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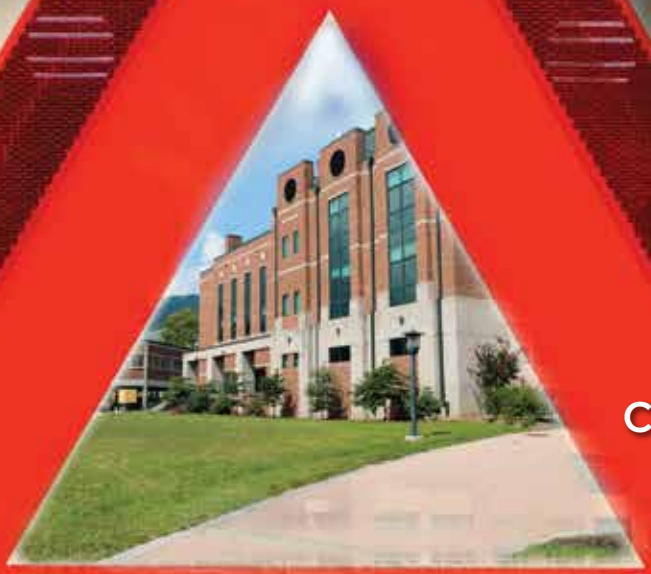

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features

THE RESILIENT CAMPUS

columns

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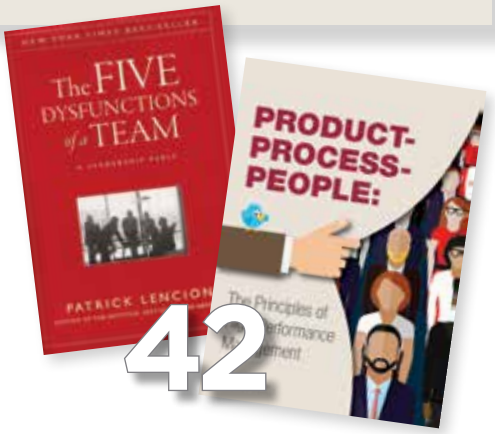

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End-of-Year Notes

CALLING ALL CHAPTERS: SEND US YOUR DATES!

The coming new year means that our active and productive APPA chapters will be hosting conferences and workshops for their state and local members. If you are organizing a chapter or regional conference, program, or webinar in 2017, please send your dates, location, and website address to me at *steve@appa.org* for inclusion in our online calendar of events and in the event listings section of the biweekly *Inside APPA* newsletter. In fact, you can even post your own listings at any time by completing the form at *www.appa.org/calendar/add_event.cfm*. We look forward to hearing from you.

CALL FOR SUBMISSIONS: SUSTAINABILITY CASE STUDIES

As we have done for nearly a decade, the March/April 2017 issue of *Facilities Manager* will focus on aspects of campus sustainability and environmental stewardship. We invite all facilities, energy, and sustainability coordinators to submit a short case study of an innovative or successful program you've recently implemented at your campus, school, or museum. Send us your case study or program description and success.

- Deadline for articles and photos: ***Monday, January 9, 2017.***
- Articles should be 200 words. Include author's name, title, affiliation, and e-mail.
- Photos should be high-resolution (at least 300 dpi, or 1,800 x 1,200 pixels); send only 1 per submission, and be sure to provide a caption and photo credit.
- Send your materials to: Steve Glazner, Editor, *steve@appa.org*.

We distribute the March/April issue to the attendees at the annual Smart and Sustainable Campuses Conference, which this year will return to the campus of the University of Maryland. APPA was one of the founders of the conference and is again pleased to be part of the program committee. The conference will be held March 26-28, 2017 at the College Park Marriott & Conference Center. To register, visit *http://smartandsustainable.umd.edu/*.

THANKS TO JOE

Elsewhere in this issue is the final Enabling Leadership column by Joe Whitefield of Middle Tennessee State University. Joe wrote the column, originally called COIN Toss, for six years, and each one was a thoughtful, concise, and well-written essay on a specific component of personal and professional leadership. He has decided to relinquish the reins on the column and take a breather, and we are extremely grateful for the time and attention he has given to APPA and *Facilities Manager*.

COMING IN JAN/FEB 2017

- Space Management Focus
- An Update on Classroom and Class Laboratory Use & Utilization
- 2016 APPA Regional Highlights

FACILITIES manager

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About APPA

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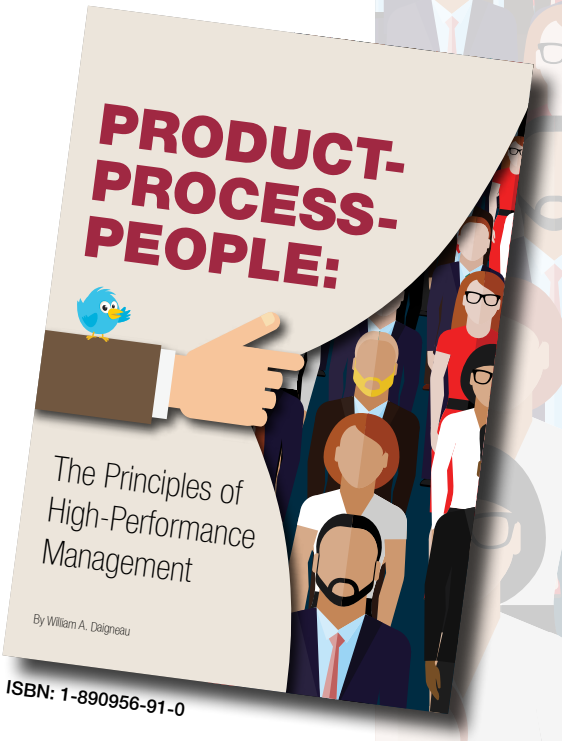

ISBN: 1-890956-91-0

By William A. Daigneau

"In management, becoming a good or great manager really is a matter of learning on the job. Why? Because in the field of management, there is no one set of principles that leads to great results if applied consistently, as you'll find in the physical sciences.

Thus began my quest to discover the laws of management—to find principles similar to the laws of physics—that when consistently applied would lead organizations to great success. Principles that were understandable and could be applied by anyone. If such principles existed, then anyone could lead a business or an organization and achieve exceptional results without wasted effort and inefficiency.

The reason why most management theories don't work is because they don't connect the dots. This book is an attempt to do so.

Bill Daigneau is a Colorado-based consultant and writer who retired in 2012 from the University of Texas MD Anderson Cancer Center in Houston, Texas, where he served as vice president and chief facilities officer. He is an APPA Fellow and a four-time recipient of APPA's Rex Dillow Award for Outstanding Article.

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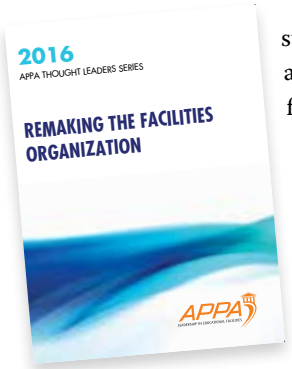
2016 Thought Leaders Series Focuses on Remaking the Facilities Organization



APPA's just-released report on the 2016 Thought Leaders symposium focuses on ***Remaking the Facilities Organization*** and makes the case for a customer-centric higher education facilities organization. The report examines how a customer-centric focus can be applied to the four major responsibilities of educational facilities organizations: 1) general administration and management; 2) operations and maintenance; 3) energy and utilities; and 4) facilities planning, design, and construction. The report defines goals in each area and suggests strategies for achieving them.

Thought Leaders is a program of APPA's Center for Facilities Research (CFaR) and was developed to conduct dedicated discussions on the future of higher education and the impact of that future on educational facilities. If you have insights or topics to share related to ***Remaking the Facilities Organization,*** we invite you to write an article or conduct research by visiting the APPA website *http://www.appa.org/Research/CFaR/TLS.cfm.*

All Thought Leaders reports are free, thanks to the generosity of long-time sponsor Jacobs, and may be downloaded from the APPA bookstore.

COMING UP: APPA U in Dallas, Texas

The next APPA U will take place January 15-19, 2017 at the Omni Dallas, in Dallas, Texas. Combining both the Leadership Academy and the Institute for Facilities Management, APPA U offers a wide array of educational opportunities in a central location twice a year. Graduate Programming content has also recently been added.

The **Leadership Academy** has been developed for the educational institution's administrative professionals. It provides opportunities for professionals to increase their awareness of industry issues, to learn the skills necessary to handle today's changes, and to discover their own leadership potential.

At the **APPA Institute,** students select one core area as the focus of their classes at the venue. Morning classes consist of required courses centering on the core area selected. Afternoon classes comprise electives chosen by the student and may be a combination from any of the four core areas.

For additional information about APPA U, visit *http://www.appa.org/training/appau.cfm* or contact Suzanne Healy at *suzanne@appa.org.*

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APPAinfo is Your Networking Link

Join or Start a Conversation with APPA's Discussion List

APPAinfo is an e-mail discussion list for educational facilities professionals, where you can find the answers to many of your everyday problems simply by posting a question to your peers. How should your school handle graffiti and vandalism? How can you creatively deal with customer service issues? What strategies are you using to tell the facilities story to your senior campus administrators? The possible discussion topics are endless. Just ask!

APPAinfo focuses on all campus facilities issues, regardless of size or type of school or organization. The APPA discussion list (1,040+ strong) seeks to broaden your resource base by making it easier to interact with and respond to the needs of facilities professionals.

For more information, contact Steve Glazner at *steve@appa.org* or simply visit *http://www.appa.org/discussionlists/index.cfm* to subscribe.

Advertise Your Position Openings in Job Express

If you are looking for a highly qualified pool of candidates for a facilities management opening, Job Express can help you. Your ad will be posted online where it can be seen by thousands of facilities professionals who access APPA's website.

The Job Express audience consists of professional facilities managers in top executive-level positions, individuals who are retiring from the military with extensive facilities and engineering experience, graduates of APPA's Institute for Facilities Management, and members who have earned an APPA credential.

Job Express gives you market exposure through its online postings. All ads appear in one format for one low cost and are hosted online for eight weeks! Add e-mail and website links so that applicants can reach you at the click of a button. To find out more, go to *http://www.appa.org/jobexpress.*

CALENDAR OF EVENTS

APPA Events

Nov 14-18, 2016
APPA's Supervisor's Toolkit, UNC Chapel Hill, *Chapel Hill, NC*

Dec 6-9, 2016
Woman's Leadership Institute, *Dana Point, CA*

Jan 15-19, 2017
APPA U: Institute for Facilities Management and Leadership Academy, Omni Dallas, *Dallas, TX*

Mar 6-8, 2017
APPA's Supervisor's Toolkit, Saginaw Valley State University, *Saginaw Valley, MI*

Mar 13-17, 2017
APPA's Supervisor's Toolkit, Spelman College, *Atlanta, GA*

Mar 26-28, 2017
Smart and Sustainable Campuses Conference, University of Maryland, *College Park, MD*

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

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

APPA Seeking Volunteers for Standards Initiatives

The NFPA (National Fire Protection Association) Work Group is looking for volunteers to review upcoming NFPA standards for proposed changes. Review meetings will be held via conference call and take place during the months of November and December, with proposed changes due January 5, 2017. A Lunch and Learn session about these standards and how they affect APPA occurred in mid-October and was hosted by Bill Koffel, of Koffel and Associates. The NFPA codes reviewed are:

- NFPA 45—Standard on Fire Protection for Laboratories Using Chemicals
- NFPA 211—Standard for Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances
- NFPA 1600—Standard on Disaster/ Emergency Management and Business Continuity/Continuity of Operations Programs

Additionally, the ASCC (APPA Standards and Codes Council) Terms and Definitions Work Group is looking for volunteers to review a list of facilities management terms for inclusion in the *APPA 1100 Facility Management Terms and Definitions Standard*. The kickoff meeting took place in mid-October via conference call, and we welcome new members.

If you have questions or are interested in becoming a member of either work group, please contact Billie Zidek at *standards@appa.org.*

What Does "APPA" Stand For?

As you can see from the list below, APPA has had several names over its 102 years of existence.

APPA was the acronym used for the Association of Physical Plant Administrators from the late 1960s through the early 1990s. Today, the association is known as "APPA – Leadership in Educational Facilities," and is most easily recognized and referred to as simply "APPA."

1914
Association of Superintendents of Buildings and Grounds of Universities and Colleges

1948
Association of Physical Plant Administrators of Universities and Colleges

1954
National Association of Physical Plant Administrators of Universities and Colleges (NAPPA)

1969
Association of Physical Plant Administrators (APPA)

1991
APPA: The Association of Higher Education Facilities Officers

2007
APPA – Leadership in Educational Facilities

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The Game Changers

By E. Lander Medlin

The familiar construction crane punctuating the campus landscape is certainly a definitive indicator of growth, development, and change. However, change is now even more deeply rooted by such disruptive forces as enrollment competition by the for-profit sector and lack of traditional high school graduates; an unattended aging infrastructure; workforce shifts that threaten our ability to hire a skilled workforce; and an underlying skepticism about the value of a college education overall. All of this amid continued concerns for safety and security, an unsustainable business model, and an increased interest in outsourcing more programs and services.

Have I got your attention?! I hope so, since these are considered the *Top Strategic Issues for Governing Boards* (based on AGB's latest 2016-17 publication titled same). Furthermore, other key publications from NACUBO (*Drafting the Future*) and EDUCAUSE (*Sketching our Future*), have outlined similar challenges facing higher education. The environment is not only changing, it has already changed and continues to morph at a rapid pace. Indeed, technology is the driver of rapid structural change in the economy.

FACTS VS OPINIONS

So, what do we do? Where do we focus our time and attention? We must commit to making the best decisions possible for the right reasons—with evidence and facts that support those decisions. Daniel Patrick Moynihan aptly said, "We are free to have our own opinions, but not our own facts." To further illustrate, Abraham Lincoln once asked, *"If I told you that a sheep's tail was a leg, how many legs would a sheep have?"* Everyone said, *"Five."* He retorted, *"Saying it's so doesn't make it so!"* Are we currently basing our decisions on facts or opinion? If we focus on the facts, we can change the game! That said, what are the game changers moving forward? Here are just three:

Technological Innovation—In a presentation by Dr. Donald Bobbit, president of the University of Arkansas System, he recounted Bill Gates' skepticism that we could sustain our institutions with the current funding, present business model, and delivery system. He may be correct. However, Gates then asked the audience to consider two important questions:

- How can we use technology as a tool to recreate the entire college experience?
- How can we provide better education to more people for less money?

Important questions, yet just as instructive and informative is what Michael Crow (Arizona State University President) stated in his interview with John O'Brien (EDUCAUSE, CIO association president and CEO), *"We must be willing to be disruptive at a scale (breadth and differentiation) to solve very, very intractable problems. We're not shooting for a perfect outcome but a measurable difference…we must lower costs…must find ways to do things in new ways or we won't achieve the level of service needed at our institutions."* So there it is! We must employ greater technological capacity to proactively upend many old practices and assumptions about what's possible. And, Dr. Bobbit said, *"Don't confuse the difficult with the impossible."* It will certainly be difficult but we are up to the task. Technological innovation informs the other two game-changers.

Space Management/Utilization—Yes, we must tackle this one! Technology and informed policy can help us optimize and further maximize campus facilities utilization rates. Thereby providing opportunities for greater space and energy/utilities efficiencies, a positive impact on capital investment and our campus sustainability goals, and a blended educational experience to enhance, not limit, learning opportunities.

Performance Metrics & Data Analytics—Both the NACUBO and EDUCAUSE articles emphasized the power of using metrics and data to change the

culture. Michael Crow put it succinctly when he said, *"Analytics is essential to the process of change. If you don't know where you are in time and space, you don't know how you're performing."*

Or, how about an entirely different illustration. Let's take the Chicago Cubs baseball team's recent historic win of the 2016 World Series. It took 108 years but by no means was it by luck or chance. Under Theo Epstein's leadership as the GM, they didn't just analyze data and information from every source and angle, they used that data to inform and influence every organizational decision they made (over a painstaking but deliberate period of five years). *"The Cubs committed to a plan, executed that plan to perfection, and did not allow themselves to be distracted from their ultimate goal"* – winning the World Series! As a matter of fact, baseball's culture change toward the use of data analytics has occurred in less than fifteen years—to the point where teams are mocked for NOT using analytics (versus traditional scouting and player development from within).

Analytics doesn't mean "numbers." It means cutting through the chaff with a reason for every decision you make, and that reason is not based on a gut feeling, or "because that's the way it's always been done". The CUBS questioned conventional wisdom and gathered tons of data/information to give them a competitive edge. Theo Epstein *"ended baseball's long-running analytics war by proving that an objective, data-driven approach can change the game."*

ANALYTICS IS THE EDGE

Using data of all types to make informed decisions spawns the competitive urge to find an edge over your competition, which spurs innovation over time, and allows the reexamination of past strategies to secure a competitive advantage. In today's competitive environment, we need every competitive edge we can get, and we definitely need to spur innovation.

In this environmental backdrop of disruption and discontent, we must re-write our own game-changing strategies and get serious about data analytics. Paraphrasing Jerry Garcia, *"It's really a shame something has to be done and we have to do it!"* This will take disciplined execution but can and will change the very culture of decision-making. Let's step up our game and change the playing field altogether.

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

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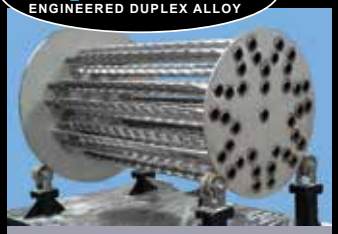

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APPA's International Strategic Alliance with TEFMA (Australia/New Zealand)

By Chris Kopach

One September 10-14, 2016 I had a great opportunity to attend the TEFMA Board Meeting and Conference in Auckland, New Zealand, hosted by TEFMA President Colin Reiter and his wife Marcella. There, my wife Lynda and I had the opportunity to build on relationships already established and nurtured by previous APPA Presidents.

WHY HAVE AN INTERNATIONAL STRATEGIC ALLIANCE?

When it all comes down to the same issues of staffing, succession planning, professional development, building efficiencies, and emergency challenges, what a great opportunity to have APPA with more than 100 years of experience share the knowledge, information, processes, and training programs with our international facilities organizations that are less than 25 years old.

The Strategic Alliance benefits APPA in the ability to learn from our international partners new trends in sustainability, facilities management opportunities when resources are limited, and the same challenges of addressing deferred maintenance with buildings that are from the 1600s in some cases. We thought we had problems!

TEFMA BOARD MEETING AND CONFERENCE

Over the course of several days the international relationships with our facilities partners in TEFMA (Australia/New Zealand), AUDE (UK), and HEFMA (Southern Africa) were renewed and strengthened. The latest updates of all the great items that are available from APPA were shared with the TEFMA Board, and an International Perspectives in Facility Management Benchmarking was presented during one session with conference attendees.

The conference started with a welcome reception at the Auckland War Memorial Museum. Over the next several days we heard entertaining and insightful keynote speakers including Paul Roberts from the University of Oxford, reviewing university challenges throughout the world and staying viable during the age of technology. There was Glenn Martin from Martin Aircraft Company discussing putting your dreams into reality in developing the flying jet back (yes, right out of *The Jetsons*).

The sessions were informative and allowed information sharing between all. These topics included:

LEADERSHIP TOPICS:

- Green Gown Sustainability Award Winner - Victoria University of Wellington, New Zealand

sharing their journey toward carbon reduction
- Influencing academic decision-makers for better process outcomes

TECHNOLOGY TOPICS:
- Campus Energy Systems: An International Perspective held by our own Dan Bollman, associate vice president at Michigan State University, and Geoff Dennis, past president of TEFMA
- Smart Campus Initiative at the University of Melbourne–Facilities Management using Wireless Big Data
- The Future of Learning

CHALLENGING TOPICS:
- The "X Factor" in Transforming Customer Experience
- Change Management vs Cultural Change
- Never let a good crisis go to waste: Seizing the opportunities from the Christchurch earthquakes.

Jeff Field, and Jacqui Lite, senior policy and risk advisor from the University of Canterbury in Christchurch, New Zealand, discussed the two major earthquakes that hit their campus in 2010 and 2011 and the outstanding effort by the community to get the university back up and runnning.

The conference ended with the Awards Dinner, and the signing of the new International Strategic Alliance, forging new friendships that will last a lifetime.

ABOUT TEFMA

"TEFMA is a professional association promoting excellence in higher education property and facilities management by providing its members with access to vital networking, professional development opportunities and a wealth of sector resources. TEFMA Members manage extensive property asset portfolios throughout the Australia, New Zealand and Pacific regions and Hong Kong." — *TEFMA Business Partner Handbook*

TEFMA currently includes 85 higher education institutions, with 1,100 individual members, and has tracked detailed sector facilities management data from 20+ years through its Benchmark Survey.

Chris Kopach is assistant vice president facilities management at the University of Arizona, and APPA's President-Elect. He can be reached at *ckopach@email.arizona.edu.*

Ninety Years of Contributions: Three Women Who Helped Shape Facilities Management

By Patricia Smith

Photo by Patty Smith

From left: Dianne Gravatt, Carol Trexler, and Nancy Yeroshefsky.

Three APPA members, all women, all successful in their professional careers, will be leaving the facilities workforce in the near future. As I learned that they would be retiring, the first thought that entered my mind was that our "collective APPA" would be losing nearly 90 years of contributions from these individuals.

As I continued to reflect, I thought about how they invested so much of themselves, not only in the "APPAs" (APPA chapters, regions, and International APPA,) but also in the many professionals they helped to shape over the course of their careers. Finally, I focused on how their memberships in the APPAs helped our profession through their leadership.

During their long tenure as employees at public universities, these three individuals have provided their respective employers with superb quality and loyalty, maximizing their membership in the APPAs. They have taught, developed programs, managed a regional library, served on committees, chaired conference host committees as many as three times, accepted the role of regional vice president, been leaders in their local and regional organizations, and most of all, exemplified what defines an APPA member.

In this article, I would like to share with you the contributions of **Dianne Gravatt**, assistant vice president of facilities at Rutgers, the State University of New Jersey; **Carol Trexler**, director of facilities human resources (HR) at Rutgers; and **Nancy Yeroshefsky**, director of HR for facilities management at the University of Maryland, College Park.

LEVERAGING OPPORTUNITIES AND ENGAGING MEMBERS

Careers, like campus buildings, have changed dramatically over the span of the three decades that these women have worked in facilities management. What began as a "caretaker" task of maintaining buildings and grounds has evolved into a stewardship role of intense involvement with diverse buildings, personnel, and processes. Evolving with and initiating many changes at the campus level and local APPA chapter and regional levels is what has defined the work of Dianne, Carol, and Nancy.

Each has contributed to their institutions by developing people, programs, and processes, and by doing so has become a valuable contributor to APPA. As young professionals, these women entered the facilities management finding themselves a distinct minority in a field dominated by white males. As APPA's membership grew and diversified, they saw opportunities for their campus staff to grow as well. Each leveraged the opportunities that APPA gave them and engaged members of their institutions in local, regional, and national participation.

Investing in Yourself and Your Staff—Dianne Gravatt

Investing in themselves and others is a key trait of Dianne, Carol, and Nancy. As the assistant vice president for operations and services at Rutgers, Dianne leads a staff of more than 1,200 employees. Dianne's start in higher education began as director of facilities at Rutgers' Newark campus. She brought a wealth of information to Rutgers from her former job in the

medical field. Her acclimation to higher education facilities management was easy, as she is a bright individual, an avid learner, and an advocate for every staff member with whom she has ever worked with or for. As a former director and now assistant VP, Dianne is a champion for investing in herself and others.

Using NJAPPA as a proving ground, Dianne has made membership and education the driving force to ensure that members appreciate the joys of learning while positioning others to advance their own careers. Employees under her direction have journeyed from craftsmen to directors. She has created a legacy of both giving to APPA and gleaning every ounce of educational opportunities in return. It is a guarantee that although Dianne is retiring, she will leave behind a solid pool of APPA members who, because of her contribution, can pick up the volunteer baton and contribute to our local, regional, and international membership needs.

Innovative Thinking—Carol Trexler

For those who are unaware, Carol Trexler was on the team that started APPA's Supervisor's Toolkit, one of the most popular educational programs for APPA members. It took countless hours of development, researching skill sets and soliciting information from college and university facility leaders—mostly outside of the work day—to create a program that provided an unmet need: How does one get the training to progress confidently from worker to leader? The Toolkit continues to launch many a career that has helped members move from being hands-on facilities workers to leading others.

But, Toolkit was not Carol's first "rodeo." As associate director of Rutgers University Facilities Human Resources office, Carol was a moving force behind the Rutgers craft trainee program. In this program, custodial and grounds workers were trained to become plumbers, electricians, locksmiths, etc. Today, these workers are craftsmen, coordinators, supervisors, and directors at Rutgers, and many are active members in the APPAs. Most recently Carol brought another program to Rutgers, the Work Keys program, developed by the New Jersey Department of Labor, which helps employees realize their own potential through self-investment. Investment in human capital is Carol's legacy. Membership does, indeed, have its rewards.

All Humans Matter—Nancy Yeroshefsky

Last October, ERAPPA Vice President of Membership Nancy Yeroshefsky gave us fair warning that she will retire December 2017. The University of Maryland, College Park facilities department is losing a terrific and charismatic leader, and a person who strives to be inclusive. The 2004 award winner of the University of Maryland's (UMD) Defender of Diversity Award, Nancy has embraced the human resources concept that "all humans matter," and believes everyone has something to contribute to an organization. The Maryland/DC Chapter will hold one more annual meeting with Nancy as a member of the ERAPPA 2017 Host Committee; then ERAPPA will have huge shoes to fill as it searches for a new VP for membership.

Like me, once Nancy was given the opportunity to taste what APPA had to offer to its members, she was hooked. As a member, Nancy leveraged any and all opportunities for education both for herself and the many staff members in the UMD facilities department. Nancy has also engaged in local and regional committee work as well as host committees, and as ERAPPA's current VP for membership, leads the membership committee in an unmatched manner. As a committee member, I can attest that she is a charismatic leader, unassuming yet dynamic in creating an atmosphere that allows the committee to thrive. She challenges us in subtle ways, inspiring us to create innovative models for welcoming new members to ERAPPA, and hence APPA. Like ripples in a pond, Nancy's contribution to the membership will be felt for years to come.

APPA MEMBERSHIP *DOES* MATTER

What can we take away from the many contributions made by Dianne, Carol, and Nancy as members of APPA? Each their own way grew as a professional, and as they grew, expanded opportunities for themselves and their staff to grow with them. As an active member of my state, regional, and international APPA, I want to say a heartfelt thanks, wish each well, and remind all APPA members to be inclusive when considering membership opportunities for your staff. Because membership really does matter.

Patty Smith is director of facilities, interim, at New Jersey City University in Jersey City, NJ. She can be reached at *psmith1@njcu.edu.*

Decisive Leadership

By Joe Whitefield

Five years ago I began writing a regular feature in Facilities Manager *on leadership within facilities organizations on somewhat of an experimental basis. Intending to be timely and relevant, the topics have varied widely from publication to publication. With that said, this month's article is my last submission for* Facilities Manager *as I move on to other endeavors. I would like to thank the APPA staff for their masterful editing and support of this effort. I would also like to thank the readers, both frequent and occasional, for your interest and feedback. It is my hope that a particular article, or even a single point within an article, has helped you in some small way as a leader. I know that I have benefited greatly from researching topics, talking to colleagues, and writing the articles. Continued success to you and all. —J.W.*

One of the great responsibilities of a leader is decision making. How well does this idea reconcile with the notion of leaders being judged by results or outcomes? I contend that results come from actions, and every action is initiated by a decision or series of decisions. So, in that respect, decision making may be the most important responsibility of them all.

If it stands to reason that positive results stem from good decisions, then people should desire to be good at making decisions. So good leaders make good decisions because they are good at decision making. Confused? Hopefully not. To explain, I want to review some elements of the decision-making process and look for clues that could lead to better decisions. To do that, we are going to concentrate on the processes that occur specifically before the decision is made and after the decision is implemented.

PRE-DECISION EVALUATION

When considering the decision-making process, let's start at the pre-decision phase. This is the time *prior* to the decision itself, where the choices to be made and the consequences of those choices are being contemplated. In short, this is when all of the possible options are identified and evaluated. This phase should include considering the options that are favorable, mediocre, poor, and possibly disastrous. Two points to emphasize here are that the list of options should be 1) complete and 2) limited. It should be complete in the sense that all of the possible options should be identified for proper evaluation.

How many times have you looked back on a hasty decision only to realize that a better option was actually available but was overlooked? Likewise, the list should be limited—but only in the sense that it should not be cluttered with nonviable options. Once an option is considered nonviable it should be discarded before it becomes a distraction and a time waster. If driving on the left side of the road is illegal, it's probably best not to spend any time on that "non-option" when considering traffic improvements.

The central activity in the pre-decision phase is to quantify the cost and benefits of each option in terms of overall value and trade-offs. Only then can the options be compared and ranked for their fit with well-established goals and priorities. Good decisions are really the best-fit options. Few decisions are perfect, since they invariably involve some sort of trade-off. However, good decisions are those that bring many more benefits than the available alternatives.

Another important aspect of decision making involves evaluating options with incomplete information or unknowns. Decisions with all the information available and known outcomes are really just computations. Real-world decisions require missing information and little guarantee of outcomes. In other words, they're risky. Risks are actually part of the evaluation process and should be considered along with the trade-offs. Organizations need to consider risk aversion when establishing their goals and priorities.

POST-DECISION SUPPORT

Once a decision is made, the process is not over. In fact, many good decisions can ultimately fail because of poor implementation or lack of needed support following implementation. So the questions at this stage are: 1) Have you identified the level of support required for success? and 2) Are you providing it?

Some of the most important evaluations and decisions any organization can make involve the hiring of personnel. Of course everyone wants to make the right decision in this situation, and to ensure that, the pre-decision phase should include all of the elements described above. But what happens when a person has been hired and issues arise? Often, the first thought is to challenge the hiring decision. After all, this was obviously not the right person or there would not been any difficulties. Before that conclusion can be reached, however, you should consider the activities being done to support the person and encourage their success. Have they been given the tools they need for the job? Do they understand the job requirements? If not, the support problem is being disguised as a poor hiring decision.

I believe that post-decision support is vastly underestimated in most organizations today. Too often, it is assumed that the decision itself will automatically produce the desired results. When we shortchange the effort required to make something work, the results will suffer. Work has to be completed, details have to be addressed, and relationships have to be nurtured. I have previously highlighted Angela Duckworth's fine work in this area in her book *Grit*: *The Power of Passion and Perseverance.* The will, discipline, and patience required to stick with something and see it through are essential to success in challenging situations. Supporting a decision is so important to its success that the level of effort involved in that support should become a factor in the cost/benefit analysis before any decision is made. It should be thought of, perhaps, as part of the "total cost of ownership" of that decision. Insufficient support is the cause of many failed organizational initiatives.

In summary, decision making is a great responsibility for leaders. It is a critical measure of the effectiveness of one's leadership. Good decisions result from good personal judgment and skillfully managing the decision-making process. For important decisions, the process should include both a thoughtful pre-decision evaluation of the choices and commitment to post-decision support. Hopefully, using this process will help you make the right decisions and encourage you as you work to *make* those decisions right.

Joe Whitefield is assistant vice president for facilities at Middle Tennessee State University, Murfreesboro, TN. He can be reached at *joe.whitefield@mtsu.edu.*

Designing a Resilient Campus

By Ryan Kmetz, ENV SP

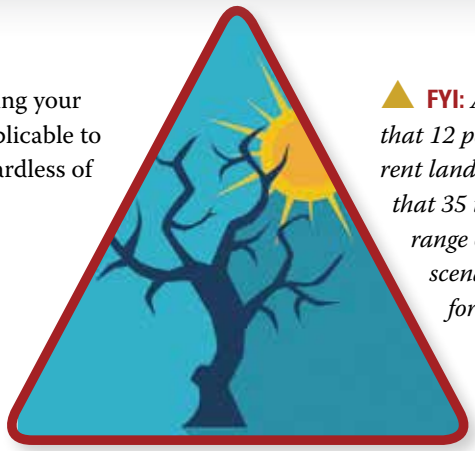
The term "resilience" has increasingly been heard in conferences, project proposals, design charrettes, or from emergency managers. This is an emerging hot topic for those who work within the built environment. But what does "resilience" really mean and how does it apply to you specifically?

DEFINING RESILIENCE

The U.S. Department of Homeland Security (DHS) defines resilience as "the ability to prepare for and adapt to changing conditions and withstand and recover rapidly from disruptions." Simply stated, it's the capability to return to normal. Over the past five years, various organizations have designed operational and service-related rating systems. These credentials are based on best practices, and the organizations offer resilient-design certifications. Some examples include the U.S. Resiliency Council's Earthquake Building rating system, the Institute for Sustainable Infrastructure's Envision rating system for civil projects, and the US Green Building Council's Leadership in Energy and Environmental Design (LEED) v4 pilot credits, which are focused on design and planning for resilience. All of these systems are designed to aid us in adapting to our environments while constructing more suitable infrastructure. Most recently, some of these systems have focused on including sensitivity analysis and modeling projections related to the potential impacts of climate change.

There are many different approaches, methods, and programs available to us when thinking about this topic both at work and at home. Let's

outline the common steps for building your organization's resilience that are applicable to all facilities management assets regardless of location, age, or design.



IDENTIFY HAZARDS

Disasters can and will occur. Unfortunately, severe natural events are occurring more frequently. Fortunately, facilities managers (FMs) understand their facilities and know where, when, and what kind of problems typically occur. But what about nonroutine problems or an extreme event? What happens if your facilities are untouched but the surrounding area is devastated? When thinking about how to improve our facilities' readiness, we need to identify and consider all potential vulnerabilities from natural hazards that can impact continuity of operations.

Every location presents its own unique challenges. It is important to use traditional resources and local knowledge to have the best understanding of your specific challenges. By engaging employees and community members, we can gain invaluable knowledge. Their historical knowledge may reveal an extreme event that disrupted the area in some manner. These "once in a lifetime" events were potentially considered anomalies; therefore, mitigation techniques may not have been incorporated in designs, buildings, or retrofits.

Additionally, there are many readily available and accessible traditional resources that we can use to identify hazards. These resources vary in detail, accuracy, and intended audience. The most common and familiar resource is your state/province, region, or municipality's Hazard Mitigation Plan. These plans, designed for a more technical audience, are highly detailed and developed to meet U.S. Federal Emergency Management Agency (FEMA) approval by planners and emergency managers for hazard identification. A newer resource, the National Oceanic and Atmospheric Administration (NOAA) U.S. Climate Resilience Toolkit (*toolkit.climate.gov*), provides a plethora of data and interactive tools for all types of professionals to utilize when evaluating their location and assets.

Examples of hazards to evaluate in the toolkit include:

- Flooding (coastal and riverine environments)
- Drought
- Wildfires
- Landslides
- Earthquakes
- Severe weather

FYI: *A 2012 NOAA study in New Hampshire found that 12 percent of culverts are already undersized for current land use and the recent shifts in precipitation. And that 35 to 70 percent of culverts were undersized for a range of likely population growth and climate change scenarios. (http://www.caryinstitute.org/newsroom/forefront-shoreline-management)*

DEVELOP A PLAN

Ideally, both your organization and the greater community will contribute to the design of a plan to address your unique challenges. However, for various reasons, this scenario may not be technically or economically feasible. Fortunately, the basics of resilience planning are applicable to both large-scale collaborative efforts and small departmental efforts.

A good plan, derived from FEMA guidance, constitutes the use of a three-tiered approach to address your location's specific challenges. This plan allows the consideration of engineering solutions in conjunction with the development of mitigation policies for both the built and natural environment. The ultimate goal of the plan is to identify ways to substantially minimize threats to health, safety, and property. Furthermore, FMs may consider augmenting their planning process with a continuity-of-operations component. This provision will allow organizations to consider impacts to physical infrastructure beyond their scope of operational control.

FYI: *In 2013, DHS established the Campus Resilience Pilot Program. Seven different higher education campuses throughout the United States participated in using a whole-campus approach to identify 13 functional and mission-critical campus service areas and to identify resilient practices and approaches to share with other schools. (https://www.dhs.gov/news/2013/02/01/dhs-announces-campus-resilience-pilot-program-colleges-and-universities)*

HARDENING BUILDINGS AND INFRASTRUCTURE

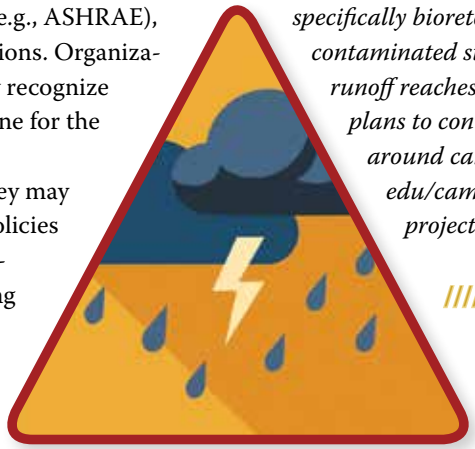
Organizations should consider how to protect and improve existing assets. Many times, these options include retrofits or new construction; often these are physical measures we can engineer and construct to mitigate hazards. Such approaches typically involve traditional methods: building barriers, structural/fenestration reinforcement, elevating critical equipment, installing automatic and manual redundancy measures, etc. Furthermore, over the past few years, several newer options have become available, such as microgrids and low-impact development (LID) techniques.

FYI: *The University of California, San Diego integrated solar, fuel-cell, and cogeneration technologies to establish a microgrid on their campus. The microgrid generates nearly 92 percent of the annual electricity used on campus. (http://sustainability.ucsd.edu/initiatives/energy.html#Clean-Energy-Production)*

BUILT ENVIRONMENT POLICIES

When designing new projects or making significant improvements, organizations should consider codes, standards, planning strategies, and best management practices. FMs should only pursue options that adequately address the risks and are economically and technically feasible. Traditional examples of these policies include floodplain management, building codes (e.g., the International Code Council), standards (e.g., ASHRAE), zoning, and applicable governmental regulations. Organizations seeking to enhance their resilience may recognize that current codes and standards are a baseline for the safety of the occupants and the property.

FMs should consider the probable risks they may face and should, whenever possible, adopt policies that mitigate them. This may include upgrading HVAC for more extreme seasons, building in quick generator hookups, constructing stormwater collection systems, using permeable surfaces, or building structures so they can easily support the added weight of additional resilience measures (e.g., renewable energy systems). Additionally, we should consider where to build and what data is used to make those determinations. For example, FEMA flood maps only consider historical data and do not yet include a sensitivity analysis for climate impacts.



FYI: *In 2001, a tropical system flooded the University of Texas (UT) Medical School Building basement and first floor, causing $205 million in losses. UT responded by spending $12 million on designing and constructing a flood-resistant building. UT designed the space based on a 500-year flood (0.2% annual chance) elevation plus 1 foot. Some of the hardening included reinforcing concrete flood walls, installing flood doors to maintain egress, retrofitting windows with submarine glass, installing backflow valves on water lines, retrofitting the basement to resist flood loads and buoyancy, etc. (FEMA P-936, 2013)*

NATURAL ENVIRONMENT POLICIES

Protection and maintenance of natural features allows the opportunity to further protect your organization's physical assets. Many ecosystems provide invaluable services—sometimes referred to as "natural capital." These services can range from water-quality improvement and flood storage capacity to reduction of heat islands. We should consider these services when choosing the site for new infrastructure by building on areas that have been previously disturbed and improve those areas with aesthetically pleasing elements from the natural environment. Policies may include maintaining a certain percentage of area for natural vegetation, implementing low-impact development (LID) wherever possible, ensuring that only native species are planted, or building in stable areas.

FYI: *The University of Maryland (UMD) uses LID, specifically bioretention and filtration, to catch and filter contaminated stormwater from parking lots before the runoff reaches Campus Creek. Additionally, UMD plans to continue to expand the riparian buffer around campus. (http://www.sustainability.umd.edu/campus/low-impact-development-lid-projects)*

CONTINUITY OF OPERATIONS

Continuity-of-operations planning allows organizations to design a strategy to continue to provide essential services to their students, faculty, and staff during emergencies. This is the opportunity for the campus to identify events that might have more of an effect on their region than right at their doorstep. Many organizations have clauses in their contracts for vendors to supply continuous delivery of food, water, and fuel during times of crisis. We can engage our vendors and ask them how they plan to honor the contracts if the delivery systems are compromised; i.e., if major routes to campus are impassable due to landslides, flooding, bridge failure, road buckling, etc.

"Don't let the first time you meet someone be during an emergency. Establish these important contacts prior to actually needing them."

—Scott Gesele, director of facilities management, Christopher Newport University; president of VAPPA (APPA Virginia chapter)

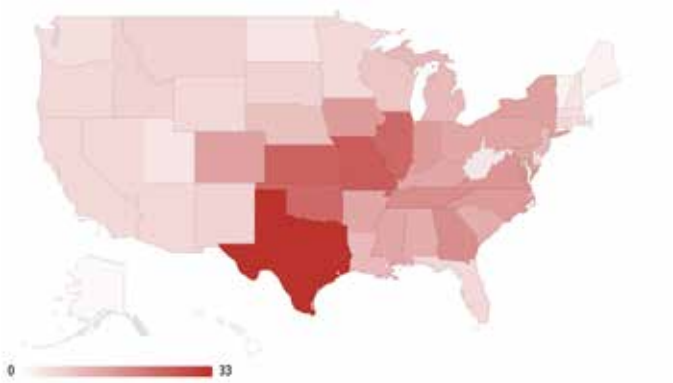
CONSIDERING THE COSTS

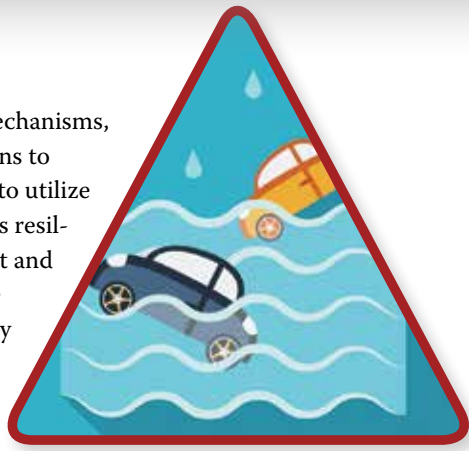
Every organization has financial priorities and constraints. Some resiliency measures are budget neutral; whereas others may require significant capital. However, historical data suggests it is only a matter of time before an organization feels the negative impacts of an extreme event.

NOAA's National Centers for Environmental Information (CEI) provide historical data that tracks the geospatial distribution, event frequency, and monetary impacts of extreme events from 1980 to the present. CEI reports that from January 2011 to July 2016, there were "62 billion-dollar weather and climate disaster" events—that's $13.7 billion per year (Figure 1).

Each of these events are coupled with losses exceeding a collective $1 billion per event (USD 2016 Consumer Price Index adjusted). These events occurred throughout the continental United States and included droughts, floods, severe storms, tropical cyclones, wildfires, and winter storms. A 2006 FEMA report estimated that annualized earthquake losses up to that time were $5.3 billion per year. Seventy-seven percent of those losses occurred on the West Coast of the United States. The remaining 23 percent of losses ($1.1 billion) were distributed throughout the rest of the country (including Alaska and Hawaii).

Figure 1: 2011-2016 billion-dollar weather and climate disasters by state. Please note that the map reflects a summation of billion-dollar events for each state affected (i.e., it does not mean that each state shown suffered at least $1 billion in losses for each event). *Source:* NOAA National Centers for Environmental Information (NCEI) U.S. Billion-Dollar Weather and Climate Disasters (2016). *(https://www.ncdc.noaa.gov/billions/)*





There are many funding mechanisms, ranging from low-interest loans to grants, for your organization to utilize when bolstering their facilities resilience. The federal government and many state governments have funding available for resiliency projects. Additionally, there are private foundations that are also interested in advancing these kinds of projects. Some national examples include:

- FEMA Hazard Mitigation Assistance
- FEMA Preparedness Grants
- EPA Smart Growth Grants
- USDA Natural Resources Conservation Service
- Kresge Environment Program

RESILIENT SOLUTIONS

Every organization will have its own challenges and priorities in determining and implementing solutions. It's extremely important to engage your employees, students, staff, and external communities. Someone closer than you think may have begun to consider and work on these issues. Conversely, your stakeholders may have never considered or thought about these topics.

Finally, it is important to understand our risk tolerances and to focus on the areas of highest concern first. Some resilient solutions are low-hanging fruit that provide easy and affordable wins for your organization, whereas other solutions may take years of planning and capital to implement. For some of us, the major concern might be flooding, earthquakes, wildfires, or other extreme events. But for all of us, the number one goal is to protect our people and property.

▲ *"Remember, on a college campus, it takes the whole campus community to educate our students. On a bad day it really takes the entire team to get the campus back to normal operations."*

—Scott Gesele, Christopher Newport University

Ryan Kmetz is the sustainability coordinator for Christopher Newport University in Newport News, VA, and can be reached at *ryan.kmetz@cnu.edu.* This is his first article for *Facilities Manager.*

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By Steven R. Hultin, P.E., CEFP and John P. Morris, P.E., CEFP

HOME AND CAMPUS CARE

WE have all heard the idiom that owning a house is like owning a money pit. The *Urban Dictionary* defines a money pit as "something of value, which, for some reason or another, has continued to absorb considerable amount of payments due to its continuing failure to live up to expectations."

Most people consider their house to be worthy of an investment, but if that investment is not maintained it will inevitably deteriorate and lose its value, and likely become a true money pit. The same concept applies to caring for your campus buildings, grounds, and supporting infrastructure. The question is, "Can we apply what we know about the cost of home expenses to campus buildings?"

Many people in the campus community own a house and understand what is required to maintain their investment in that house. They take care of their landscape, do routine cleaning and painting, handle minor maintenance, call for an occasional maintenance technician, and may even do some major repairs themselves. Although they may do these tasks at home, they have probably never considered owning their house in terms of the total cost of ownership (TCO). In a campus setting, TCO is a familiar concept to the institution's facilities manager, but probably much less so for the campus community and campus administrators. This article takes concepts that many people understand in terms of their house and attempts to put them into context for an institutional setting.

Table 1: Cost of a Typical Residential House

Typical Residential House	
Bldg. Area (Sq. Feet)	2,000
Cost of the House	$250,000
Unit Cost ($/Sq. Ft.)	$125
Property & Bldg.	$325,000

Table 1 summarizes some basic assumptions about the price of a typical residential house. The authors understand that the price of a house and related maintenance costs can vary significantly depending upon its location. The house described in this article represents a house in a medium-sized university town such as Fort Collins, Colorado.

Table 2 summarizes some basic routine residential maintenance tasks and the related annual costs for the house described in Table 1. These basic tasks include such things as weekly cleaning, routine lawn and landscape care, occasional snow removal, heating and cooling system maintenance, and an allowance for other minor repairs. As shown in Table 2, the average cost for these routine tasks is $3.28 per sq. ft. per year. This example has not included the costs of utilities such as electricity, natural gas, water and sanitary sewer, phone, cable TV, Internet and WiFi, etc.

It is important to keep up with these minor repairs or the result could become catastrophic, with costs three to four times more to restore the asset. For example, in colder climates, ice dams forming on roof eaves is not uncommon. There are ways to prevent or reduce the impact of these ice dams, such as installing insulation or adding heat tape to gutters and eaves; these are relatively inexpensive investments. But if ice dams are not addressed, then water can ultimately leak under the shingles causing ceiling and wall damage. If left unaddressed, these issues can lead to mold problems that not only impact the indoor air quality but are expensive to remediate and repair. Another example is outdoor condenser coils for air conditioners, which need cleaning at least once a year to avoid excessive energy use, utility costs, and early failure.

It is not completely accurate to compare the routine maintenance tasks required for a typical house with those needed in an institutional setting; however the concepts are similar to an extent.

Table 2: Basic Annual Residential Minor Maintenance Requirements

Annual Residential Minor Maintenance						
Tasks	**Frequency**	**Unit Cost**	**$/Hr.**	**per Year**	**Maintenance Costs**	**$/Sq. Ft.-Yr.**
House Cleaning	Weekly	$100	$25.00	52	$5,200	$2.60
Lawn Care	Weekly	$25	$12.50	24	$600	$0.30
Furnace	Annual	$75	$75.00	1	$75	$0.04
AC	Annual	$75	$75.00	1	$75	$0.04
Snow Removal	As Needed	$25	$12.50	8	$200	$0.10
Minor Maintenance	As Needed	$100	$50.00	4	$400	$0.20
					$6,550	**$3.28**

Table 3: Residential Major Maintenance and Building Renewal Requirements for a Typical Residental House

Residential Major Maintenance and Building Renewal						
Project	**Life (Years)**	**Unit Cost ($/Sq. Ft.)**	**Project Cost**	**Average $/Year**	**Annual Costs $/Sq. Ft.-Yr.**	**Annual Costs % CRV**
Exterior Paint	10	$1.55	$3,100	$310	$0.16	0.1%
Interior Paint	15	$2.10	$4,200	$280	$0.14	0.1%
Carpet	10	$6.00	$12,000	$1,200	$0.60	0.5%
Water Heater	12	$0.75	$1,500	$125	$0.06	0.1%
Appliances	15	$1.45	$2,900	$193	$0.10	0.1%
Furnace	15	$1.80	$3,600	$240	$0.12	0.1%
AC	15	$2.60	$5,200	$347	$0.17	0.1%
Fixtures	20	$1.00	$2,000	$100	$0.05	0.0%
Windows	30	$15.00	$30,000	$1,000	$0.50	0.4%
Roof	30	$4.00	$8,000	$267	$0.13	0.1%
Major Repairs			NA			
			$72,500	**$4,062**	**$2.03**	**1.6%**

For example; we all know how to clean our house and about how much time it takes to do the housecleaning tasks on a weekly basis.

However, imagine that instead of a small family and a pet or two using your house, you invite 1,000 people to visit daily. They walk on your carpet, sit on your furniture, use the bathroom, etc. Think of how much more time it will take to clean your house, maintain the appearance of the carpet, and keep the bathroom cleaned and stocked. The complexity and frequency of such routine tasks under this scenario increases significantly for the same square footage.

Now consider the longer-term costs for owning your house. Table 3 summarizes the typical costs for major maintenance and building renewal for this typical residential house. These costs include items such as interior and exterior painting; carpet replacement; water heater, furnace, and air conditioning unit replacement; window renovation and replacement; roofing replacement; and bathroom and kitchen fixture replacement. As shown in Table 3, these modest costs are equivalent to 1.6 percent of the current replacement value (CRV) of the building. Again, failing to keep up with these expenses will result in accelerated deterioration of the asset.

For example, failing to routinely paint the exterior can result in flaked paint, cracking, and ultimately rotting wood. Once the wood is cracked or rotted, it needs to be filled and sanded or even replaced. Flaked paint must be removed before applying a new coat of paint. These repairs and extra steps increase the cost of restoring the exterior above the cost of simply painting the exterior. And the exterior still needs to be painted after making these repairs.

If we apply the total cost of ownership concepts for a typical residential house to an institutional setting, then we can start to describe the order of magnitude required to properly care for an institutional building. These costs are summarized in Table 4. The first difference is in the cost required to build this typical campus building.

For comparative purposes we have applied the same unit cost per sq. ft. for the annual maintenance costs as we used for the residential house. We have also used the same 1.6 percent of the CRV to calculate the annual institutional building renewal costs. Using these two factors applied to the typical campus building

Table 4: Costs to Own a Typical Campus Building

Typical Campus Building			
		Unit Cost ($/Sq. Ft.)	**% CRV**
Building Area (Sq. Ft.)	60,000		
Cost of the Building	$27,000,000	$450	
Annual Maintenance Costs	$196,500	**$3.28**	0.7%
Annual Building Renewal Costs	$438,660	$7.31	**1.6%**
Total Maintenance and Renewal	**$635,160**		

Table 5: Simplified Total Cost of Ownership (TCO) for a Typical Campus Setting

Typical Campus Setting			
		Unit Cost ($/Sq. Ft.)	**% CRV**
Building Area (Sq. Ft.)	60,000		
Building CRV	$2,700,000,000	$450	
Building Annual Maintenance	$19,650,000	**$3.28**	0.7%
Annual Building Renewal Costs	$43,866,000	**$7.31**	**1.6%**
Total Maintenance and Renewal	**$63,516,000**		

described in Table 4, the annual cost to care for this 60,000-sq.-ft. building is over $635,000.

Now let's take this concept one step further and look at the entire campus setting. For this comparison we have ignored the cost of the supporting infrastructure such as streets, parking lots, exterior lighting, utility distribution systems, etc. At our house we typically pay for these costs through our local taxes or through our utility rates, which is not always the case on the campus setting. The costs to maintain and renew the entire campus are summarized in Table 5. The annual maintenance costs are still similar to the typical residential house at about $3.28 per sq. ft. per year; however the annual renewal needs are over three times more than that of a typical residential house ($7.31/sq. ft. compared to $2.03/sq. ft.) due to the higher cost of construction for institutional buildings.

Many of the concepts still apply—failure to do routine preventive maintenance and repairs can escalate into expensive deferred maintenance costs, which can affect occupancy and dramatically disrupt the university's mission of education and research. As noted earlier, this comparison does not include the cost of generating or purchasing utilities.

Like a typical residential house, any campus has modernization needs. In your house, if you want to keep up with modern expectations then you may need or want to add granite countertops, solar panels, etc. This concept also applies to the campus setting. Most chemistry buildings built in the 1950s will not meet today's needs for a modern chemistry building even if there is no deferred maintenance on the 1950s building. This same 1950s building, even if it is in good shape, will likely not be as attractive as a more modern science facility. These modernization costs have not been included in the figures and tables above.

WHAT IS YOUR FRAME OF REFERENCE?

This article presents in simple terms the total cost of ownership of a typical residential house compared to that of a campus building and campus setting We do not go into detail on issues such as costs for remodels and code compliance; these are best described in the award winning article "The High Cost of Building a Better University" and the related sidebar "Your House on Campus," by Donald J. Guckert and Jeri Ripley King (*Facilities Manager*, May/June 2003).

Guckert and King described the customer's sticker shock over the cost of a campus renovation and their point of confusion where the *institutional* construction world meets the customer's *residential* construction frame of reference. These concepts apply just as well to the institutional total cost of ownership and the residential frame of reference for the TCO. The costs described in Tables 2 and 3 seem reasonable when considering one's house, but typically many institutions suffer from sticker shock when considering they should budget nearly $63.5 million annually to care for a 6-million-sq.-ft. campus.

While many people understand what it takes to maintain the appearance and functionality of their house, trying to justify the costs of institutional ownership within a residential frame of reference is not easy. Although the concepts are similar, the dollars needed are indeed worlds apart. Our universities choose to provide stimulating, enriching environments that will serve our students, faculty, and researchers well into the future—and there is a cost related to providing this environment.

Good stewardship involves not only constructing quality buildings that will last; it also requires adequately funding annual maintenance and renewal costs. Simplifying the complexity of the total cost of ownership for an institutional setting in terms of residential ownership may help facilities managers to justify to their administrators what is actually needed in terms they can relate to without overwhelming them with detailed data. We certainly want to avoid our campus buildings becoming money pits that require ever-increasing deferred maintenance dollars.

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Ensure an Optimized Building Environment with a BEMS Solution

By Matt Gates

The U.S. Government Accountability Office estimates that one in five children in the United States attend schools with poor indoor air quality (IAQ). Poor IAQ can mean many things: Classrooms where children have a hard time hearing the teacher due to poor acoustics, where temperatures climb above 90 degrees on hot days due to lack of air conditioning, or where poor filtration adversely affects children's focus and their health.

It is critical for educational facilities to choose heating, ventilation, and air conditioning (HVAC) solutions that help create quiet, comfortable classrooms for students and teachers. In most cases, schools want to address these issues but are faced with a variety of constraints and competing priorities that make investment decisions difficult.

Leveraging a **building energy management system (BEMS)** can help schools and universities tackle these tough investment decisions.

WHAT IS A BEMS?

A BEMS facilitates analysis, reporting, and data visualization of building system performance and energy information. Implementing a BEMS helps positively impact the bottom line of a school or campus by identifying cost reduction opportunities, areas requiring greater efficiency, and ongoing improvement needs. By taking a holistic view of a building, a BEMS helps facilities managers determine their priorities and critical areas within a school building—including key performance indicators (KPIs)—so they can develop and implement an improvement plan to fit specific needs and budgets.

There are many service providers on the market that can help when implementing a BEMS solution. Deciding to go beyond a software-only solution and leverage the expertise of a partner helps drive better outcomes and uncover more opportunities for greater improvements. This strategy can help you validate that

improvements are working as they should to impact the building environment and sustain savings.

STEPS FOR IMPROVEMENT

An experienced BEMS provider can help determine priorities and critical areas—including KPIs like IAQ, reduction in energy use, or increased student attendance—to develop and implement an improvement plan. Buildings provide many sources of valuable data that can be used to gain insight into the facility. Technology makes it easier than ever before to gather data, and a BEMS partner will help turn that data into actionable intelligence.

Whether you manage one building or an entire campus, understanding how your building(s) is supposed to perform—and how it's actually performing—is key to creating an energy baseline and prioritizing building needs. Harnessing the array of data sources in a building will help you make more targeted decisions regarding building systems. It will also support progress toward the key KPIs that were outlined in the improvement plan.

Choosing a BEMS provider that acts as an extension of your building staff helps eliminate the need for staff to "chase fires" and allows them to be more proactive in their jobs—focusing instead on the areas that impact the building environment and cost savings.

TOP 10 BEMS PROVIDERS

- Schneider Electric
- Honeywell
- Siemens
- Trane
- Johnson Controls
- BuildingIQ
- Daintree Networks
- IBM
- Powerhouse Dynamics
- Switch Automation

Source: *Navigant Research Leaderboard Report: Building Energy Management Systems,* September 2016

VALIDATE RESULTS

Determining KPIs, creating a plan for improvement, and choosing a partner to help with implementation are just the beginning. The next step is following up with an execution plan and ongoing validation of the results to help ensure continued improvements and savings.

A BEMS solution provides performance data to not only make a case for implementing the plan, but also the information to validate against KPIs to measure and demonstrate the return on investment once the project is implemented.

Validating that improvements and investments are producing the expected results is especially important for K-12 and higher education facilities that are publicly funded. In these cases, demonstrating the success of project improvements can be critical for ensuring continued ongoing financial or community support of the plan—and for gaining support for any future improvements.

The necessary follow-up and validation can be harder to execute with a software- or technology-only solution. In contrast, working through the process with a partner that can tailor the process for your building and situation offers ongoing support and analysis. It is important to balance the cost of the validation with the scale of the project.

Customized energy dashboards display key information, allowing schools to gain insight into usage peaks and valleys in order to identify hidden energy waste and opportunities for potential energy conservation measures.

VALUE OF BEMS IN HIGHER EDUCATION

Higher education facilities are setting increasingly stringent climate and environmental goals to lower emissions, drive efficiency, and reduce energy costs—and schools are looking for building systems and technologies that help meet these goals.

Even though college campuses share many common elements, each campus has its own set of factors that contribute to how it uses energy. In order to improve energy performance, it is important to understand how energy is used. The more you know about how your campus uses energy, the more you can do to improve its energy efficiency.

Visibility is the first step in utilizing data to do this—you can't manage what you can't see. Working with an experienced BEMS provider can help you gain data visibility so your data can be organized into meaningful information.

Using data to run a building more efficiently—and more in line with how it's actually being used—is a low-investment option for improving operational efficiency and saving energy. This is especially important for colleges facing budget constraints that make it difficult to invest in infrastructure changes.

A BEMS provider can help universities accomplish this by identifying, selecting, and prioritizing energy-efficiency measures that have the greatest impact on energy consumption and on the organization's budget.

A REAL-WORLD EXAMPLE: BELMONT UNIVERSITY

With enrollment more than doubling in 15 years, the Belmont University campus in Nashville, Tennessee grew to a 50-building complex with 4 million sq. ft. of space, including historic buildings and new facilities. As a result of its aggressive expansion, the university was utilizing a variety of HVAC systems, including centrifugal and air-cooled chillers, chilled water with thermal storage, geothermal heat pumps, utility submetering, controls, and building automation systems (BAS). With varied suppliers, the systems lacked interconnectivity and had become difficult to operate efficiently. The university sought the help of a trusted BEMS provider to help come up with a solution to control campus energy use and operational costs.

A key component of the project was the addition of new smart submeters to monitor energy use. The metering system provides utility and energy profiles, and gives detailed data regarding the timing and location of energy use and demand. Using the data, Belmont facilities managers are able to correlate operating parameters to energy cost and focus on the major energy consumption areas on campus.

To gain an enterprise view of the campus, the submeters were integrated, along with new and previously installed controllers and third-party systems, through a building management system (BMS), allowing Belmont to manage all of its campus buildings as a single enterprise. The Web-based system gives facility managers online access and control over all of their systems from any PC or mobile device on the network, providing visibility for energy use and allowing facilities managers to proactively control costs.

Belmont uses the BMS to analyze energy and operational data as well as trending information from multiple sources. The analysis allows staff to coordinate schedules, identify issues, and make better decisions regarding building operations. The BEMS provider works hand-in-hand with Belmont, providing engineering support and training

on control-system operation. The team is also available to help analyze data, design graphics, and consult with Belmont regarding operational strategies.

There are many building energy management systems (BEMS) available that can provide software to access building data. However, some of these options may not provide the ongoing process framework, support, or expertise that it takes to know how to use the data.

A REAL-WORLD EXAMPLE: HOMESTEAD HIGH SCHOOL

Mequon, Wisconsin-based Homestead High School experienced declining student enrollment—and as a result, lower budgets. The school was challenged to reduce energy costs while still maintaining an environment conducive to learning and teaching. Homestead partnered with a BEMS provider to determine energy management strategies that would help achieve those goals.

The strategies for the nearly 500,000-sq.-ft. school included an analysis of utility consumption and ongoing reporting to help staff make informed decisions to optimize building operations. Customized energy dashboards display key information, allowing the school to gain insight into usage peaks and valleys in order to uncover hidden energy waste and identify opportunities for potential energy conservation measures.

Real-time tracking of energy use allows for comparison against planned spending to improve budgeting and forecasting. The tool also allows the facilities manager to calculate the cost of energy consumed during the school day and for after-hours community events.

Acting as a "second set of eyes," the BEMS partner works with Homestead to improve the school's business climate. KPIs identified upfront are monitored to collect performance data and analyzed to evaluate efficiency. Reports generated for Homestead allow facilities managers to view actual results versus goals and see areas for potential improvement.

With these strategies, Homestead is able to maintain an optimal learning environment and has created awareness among district administrators regarding energy usage. The ability to see the results of strategic actions provides Homestead with a great feedback mechanism for continual evaluation of energy use and ongoing development of energy management strategies.

The solutions have also resulted in energy savings of $5,000 a month—or about 15 percent—without the need to upgrade or replace equipment. And the school is able to reinvest the resulting savings back into efforts to improve the building environment.

OPTIONS TO OPTIMIZE THE ENVIRONMENT

A school's most important mission is to educate students. Providing an environment that makes it easier for students to pay attention and learn—and for teachers to teach—is critical to the goal of creating a high-performing school.

While improving building performance—and often as a result, energy efficiency—can involve technology and equipment solutions, it's also about having the information and knowledge to run a building smartly.

Incorporating a BEMS solution allows you to take a holistic view of building systems and provide performance that can help schools more efficiently manage their systems—resulting in improved classroom IAQ and equipment performance, in addition to energy cost savings. BEMS can be an important factor in ensuring that schools and universities reach their buildings' potential for comfort, reliability, and energy efficiency.

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Informatics Moving Forward

By Markus Hogue, with Erik C. Backus, P.E., LEED AP BD+C, Christopher Smeds, and Mark Webb, CEFP

In October 2015, the Facilities Informatics Work Group established a goal of providing at least two deliverables for the 2016 APPA conference.

DELIVERABLE ONE

The first deliverable is a whitepaper called "APPA Facilities Informatics Maturity Matrix Technical Report" (available at the APPA Bookstore.) The authors of the whitepaper (Erik Backus, Alan Schay, and Ana Thiemer) created it to help characterize the nature of facilities informatics and the process by which an organization improves and matures its ability to gather, understand, and apply data to decision making.

Topics covered in the whitepaper consist of these items and more:

- Getting from where you are to where you want to be
- Categorizing your information
- Facilities informatics maturity matrix
- Data maturity
- Example processes and visualizations/classifications
- Maturity matrix application case studies

The whitepaper creates a guide to help APPA members collect, manage, and use data for better facilities outcomes. To know how to move forward, one needs to know the current state of affairs in their organization. For example, the University of Texas at Austin (UT Austin) applied the data maturity model to gather information on their energy usage. The team at UT Austin reports that the integration of informatics has resulted in multiple improvements for the facilities department. Using the information they obtained from informatics, UT Austin now receives $22 million for deferred maintenance a year, far more than the $8 million received five years ago. One of the goals of the APPA Informatics Work Group is to develop a live-input model that enables key subject matter experts across our member institutions to develop the maturity model for a particular domain in the matrix.

Photo by Markus Hogue

DELIVERABLE TWO

The second deliverable is a survey for APPA members on what data sets institutions are using. In order to analyze the different data sets from APPA members, we needed to know what systems they had implemented. To narrow down the different software that we wanted to start testing, a consensus on systems was needed so the work group could focus their efforts. Our goal is to include all software types, but to start we needed only a few options.

These are a few areas the survey covered:

- Asset inventory management
- Building automation
- Construction management
- Custodial
- Document management
- Energy/utilities
- Timekeeping
- Work order management

With the wide variety of potential data sets, the data subgroup needed to find commonalities between all the institutions. The survey was created in such a way that institutions could keep their

responses anonymous. Over 50 institutions provided answers that the subgroup is now analyzing to find possible quick-win data sets. Data is the basis for informatics, and being able to gather accurate data is critical to success in this endeavor.

The energy usage data extracted from one institution, for example, needs to be in a format that integrates into a larger data storage system. There is an overwhelming amount of potential information included in each data set. The goal, therefore, is to find common areas in which a majority of institutions utilize the same specific software, and to create case studies with that data—that is, to prove the concept before taking another bite of the elephant.

WORK GROUP GOALS

The informatics conference calls will continue to hone in on the overall goal while providing useful information to APPA, such as the whitepaper. The example of UT Austin increasing their deferred maintenance program from $6 million to $22 million shows the value of this process. As the group continues forward, we will be reaching out to APPA institutions for potential case study and testing opportunities.

One of the many rewards of being part of APPA is the collaboration that takes place between our members. We are able to learn from each other and improve our own institutions based on what we have learned from the conferences, classes, BOK, and the different committees that APPA has created for its members.

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Engaging Our Future Leaders

By Kristie Kowall

A significant change is taking place as the once-largest generation, the Baby Boomers, have begun to retire from the workforce. This is true for all professions, but the exit is causing alarm among the facilities management (FM) field. The four core areas of FM, as defined by APPA, have remained generally constant (General Administration and Management; Operations and Maintenance; Energy, Utilities, and Environmental Stewardship; and Planning, Design, and Construction). However, the expanded expertise and level of responsibility for facilities managers has increased considerably, and FM continues to gain importance as people see their role in asset management. Financial and asset responsibilities for the campus are immense, and the ability to welcome change and improvement through new methodologies and technologies is important to the success of any institution.

THE CURRENT STATE OF FM

Research indicates that approximately 86 percent of the current facilities managers will be retiring in the next 10 to 15 years, and that there are not enough individuals choosing to enter the field. Employers do not seem to be preparing for this change, with only 36 percent of industry representatives surveyed stating their department currently has a succession plan ready to replace these individuals.

In addition, 67 percent of those surveyed do not have confidence in the availability and skill level of the young facilities managers that will fill the voids created through retirement (Sullivan, Georgoulis, Lines 2010). Considering a high percentage of people that currently work in FM simply "fell" into the field, we need to focus on creating a clear path to FM that people will take purposefully. As I have heard stated many times by APPA Past President Polly Pinney, we need to make facilities management a "profession of choice."

ENGAGING AND PROMOTING

APPA is doing a great job engaging professionals at all levels, but we need to be intentional about our connection to our newest generation—our future leaders. The educational facilities field needs to be promoted to let students know about the opportunities available and about our great network of experts. Discussions related to the aging facilities workforce and the serious upcoming "knowledge gap" have been in the forefront for the last several years. Through meetings, conferences, listserv discussions, websites, etc., people have been talking about the risk that the FM field is in. APPA has recognized the need to address this, and many new initiatives and actions have been taken over the last several years:

- A certification program was created and is being refreshed and updated regularly to meet the needs of the profession and the members;
- Free student membership is promoted through the new integrated membership; students within the FM academic programs are sought out to attend conferences through scholarships;
- An Emerging Professionals (EPs) Team was established by APPA Past President Mary Vosevich, working on initiatives related to recruitment and engagement, professional development, and emerging technologies, to name just a few.

Through my discussions with the EPs, a need for involving students became apparent. At the same time, I was working on my master's degree with a focus in project management and training and development. As I was attending classes, I had the opportunity to meet many students who are looking for career options. Most of them did not realize the number of opportunities that are available in educational FM. I also found that many of the students were frustrated that they were not able to qualify for positions because of their lack of experience. It

seems both the student and the facilities profession have a real need that we can help address.

APPA INTERNSHIP INITIATIVE

In support of making educational FM a profession of choice, the APPA Regional Representatives proposed an APPA-sanctioned internship program. Individual institutions are great at offering internships to students through the FM department, but the types internships vary and are not necessarily tied to APPA. By developing a more formalized program, we can ensure that in addition to the specific operational projects and tasks the students perform during their internships, there is some consistency in the practical experience they receive, and that they gain an awareness of the opportunities offered in educational facilities and an early connection to APPA. This program will provide many opportunities and benefits, such as:

Benefits to Institution:

- Gains access to the latest business strategies and techniques, innovative ideas, and advanced technology by way of the newest generation entering the workforce
- Enables focus on transferring knowledge and documentation

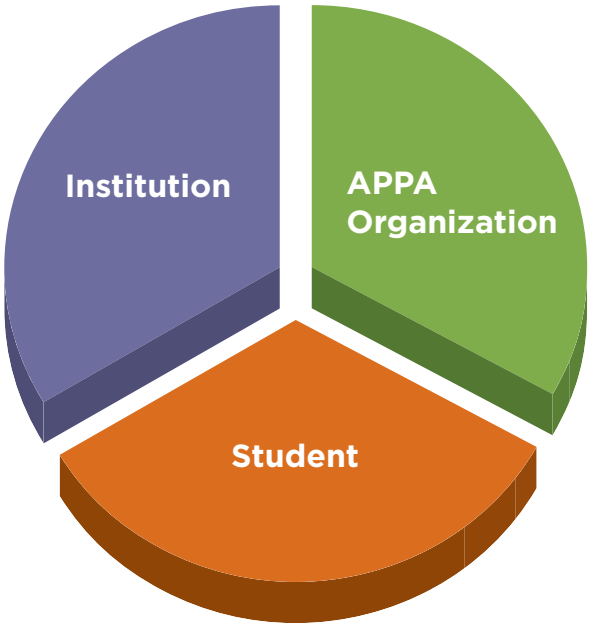
Benefits to APPA Organization:

- Provides opportunity for all of the APPA regions to promote educational facilities as a profession of choice
- Expands partnerships with individuals, FM departments, other organizations, and academic degree programs

Benefits to Student:

- Gains practical experience and develops skills while connecting to the facilities professional network
- Applies knowledge learned in classroom and prepares for future career path

The APPA Board of Directors supports the development of a task force to further research the needs and to propose a new program. We are currently building the Internship Program Task Force and are looking for passionate people who want to be a part of this project. We will be researching existing programs and best practices, developing criteria, creating a network of supporters, identifying strategies to connect to students, developing the application



process, building communication methods, identifying policies and procedures, creating a marketing plan, and so much more!

The development of a formal student internship program supports all five leading strategies within APPA's Strategic Plan 2020. In creating this internship program, APPA will develop a pipeline to the students getting ready to enter the workforce and begin training them to better understand our profession and educational culture. This will ensure that students are engaged early on and are learning consistently from experts in the field.

Thank you to APPA and its community—you are truly focused on growing our profession and ensuring that the next generation has a good foundation in FM.

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Span of Control for Facilities Management

By Matt Adams, P.E.

In the APPA Leadership Academy there is a great deal of discussion about an individual's capacity to lead. This discussion goes beyond a simple assessment of leadership skills or effectiveness, and includes the concept that there is only so much of an individual's time available during the day, week, month, and year to provide leadership, and that this time is being spread further every year.

No one in good standing is being called into the boss's office and being told that they will now have less responsibility and fewer direct reports. Like every other aspect of the facilities management (FM) profession, we are called upon to do more with less, even with regard to leadership. One of the basic metrics of leadership is span of control. Span of control (SOC) has been discussed in management courses for decades. While it is not clear where the original heuristics originated, it was common during the 1950s and '60s to think that a ratio of 6 to 1 was the standard. However, since then much has changed. The skills of managers have improved, and technology has enabled more efficient communication and use of data. Also important is the fact that the nature of the work performed has changed in most industries including FM.

"Like every other aspect of the facilities management (FM) profession, we are called upon to do more with less, even with regard to leadership."

THE DELAYERING PRACTICE

The famous businessman, management guru, and speaker Jack Welsh is quoted as saying he preferred an SOC within General Electric of 10 to 1. That is to say that every manager had 10 direct reports. He also said that any organization with more than five layers had built-in management inefficiency. This belief has become widely accepted within most industries and has resulted in a practice called "delayering." Delayering is another way of saying that during a reorganization, the SOC is increased and the number of layers of management is reduced. Delayering and increasing SOC go together by necessity. Delayering directly impacts the leadership of your department or organization in a number of ways:

- The actual cost of management salaries is reduced.
- Managers are typically moved closer to their customers and become more in tune with them.
- Most managers learn to trust and empower their direct reports; otherwise they must spread themselves further (the opposite of consensus on best practice in the APPA Leadership Academy).
- The new generation of managers in the FM industry exploit technology, leadership best practices, easier access to training, and all theories of employee empowerment to leverage their limited time as leaders in flatter organizations.

Given that many of us will be called upon to delayer at some point in the future, it is important to learn and utilize the factors that influence SOC in order to make smart decisions. Considering the myriad of service departments within an FM organization, coupled with the uniqueness of each institution, the factors of SOC can be applied to each part of the organization on its respective merits.

THE WORK AND THE WORKERS

There are two factors or axes that apply to management SOC requirements, based on the work and the workers. The first is the variability of the work. Within facilities there are tasks that are repeatable

and standardized. On the other hand, there are tasks that are highly variable and complex. These represent the spectrum of technical complexity of the work itself, not the worker. Simple, repeatable tasks require less managerial supervision. Conversely, complex, variable tasks require more management.

The second factor affecting SOC requirements involves the worker. Contrast the work factor with the worker: The ability of a worker to understand the performance requirements of a given job and execute it varies inversely with the level of management oversight required. This is to say that responsible workers who understand the "job-to-be-done" require the least amount of supervision. Naturally, the opposite is true is well. The application of this factor would suggest that skilled, responsible workers allow their managers to have a greater SOC.

THE MANAGER'S STYLE

This factor offers the most potential for organizations within our industry. The more dictatorial (micromanager) style of the past often exhausted managers and required a small ratio or SOC. This is anathema to everything taught by APPA in its leadership classes today. Modern leadership styles that include trust, empowerment, respect, and recognition (to name a few characteristics) allow for flatter organizations and greater SOC.

In addition, forward-thinking leaders utilize technology to expand communication and exploit data-driven decision-making capacity. Workers should be given more ability to plan their own work and make decisions related to scheduling its completion. They are best measured based on their output or results and not on the actions required to perform their jobs.

This form of management requires more confidence and trust than older styles. It is sometimes perceived as risky, but only by those who do not see the underutilized ability of the vast majority of workers to succeed with more control over their own workspace and delivery. Managers and cultures that learn to embrace these new themes can expand SOC considerably and flatten their organizations.

THE NATURE OF THE INSTITUTION

Extending beyond the leadership style of managers and even more powerful is the culture of the institution. With the exception of technical on-the-job training, a winning culture provides much of the leadership influence required by most skilled and motivated workers. The culture can be described by the values it is based upon. There are many values that apply, such as trust, professional growth, transparency, accountability, and respect. Leaders who understand culture, and who introduce a culture based on carefully selected values, greatly enhance their organization's ability to operate with very little direct management in the traditional sense. It is one thing to teach a worker the technical aspects of a job, and quite another to nurture a culture or environment where that same person desires to perform at the highest level with little or no interference from the boss.

There are plenty of examples of this in our industry. There are custodial operations that do not require staff to punch a time clock but to simply arrive at their workplace(s), perform their duties, and enjoy the maximum amount of time on the job without interference from management bureaucracy. There are zone-maintenance organizations where everyone is a working technician and works independently or in teams based on their own internal planning. These self-starters are encouraged by a culture of empowerment, and very little zone supervision is required.

Ultimately the largest impediment to increasing SOC and delayering within our industry is fear. Many of us believe that if we take a chance and give our staff considerably more control over their own work, something terrible will happen and everyone will lose their jobs. This is irrational. The truth is that bad things may indeed happen to those who won't learn to use modern management practices to increase SOC and delayer their organizations.

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Cal Tech's FPI Journey

By Jim Cowell, P.E.

As a facilities manager, you are constantly presented with a multitude of questions regarding the current operation of your university. Having a robust set of facility metrics describing your operations is a helpful tool to answer these questions on an internal level. Yet, often you will also be asked by those outside the facilities organization to compare your university with other universities or over a span of time to capture historical trends. At this point, you will also require a robust network of facilities metrics and data sets. Over the past five years the California Institute of Technology has used data and metrics from APPA's Facilities Performance Indicators (FPI) to gauge performance, observe trends, and compare operations across a network of different campuses.

As a facilities manager in higher education, you may be presented with one of the following questions:

- Your university is building a new facility and you are asked for historical data to support your request for added resources.
- Your CFO wants to know how your maintenance costs trend over time.
- Your provost asks how your facilities management (FM) costs compare to other similar universities.

The APPA FPI provides a tool to respond to all of these questions and more.

OUR FPI EXPERIENCE

In 2011, we were unable to answer the questions listed above, and had no consistent method for reporting and analyzing our FM costs. Yet, we knew there was value to be gained from answering these questions and comparing ourselves to other, similar universities in a systematic method. Thus we began our journey into the FPI.

We explored the FPI and determined that this tool would meet our needs to collect and analyze facilities data in a systematic way, and we then set a goal to complete data entry for the first year. One year of data is a mere snapshot of a facility's operations, not viable enough to identify meaningful trends. However, after several years of participation, we have derived trends from our data to tell us a number of vital metrics regarding the facilities operations, performance, and overall health of our building portfolio.

The FPI data is organized around major facilities functions such as custodial, energy/utilities, grounds and maintenance/trades, administration, and design and construction. This structure allows the user to isolate trends in certain functions, with unique maintenance and operations concerns and equally diverse metrics to measure success.

Through the FPI, we are now able to answer the questions posed above and to have a fact-based discussion regarding how much we are spending throughout facilities to support the mission of our university.

OBJECTIONS TO USING FPI

There are some objections to using the FPI. Critics might say data collection and entry with the FPI is a cumbersome and lengthy process. Regarding this point, we did find that the efforts to compile the data during the first year were challenging—because we were simply working through it the first time. However, in the following years the data input required a fraction of the time, and in each subsequent year we formed a better understanding of the data required. Additionally, after the first year it was clear that this

data collection effort was needed to track performance, regardless of the system employed to synthesize the data, and that the efforts to collect pertinent data varied little with the analysis tool.

The seemingly onerous task of data entry is made easy though drop-downs, explanations of the data fields, and definitions of the required information. And if you are a little less adventurous, you can engage one of APPA's Qualified Facilities Performance Advisors. FPI Advisors are seasoned educational facilities professionals who can help out if you get stuck. Being on the less adventurous side of the spectrum, we engaged a coach who proved helpful in answering questions during the initial data collection and entry process.

BENEFITS OF PARTICIPATING

After a few years of participation, we were able to see trends in the data and to understand cost drivers. For example, the cost driver for grounds is related to building density rather than Carnegie Classification (i.e., associate, baccalaureate, research, etc.). So you might be tempted to compare your grounds costs to schools with similar academic profiles rather than similar building density.

Another applicable example of where the FPI helped us understand cost drivers was associated with energy conservation measures and their impact on building maintenance. The FPI data revealed HVAC annual maintenance costs were increasing at a significant rate due to the increasing complexity of our buildings. Namely, the energy-saving measures implemented simply required more maintenance than the previous, less energy-efficient systems. FPI identified this through the trend of data acquired and analyzed since 2011.

The database is flexible enough to be sorted and offers any number of ways to look at the comparison set of schools you are interested in. It also has a robust, integrated dashboard to help you see how your university is performing compared to others.

Ultimately, through our efforts and participation, we were able to answer the facilities maintenance questions imperative to measuring our success and charting a path for improvement.

WHAT IS FPI?

The APPA Body of Knowledge (BOK) provides an excellent description of the FPI:

> *The APPA Facilities Performance Indicators (FPI) survey is an annual collection and reporting of data (KPIs), creating a baseline for performance evaluation across education facilities. The FPI survey and resulting FPI reports take a comprehensive look at facilities' operating costs, staffing levels and expenses, building and space costs and usage, strategic financial measures, and much more to provide a benchmark by which related institutions can compare, contrast, measure, and elevate their facilities' performance.*

PROCESS AND COST

You might think the FPI appears to be a useful tool for your organization, but how much does it cost? Simply, it costs nothing—it is included in your APPA membership. Your only cost is the time to collect and manage the data; fortunately, this is data you are already collecting as a facilities manager.

So how is the data collected? You compile and input your data into the FPI online portal, offered in a full, or in a light version, which you can transfer between at any point. We found that the light version provides the majority of relevant data we are interested in analyzing. I would suggest using the light version through the first year, then moving to the full version once you are comfortable with the data or identify a specific function you wish to focus on in order to expand the capacity of analysis.

The FPI assigns various portions of the data collection effort to match functional areas of your facilities team, e.g., custodial, grounds, etc. At the end of the fiscal year, individuals are tasked to collect data such as labor, full-time equivalents (FTEs), costs, etc. and populating the FPI database with that information. These individuals have until early December to complete their submission (note that internal quality checks should be conducted before submitting to APPA). After submission the data is reviewed by APPA, and you have the opportunity to fix any anomalies before it is finalized.

The APPA FPI can be your answer to successfully monitoring performance through robust metrics, as well as your strategy to answer many of the questions that will land in your inbox as a facilities manager. The FPI was created to help APPA members answer these questions—but you have to participate.

Jim Cowell is associate vice president for facilities at the California Institute of Technology in Pasadena, CA. He can be reached at *jim.cowell@caltech.edu.* This is his first article for *Facilities Manager.*

FPI Survey Deadline: December 12, 2016!

http://www.appa.org/research/fpi

APPA U in Orlando: Helping Members Achieve Their Goals

By Corey Newman

The September APPA U wrapped up in Orlando, Florida, showcasing another successful professional development gathering of the Institute for Facilities Management and the Leadership Academy. Colleagues from around the globe were welcomed to learn, network, and collaborate.

We are grateful for the dedicated faculty who make these offerings such a success. A special note of thanks goes to Institute Deans **Mary Vosevich**, **Chris Smeds**, **Lynne Finn**, and **Don Guckert**; and to our Academy Faculty **Glenn Smith**, **Elizabeth Clark**, **Shawna Code**, **Lindsay Wagner**, **Matt Adams**, **Viron Lynch**, **Ana Thiemer**, and **Chuck Farnsworth**.

Throughout the week, students had opportunities to interact with experts who brought their knowledge and experience from vast backgrounds and provided a rich environment for all attendees. Approximately 425 facilities professionals from across the United States, Canada, Mexico, and Lebanon attended. We welcomed 93 first-time attendees, proving that APPA's popularity in the profession continues to grow! As the week drew to a close, we celebrated with graduation ceremonies for the class of September 2016 (including 80 new alumni).

A big kudos to all of those institutional leaders who supported the professional development of their staff! APPA would like to express its gratitude to Jim Jackson of the University of Nebraska–Lincoln for sending 11 of his employees to APPA U. The professional development of any individuals must be as customizable as the individuals themselves, and APPA is here to help everyone achieve their personal, organizational, and institutional goals. Please visit *http://www.appa.org/training/trainingcalendar.cfm* for more on all of APPA's program offerings.

Corey Newman is APPA's associate director of professional development and can be reached at *corey@appa.org*.

Academy Graduates

Photos by Rhonda Hole

Institute Graduates

ACADEMY GRADUATES

In alphabetical order, not all greaduates are pictured

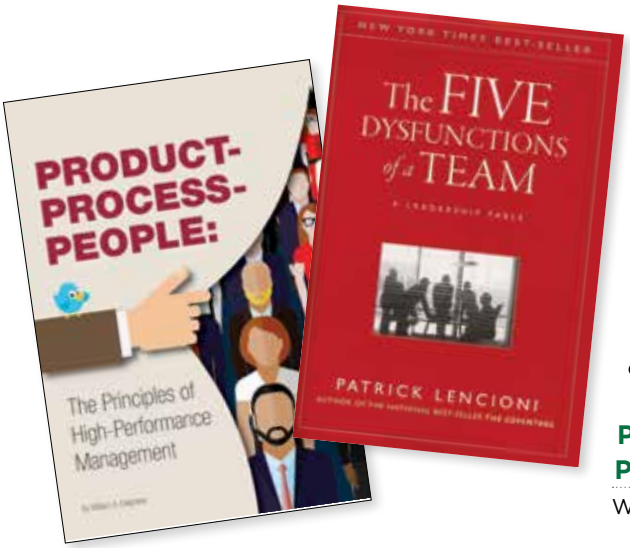
Tom Abram, *San Diego State University*
Ada Baldwin, *North Carolina State University*
J. Thomas Becker, *Philadelphia University*
Fred Brilante, *University of North Carolina at Charlotte*
Chad Brimley, *Brigham Young University*
Curt Christiansen, *Brigham Young University Hawaii*
Wayne Clark, *Brigham Young University-Idaho*
Gary Collier, *The Ohio State University*
Andrew Corey, *University of New Brunswick/Fredericton*
Darius Dixon, *University of North Carolina at Chapel Hill*
Vanessa Dodd, *University of North Carolina at Charlotte*
Chad Dragan, *San Diego State University*
Dennis Drymala, *University of Maryland Baltimore*
Jerry Emerson, *University of North Texas Health Science Center*
David Featherman, *University of Rochester*
Solomon Franklin, *University of North Carolina at Charlotte*
Tom Gilmore, *University of New Brunswick/Fredericton*
Brian Guns, *University of North Carolina at Charlotte*
Bryan Hooks, *Duke University*
Angie Jackson, *Western Kentucky University*
Candice Jicha, *North Carolina State University*
Ronda Latham, *University of North Carolina at Charlotte*
Rick Nelson, *University of Nebraska - Lincoln*
Hoyte Phifer, *University of North Carolina at Greensboro*
Maria Prawirodihardjo, *University of Maryland Baltimore*
Rick Pretzman, *Arizona State University*
Lynn Rotoli, *University of Pennsylvania*
Mike Rowe, *East Carolina University*
Joe Scollo, *University of North Carolina at Charlotte*
Nathaniel Snodgrass, *University of North Carolina at Charlotte*
Marquis Stephens, *Georgia Tech Research Institute*
Herbert Stokes, *Georgia Tech Research Institute*
Paul Taylor, *University of North Carolina at Charlotte*
Christopher Vera, *Texas A & M University-Kingsville*
Weston Woodward, *Weber State University*
Kevin Wyatt, *American University*

INSTITUTE GRADUATES

In alphabetical order, not all greaduates are pictured

Tara Adams, *Kennesaw State University*
Keith Benoit, *University of Vermont*
Nathan Biegenzahn, *Louisburg College*
Robert Brown, *East Carolina University*
Brad Burkett, *University of Tennessee at Martin*
Melissa Burnette, *Sewanee: The University of the South*
Richard Caldwell, *Auburn University*
David Clark, *Pima Community College*
Nicole Corll, *Kent State University Main Campus*
Robin DeRoo, *University of Saskatchewan*
John Duncan, *Pennsylvania State University*
Ken Dunson, *Dallas County Community College District Office*
Dean Dykstra, *University of Iowa*
Susan Fry, *University of Pennsylvania*
Gordon Green, *Texas State University*
Elaine Groenendyk, *University of Regina*
Shanna Harwell, *North Carolina State University*
Richard Hassard, *North Carolina State University*
Mark Hauser, *University of South Florida*
Michael Jackson, *Pennsylvania State University*
Kelli Kemery, *Plymouth State University*
Bill Kennedy, *US Olympic Committee/Facility Management*
Chris King-Dye, *Michigan State University*
Cathy Koebrick, *University of Iowa*
Jeffrey Kruger, *Santa Fe College*
Travis Lafon, *Oregon State University*
Ivory Lucas, *Florida State University*
Mark Manzutto, *University of New Mexico*
Hal Melfi, *Pima Community College*
Jeffery Mori, *Kent State University Main Campus*
David Ortega, *Alamo Colleges*
Tracy Osby, *University of Illinois at Urbana-Champaign*
Mark Parkvold, *Portland Community College*
Scott Parsons, *Purdue University Northwest*
James Rader, *Stephen F. Austin State University*
Kelvin Rosier, *Florida A&M University*
Peter Scarpati, *University of Pennsylvania-Philadelphia*
Eric Siegel, *University of Cincinnati Main Campus*
Lorraine Silva, *New Mexico State University*
Jill Stewart, *University of Texas at Austin*
Eugene Vladoiu, *Nova Southeastern University*
Chad Weber, *Rose-Hulman Institute of Technology*
Andrew Wheeler, *University of Colorado Boulder*
Dana Williams, *University of Texas at Austin*

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



I read several books this past summer. I won't review them all because I read for enjoyment too. That means that not everything I read is technical or work-related. While most of what I read is nonfiction, I will occasionally divert my attention with a thriller or mystery. I've also been reading a lot of history lately, and it is fascinating stuff. I now find that history I thought was boring in my youth can be interesting and exciting in the hands of a good writer. Events from hundreds of years ago come to life when the writer is good at his or her craft.

Even if you don't read everything reviewed in this column, I hope you're able to immerse yourself in a good book and get away from the frustrations of work and our current reality.

PRODUCT–PROCESS–PEOPLE: THE PRINCIPLES OF HIGH-PERFORMANCE MANAGEMENT

William A. Daigneau, APPA, 2016, 168 pp., softcover *(available at the APPA Bookstore).*

There are a lot of management books available, as well as management professors and consultants. That also means there are a lot of "best practices" of management that are espoused in the industry in order to sell books. While the same could be said of *Product-Process-People: The Principles of High-Performance Management*, I wouldn't agree. Bill Daigneau has a written an excellent book describing several approaches to creating a smoothly functioning team that produces a valued *product*, following an efficient *process*, with effective *people*.

I've read a lot of management books—each one tries to convince the reader that the management style/technique presented is the best one. Several years ago I met a university administrator who taught management courses at his university. He had read a lot more books on the subject than I had and remarked that there are as many management books as there are theories and professors. The point is that irrespective of the validity of the argument, one's management style may be based on a single practitioner's advice or theories or a combination of many.

But having a system-based approach to management with a time-tested philosophy behind it is probably most likely to produce success. From this perspective, *Product-Process-People* excels. If you follow Daigneau's model of developing or delivering a *product*, following an effective *process*, and using good *people,* you will certainly see great management outcomes.

Throughout the book you will find a calm, logical, and insightful approach to everyday work issues. Obviously, the most important part of a work site are the people, and Daigneau spends most of the book describing different situations that can arise with employees and how to deal with them. Of greater importance is the implementation section at the end, and Daigneau's open invitation to provide assistance through his retirement e-mail address.

Because the book is written by a facility officer about facility issues, it is probably more relevant to readers of this column than many others previously reviewed. I encourage you to get *Product-Process-People* and take advantage of everything it has to offer.

THE FIVE DYSFUNCTIONS OF A TEAM: A LEADERSHIP FABLE

Patrick Lencioni, Jossey-Bass, New York, 2002, 229 pp., hardcover.

As Stephen Covey did with his *Seven Habits*, Patrick Lencioni has done in a slightly different way with *The Five Dysfunctions of a Team: A Leadership Fable.* His ideas are presented in a relatively unconventional way, first through a story, then a presentation of his theory, if needed.

Every organization and subset thereof is made up of different people. Each subset has some outcome it

must produce as a team, even if that means organizing others to make the actual product. However, for those people to work together effectively, they must share some of the same characteristics. This doesn't mean they wear the same clothes or maintain the same style of dress, but they have to maintain some common attributes to be effective.

As Lencioni claims, they must maintain or develop these attributes and thus avoid dysfunction. The story presented in *The Five Dysfunctions* demonstrates how each of these attributes (or lack thereof) affects the organization and how the team members either realize or are told that they do or do not maintain the attributes.

The attributes of dysfunction presented in the book seem somewhat obvious: absence of trust, fear of conflict, lack of commitment, avoidance of accountability, and inattention to results. These five attributes form a pyramid of hierarchy, similar to Maslow's hierarchy, where trust is at the base and is the most important. It's an essential truth that if one trusts one's peers or teammates, then it's possible to deal with conflict and resolve real problems found higher up the pyramid.

I know from experience that when I didn't trust someone on my team, my ability to be effective with that person was greatly diminished. Similarly, if we couldn't work through conflict, the team didn't function well. The same applies to commitment, accountability, and results. They all work together, beginning with the foundation of trust.

The Five Dysfunctions is an easy read. I recommend setting aside enough time to read the entire story in a single setting. That way it's easier to remember the different characters, their foibles, and how they each demonstrate the principles Lencioni presents. Afterwards, read his theory on these principles at your leisure.

Ted Weidner is an associate professor at Purdue University, West Lafayette, IN, and consults on facilities management issues primarily for educational organizations. He can be reached at *tjweidne@purdue.edu.*

APPA DRIVE-IN WORKSHOPS

APPA's Facilities Drive-In Workshop offerings are an excellent way for APPA member institutions to encourage networking and professional development among educational facilities professionals within their local vicinity. These workshops are ideal for professionals who might not normally have access to training and professional development opportunities, due to operating budget restrictions or similar constraints and are a great way to introduce these professionals to APPA, its regions, and chapters.

How are APPA's Drive In Workshops Planned and Organized?

Each workshop is organized with the support of APPA, an APPA Business Partner, and a host educational institution.

Responsibilities of the Host Institution:

- Provide adequate meeting space plus tables and chairs (conference room plus adjoining registration area, as well as separate seating in adjoining area for sponsored luncheon).
- Supply audiovisual equipment (typical requirements are a podium, one or two mics, a projection screen and LCD projector).
- Arrange for parking if needed for attendees.
- Provide menu options to the sponsor (if the host location site has a kitchen or works with required caterers). The sponsor picks up the cost of lunch and all breaks.
- The person coordinating on behalf of the host institution (typically the institution's facilities officer) is present during the workshop to welcome attendees and provide some introductory comments on APPA.

Responsibilities of the Sponsor:

- Works with APPA and the host institution to identify suitable session content and speakers, and firms up the program. This also ensures that the content is fully educational in nature, i.e., does not advocate a particular product or service.
- Manages on-site registration on the day of the workshop, distributes badges and distributes/collects evaluation forms.
- Pays sponsorship fees, cost of food/beverage at the workshop.

Responsibilities of APPA:

- Manages event promotions (produces flyer, email invitations and distributes these promotions).
- Creates list of prospective attendees (from both APPA member institutions and prospective institutions). Shares this targeted attendee list with the host and the sponsor.
- Creates an online registration link and sends regular attendee registration reports out to the sponsor and host prior to the event.
- Works with host institution's facility officer to prepare any comments, supporting materials, slides describing APPA, benefits of becoming involved with APPA, etc.

For more details about sponsoring or hosting an APPA Drive-In Workshop, please contact APPA's Professional Development Manager, Corey Newman at corey@appa.org.

1643 Prince Street, Alexandria, VA 22314

APPA
LEADERSHIP IN EDUCATIONAL FACILITIES

new products

Compiled by Gerry Van Treeck

EATON'S EPHESUS All Field Series provides schools and municipalities with high-quality, cost-effective, and controllable outdoor LED sports lighting. All Field is the first LED fixture designed to retrofit into existing infrastructure. The enhanced optics deliver uniform light while reducing unwanted light spill and sky glow. For more information visit Ephesus at *http://ephesuslighting.com/product/field-series.*

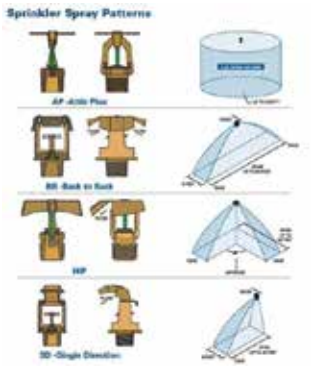
GENERAL EQUIPMENT COMPANY introduces the EP16ACP axial-flow confined-space ventilation blower. This new unit is larger, with a 16-in. diameter inlet/outlet, and delivers greater airflow. Powered by a 1-hp, 115-VAC electric motor, the EP16ACP offers a free airflow rate of 4,450 ft3/min. It's ideal for use in conventional, confined space worksites such as manholes and sewers, and powerful enough to push air across large open areas, making it great for drying applications, improving indoor air-quality levels, and removing unwanted odors. For greater detail on General Equipment Company visit *www.generalequip.com.*

U.S. WATER has launched the SMART Care for Membranes Service Program. The SMART (Service Maintenance and Routine Treatment) Care for Membranes program provides proper management and monitoring of membrane systems, reducing the risks of production downtime due to insufficient quality or quantity of water being produced. Each SMART Care program is custom tailored to meet a plant's specific production needs, combining an array of available consumables and services from U.S. Water's robust product line of membrane-related offerings. For more information on U.S. Water products visit *www.uswaterservices.com.*

THE ENERGY CONSERVATORY announces its newest product, the DG-1000 Digital Pressure and Flow Gauge. The DG-1000 simplifies building enclosure testing by including features such as rechargeable batteries and the ability to control fan speed directly from the gauge. With advanced technology and a bold product design, the DG-1000 puts the power of a minicomputer at the customer's disposal, making their jobs easier and keeping their focus on the task at hand, not the tool. One of the most helpful features of the DG-1000 is its ability to update with future apps and software, such as an automated process that guides users through performing a test. For additional information on the Energy Conservatory visit *www.energyconservatory.com.*

WEIL-MCLAIN, a manufacturer of hydronic comfort heating systems for residential, commercial, and institutional buildings, offers the energy-efficient GV90+ high-efficiency cast-iron boiler. The GV90+ features streamlined controls with simple setup, low maintenance, and durable design for the long run. The GV90+ is designed for the perfect combination of ideal heating comfort, lower utility bills, peace-of-mind reliability, and product longevity. The unit features an annual fuel utilization efficiency (AFUE) rating of 91 percent, exceeding ENERGY STAR program require-

ments. Installation of this system also allows you to qualify for local utility rebates, if available. Assembled in Weil-McLain's state-of-the-art manufacturing facility, the unit features a high-performance, durable, cast-iron primary heat exchanger made from approximately 70 percent recycled materials. For further information on Weil-McLain visit *www.weil-mclain.com*.



TYCO FIRE PROTECTION PRODUCTS highlights their attic fire protection line. Tyco Attic Sprinklers boast extensive fire testing for sloped, combustible concealed spaces. Fire protection in spaces such as attics presents unique challenges, because the configuration of most attics can cause narrow heat channeling in the event of a fire. In addition, heat traveling up the steeply inclined slope of a ceiling may not activate the right sprinklers. Sprinkler systems need to be designed in such a way that these areas are effectively protected. Tyco's Specific Application Attic Sprinklers provide fire protection and address the challenges that roofline and attic spaces can present. They have undergone the most extensive fire testing performed for sloped attic spaces and are UL Listed with their specific application guidelines for use as special sprinklers as defined by the National Fire Protection Association (NFPA). For more information on Tyco Fire Protection Products visit *www.tyco-fire.com*.

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

Index of Advertisers

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Reserve your space now by contacting Gerry Van Treeck at 847-347-7851 or *gvtgvt@earthlink.net.*

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REMAKING THE FACILITIES ORGANIZATION

PART 2

Section 4:
Transforming the Higher Education Facilities Organization

Why the customer experience matters to higher education facilities leaders

Most colleges and universities do not traditionally think of themselves as being in the business of customer service. Faculty still resist the concept, arguing that students should not be thought of as customers (because students are definitely *not* always right). To be clear, we are not suggesting the classroom or laboratory is the place for consumerism. On the other hand, **college and university staff unquestionably provide consumer services**—from processing invoices to maintaining the electrical grid. Institutions face increasing pressure to improve those services.

Facilities organizations provide myriad services to their institutions, and the quality of those services *can be improved*. Response times can be shortened, communications expanded, and standards raised. In ways both large and small, the care and attentiveness of staff can be enhanced. Multiple benefits flow from these improvements. Stakeholders across the institution increasingly value the facilities organization. The mission of the facilities organization better supports the mission of the institution. Operations become more streamlined, efficient, and effective.

Most critically, a focus on the customer experience is really a focus on creating a engaged workforce and a culture of commitment. **Customer loyalty is the product of an organization deeply motivated by a sense of higher purpose. Every person on the team feels they are part of something greater than themselves.**

A team with that level of commitment and engagement is the most powerful tool the facilities organization can have.

Questions for Reflection:

Is there resistance in your organization to considering your work in terms of customer service or the customer experience?

Data Point:

Customer service in higher education

The language question

In the book *Creating a Service Culture in Higher Education Administration*, authors Mario C. Martinez, Brandy Smith, and Katie Humphreys state:

> We won't get caught up in the language of "customer," "client," "customer service," or any other such words. What's important are the concepts. We will tend to stay with the language of customers and service since these words still, for the most part, denote an emphasis on effective interaction with colleagues and those outside your immediate office environment who come to you for help (e.g., students, parents, and faculty).

Participants at the 2016 APPA Thought Leaders symposium adopted a similar attitude: focusing on improving interactions between facilities organizations and their stakeholders without worrying about the finer points of the language of customer service. The fact is that facilities organizations must respond to demands from stakeholders to improve their operations across the board.

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Creating a customer-centric culture provides a framework for driving change in facilities operations

In fact, higher education facilities staff *are* in the business of customer service. Families choose which college or university to attend based on many factors, and the quality of facilities influences these factors. Customer service expert Robert Spector told APPA:

> If the people who take care of facilities don't do their job, then if I'm a parent taking a kid to visit schools and I see that the grass isn't mowed or there's garbage everywhere, I'm going to have a negative opinion of that campus. I'm going to wonder that if they're missing these details that I can see, what details are they missing that aren't in plain sight?

The relationship between facilities staff and stakeholders isn't as simple as that between a salesperson and a customer, but the connection is still there. Spector, author of *The Nordstrom Way*, pointed out that customer service at Nordstrom is only partially the responsibility of the frontline sales staff. "Customer service at Nordstrom is determined by the **people the customer never sees**. It's those people who clean the floors, keep the lights on, display the merchandise, and make sure products get there in time." Spector added, "Even though you are not directly involved with the customer or the end user, you as a team player are just as responsible for that experience."

This message was echoed by Lee Cockerell, former executive vice president of operations for the Walt Disney Worlds Resort and author of *The Customer Rules: The 39 Essential Rules for Delivering Sensational Service*. Cockerell told APPA:

> Everything matters if you want to be great. At Disney we know that poor facilities, maintenance, cleanliness, and quality of construction comes into the way a guest/customer rates us and rates their intent to return. **You must have a culture where everyone in the organization is thinking about and practicing excellence.** Reputation matters, and first impressions matter in selection of any product, including which college to attend. We make sure everyone at Disney understands their role in the show so we can perform a perfect show day in and day out. Everyone must understand that their role eventually leads to a good or a poor customer experience. If maintenance does not maintain the AC unit in December, it will break down in May—and maybe even during commencement exercises.

Disney approaches service at its theme parks as a performance, and its staff are divided into onstage and offstage cast members. Onstage staff includes anyone who interacts directly with park guests, such as the costumed figure of Mickey Mouse or the ticket taker at Space Mountain. Offstage staff includes those working behind the scenes, such as chefs, IT specialists, custodial staff, lighting technicians, and accounts payable supervisors. All must do their jobs well to create a complete performance.

A customer-centric mindset in the facilities organization supports higher education institutions by attracting and retaining students, impressing parents, and satisfying donors and governments that their funds are being well spent. A customer-centric mindset is also essential to meet the **demands of today's students**. Millennials have high expectations, and they voice their displeasure when they are disappointed. This may seem overly entitled or unfair to some of us, who may have attended school in the days when crowded dorm rooms, cold showers, and unappealing cafeteria food were part of the shared experience. Today's students—and their parents—demand excellence, and that's understandable. According to the College Board, the average annual cost to attend a U.S. public college or university in the United States is $9,410, and nearly $32,405 for private institutions, not including room and board; what's more, the most expensive schools cost more than $50,000. At that price, it's not surprising that families expect comfortable, clean, modern campuses with generous amenities.

However, attracting and satisfying students is only the first of many benefits deriving from an emphasis on customer service. Expert after expert agrees that customer service is ultimately about culture. Superior customer service organizations **share a culture of commitment**—that is, everyone in the organization shares the same passion for excellence and dedication to a mission or set of goals.

The central message of this report is that a culture of commitment can transform the higher education facilities organization and deliver exceptional service to customers. Excellent customer experiences never happen by accident—they are the product of a committed, engaged workforce and take root in a culture that is motivated by a greater sense of purpose.

Questions for Reflection:

Do the staff members within the facilities organization have a sense they are part of something bigger than themselves?

How can you as a leader promote the idea that the day-to-day work of the facilities organization is part of the heritage and mission of your college or university?

Data Point:

Service Story

Demonstrating pride in your work and commitment to the institution

When touring the campus of a large research institution, I was approached by the paint shop supervisor, who greeted me and explained what he was doing. He showed me plans and examples of his group's works before, during, and after completion.

He was very proactive and took pride in his organization and work. He gets the big picture and exemplifies the orgranization's great morale.

– Michael O'Connor, Physical Plant Director, Appalachian State University, Boone, North Carolina

Benefits of a customer-centric culture for facilities organizations

An engaged and committed customer-centric culture can help the facilities organization achieve the following goals:

Align the mission of the facilities organization with the mission of the institution. When facilities staff feel motivated by the mission and vision of the institution, their level of engagement and commitment can only grow. "Most people want to do a good job," said Spector. "And most people want to feel part of something bigger than themselves." It's up to leadership, Spector continued, to make clear the connection between the mission of the institution and the day-to-day work of running a facilities department.

Understand the different customers of the organization and their needs. Students are only the most obvious customer for higher education facilities organizations. Departments have many customers, both internally and externally, and understanding customers will help facilities organizations meet their needs.

Analyze policies and processes, identify systems that get in the way of providing an excellent experience, and eliminate barriers. Colleges and universities tend to be bureaucratic bodies with innumerable rules. Some of those rules, such as those concerning health and safety, are nonnegotiable. Other rules, however, exist out of expediency, from habit, or for the convenience of the facilities organization—not its customers. Facilities organizations should examine their rules to eliminate those that separate them from customers.

Empower staff to take ownership of their work. Empowerment is the theme of dozens of books on customer service. Organizations like to say they're empowering their employees, but few have the courage to truly trust employees to use their best judgment. A former human resources manager at Southwest Airlines told a story of a customer who was devastated when he missed his flight; he explained through tears to the ticket agent that his daughter was about to have a liver transplant in another city. The ticket agent immediately booked a chartered flight for the customer. The next day the agent was called to his manager's office and told he had overstepped—Southwest shouldn't have paid for the private jet. However, the agent had done his job by taking care of the customer and so he wasn't fired or even reprimanded. Southwest recognized that when you place trust in employees, sometimes they will go too far, and that's okay. The benefit of the employee saying "Let me see what I can do," is greater than the cost of saying "No." It's an opportunity for a "teaching

moment" essential for organizational continuous improvement.

Improve the perception of the facilities organization throughout the institution. A customer-centric culture has the potential to build goodwill toward the facilities organization throughout the institution. Every department within a college or university interacts with facilities staff on some level. What would it mean for facilities if these customers found working with the department fast, easy, and pleasant? Facilities staff could be heroes for department secretaries, lab managers, and anyone who ever got stuck in an elevator.

Promote stewardship of campus resources. Higher education operates on a longer time frame than most businesses: Campuses are intended to last generations. The wisest among the facilities staff know they stand in a long line of caretakers who will, in time, pass supervision of these buildings and grounds onto the next generation. That sense of stewardship should be nurtured. A sense of the history and legacy of the campus and a commitment to passing it on in better shape than you received it is what Spector called feeling part of something bigger than ourselves.

Questions for Reflection:

How can the leaders and managers within your facilities organization demonstrate a deep sense of stewardship toward campus resources?

Data Point:

Finding a sense of mission

Becoming part of something bigger than yourself

Robert Spector has learned something in his time writing and speaking about customer service, and it isn't how to win at customer service—at least, not exactly.

"I've been out speaking all over the world to every kind of business about customer service," he told APPA. "Talking about practices and strategies is such a transitory thing." Spector has seen organizations in all sorts of industries decide to focus on customer service and quickly fall back into old habits. In his experience, adopting a list of tactics doesn't work, because customer service isn't about what you do. It's about who you are.

"If the members of APPA are really serious about this, then the question is 'What is our culture? What do we stand for?'" Spector said. "The overall message is look within yourself and see what you stand for, what makes you different. What are your values?"

Values and mission give employees something to believe in, something to be part of. Spector said, "People want to feel part of something bigger than themselves."

It's up to leadership to make clear the link between each individual's day-to-day work and the mission of the institution. "If people in your organization don't feel there's a connection, they're not being told that what they're doing is crucial, " Spector said. "It's up to the leadership to communicate that everyone's job is important. Everyone's job is essential."

Facilities leaders should look for opportunities to recognize those employees who are advancing the mission of the institution.

"If you feel like you're operating in a vacuum, you'll never have a larger sense of purpose," said Spector. "That's where the administration comes in and finds ways to single out and recognize people who are engaged on behalf of the university. Everyone should feel part of something."

Section 5:
Addressing APPA Core Competencies through Customer-Focused Transformation

With a clear understanding of the benefits of a customer-centric focus for higher education facilities organizations, participants at the 2016 Thought Leaders symposium began to consider the implications of such a focus across the four core competencies that comprise the major responsibility areas of the facilities organization.

Opening lines of communication

A major theme of this part of the symposium centered on communication. Facilities organizations have traditionally focused on the (sometimes literal) nuts and bolts of operating buildings and campuses. Communicating what they were doing and why took a back seat to actually doing the work. This approach poorly serves the facilities organization today, however. Customers need information to understand and be satisfied with the service they are receiving from the facilities organization.

There are two main categories of communication: standard, everyday interactions and crisis communications. Standard communications include exchanges about the status of construction projects, progress toward resolving problems, and what to expect from preventive maintenance. Facilities organizations should consider all their day-to-day interactions with customers and determine how well they are communicating. Generally, customers want more information, delivered more frequently, and through more channels. For example, if your organization once created periodic newsletters detailing the progress of a construction project, consider moving toward daily updates on a dedicated Web page, plus posts on Facebook and Twitter.

Crisis communications must be even more frequent, thorough, and widely dispersed. Even if all you have to say is "We are aware of the problem and working on solving it," get that message out. Continue updating customers regularly about your efforts; customers hate feeling like nothing is being done to resolve a problem and want to know as soon as possible about further delays. Then, keep communicating through recovery efforts. One Thought Leaders participant described a catastrophic water leak that flooded a residence hall. He pointed to the importance of continuing communications with students and parents over the weeks following the crisis as the residence hall was repaired. Proving your commitment and concern during a crisis builds up your customers' trust and fosters a sense of loyalty that lasts long after the crisis is over. Communicate early; communicate often!

Questions for Reflection:

How do you communicate with customers about day-to-day operations? How many channels of communication do you use? How often do you communicate?

Do you have a plan in place for communicating in a crisis? For continuing that communication during crisis recovery, however long that takes?

Addressing APPA's four competencies

Symposium participants next considered their operations through the lens of APPA's four competencies: general administration and management; operations and maintenance; energy and utilities; and facilities planning, design, and construction. Participants developed specific goals for each core competency and defined the steps needed to achieve these goals.

Facilities planning, design, and construction: Ensuring new buildings fulfill customer needs

The goals:

1. Implement design standards that optimize total cost of ownership and support the institution's mission.

Just as institutions should adopt standards for operations and maintenance, they should also establish standards for new buildings. Defining these standards will require two-way communication between facilities and end users. Campus customers need to educate facilities about their needs and goals for new facilities. At the same time, facilities departments need to educate the institution about cost-effective and sustainable design and construction. In particular, senior facilities leaders need to promote the concept of total cost of ownership. The idea is simple: The cost of buildings includes not just initial construction but also long-term operations and maintenance, and eventual decommissioning and demolition. The smartest and most sustainable designs take total costs into account and make decisions that minimize expenses over the lifetime of a structure. In other words, the air-handling unit that costs more upfront may be easier to maintain and cheaper to operate over the long haul, and so it actually costs the institution less than a unit that is cheaper upfront but time consuming to maintain and costly to operate.

Establishing institutionwide standards that incorporate total cost of ownership helps colleges and universities accomplish multiple goals:

- Consolidate and organize institutional knowledge within the facilities department.
- Build a sense of campus identity with common architectural features and materials.
- Establish baseline sustainability standards.
- Streamline communications between the facilities department and contractors.
- Achieve economies of scale through standardized purchasing.
- Improve budget planning over the long term.
- Enhance institutional understanding of the value and contribution of the built environment to the institution's success.

2. Create and integrate data systems to build consensus and improve decision making.

As college and university buildings grow more complex, the need for data-management systems increases. Institutions should take advantage of advanced systems for asset management, space utilization, energy management, and building maintenance—systems that only grow more powerful when their data is integrated and consolidated. Such systems allow colleges and universities to fine-tune the management of resources such as space. For example, a classroom that is only occupied for a few hours a few days a week is an ineffective resource, costing the college or university money. Institutionwide management allows campuses to make the most of the space they already have.

Clearly presented, consolidated data about the institution's facilities can be a powerful tool in building consensus and supporting decision making. Regarding the example of classroom space, an academic department may have the impression the campus is running low on classroom space and lobby for a new building. Space-utilization information could demonstrate that the campus has plenty of classrooms but that those classrooms are located in an undesirable building, one that perhaps lacks integrated technology or is a long walk across campus. With the facts in hand, the academic department and the facilities organization might decide to seek funding for renovations and provide a dedicated shuttle route—solutions that cost far less than a new building, can be implemented quickly, make smart use of the institution's resources, and improve the experience for the faculty and students. Space-utilization systems may seem many steps removed from customer service, but it's all part of the offstage process that creates a positive experience for customers.

Needed steps:

1. **Contribute to the institutional planning process, including development of the mission, strategy, and master plan.** Senior facilities leaders need a voice in

the creation of the institution's mission, since facilities will be essential to fulfilling that mission and will rely on that mission to give staff direction and purpose.

2. **Create data systems for asset management, space utilization, energy, and maintenance.** Integrated data systems will give facilities managers the data they need to act as good stewards of the college or university's resources.

3. **Promote a culture that incorporates the concept of total cost of ownership by establishing metrics and implementing or updating facilities standards.** The benefits of total cost of ownership can be demonstrated to institutional leaders—as long as the right data is being tracked. Cost savings can be calculated from energy data, parts orders, and maintenance schedules. Be sure you can demonstrate what total cost of ownership can achieve.

4. **Include operations and maintenance staff in the design process, and develop a process to turn over projects from one unit to another.** On small campuses, it might be easier to get the input of maintenance staff on new project designs. In institutions with large facilities organizations, however, the first time operations and maintenance staff might see a new building is the day it opens. Yet, these are the staff who must keep buildings operating for decades into the future. Senior facilities officers need to integrate operations and maintenance review of plans and develop a process to ensure critical information is exchanged when the commissioning team hands over the building to operations.

Questions for Reflection:

How many people outside the facilities organization are familiar with the concept of total cost of ownership? How can you promote the concept within the institution?

Are the key O&M staff part of the decision-making team during the design process? If not, why not?

Data Point:

Design and construction standards

How standards are like a roll of cookie dough

If you buy a roll of cookie dough with its premeasured and premixed ingredients, slice it and bake it at the indicated temperature, you'll get the cookies you expect to get, every time. Established, campuswide standards for materials, equipment, and construction are like slice-and-bake cookies. They contribute to efficiency, time, and cost savings; provide standardized components; streamline communication between college officials and outside vendors such as planners, designers, architects, suppliers, and construction personnel; and contribute to everything from budget savings to campus aesthetics.

– Shannon O'Connor, "By the Book: Campuswide Design and Construction Standards," College Planning and Management, *July 1, 2006.*

Energy and utilities: Balancing needs and sustainability

The goals:

1. Create an efficient, cost-effective energy system that meets campus sustainability goals.

Maintaining the campus energy grid and performing superior customer service may seem unrelated—but there is probably no more fundamental customer service you can provide than "keeping the lights on." This seems an easy job for customers who have to do nothing more than flip a switch, but facilities professionals recognize the complications of energy management for enormous, power-hungry campuses. Many colleges and universities rely on decades-old electrical systems that are pushed to the limit by the demands of the 21st century. But remember that we don't build buildings to save energy. The finished product must also meet customer expectations for comfort. Meeting these demands requires tough decisions when institutions also need to keep costs low and meet campus sustainability goals.

2. Achieve a balance between reliability and resiliency.

No electrical grid is 100 percent reliable or 100 percent resilient—that is, hardened against failure. It's simply not possible to pour enough money into either goal, and unexpected calamities from natural disasters to human error can still interrupt power. Institutions must prioritize those portions of the campus where power is most essential (hospitals, research labs, and residence halls usually top the list).

Align the energy system with the mission, goals, and master plan of the institution. The goals of the institution should be supported by the energy system. An institution seeking to be a leader in advanced research requires a robust electrical grid that will withstand threats to program interruption. A college or university that prioritizes environmental stewardship can support its goals with an energy program that reduces carbon consumption, relies on renewable sources, and promotes conservation. Institutions seeking to improve their financial stability can structure their energy system to reduce the impact of energy cost fluctuations while lowering operating costs. Aligning the utility plan with the plans of the institution yields long-term results for the entire campus.

3. Support a sustainable business model for the institution.

Energy costs are currently low, but global demand is expected to rise steadily over the next few decades. Meanwhile, the remaining supply of fossil fuels will become more difficult and more expensive to acquire as easy reserves are tapped out. It's a recipe for increasing uncertainty and rising prices. Institutions must take charge of their energy future and reduce the risks posed by sudden jumps in fuel costs. Diversifying fuel sources is a wise first step.

Needed steps:

1. **Create a rigorous system to capture and analyze energy data.** Colleges and universities once had little idea where energy was being used on campus, but today's systems can track the flow of electricity to individual offices and dorm rooms. Smart institutions are capturing this data and employing a variety of tools to search for trends and identify problem points.

2. **Diversify energy sources.** Institutions should seek to widen the base of sources for their electrical grid both to increase the use of renewable energies and to reduce the risk of overreliance on one source.

3. **Establish service standards.** Energy service standards offer the same advantages of design or maintenance standards: They establish a framework for maintenance and create efficiencies. Institutions should standardize their electrical service as much as possible.

4. **Create a utility master plan that addresses potential future scenarios.** Few markets are as global as energy—or as unpredictable. Nevertheless, institutions can posit a range of future scenarios and craft a utility master plan that addresses multiple possibilities. The result will be a far more useful plan than one that assumes a single rosy outlook.

5. **Create a customer communications system to keep stakeholders informed under a variety of conditions.** Customers are most frustrated when they're left in the dark—both literally and figuratively because of lack of information. Facilities organizations should work with IT experts on campus to design a communications system that will keep customers informed if the lights go out. Such a system must be easy for staff to use in a crisis and should communicate across as many forms of media as possible.

Questions for Reflection:

Does your energy plan reflect the mission and goals of your institution?

Do you have a sustainability plan with metrics and measurable goals?

Data Point:

The Customer Experience

Extending service at every opportunity

While in a small resort town in Idaho, we ran over a board on the highway and got a flat tire. We drove to Les Schwab Tires, even though the tires on the car were not from Les Schwab. The company fixed the tire for free because it had us as a past customer in the database.

The lesson I took away from this is that Les Schwab values its customers and will make sure that we stay customers by treating us well even when we are using a competitor's product. Relationships and good customer service matters.

– Stacy M. Pearson, Vice President of Finance and Administration, Boise State University, Boise, Idaho

Operations and maintenance: Creating a first-class offstage operation

The goal:

Fulfill all operations and maintenance tasks to the standards outlined in APPA's operational guidelines.

APPA has identified operational standards for maintenance, grounds, and custodial services, clearing defining what constitutes exemplary levels of service for higher education facilities. For example, the *APPA Operational Guidelines for Education Facilities: Custodial* employs a common language to define the cleanliness of buildings, ranging from "Level 1 – Orderly Spotlessness" through "Level 3 – Casual Inattention" to "Level 5 – Unkempt Neglect." These levels are then defined in detail; at Level 1, "Floors and base moldings shine and/or are bright and clean, colors are fresh. No dirt buildup in corners or along walls." Levels for different types of spaces are proposed (public spaces should be maintained at higher levels than storage or utility spaces, for example), and methods are given for calculating the time required to clean to each level.

Facilities organizations that adopt these standards are doing their part to improve what Cockerell called offstage operations. While facilities staff may not regularly engage with external customers—students, parents, etc.—they create the stage on which these interactions take place. In the language of a theater, they maintain the set, manage the sound and lights, and ensure the seats are comfortable and the floors clean. Failure in the offstage staff leads directly to failure of the entire performance.

Goals in support of the primary aim to meet operational standards include the following:

1. **Collect and utilize key performance metrics.** APPA's operational standards give facilities professionals clearly defined measures that can be tracked over time to understand failures and improve performance.

2. **Make workload primarily preventive/predictive rather than reactive.** Facilities shouldn't always be managing the latest crisis. The bulk of the workload should consist of ongoing maintenance—that is, maintenance that prevents crises from ever occurring. APPA's guidelines lay out maintenance schedules that should keep system failures to a minimum.

3. **Rely on mobile communications and data management technology to streamline operations, track work orders, and gather data.** If Domino's can tell its customers the moment their pizzas leave the oven, facilities organizations should be able to tell their staff what jobs need doing and alert customers that help is on the way. Technology has advanced rapidly, and new systems allow organizations to communicate with staff on the go, manage assets, and schedule preventive maintenance. Materials or supply management systems speed purchasing and enable next-day delivery of supplies while optimizing inventory levels, whereas automation systems monitor building systems and notify the facilities organization of problems before customers even notice something has gone wrong.

Needed steps:

1. **Create a business case for change.** Senior facilities professionals can quantify many of the improvements gained by implementing APPA's standards. The cost

of preventive maintenance, for example, can be compared with the cost of cleaning up after a crisis.

2. **Train staff at all levels.** Staff need technical training to master unfamiliar technology, fulfill additional requirements, and achieve higher goals. They also need training that helps them understand the meaning behind their work and the connection between maintaining high standards and the goals of the college or university. For example, overgrown flower beds and dirty bathrooms create a negative impression in the minds of key customers—from potential students to members of the community.

3. **Establish metrics, gather and analyze data, and realign resources as needed.** Implementing standards won't be a one-time activity; it will be an ongoing effort in which key metrics are assessed regularly in a bid for continuous improvement. One important measure would be to periodically assess your *internal* customer service; that is, the work environment of the staff.

4. **Empower staff and encourage innovation.** It's not easy to let go of control and trust your staff, but remember that the companies with the highest reputations for customer service are those that give their employees enormous leeway in doing their jobs. Build your culture, train your staff, set high expectations, and then let your employees meet those expectations. Make sure to reward those who go above and beyond, and remember that the real test comes when someone goes too far. Empowerment means backing employees even when things go wrong. When someone makes a mistake, do you help them clean it up—or do you throw them to the wolves?

Questions for Reflection:

How much of your work is preventive and how much is reactive?

How do you increase the proportion of predictive maintenance?

Data Point:

The Customer Experience

Serving through catastrophe

Hurricane Katrina hit the University of Southern Mississippi in 2005 and left the campus at a standstill. No power. No water.

The campus staff stepped up to the challenge—Aramark [the food service contractor], physical plant staff, residential life staff. Aramark cooked three squares a day for 10 days. They trucked ice, food, and hygiene products for students. Physical plant and residential life employees worked even though their families needed them. They got the campus up and running again in record time!

The lessons learned were the importance of teamwork—and that the need to take care of your students sometimes prevails over yourself.

– Sid Gonsoulin, Associate Vice President for Student Affairs, Southern Mississippi University, Hattiesburg, Mississippi

General administration and management: Getting a seat at the table

The goals:

1. Be a strategic partner of the institution and a critical team member at the decision-making table to achieve the institution's goals.

This goal ties directly back to Robert Spector's call for customer-centric organizations to help their employees feel part of something bigger than themselves. At every level, facilities staff need to understand the goals of their college or university and work diligently toward the fulfillment of those goals.

This process would be easier and more straightforward if facilities were involved in setting institutional goals in the first place. Facilities leaders involved in institution-wide planning and decision making can contribute

to the process with critical information about the infrastructure and built environment. Senior facilities leaders can help institutions avoid costly mistakes and make wise investments. At the same time, facilities will have a greater sense of ownership and commitment to the institution's plans.

2. Implement systems, technologies, and practices that provide a framework for enhancing the customer's experience.

Once the mission of the facilities organization is identified and goals are set, senior facilities officers must consider which administrative and management functions need to be remade to support those goals and enhance the customer experience. For example, clear and prompt communication with customers is an essential element of excellent customer service, but a facilities organization will be unable to provide that level of communication if it lacks the proper work-management systems and customer feedback tools.

Needed steps:

1. **Define what's getting in the way of facilities taking a high-profile role within the institution.** A number of factors could be limiting the role of senior facilities leaders. Is it simply a question of expressing a desire to participate to key decision makers? Or do senior institutional players need to be convinced of the value facilities can bring?

2. **Identify key stakeholders with the power to help advance facilities.** Facilities staff need champions. They need to know who backs their involvement and who stands in the way.

3. **Take the initiative in developing relationships with stakeholders and introducing them to the potential of partnering with facilities.** Don't wait until you're invited to the table. As one participant in the symposium said, "Set your own table." Create forums for discussion of critical institutional issues and involve the right people.

4. **Develop partnerships with key stakeholders on projects going forward.** Don't just tell others within the institution that you can help them, show them your strengths. Remember the importance of internal customer service, and treat each of these stakeholders as a million-dollar customer. Be their hero.

5. **Identify the Moments of Truth** ***(see sidebar next page)*** **where your organization interacts with customers, and target those places where failures can occur.** The facilities organization interacts with its customers in dozens of ways—and you can either satisfy or frustrate your customers at each of these points. Draw up a map of how and why customers interact with you, and then assess what can go wrong along the way. The points where interactions go wrong should be your focus.

6. **Assess what needs to change to improve the customer experience.** How do you smooth out the rough places on your customer interaction map? Do you need better technology—that is, communications and work-management systems that streamline how you address problems? For example, when someone on campus calls in a problem, does your system automatically know where they're calling from? Do you have the data analysis systems that help you plan maintenance and predict service needs? If the right technology is in place, do problems arise out of gaps in training? Do staff know how to interact with customers to provide an exceptional experience?

Questions for Reflection:

Which point of interaction between the facilities organization and your customers routinely creates tension and bad feelings? What would it take to resolve that problem point?

Data Point:

Improving administration and management functions

Identifying Cycles of Service and Moments of Truth

To improve the customer experience, experts Martinez, Smith, and Humphreys, in their book *Creating a Service Culture in Higher Education Administration*, recommend two well-established customer service concepts, Cycles of Service and Moments of Truth.

A Cycle of Service breaks down customer interactions into a series of steps. At every step, the customer experience can either be enhanced or diminished. Here is an example of the Cycle of Service that occurs when a potential student visits campus: If the student can't figure out where to park, the student's opinion of the institution will fall; if the tour guide is knowledgeable and engaging, the student's opinion will rise.

The points along the Cycle of Service are called Moments of Truth. The quality of those Moments shapes the customer's impression of the entire organization. "A critical Moment of Truth may determine whether a customer maintains a relationship with your institution or tells 10 other people what a bad experience he or she had on your campus. Well-executed Moments of Truth . . . produce customer satisfaction and, perhaps more important for the long term, loyalty."

Facilities organizations can map their own customer interactions by walking through every step of a typical customer interaction—for example, a faculty member calling to report the heat is out in the office. What happens at every step along the way? How long does the process take? What can go wrong at each point of contact? What should go right? Facilities leaders can use this assessment to identify problems and develop targeted solutions.

Benefits to the facilities organization and the institution

A transformed facilities organization will reap the rewards of its transformation efforts in myriad ways. By creating a committed culture that prioritizes exceptional customer experiences, facilities will become stronger, more capable organizations better able to support the mission of the institution.

Specific benefits include the following:

Improved use of institutional resources. The facilities department can stretch the institution's dollars by fine-tuning processes, implementing advanced management and operational technology, and working from standards. For example, preventive maintenance is perhaps the least visible but the most cost-effective element of the APPA standards. Buildings and building systems that are maintained on a schedule cost less to operate because they rarely get a chance to fail; at the same time, staff are better utilized because they're not constantly combating the next crisis.

Improved customer experience. Customers should have an exceptional customer experience every time they call to report a water leak or walk into a new classroom. When operations are optimized, customers may not even consciously notice that the temperature of rooms is comfortable, the lawns are impeccable, the public spaces invite interaction, and the energy grid hums along efficiently. But the stage will be set for a great performance by the other players at the institution.

Improved sustainability of the campus. Many campuses have incorporated sustainability into their mission, while others have made strong commitments to environmentally-conscious operations. The facilities department can make some of the greatest contributions to sustainability by reducing energy use, limiting waste, and educating consumers about their choices.

Fewer disruptions from emergencies. A facilities emergency ruins everyone's day—from the students and faculty unable to continue class to the administrators

struggling to explain the problem to visiting donors. A focus on preventive maintenance is a powerful solution to multiple problems.

Reduced risk. Many senior administrators have no idea of the risks posed by energy failures; however, the threat to the health and safety of the college or university community—as well as to the bottom line—is enormous. Institutions manage risk all the time. It's time to include maintenance operations and energy among those risks.

Improved morale among facilities staff. Work that feels purposeless is the least satisfying. Work that is connected to a greater purpose is meaningful and rewarding. By taking steps such as increasing predictive maintenance and streamlining processes, you will give your employees more opportunity to focus on the big picture. What's more, building a culture of commitment will help staff understand their role in the institution as a whole.

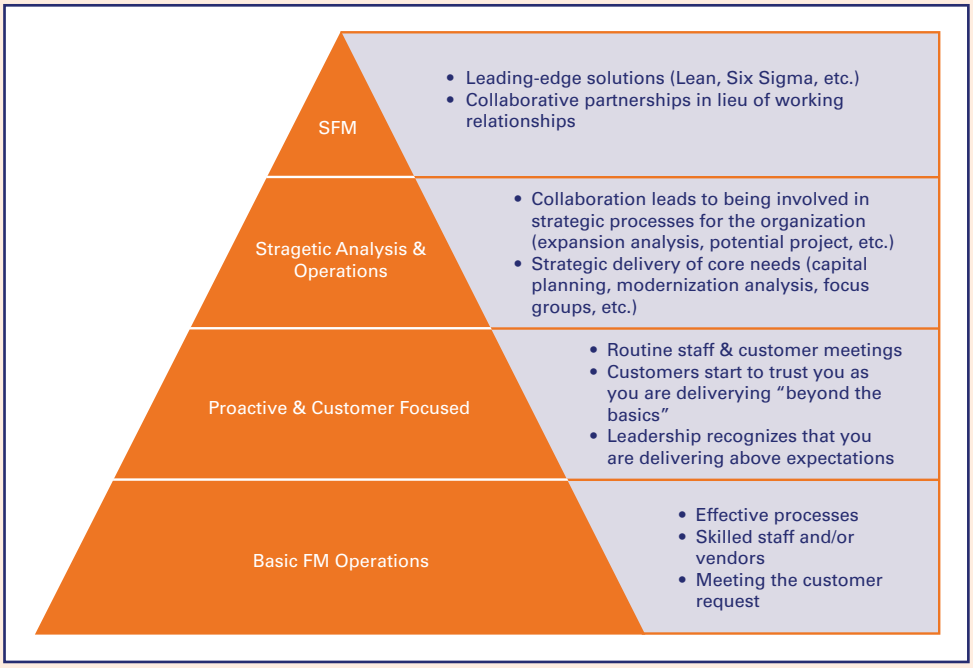
Better reputation as an employer within the community. Higher education should be an employer of choice within the community—but that reputation must be earned. Word will get out if the organization treats its employees fairly, empowers them to do their jobs, and creates a culture of commitment.

Data Point:

From effective operations to strategic management

Building a foundation of facilities management success

If the ultimate goal of higher education facilities leaders is to play a strategic decision-making role at the university, they should start with the basics, urged Ellis Kirby and Kathy Roper in the article "A Path to Strategic Facilities Management." They propose a process whereby facilities leaders motivate their organization to optimal performance by moving from effective basic operations through proactive and customer-focused service to strategic analysis and operations and, ultimately, strategic facilities management.



– Ellis Kirby and Kathy Roper, "A Path to Strategic Facilities Management," (from *Effective and Innovative Practices for the Strategic Facilities Manager*, APPA 2014)

Section 6: *Conclusion*

Creating exceptional experiences for the customers of higher education facilities organizations will require hard work, but one part of the job, at least, will be easier for higher education than many other industries. Colleges and universities have always had a strong sense of mission and purpose.

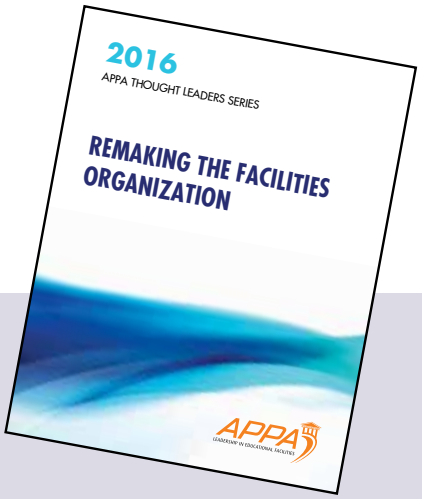
This is a unique advantage that higher education should employ to its benefit and purpose. Colleges and universities were founded to further learning, expand knowledge, push the boundaries of research, and preserve our cultural heritage. This mission can get lost in the day-to-day workings of institutions, but in fact the foundational principles of higher education are deeply meaningful.

Few other organizations can claim such an inspirational purpose and overall mission. We encourage institutions to **claim their mission and use it to motivate their organization**. Employees who feel part of something bigger than themselves are the most committed to the institution and will bring their best efforts to all they do. An organization working together toward higher goals cannot help but create exceptional experiences every day.

Remember this time-honored story:

> A man came upon a construction site where three people were working. He asked the first, "What are you doing?" and the man replied: "I am laying bricks." He asked the second, "What are you doing?" and the man replied: "I am building a wall." As he approached the third, he heard him humming a tune as he swept the dust from the floor. The visitor asked, "What are you doing?" The man stood, looked up at the sky, and smiled, "I am building a cathedral!"

Every employee of the facilities organization can feel like that cathedral worker, motivated by the greater purpose of the institution. It's up to senior facilities leaders to inspire their staff and create a culture where the exceptional is possible, and even expected.



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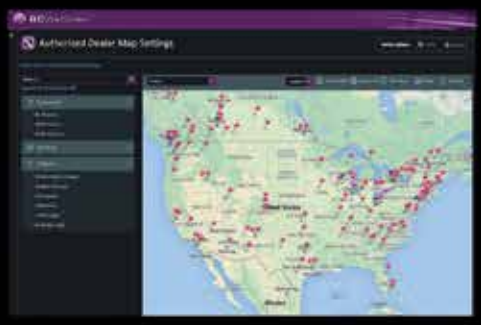

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