the Department of Labor Bureau of Labor Statistics (BLS) *National Compensation Survey*, the national *Consumer Price Index (CPI)*, and the national *Employment Cost Index (ECI)* to perform trend analysis on the health of your FM salary program. You can review the first article on the APPA website at *http://www.appa.org/files/FMArticles/44-53.pdf.*

The second article (*Facilities Manager,* July/August 2015), "Salary Trends in Facilities Management: Senior Leadership," looked at the 11 senior leadership jobs reported on in the FPI Report, and provided an update on the change in average salaries for all 52 FPI jobs. You can review the second article at *http://www.appa.org/files/FMArticles/38-45.pdf.*

SALARY TRENDS IN FACILITIES MANAGEMENT

A Look at the Cost of Fringe Benefits

The third article, in the July/August 2016 issue, looked at a dozen frontline jobs that represent the direct labor full-time equivalents (FTEs) reported on most often and in the most quantity in the FPI Report. You can review the study at *https://www.appa.org/files/FMArticles/(40-49)%20FM_JA16_F3%20REVISED.pdf.*

In this fourth article, using methods previously described in the first three articles, I will explore several other aspects of employee compensation beyond salaries and wages.

BENEFITS VS SALARIES

Benefits are usually set at the institutional level, and the facilities organization has little direct impact on this resource. However, benefits can be just as impactful as salaries on the success of an FM organization's compensation program. I will start out by looking at the cost of fringe benefits versus the cost of salary and wages as reflected in the FY 15-16 FPI Report.

During my conduct of FM assessment projects at various colleges and universities recently, I am finding that some FM organizations are being required to budget for the cost of fringe benefits. Below is an excerpt from the FPI "Detailed Data Report" section, defining "benefit cost" and noting the answer to a frequently asked question about fringe benefits.

Definition: Total facilities administration benefit cost (insurance, retirement, etc.) excluding the cost of sick leave and vacation. This percentage may be available from the institution's human resources department or budget office.

FAQ Reply: Typically, the benefit percentage will vary by facilities job description or department, and the benefit percentage is generally larger for lower salaried employees.

Fringe benefits often include items such as medical, dental, and vision insurance coverage; education financial assistance; retirement plan contributions; and fitness assistance/access—

7 EMPLOYEE GROUPS FROM FPI REPORT

- >> Administration
- >> Custodial
- >> Maintenance
- >> Energy
- >> Construction/ Architecture and Engineering
- >> Grounds
- >> Other

and the cost of providing these items continues to increase. In the face of increasing fringe benefits costs, salaries and wages in higher education FM organizations have stagnated over the past several years. In my employee focus group discussions during assessment projects, I consistently find that employees say they stay with their institution because of the fringe benefits and in spite of the low wages. These discussions provide anecdotal evidence supporting the fact that fringe benefits play a major role in the recruitment and retention of FM employees.

Most facilities professionals generally do not know the true cost of fringe benefits for the various work groups in their organization. When I ask for the fringe benefits rate, I am often given a general percentage rate calculated by the institution's human resource department, based on the entire institutional workforce. As noted earlier, the benefit percentage is generally larger for lower salaried employees. In actuality, the benefits rate is only relevant if it helps us compute the cost of fringe benefits. If you already know the actual cost of the fringe benefits and the actual salary or wage cost, then you don't really need the fringe benefits rate.

However, you can compute the fringe benefits rate by dividing the actual cost of fringe benefits by the actual salary cost. In the FPI, and for this article, the fringe benefit rate is expressed as a percentage of the salary and wages amount. In some uses outside of the FPI and this article, the fringe benefits rate may be expressed as a percentage of the total compensation. You should make sure you know which method is being used before you use the rate for any analysis.

RESULTS FROM FPI REPORT

Now let's turn to the FY 15-16 FPI Report and see how many participants reported on labor cost and fringe benefits rates, and what they reported. There were 282 participating institutions in the FY 15-16 report. Participants had an option to report labor cost and fringe benefits rate for the seven employee groups. A total of 142 participants reported labor cost and fringe benefits rates for at least one of the seven employee groups, as shown in Table 1. There were 46 participants who reported labor cost and fringe benefits rates for all seven employee groups. Table 1 shows a profile of how many employee groups were reported on by how many participants, with a large majority of the participants reporting on four or more employee groups.

Table 2 shows a profile of the FY 15-16 FPI participants reporting by employee group. Every employee group is represented by a sufficient number of data points to be useful to us in our look at fringe benefits cost.

Each reporting participant reported their total labor cost and the fringe benefits rate for one or more of the seven employee groups. In order to derive an aggregate representation of the data, I computed the cost of fringe benefits and the salary cost for each individual reporting participant based on the reported total cost of labor and the reported fringe benefits rate. I then summed the fringe benefits cost and the salary cost for each of the seven employee groups as displayed in Table 3.

Chart 1 is a graphical representation of the aggregate fringe benefits cost, and aggregate salary cost for each of the seven employee groups for the population of participants who reported labor cost and fringe benefits rates.

Table 1: Number of Participants by Number of Employee Groups Reported

Number of Employee Groups Reported On->	One	Two	Three	Four	Five	Six	Seven	Total
Number of Reporting Participants	10	4	8	20	19	35	46	142

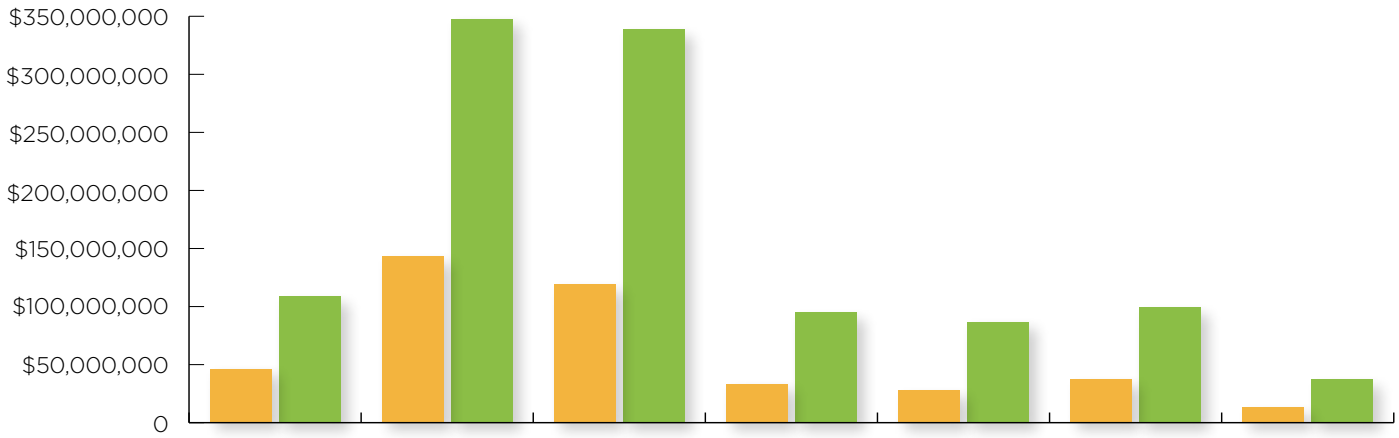
Table 2: Number of Reporting Participants

Employee Group->	Administration	Custodial	Maintenance	Energy	Construction A & E	Grounds	Other
Number of Reporting Participants	126	122	126	97	94	130	70

Table 3: Total Aggregate Salary Cost and Fringe Benefits Cost for FPI Reporting Participants

Employee Group	Cost of Benefits	Cost of Salary/ Wages	Total Cost of Labor
Administration	$46,328,150	$108,911,566	**$155,239,716**
Custodial	$143,316,741	$347,720,966	**$491,037,707**
Maintenance	$119,205,918	$338,857,414	**$458,063,332**
Energy	$33,526,326	$95,051,500	**$128,577,826**
Construction A & E	$27,936,547	$86,749,937	**$114,686,484**
Grounds	$37,266,973	$99,115,254	**$136,382,227**
Other	$12,339,693	$37,188,717	**$49,528,410**
Total	$419,920,346	$1,113,595,356	**$1,533,515,702**

Chart 1: Salary and Wages vs Benefits by Employee Group



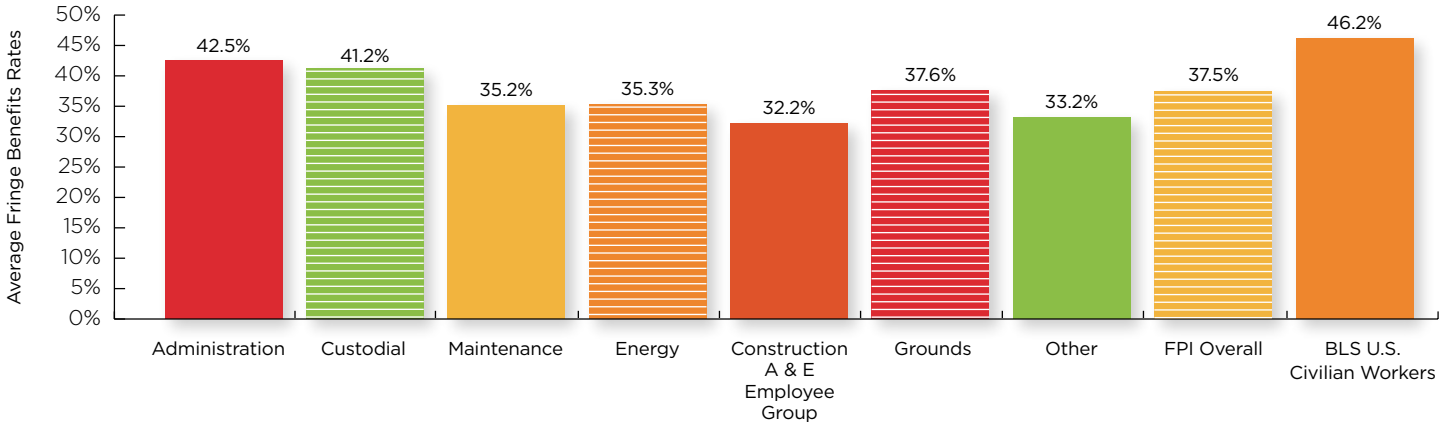
	Administration	Custodial	Maintenance	Energy	Construction A & E	Grounds	Other
Cost of Benefits	$46,328,150	$143,316,741	$119,205,918	$33,526,326	$27,936,547	$37,266,973	$12,339,693
Cost of Salary/Wages	$108,911,566	$347,720,966	$338,857,414	$95,051,500	$86,749,937	$99,115,254	$37,188,717

To compute the aggregate fringe benefits rate, I divided the aggregate cost of fringe benefits by the aggregate cost of salary as reflected in Chart 2. I have also added the BLS U.S. Civilian Workers group, which will be discussed later in this article. As can be seen, the overall aggregate benefits rate for the FPI participants is 37.5 percent, with Administration, Custodial, and Grounds in the top three as expected. However, the aggregate data suggests that the fringe benefits rate being reported is likely not being computed at the employee-group level by all participants. It would seem that the rate for custodial and grounds would be much higher relative to the other groups.

Some participants are likely reporting their overall institutional fringe benefits rate or their departmental fringe benefits rate instead of the rate computed for the employee group. In fact, 27 participants reported the same fringe benefits rate for all seven employee groups, which is an indication that they reported their overall institutional fringe benefits rate or their departmental fringe benefits rate.

Despite the variation in the way participants are reporting, the fringe benefits rate in the FPI Report provides valuable insight to users on how others institutions are allocating their compensation budget between salary and benefits. I would like to use this article to encourage FPI participants to report their benefits rate computed from the actual dollar cost of salary and wage, and the actual cost of benefits for the specific employee group.

Chart 2: Aggregate Fringe Benefits Rate by Cost, FPI Employee Group



Keep in mind that the fringe benefits rate is simply a compact way to represent the value of benefits provided to employees above and beyond salary and wages. However, in most analyses, the FM professional is interested in an accurate representation of the true cost of compensation. That is to say, in most instances the actual dollar cost of fringe benefits is more useful than the fringe benefits rate.

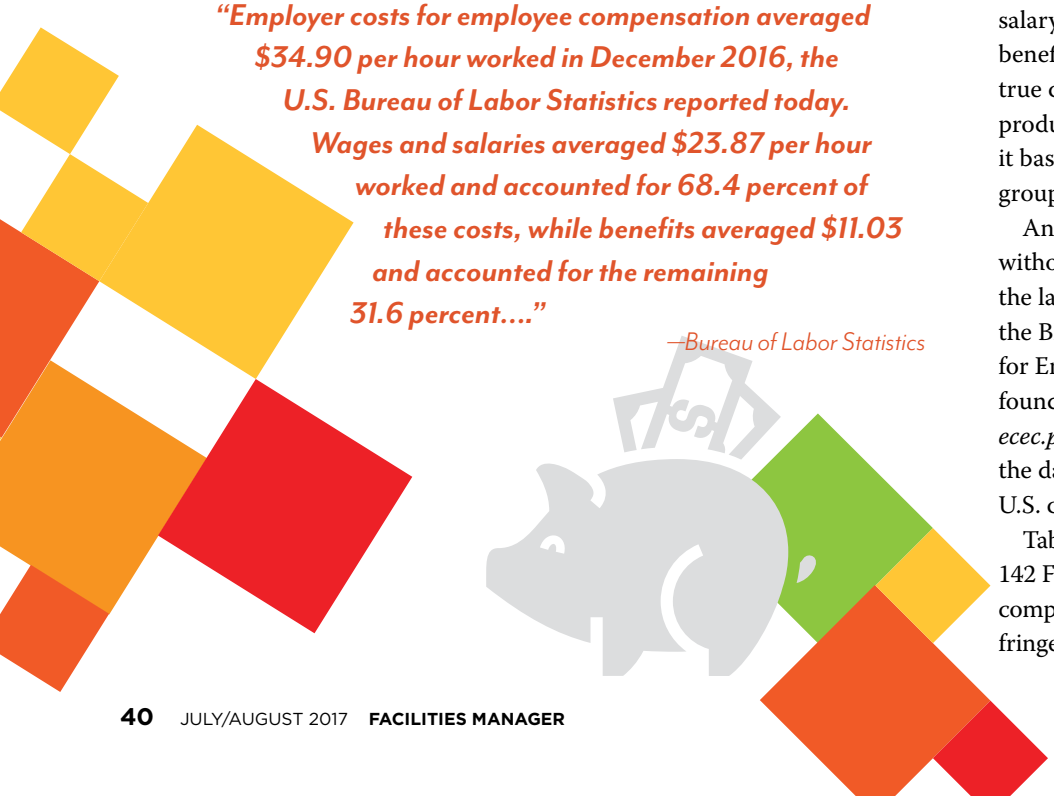
For example, suppose you were trying to make a business case to your chief financial officer (CFO) to purchase pieces of high-cost, labor-saving equipment. And let's say you have a proven method of determining the number of labor hours the equipment will save over the life cycle of the equipment, and your CFO accepts the labor-hours savings as credible. So the business case now depends on the life-cycle cost of the equipment compared to the true cost of the saved labor hours.

Of course, the true cost of the labor hours is based on the hourly salary or wage rate and the actual fringe benefits cost. If you know the actual dollar cost of fringe benefits, then the fringe benefits rate is not important. Unfortunately, in some analyses, a fringe benefits rate that has been computed based on a larger population of the workforce is inappropriately applied to a smaller employee group with a different salary profile. This leads to a misrepresentation of the true cost of labor.

So what is the best way for FM professionals to determine the fringe benefit cost and rate for the different employee groups in the FM organization? The best way is to ask your human resource or payroll department to produce a report for the previous year for the entire workforce that lists each employee by title, work unit, and any other identifying data that will afford the flexibility necessary to group employees according to the requirements of various analyses. The report should include the actual cost of each employee's salary and wages and the actual cost of their fringe benefits. From such a report, you can know the true cost of labor for your workforce. If you must produce a fringe benefits rate, you can compute it based specifically on the data for the employee group for which it is to be applied.

"Employer costs for employee compensation averaged $34.90 per hour worked in December 2016, the U.S. Bureau of Labor Statistics reported today. Wages and salaries averaged $23.87 per hour worked and accounted for 68.4 percent of these costs, while benefits averaged $11.03 and accounted for the remaining 31.6 percent...."

—Bureau of Labor Statistics



An article in this series would not be complete without a peek outside educational FM and into the larger U.S. workforce. As usual we will turn to the BLS and review their bulletin, "Employer Costs for Employee Compensation—December 2016," found at *https://www.bls.gov/news.release/pdf/ecec.pdf*. The excerpt in red text at left summarizes the data presented in the bulletin for the entire U.S. civilian workforce.

Tables 4a-4d use the FTE data reported by the 142 FPI participants for each employee group to compute the total cost of labor per hour and the fringe benefits cost per hour, in order to compare

Table 4a: FY 15-16 FPI Participants Total Labor Cost Per Hour

Employee Group	FPI FTEs	FPI Total Labor Cost Per Hour	Total Labor Cost Per Hour
Administration	2,151	$155,239,716	**$34.70**
Custodial	11,257	$491,037,707	**$20.97**
Maintenance	6,490	$458,063,332	**$33.93**
Energy	1,664	$128,577,826	**$37.16**
Construction A & E	1,365	$114,686,484	**$40.39**
Grounds	2,681	$136,382,227	**$24.45**
Other	803	$49,528,410	**$29.65**
FPI Overall	26,410	$1,533,515,702	**$27.92**
BLS U.S. Civilian Workers			**$34.90**

Table 4b: FY 15-16 FPI Participants Fringe Benefits Cost Per Hour

Employee Group	FPI Cost of Fringe Benefits	Fringe Benefits Cost Per Hour
Administration	$46,328,150	**$10.36**
Custodial	$143,316,741	**$6.12**
Maintenance	$119,205,918	**$8.83**
Energy	$33,526,326	**$9.69**
Construction A & E	$27,936,547	**$9.84**
Grounds	$37,266,973	**$6.68**
Other	$12,339,693	**$7.39**
FPI Overall	$419,920,346	**$7.64**
BLS U.S. Civilian Workers		**$11.03**

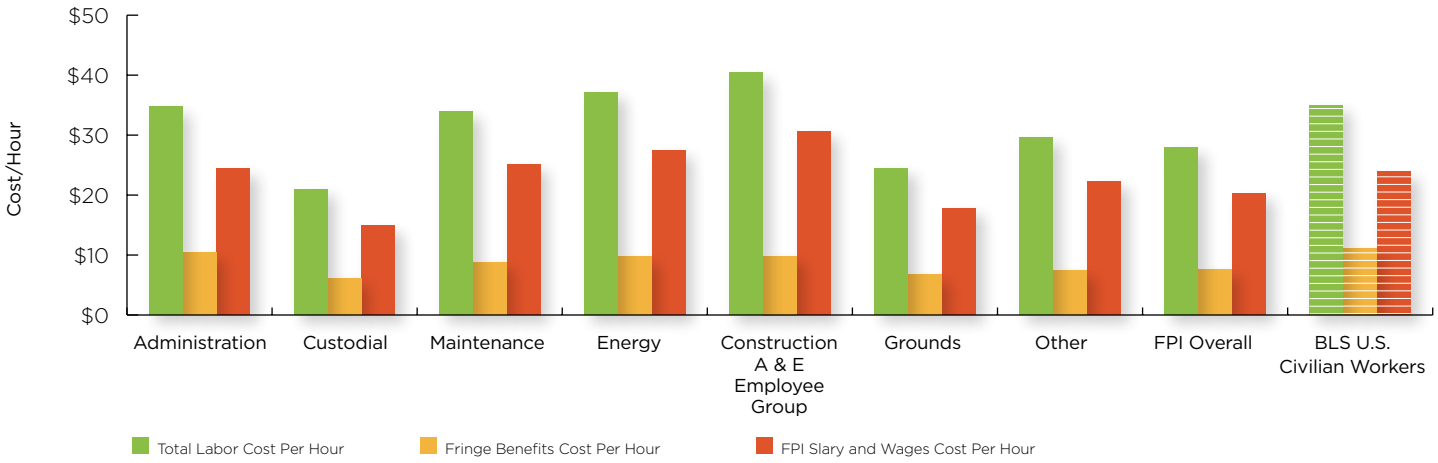
Table 4c: FY 15-16 FPI Participants Fringe Benefits Cost Per Hour

Employee Group	FPI Salary and Wages Cost Per Hour	FPI Salary and Wages Cost Per Hour
Administration	$108,911,566	**$24.35**
Custodial	$347,720,966	**$14.85**
Maintenance	$338,857,414	**$25.10**
Energy	$95,051,500	**$27.47**
Construction A & E	$86,749,937	**$30.56**
Grounds	$99,115,254	**$17.77**
Other	$37,188,717	**$22.26**
FPI Overall	$1,113,595,356	**$20.27**
BLS U.S. Civilian Workers		**$23.87**

Table 4d: FY 15-16 FPI Participants Fringe Benefits Rate

Employee Group	Fringe Benefits Rate
Administration	**42.5%**
Custodial	**41.2%**
Maintenance	**35.2%**
Energy	**35.3%**
Construction A & E	**32.2%**
Grounds	**37.6%**
Other	**33.2%**
FPI Overall	**37.7%**
BLS U.S. Civilian Workers	**46.2%**

Chart 3: FY 15-16 FPI Participants Cost per Labor Hour vs BLS U.S. Civilian Worker



the FPI cost per hour and FPI benefits rates with the BLS data for the entire U.S. Civilian Workers group as of December 2016.

Chart 3 is a graphical presentation of the FPI salary and wage cost per hour, and the FPI fringe benefits cost per hour compared to the same data in the same format for the entire BLS U.S. Civilian Workers group as reported by the December 2016 benefits-cost survey bulletin.

OBSERVATIONS ON BENEFITS

There is a wealth of observations we can make about the data in Chart 3. However, before doing so, let's note that the BLS U.S. Civilian Workers group is made up of the Private Industry group and the State and Local Government group. These two major groups are made up of Occupational groups and Industry groups. The bulletin contains data broken out by these groups that would allow us to create a chart such as Chart 3 to compare the FPI data with the data on any group or collections of groups. Then, of course, individual institution facilities professionals can compare their own data with the combined FPI and BLS data.

Now for observations about Chart 3. Obviously the $34.90/hour total cost of labor for the U.S. Civilian Workers group is significantly higher than the $27.92/hour for the FPI Overall group. All FPI total labor cost/hour are lower than the U.S. Civilian Workers group, except those of the Construction A&E group. The $11.03/hour fringe benefits cost (46.2% fringe benefits rate in Chart 2) for U.S. Civilian Workers is higher than all FPI employee groups.

As with the previous three articles, the objective of this article has been to provide useful information, as well as to provide an illustration of how FM professionals can endeavor to harvest data and turn it into information to better understand and advocate for their organizations.

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Walking the Fine Line between Classroom Security and Egress: Within NFPA, the Debate Closes

By John Bernhards

A number of recent changes now occurring to National Fire Protection Association (NFPA) standards will have significant and lasting impacts to fire- and life-safety requirements for K-12 schools and college and university campuses in the coming years.

Among notable changes most recently finalized were those adopted by the NFPA Technical Committee responsible for maintaining NFPA 101, known widely as the "Life Safety Code." The changes will appear in the upcoming 2018 edition of NFPA 101.

Chapter 15 of NFPA 101, "Existing Educational Occupancies," will contain a new subsection to be titled "15.2.2.2.4, Classroom Door Locking to Prevent Unwanted Entry." The changes will permit classroom doors to be locked from inside the classroom, provided the following conditions are met:

1. The locking means can be engaged without opening the classroom door.
2. Unlocking and unlatching from inside the classroom can be accomplished without the use of a key, tool, or special knowledge or effort.
3. To accommodate occupant height, reach, and disability considerations, the releasing mechanism for unlocking and unlatching cannot be located lower than 34 in. (865 mm) nor exceed 48 in. (1220 mm) above the finished floor.
4. Locks that can be remotely engaged shall be unlockable from inside the classroom without the use of a key, tool, or special knowledge or effort.
5. The door can be unlocked and opened from outside the room with the necessary key or other credential.
6. The locking means cannot modify the door closer, panic hardware, or fire-exit hardware.
7. Modifications to fire-door assemblies, including door hardware, shall be in accordance with NFPA 80, "Standard for Fire Doors and Other Opening Protectives."
8. The emergency action plan, as defined in Chapter 4 of NFPA 101, must address the use of the locking and unlocking means from within and outside the classroom.
9. Staff shall be drilled in the engagement and release of the locking means, from within and outside the room.

Sadly, these changes come at a time when incidents as well as security concerns surrounding workplace and campus violence, and the threat of active shooters, continue to rise dramatically. Within the last seven years, the number of campus shootings has equaled the number of shootings that have occurred within the 40 years prior (1970-2010).

In response, a flurry of untested and noncompliant door-locking products and systems have been introduced into the marketplace, many targeted specifically for sale to schools. In recent years, legislation has been introduced within state capitals and local jurisdictions to mandate new school and classroom-locking systems and procedures that clearly do not support egress requirements found within NFPA standards and the Life Safety Code.

The situation led to a need for NFPA and the fire- and life-safety community to respond with a solution

within the upcoming 2018 edition of NFPA 101. The alternative would be to watch jurisdictions bow to public and political pressures, take their own lead, independently create their own requirements without proper advisement, and risk lives.

Among the proposed changes for classroom door locks, one hotly contested change was disapproved on June 7 by the NFPA Technical Committee, and was not adopted as part of Chapter 15 of NFPA 101. That change would have added language allowing "not more than two releasing operations" to release a door for egress, as opposed to no more than "one releasing operation." One releasing operation for building-lock mechanisms has been the mainstay of door-egress requirements for over 30 years. "One release" ensures that egress is made as effortlessly as possible for occupants whenever a fire or similar emergency requires immediate evacuation.

As Newton once observed, "For every action, there is an equal and opposite reaction." To favor or disfavor classroom side-door locks is truly a fine line to walk for fire and life professionals and safety subject-matter experts, all of whom want only the safest possible environment for students, faculty, and staff.

On the one hand, it is feasible to conclude that classroom door-locking systems support shelter in place or "barricading" in the event of an actual active shooter incident, and may provide, under the right circumstances, an important deterrent while also buying precious time for emergency responders at the scene. On the other hand, facilities and safety professionals must recognize the impact that classroom locks could have in the event of a building-fire evacuation, if mandated by the authority having jurisdiction (AHJ).

All facilities and fire- and life-safety professionals have personally witnessed the challenge faced by occupants when operating locks, keys, and latching mechanisms in both drills and real-life emergencies. Operating a locking device is difficult enough under duress, let alone in the presence of audible and flashing alarms, smoke, and fire. With this new obligation under NFPA 101, it will be critically important that APPA members—and all educational institutions that may be obligated to adopt these changes—consider simplicity and ease of use in their choice of classroom lock design, as well as regular and proper instruction and drilling of classroom users, faculty, and staff.

John Bernhards is the associate vice president of APPA International and can be reached at *john@appa.org.*

Unanticipated Success: Resident Facility Assistants

By John Michalewicz

In 2003, the University of Hartford created a program to provide better service response to routine problems in residential areas. This program used resident students focused on facility roles, similar to Resident Assistants (RAs) who focus on student-life roles. They were called "Resident Facility Assistants" or "RFAs." In 2005, the university was awarded APPA's Innovative and Effective Practices award for this program. Many articles have been written and presentations made about the genesis of the program and its effectiveness within the university and the campus community. Today, RFAs continue to service the campus, responding to our concerns in the resident halls, but now they also conduct monthly life-safety inspections and staff the service response desk throughout the day. The RFA program has grown from 15 to 18 positions and added two graduate interns. By all measures the program is successful—it meets and exceeds all plans and expectations. And students in the program now have a good, semester-long job.

TRAINING FOR NEW AND UNEXPECTED DUTIES

In recent times, another aspect of the program has become more prominent—what participation in the program does for the student. Normally students who are selected for the program have little or no experience related to the work they will be asked to do—changing many types of light bulbs, checking for tripped circuit breakers, unclogging sinks or toilets, lubricating locks, and dealing with bloodborne pathogens. Semiannual training sessions conducted by trade staff address these and many other situations RFAs may encounter during duty hours. They are also trained how to perform administrative tasks while staffing the service response desk: how to properly answer phones, deal with customers, collect needed information about the caller's concerns, where to enter information into the CMMS (computerized maintenance management system), and how to forward service requests to trades staff. RFAs are expected to maintain their grades, meet their duty schedule, attend biweekly 7:30 a.m. staff meetings, and fill out the RFA daily watch log. Like any other facilities staff members, their daily pace can be a little hectic at times.

As happens in any new job, new RFAs often question their ability to complete the seemingly endless number and types of problems that may arise on a duty night. New RFAs are paired with a seasoned RFA, but trepidation remains. However, working relationships soon develop, and the RFAs become a tightly knit group. The weeks pass quickly, and they learn by experience, cooperating with each other to complete their tasks.

THE REWARD OF PERSONAL ACHIEVEMENT

The RFAs find a sense of accomplishment as they realize they have overcome some of the things they found challenging at first. Their personal achievement is real and, while not directly measured, the results are quantifiable. Typically, they are expected to be timely, accurate, and able to communicate orally and in writing. They need to work with each other, ask questions, seek guidance when necessary, and stay with a task through completion. During the course of their assignments, they may interact with anyone on the facilities team, from custodians to the acting vice president, as well as students, parents, faculty, and staff members. They are the "first responders" to problems after hours and on weekends. Over-the-phone coaching is always available from various trade staff if needed—making their work a true team effort.

Over the course of a semester, the RFAs grow in knowledge, skill, and experience. With each additional semester they become more seasoned. As a result, they come to understand the significant role they and their group play in supporting the university community. The unintended consequence of working as an RFA is a level of personal development that equips them for greater roles as they move into life after college.

HIGH VALUE ON BOTH SIDES

The RFA program has evolved since it began in 2003. The conditions that were the RFAs' prime focus then have been well under control for many years, creating opportunities for them to contribute in other ways. Today's program has a strong customer-service emphasis. RFAs now interact with customers, dealing with the regular work of the Facilities Department. Their after-hours responsibilities include performing life-safety inspections and reviewing closed work orders to ensure that their work was completed properly.

The value of the RFA program for the institution is high. Its value for the participant is also high. Virtually all graduating RFAs have moved directly into a job. Their experiences have prepared them in ways they did not realize. There are several instances when an RFA has interviewed for one position, and following the interview process, has been hired at a higher-level position.

The university is always happy to receive feedback from students. These notes highlight the program's effect on student development:

"The career skills I picked up included basic office experience and some facilities management. The two years of office work on my resume helped me get many temp jobs over the summer, and my special experience with facilities helped me land a job in the facilities department at Princeton University. Over 200 hopefuls applied for the job, many with years of administrative experience, but I was the only one with a facilities background, and that was the key to winning the position. I am thriving at my new job, and the director of facilities, who recently transferred from being the director of a different department, will often look to me to ask me what I know from my experience. I would not be where I am without the RFA program!" —Dana, RFA 2011-13

"Obviously any RFAs who go through the program benefit from the information they learn while in the program. But the bigger picture is that having RFAs helps educate the student body. If a plumber or electrician shows up to your door, students expect them to just fix the problem. If a student shows up to fix the problem, I think the other students are more likely to pay attention to how an RFA fixes things, because clearly it's probably something they are capable of doing in the future (plunging a toilet, changing a bulb, and other simple tasks). For the non-simple tasks that RFAs deal with, that gives the program credit and respect." —Dave, RFA 2003-06

Since the program's beginning in 2003, 132 students (64 men and 68 women) served as RFAs, with academic majors ranging from engineering, architecture, and business to musical theater, vocal performance, and physical therapy. All 132 completed their major and graduated. Most will recount a story similar to those of Dana and Dave. This program gives a new meaning to the notion of "providing for the greater good of all."

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Privatization Scenario Planning

By Matt Adams, P.E.

If the next few years are anything like the last few years, there will be more announcements of large privatization deals within higher education. For example, Texas A&M privatized its facility operations in recent years. Tennessee announced plans to privatize all public facilities. Several states, including my own state of Georgia, have signed deals to outsource the development and management of their residence life facilities. Ohio State University privatized their parking decks and central utilities. In each of these deals, there was a large up-front payment to the institution in return for exceptionally long contracts. The contract in Georgia is in place for 65 years. These numbers are daunting to say the least.

ANOTHER TOOL

However, higher education is facing a long-term cash crunch and every opportunity must be considered. That being said, if you really look at these deals and strip away all of legalese, privatization is a financing tool. A university is able to convert the multiyear cash flow of a service center such as utilities or parking by turning it over to an operator in return for an up-front, lump-sum payment. This payment is really a loan.

You can be sure that the up-front payment (whether borrowed or not by the operator) has a nominal interest rate cost of X% to that company. For it to work, the company must earn enough money to cover that X%, plus its expenses and overhead and then its profit. In other words, the university is getting an above-market-rate loan. I am not a big fan of this model, but until someone comes up with an alternative source of large capital infusions, we will keep seeing them.

In everything we do within this industry, we must continually become more proactive and anticipate change. Lander Medlin, APPA's executive vice president, first introduced this concept to us years ago using a book entitled *The Art of the Long View: Planning for the Future in an Uncertain World,* by Peter Schwartz.

This book is more relevant than ever, considering the wave of privatization we are witnessing. The tool presented in this publication is called "scenario planning," and it's useful in many ways. The basic idea is that you form a team and agree on several possible events that will impact your organization, then create the scenario and your response to these events—all beforehand. Without this conceptual work, your organization will be cornered into responding hastily to dynamic changes imposed if an actual privatization scenario came to pass.

I have heard many participants of these large contracts verify both the multitude of unknowns involved, and the many unplanned actions required of facilities administrators facing these privatization scenarios. There are many factors to consider for scenario planning, but at a minimum these must be included: financial accounting, human resources, and organizational design.

THE PRIMARY DRIVER

The primary driver of most privatization contracts is money. The university needs money and is negotiating with an external operator to receive a front-end payment. As you would expect, these deals can be very complex, and a host of lawyers and accountants from both sides get involved. For this reason alone, we must be prepared to present a coherent financial plan reflective of the impacts to our organization. This can include many cost and even revenue streams, and more detail is preferred. For example, if an operator is taking on the management of our auxiliary facilities (that we previously managed), the impact is significant. The first cost that comes to mind is that of the maintenance, custodial, and grounds staff associated with those facilities. It is necessary to supply accurate cost estimates of the effective billable hours consumed by those facilities that will now be managed by the contractor.

As we all know, the funding formula and the actual expenditures typically vary. The university team needs to be given an accurate record of the costs necessary to provide service to these facilities. If the interdepartmental transfer each year for auxiliaries is equivalent to 10,000 service hours (but the actual charges equate to 12,000), and we cannot accurately supply this information, our department will not be made whole after this contract is executed.

Furthermore, our organizations have significant overheard required to operate in the form of professional services, IT, and other functions. A portion of these costs are also being removed from our enterprise and taken on by the operator. Without an accurate value, our organization will likely take a hit in the wrong department. If there is an absence of accurate information supplied by the facilities department, the university's business office will make assumptions that will most likely be inaccurate and adversely affect our departments.

COMPASSION IN PLANNING

The concept of privatization is frightening to the facilities staff. We cannot totally remove their fears, but we can be more thoughtful and compassionate in our transition plans. Once again, it's our responsibility to offer a plan to senior campus administration for the staff affected by any privatization initiative. In fact, such events offer a chance for senior facilities leaders to demonstrate their dedication to their staff; they may or may not present an opportunity to work in partnership with any unions representing some or all of our staff. This human relations dynamic will be reflected in the final agreement struck by our lawyers and must be very prescriptive. Some of the staff who worked for the university may now be under the operator's roles. I liked the way Ohio State has handled this, allowing staff to make the determination individually and either stay with the university or transfer to the operator. Under this scenario, the facilities department would need to plan ahead to be able to absorb workers who desire to stay employed by the university. Once again, this suggested plan should be presented to human resources and legal counsel in a proactive manner, so as to be included in negotiations and the final contract.

Perhaps most difficult is the scenario planning associated with structural changes to our organizations. Some portion of the department will be removed and moved to the external operator. This requires great consideration, because ideally our organizations are designed specifically for the service and results being generated. If we remove the custodial operations, central utilities, or other service centers, we create imbalances in the areas of

- Management span of control
- Extra capacity in support services, IT, HR, and accounting
- Deficit in contractor management/quality assurance functions
- Supply contracts and storeroom requirements

It is reasonable for the business office to expect to see a plan from facilities on how we expect to rebalance resources in response to this change; such a plan can affect our credibility as well. Should a significant portion of our organization be moved to an operator, we cannot likely justify the same overhead for support services.

Ultimately it's our responsibility to be proactive and manage the impact to our departments from privatization scenarios. On the other hand, I find it highly unlikely that these 50- and 65-year-long contracts will stand the test of time. Too many things can change. So, there is a new crop of future facility managers in diapers now who may have to learn scenario planning for the day when the tide turns yet again, and privatization trends back in the other direction!

Matt Adams is president of Adams FM², Atlanta, GA. He can be reached at *matt@adamsfm2.com*.

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A Small College Uses the FPI

By Clay Shetler

In 1989, I returned to my alma mater, Goshen College, to become director of facilities, after a 20-year absence that included some additional education and experience in the construction industry. While I got the job because of my management and construction experience, I quickly realized that construction and operations are different things.

MEASURE TO MANAGE

So why would a small college with less than 1,000 students and a little over 800,000 gross square feet (gsf) take the time to participate in APPA's Facilities Performance Indicators (FPI) Survey? Couldn't this information be obtained by just using common sense? I started my position believing that, and simply wanting to manage an efficient department, but gradually I came to understand what Peter Drucker once said: "You can't manage what you can't measure."

As the new facilities director, it was clear to me that the facilities officers I wanted to model myself on knew a lot more about their physical plant operations than some of their peers. They knew how their staffing compared to the other campuses they wanted to benchmark against. More importantly, they knew what their costs were. They knew maintenance costs per square foot (SF), custodial costs per SF, energy usage, and acres per grounds worker. They knew a great deal more than I did about my campus. These facility officers seemed to be much more successful at managing their operations. So as I began connecting with the people whom I saw as leaders in the field of facilities management, I sought more. Where did I find these people? At APPA conferences, at the APPA Institutes, and at regional and state APPA gatherings. This is where I began asking questions about how to improve and how to better lead the facilities organization at Goshen.

I also learned whom Goshen College considered its peers. With a list of 31 schools, I began calling and talking with each of the directors who would talk with me and find out various things about their facilities: inventories, staffing levels, acres maintained, and so on. Then I developed spreadsheets to see how my campus compared against the other campuses. This was time-consuming and left many other questions unanswered. It also quickly demonstrated that we all had various ways of pulling our numbers together. There was a problem with consistency.

Working at a small campus, I didn't have a lot of support staff and didn't have a lot of time for phone calls, data entry, or graphs. I needed help. I thought about hiring someone to help with benchmarking, but we simply did not have the budget to bring in an outside expert to provide us with an executive summary of what was going on with our campus and how we compared with other campuses. I continued to struggle until 2005, when APPA introduced the FPI.

USING FPI TO DEMONSTRATE AND NEGOTIATE

The FPI provided us with a standard set of measures, many of which were already in my spreadsheet, and several that weren't. It required more data and more help. Given that my vice president liked getting the benchmark data, I asked for that help.

The person at our campus who assisted with assessment and institutional research was enlisted to help provide data for the FPI. This solution addressed several issues: my time gathering the information, the accuracy of the information, and the credibility of the information that would ultimately be shared with others participating in the FPI. So, instead of my job getting harder with the scope of the FPI, it got a little easier. My focus then changed to getting accurate information from our utility manager and sustainability coordinator, who reported to me. The three of us, working together each year, made it possible to submit needed information to the FPI Survey. It was a good working relationship.

How did we use the FPI and the benchmarking?

- To help justify increases in the level of staffing that would be required as we built new buildings and as we added to the acres of maintained landscaping and athletic fields.
- To help justify and explain our staffing levels every time the college needed to make cuts to the institutional budget.
- To see how we compared with others related to energy usage and costs per SF, and to track how well we were doing in lowering our costs as we implemented our new strategies and projects for reducing energy usage.

With the FPI, we were able to access the benchmarking information we wanted to gather. It was organized and could be graphed easily and compared against that of our peers who participated in the survey. But that was also a problem—many of our peers did not participate in the FPI as often or as regularly as we would have liked. It made comparison difficult, so we used the FPI differently, and likely more effectively. We still gathered data, but we focused on benchmarking against ourselves. That is, we tried to see if we were we moving in the direction the board and administration wanted us to move.

With the FPI and the other information we gathered, our facilities organization was able to "get a seat at the table." I was often told that I brought more helpful data to the meetings than other campus department heads. This information was used to evaluate the job we were doing with the workforce we had. It also demonstrated the fact that we had too many gsf per student compared to our peers, which translated into more costs per student for facilities than our peers, even though our actual maintenance, custodial, and grounds costs per SF was equal to or lower than that of our peers. We also used the FPI to see how we compared to others relative to energy usage and costs per SF, and to track how well we were doing in lowering our costs as we implemented our new strategies and projects for reducing energy usage. We knew our stuff.

So the next question you might ask is, "Were we able to defend our staffing when the college budgets needed to be reduced?" Not always. We still lost staffing to protect programs and faculty—that's why the college has facilities. Thus, when we had to take reductions, we used the FPI information to renegotiate the services we could commit to, and we were better able to explain why we couldn't fix everything that needed attention or replacement.

I recently asked my new vice president how she used the FPI. She said, "The data helped to show institution leaders that we (the Physical Plant) were managing a large amount of square footage at a cost that was consistently lower than benchmark reports. This helped inform decisions about staffing changes and service expectations in times of limited resources."

FPI AND STRATEGIC DECISIONS

I started my employment at Goshen College 28 years ago, wanting Goshen College to be a model of efficiency and an example of how a small college campus could have clean buildings, beautiful grounds, and well-maintained buildings with a limited budget. I knew right away that we would never run out of work, but what I hadn't thought about was what happens when the enrollment falls too many years in a row and budgets need to be reduced. Or what would happen when we overbuilt to counteract our declining student enrollment, added more programs, and continued to struggle with tighter budgets. Currently Goshen is focused on increasing enrollment, balancing the budget and bringing back the services we have sacrificed, and addressing the deferred maintenance and modernization needs.

The FPI has helped me do my job and has helped the college make some strategic decisions. It's free to APPA members, and it provides important facility data to set goals, track progress, and document success (even if it means reductions in staff or other resources). Based on my experience with the FPI, every college or university should be using it.

Clay Shetler recently retired as director of facilities at Goshen College in Goshen, IN. He can be reached at *clayes@goshen.edu.*

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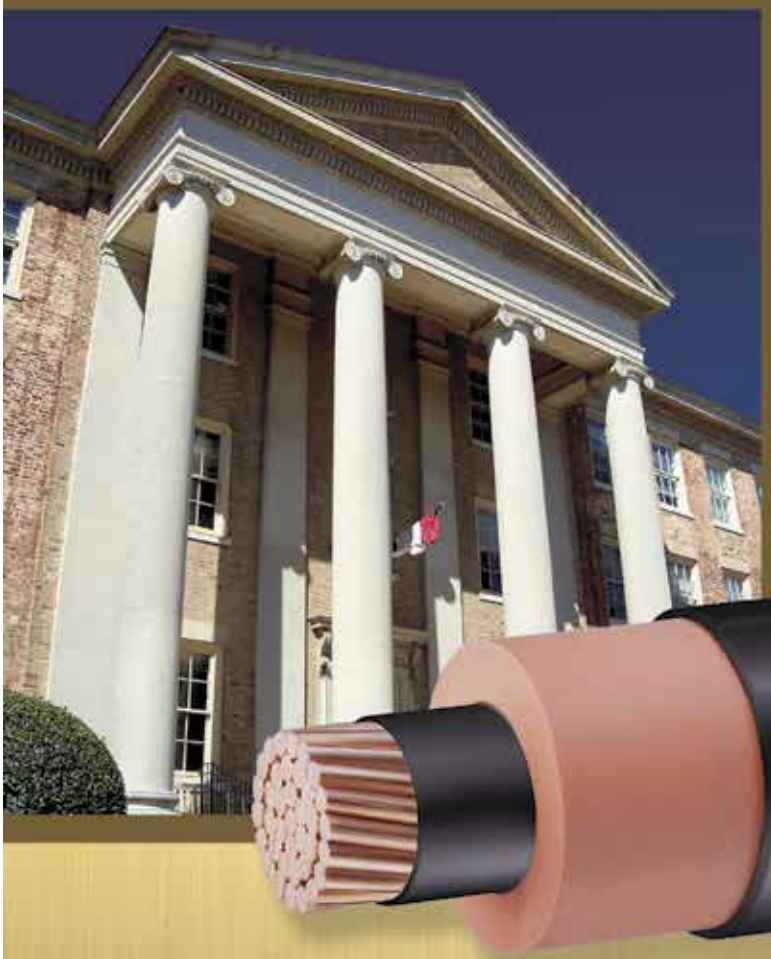

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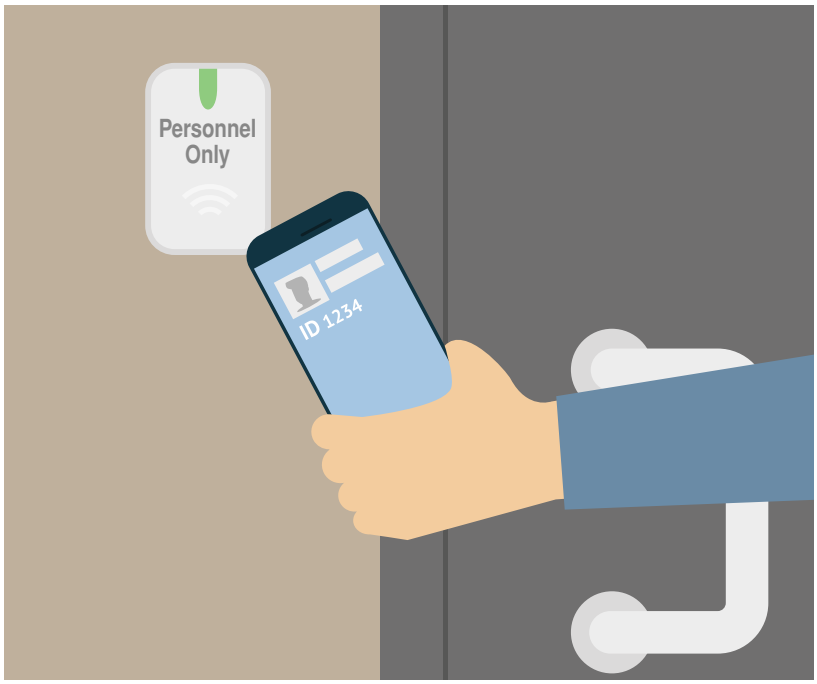
Virtual Credentialing Can Eliminate Headaches for Facility Managers

By Gorm Tuxen



Technological breakthroughs are happening so frequently today that it can be difficult to keep track of them and easy to take them for granted. This is particularly true for cellphone technology. It seems that there's a new "life-changing" app introduced just about every week.

While most new apps don't live up to the hype, one recent innovation promises to make life easier for facilities managers and their tenants. Virtual credentialing (also known as "mobile access") allows developers and property managers to provide a safer and more convenient environment, while significantly cutting their development and management costs. Virtual credentialing platforms allow people to access buildings and areas within buildings using their personal smartphones, rather than keys or physical credentials. The technology can be used for both staff and tenants, and it doesn't require any special capital investments for keys or ID badges. Just hold up your phone near a reader and you are in.

Why is virtual credentialing a big deal? The benefits to tenants are obvious: Smartphones are everywhere, and most people always carry one with them. People are much less likely to lose their phones than their keys, and when they are lost, "find my phone" services can generally help recover them. For residents of condominiums or employees of businesses in a development, virtual credentialing provides extraordinary convenience.

There are also important advantages for developers and facilities managers, particularly those with large properties. The cost of setting up tens of thousands of keys for business tenants, in terms of both time and money, can be daunting. And when one tenant moves out and another moves in, the process repeats itself. With virtual credentialing, access can be arranged with a simple keystroke. Lost keys are no longer an issue (particularly the expense of replacing keys or other credentials), because with virtual credentialing there's no physical element to lose. In addition to making management much simpler, virtual credentialing can save thousands of dollars a year.

HOW DOES VIRTUAL CREDENTIALING WORK?

Most virtual credentialing platforms rely on Bluetooth to make the phone communicate with a reader that's located next to a door, or perhaps built right into the door lock. Bluetooth Low Energy (BLE) enables devices to communicate automatically, without requiring manual pairing. Because Bluetooth can generally communicate from several feet away, the technology offers sufficient bidirectional bandwidth to set up a secure connection. While other technologies, such as Near Field Communication (NFC), can manage mobile access, BLE is the technology of choice because it has much longer range. Plus, most

users are already familiar with Bluetooth, so it's easy to use and there's no learning curve. Finally, BLE is supported on most Android handsets and iPhones.

Virtual credentialing platforms utilize a cloud-based service to forward a unique number, called the "identifier," to the platform apps. This number is then sent to one or more readers or locks. Remember the old days when you needed to call a locksmith to change the locks if a tenant lost a key? Not anymore. Now, you can just wirelessly send a new number to change the access data for whichever locks are impacted.

Obviously, being able to change access data when necessary is an important security advantage. However, the security doesn't stop there. Mobile-access control platforms also promote security through the use of encryption to secure the communication between the cloud-based server and the smartphone, as well as between the smartphone and the mobile-access control reader associated with a particular lock. Encryption keys are used to authenticate the identity of the smartphone and its user, and virtual credentialing is just as secure as the RFID (radio-frequency identification) cards that are commonly used to manage entry into high control areas in public safety facilities, schools, laboratories, and other buildings where security is vital.

A virtual networking system is also easy to install. While there's an initial cost to mount specialized readers and access the necessary software, the technology should rapidly pay for itself by eliminating the need for keys (and replacement keys when they are lost).

STEPPING INTO THE FUTURE, TODAY

Most of us have grown accustomed to using our mobile phones to perform a variety of tasks in addition to making telephone calls. We use our phones to access the Internet, keep an eye on the weather, communicate with friends, and do many other things throughout the day. Now virtual credentialing offers facilities managers an exciting, secure, and cost-effective way to better manage how staff and tenants access their buildings and complexes.

Gorm Tuxen is the business development partner for the Americas for Nedap, a provider of systems for long-range identification, wireless vehicle detection, and city access control. He can be reached at *gorm.tuxen@nedap.com.*

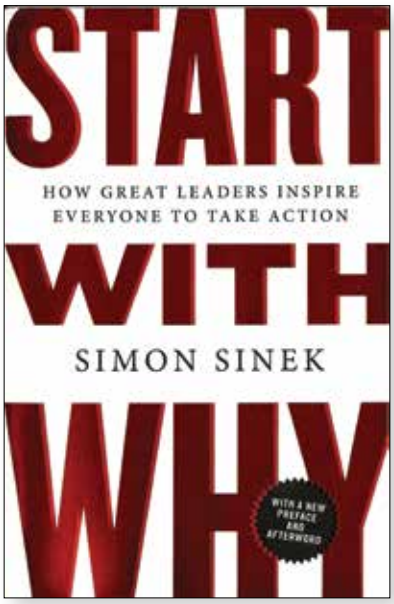
Book Review Editor: Theodore J. Weidner, Ph.D., P.E., CEFP, AIA

While many authors have more than one book, it's rare that this column is dedicated to a single author. Simon Sinek appeared on my radar after a YouTube video (*https://www.youtube.com/watch?v=lU3R0ot18bg*) on Internet addiction, which explains some of my frustration as a professor and highlights some big concerns for facility officers. I can't say I like the solution in the video, but I appreciate the insights. There's more in the books below.

START WITH WHY: HOW GREAT LEADERS INSPIRE EVERYONE TO TAKE ACTION

Simon Sinek, Portfolio/Penguin, 2009, 228 pp., softcover, $16, ebook, and audio book

Simon Sinek consults with companies to help them inspire employees, contractors, and others. As a result, he has observed the successful, the near-successful, the formerly successful, and the failures. Like any good consultant, he has developed a theory on what makes a company successful, and what's missing from a company that is not (or is no longer) successful. His theory deals with the "why," not the "what" or the "how." Obviously, it's a gross simplification, but it gets the point across.



In *Start with Why*, Sinek ties these factors together by considering human behavior and the structure of the brain. He ties both "why" and "how" to the limbic brain, from where we get our feelings and our sense of trust, and the "what" to the neocortex, the decision-making and language part of the brain. Sinek postulates that we make our better, gut decisions based on "why," even though we may not be able to explain the reasons for our decision. It's an interesting concept that ties well with the theory of dysfunctional teams I reviewed late last year in the work of Patrick Lencioni.

Sinek's idea is that successful companies will attract consumers or clients because they have articulated their "why" successfully, even though the consumers go to them for sometimes irrational reasons. Think of Apple or Southwest Airlines. Both have loyal followings and find the competition unsuitable. Southwest has open seating, no reservations, and seems to do fairly well despite the recent abuse claims levied at the airline. In other words, if you're unable to make a decision based on trust, you're likely to spend a lot of time trying to analyze what's not working and still be unsuccessful.

The "why" is often developed by the leader or company founder—think Steve Jobs, Herb Kelleher, or Sam Walton. These highly successful people formulated the "why" message for their company and became successful. "Why" forms the "true north" for the organization, aligning everyone so they know the company's vision and mission. It's similar to the NASA janitor claiming, "My job is to get a man on the moon."

Facility officers work in a difficult and challenging area. They manage constructed assets that often exceed all the financial holdings of the institution, and yet they are often viewed as "only the janitor" or a boiler operator. Successful facility officers understand the "why" of their larger organization (the educational mission) and communicate it clearly throughout the organization so that individual employees do the right thing, at the right time, day after day, and enjoy doing it despite some horrible odds.

LEADERS EAT LAST: WHY SOME TEAMS PULL TOGETHER AND OTHERS DON'T

Simon Sinek, softcover, 2014, $17, ebook, and audio book

"Leaders Eat Last"—it's an interesting premise, but where does it come from? Sinek describes a ritual in Marine boot camp where the lowest member of the platoon goes through the mess line first and begins eating. When the first person in the platoon finishes eating, everyone stops, even though they may still have food on the plate. This promotes unity within the team. But what happens if the leader, the highest ranking member of the platoon, doesn't get to eat much because he has to stop too? Problems.

So what does this ritual mean for the lower platoon members? They are a high priority for the platoon leader; they need sustenance because the platoon can't succeed if these individuals are not well fed and can't do their jobs. When the "boss" lets them eat first, they are elevated from being a "grunt," and they understand better how they fit in. They also understand what it means to see how their actions affect others.

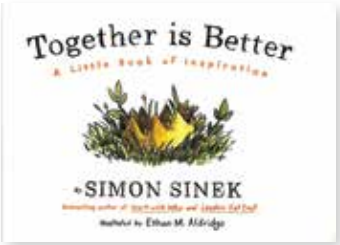
Sinek provides several examples of places where the team improves its effectiveness or productivity when they understand the impact of their work—not by hearing about the outcome from their leader, but by hearing from the recipient. One kind of impact is demonstrated in the form of a cash donation, the other in the form of time and effort. For instance, many people involved in facilities and/or construction may learn more from participating in a Habitat for Humanity build than from writing a check. The same thing happens from the recipient's perspective. That could be why Habitat is successful.

Sinek connects all of these examples to the biology of the brain. The limbic brain processes behavior responses differently from the neocortex, in the form of biochemical stimulation. This kind of stimulation is what results in the continuing distractions mentioned in the YouTube video, and one of the challenges faced by leaders or teachers. Biology is a powerful thing. Understanding the deep biological responses described by Sinek provides helpful insights for us to use in our jobs as leaders or as followers.

TOGETHER IS BETTER: A LITTLE BOOK OF INSPIRATION

Simon Sinek, Portfolio/Penguin, 2016, 140 pp., hardcover, $22

If you watched the YouTube video mentioned earlier in this column, then you know the details of this book. This is supposed to be a helpful story to inspire people to do better. It's a nice idea that works within the attention limits of millennials (short), but it is also something one can return to frequently. It's similar to a trip to a spa, but cheaper.



I'm not a big fan of the book, but I understand that it may have its place in getting this message out to people wired a little differently than me.

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

KNIPEX TOOLS presents 24 tools with tether attachment mounts for its Tethered Tool Pliers Program. Tools with tether attachments and lanyard connections provide effective protection against accidents caused by falling tools. The tether attachment point is a plastic bracket with a closed wire clamp that is securely welded to the multicomponent handle of the tool. Without interfering with tool functionality and use comfort, the tether attachment allows the tools to be secured to a lanyard to prevent falling during use with cherry pickers, scaffolding, and ladders. The tools can also be used by industrial climbers with wire ropes and by high-altitude rescue workers. For greater detail on all KNIPEX Tools products visit *knipex-tools.com*.

LITTLE WONDER, an industry leader in debris-management, grounds-maintenance and asphalt- and paving-site preparation equipment, features the self-propelled BedShaper, cutting time and labor in spring bed preparation. It cuts crisp, clean edges, and even "S" curves as fast as 100 ft./min., to make fast work of even the largest edging, bed-shaping, and trenching projects. The BedShaper handles the most intricately shaped beds, smallest-diameter tree rings, and tightest curved edges. With features such as the added differential and zero-turning radius, users get outstanding maneuverability and precision. A hydrostatic transmission offers infinite speed control in forward and reverse, with cutting depths ranging from .5 to 4.5 in. For more information on Little Wonder products visit *www.littlewonder.com*.

TRANE, a provider of indoor comfort solutions and services and a brand of Ingersoll Rand, is expanding its portfolio of Performance Climate Changer air handlers to provide a custom unit designed and built for applications requiring exact specifications for size, shape, components, materials, and performance. Trane Custom Performance Climate Changer air handlers are configured in the factory with variable aspect ratio design to meet specific footprint requirements, and can be customized to over 200,000 cfm capacity. Customers have a choice of galvanized steel, stainless steel, or aluminum steel casing, which helps meet weight considerations, corrosion resistance, thermal performance, and acoustic requirements. For additional information on Trane products visit *www.trane.com*.

SCHAFFNER EMC introduces the ECOsine Active 3420, a harmonic filter that provides harmonic compensation in real-time for demanding industrial and commercial environments. With a capacity of 30 to 300 A, operating at 200-480VAC (± 10%), the connection-ready 3420 (3-wire) cabinet models include forced-air cooling and internal-liquid cooling (200-300A) for the power electronics. Panel-mount (30, 50, 100A) and freestanding enclosure design, plus IP54 (NEMA 12 indoor) protection, ensure fast and easy servicing; and a designed service life of up to 100,000 hours ensures long service intervals. They are ideal for environments with nonlinear loads, such as variable frequency-motor drives, AC motors, DC drives, uninterruptible power supplies (UPS), chillers, and other HVAC equipment, data centers and heavy computing, and more. For more information visit Schaffner EMC at *www.schaffnerusa.com*.

ASSA ABLOY Americas University provides the opportunity to become door-security solutions experts. Knowing that door-security solutions are a comprehensive effort extending beyond the product itself, ASSA ABLOY Americas University (AAAU) has spent nearly a decade educating its students in best practices for protecting the people and places most critical to its customers. AAAU offers both instructor-led and online courses that introduce or extend knowledge about the components of a door opening, and the opening as a whole. Open to all, AAAU provides installers, locksmiths, facility managers, architects, and distributors with an avenue to improve their own knowledge and thus improve their facilities' security. For further information on ASSA ABLOY Americas University visit *www.assaabloyamericasuniversity.com*.

WESTINGHOUSE SECURITY announces the addition of the Starlight color camera series to their product lineup. Available in a turret or bullet model, these cameras capture high-resolution color video surveillance day or night. The 1080p cameras provide superior detail and clarity. Both the Starlight bullet and turret cameras are available as either a 4-in-1 that uses existing coaxial cables and works with HDTVI, HDCVI, AHD, and CVBS technologies, or as an IP version. With a 3.6-mm F/1.2 starlight lens, these cameras capture images up to nearly 1,000 ft. from a fixed position. In addition, the strong waterproof housing is rated IP66, providing a high level of protection against particles and water. Starlight cameras offer an affordable, dependable solution that helps keep people and property safer and more secure. For more information on Westinghouse Security visit *www.westinghousesecurity.com*.

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

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