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# FACILITIES manager

NOV/DEC 2009

**INSIDE** 

University System of  
Georgia and FPI

Custodial Staffing Guidelines  
and Slippery Rock University

Environmental Liabilities  
and Insurance

THE LIFE-AND-DEATH FACTOR:

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## THE LIFE-AND-DEATH FACTOR:

# FOCUS ON HEALTHCARE FACILITIES

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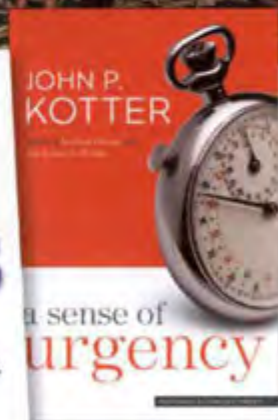
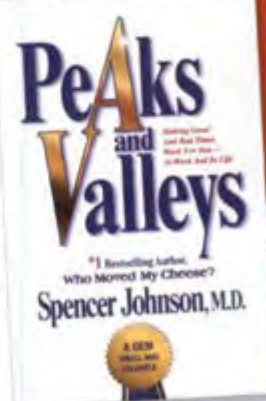
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## APPA Launches the BOK

A body of knowledge is the collected wisdom, experience, processes, and facts that both inform a profession and provide the solid foundation from which continuous improvements and innovative change can occur.

APPA's **Body of Knowledge** project (the BOK) completely updates the contents of *Facilities Management: A Manual for Plant Administration*—APPA's major reference book published in three editions since 1984—and makes them available in a searchable digital database. Editor-in-chief Maggie Kinnaman is overseeing dozens of writers, editors, and peer reviewers as they revise, update, and enhance the APPA body of knowledge. The project is ongoing, and updated sections will be posted as soon as they are peer reviewed and approved.

The Body of Knowledge is built on the foundation of the four core competency areas identified by APPA:

- General Administration and Management
- Operations and Maintenance
- Energy, Utilities, and Environmental Stewardship
- Planning, Design, and Construction

The digital BOK will assist you in your search for professional guidance, best practices, and policies and procedures as you support the mission and vision of your institution or organization. The BOK also serves as the foundation of information you need to know as you pursue APPA's Educational Facilities Professional (EFP) credential and the Certified Educational Facilities Professional (CEFP) designation.


Access to the Body of Knowledge is through an annual subscription. Member institutions of APPA pay a discounted price, and the subscription price is reduced after the first year. Your subscription allows BOK access to anyone in your organization. They do not have to be primary or associate members of APPA, but they do need to register

themselves in the APPA database.

When your institution or organization subscribes to the BOK, every person from that organization will have the opportunity to access the Body of Knowledge, search the database, and read and download chapters. In addition, you will be automatically subscribed to receive *BOK Update*, a periodic e-newsletter that will include highlights and topics of focus from the BOK's editor-in-chief and content coordinators, announcements of new or revised BOK chapters, and much more.

Business partners, consultants, agencies, APPA regions, and individual institutions may sponsor one or more BOK chapters. Sponsorships are for one-year or three-year periods, and the sponsor's logo and link to their website are included every time that chapter is browsed or appears from a search query. In addition, BOK sponsors are recognized by APPA at our annual conference and listed in APPA's publications.

We are pleased to announce that Spirotherm, longtime APPA Business Partner member, stepped up to become the first to sponsor a chapter in the BOK. Their logo and link to their website appears in the Building Mechanical Systems chapter. And we're also proud of the Central and Southeastern regions of APPA, each of which voted to sponsor a chapter in the BOK.

To learn more about the BOK and to subscribe to this new APPA service, please visit [www.appa.org/bok](http://www.appa.org/bok). We think you'll like the new approach. 

## Coming in Jan/Feb 2010

- Focus on Capital Renewal & Investment
- State of Mississippi & the FMEP
- The Y Generation

## 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. APPA provides members the opportunity to explore trends, issues, and best practices in educational facilities through research, publications, professional development, and credentialed. Formerly the Association of Physical Plant Administrators, APPA is the association of choice for 5,200 educational facilities professionals at more than 1,500 learning institutions throughout the United States, Canada, and abroad. For more information, visit us at [www.appa.org](http://www.appa.org).



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# facilities digest



## MARK YOUR CALENDAR FOR APPA 2010

Next year our annual conference will be held July 14-16 in Boston, Massachusetts at The Seaport Hotel. Information about programming and booth sales will be posted at the APPA website in coming weeks.

For immediate inquiries please contact Suzanne Healy, director of professional development, at [suzanne@appa.org](mailto:suzanne@appa.org).

## FPI SURVEY DEADLINE DEC. 7

The 2008-09 Facilities Performance Indicators survey is open and ready to receive your data. The FPI survey includes an Essential Question Set of executive-level questions that will provide you with valuable strategic measures. **The deadline is December 7.**



Tracking Your Facilities Vital Signs

APPA's Qualified FPI Advisor program is ready to assist you in collecting data, clarifying definitions, working with data sources on

campus, and understanding the value of your responses as they relate to the 2008-2009 FPI report, which will be published through APPA's website in early 2010.

For more information about the FPI survey or the Qualified Advisor program, visit [www.appa.org/research/fpi.cfm](http://www.appa.org/research/fpi.cfm) or contact Christina Hills, APPA's research specialist, at [christina@appa.org](mailto:christina@appa.org).

## APPA ACCEPTING CANDIDATES FOR THE 2010 ELECTION

The APPA Nominations Committee is currently accepting candidates for the following elected officer positions:

- President-Elect (Term 3 years)
- Vice President, Information and Research (Term 2 years)
- Vice President, Professional Development (Term 2 years)

Please consider becoming a candidate, or nominating someone else, for an elected office in APPA. Your future contributions will be an invaluable benefit for our members and ensure that APPA is the "association of choice" for educational facilities professionals. And remember that as an elected officer, not only will you give back to the association and the facilities profession it serves, but you will gain enormous leadership skills and develop yourself professionally in many meaningful ways.

The candidate information packet and nomination application are available at [www.appa.org/board/electedofficers.cfm](http://www.appa.org/board/electedofficers.cfm). The deadline for submitting nomination materials is **December 15, 2009**. Please submit them electronically to [nominations@appa.org](mailto:nominations@appa.org).

On behalf of the APPA Board, we thank you for your time and consideration of this important leadership opportunity. Your nomination is truly encouraged.

## RESUME BANK

Whether you are an employer looking for a Director of Facilities or a Supervisor for Custodial Services, or a facilities professional looking for a new position, the Job Express Resume Bank can help. APPA's Resume Bank allows job seekers to post their resume online, and lets employers search resumes for the right prospective candidate.

For more information, please visit <http://appa.org/JobExpress/JobResumesHome.cfm>.

## 2010 AWARD NOMINATIONS OPEN

Nominations are now being taken for the following APPA 2010 institutional and individual awards:

- **Award for Excellence:** Recognizes and advances institutional excellence in the field of educational facilities.
- **Effective and Innovative Practices Award:** Recognizes programs and processes that enhance service delivery, lower costs, increase productivity, improve customer service, generate revenue, or otherwise benefit the educational institution.
- **APPA Fellow:** Recognizes specific accomplishments to date and expectations for continued involvement in APPA's leadership program through research and mentoring.

- **Meritorious Service Award:** Recognizes significant, lifelong contributions to the profession of educational facilities management.
- **Pacesetter Award:** Encourages further participation in APPA among those who have already made significant contributions at the regional or chapter level.

The deadline for consideration for the 2010 awards is **January 30, 2010**. However, award submissions are accepted year-round. Awards submitted after January 30, 2010 will be held and considered in the 2011 award cycle. Visit [www.appa.org/recognition](http://www.appa.org/recognition) for award details and to submit an awards application.



## APPA BOOKSTORE

### **Facility Management Shared Services: The Balance Between In-House Services and Outsourcing** by Jeffery L. Campbell, Ph.D., Brigham Young University

*Facility Management Shared Services: The Balance Between In-House Services and Outsourcing* focuses on the symbiotic and collaborative relationships and partnerships possible through outsourced contracted services. This book will help to:

- Better define a shared service model between in-house and outsourced facility services
- Increase understanding of how to optimize the value of shared services; and
- Forecast future outsourcing trends based on current practices

Includes interviews with facilities professionals using both in-house services and outsourcing, research findings, recommendations, and questionnaires to use in gauging the needs of your own facility. Order at [www.appa.org/bookstore](http://www.appa.org/bookstore).

### **Meeting the Environmental Priorities of Educational Facilities Professionals**

APPA's Green Book Collection can help your organization reduce its carbon footprint, comply with the many environmental regulations it faces, and preserve natural resources for future generations. Leverage the green imperatives you face to improve your operating performance. Order today!

Note that APPA members receive a special package price: all five books for \$278.10. The five titles included are:

- *The Green Campus: Meeting the Challenge of Environmental Sustainability*
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- *Educational Facilities Professional's Practical Guide to Reducing the Campus Carbon Footprint*
- *Green Building: Project Planning & Cost Estimating*
- *ASHRAE GreenGuide: The Design, Construction, and Operation of Sustainable Buildings, second edition.*

The Green Book Collection is available at the APPA Bookstore, [www.appa.org/bookstore](http://www.appa.org/bookstore).



## APPA'S NEW ONLINE DIRECTORY

Coming soon is the APPA online membership directory! The online directory will be updated on-the-fly so you'll always have the latest and most current contact information on your friends and colleagues.

The directory will be accessible online to all members, and will include links to all of the information you're used to accessing through the prior directories, such as APPA programs, leadership information, APPA awards, and staff information.

## PROFESSIONAL DEVELOPMENT

### **EFP Preparatory Course and Exam**

The Educational Facilities Professional (EFP) credential is the industry standard, sought after by employers in educational facilities. The EFP recognizes your knowledge and competence, showing decision-makers that you're an accomplished professional possessing the fundamental knowledge that you need for a successful career.

#### *EFP Preparatory Course:*

January 15, 2010 • Indian Wells, California

#### *EFP Credentialing Exam:*

January 15 & 16, 2010 • Indian Wells, California

## APPA EVENTS – 2010

**Jan 10-14** Institute for Facilities Management  
Indian Wells, CA

**Jan 15** EFP Prep Course Indian Wells, CA

**Jan 15** EFP Exam Indian Wells, CA

**Jan 15** CEFP Examination Indian Wells, CA

**Jan 16** EFP Exam Indian Wells, CA

**Apr 18-22** Leadership Academy Colorado Springs, CO

**Apr 23** EFP Prep Course Colorado Springs, CO

**Apr 23** EFP Exam Colorado Springs, CO

**Apr 23** CEFP Exam Colorado Springs, CO

**Apr 24** EFP Examination Colorado Springs, CO

**Jul 14-16** APPA 2010 Boston, MA

**Jul 17** EFP Prep Course Boston, MA

**Jul 17** EFP Exam Boston, MA

**Jul 17** CEFP Exam Boston, MA

**Jul 18** EFP Examination Boston, MA

## OTHER EVENTS

**Dec 6-9** Women's Leadership Institute Amelia Island, FL

**Dec 7-10** NIBS Annual Meeting, Washington, DC

**Dec 9-11** Green California Schools Summit, Pasadena, CA

**Mar 21-23** Smart & Sustainable Campuses Conference, College Park, MD

For more information or to submit your organization's event, visit [www.appa.org/applications/calendar/events.cfm](http://www.appa.org/applications/calendar/events.cfm).

## CEFP EXAM

The Certified Educational Facilities Professional (CEFP) designation denotes the highest level of educational facilities mastery, elevating the credibility of the individual who holds the certification and the institution the certified professional represents. CEFP Study Guide now available!

#### *CEFP Exam:*

January 15, 2010 • Indian Wells, California

For additional information on either program please visit <http://www.certification.appa.org/>, or contact Katy Theranger, professional development and certification manager, at 703-684-1446 ext. 228 or [katy@appa.org](mailto:katy@appa.org).





# Embrace the Power

By E. Lander Medlin

While teaching me to drive a motorcycle, my husband began to notice that I was tentative and hesitant, slow to engage the controls, barely giving the bike any gas. Soon thereafter we pulled up to a stop sign during one of our familiar country road training rides.

He turned to me and said emphatically, "You have got to learn to embrace the power!" I just looked at him blankly.

It is important to understand that the forward thrust and momentum of the bike requires positive engagement of the bike's throttle power. The rider has to embrace the power by coordinating the controls (throttle, clutch, and back brake) simultaneously for sustained, controlled, and constructive forward motion. He said, "If you don't understand this concept and truly embrace the bike's engine power, you will remain tentative and hesitant, and you definitely won't have any fun!" Actually, there is a great deal of synergy in the way a motorcycle's individual controls are enhanced by a proficient rider to achieve optimum thrust, momentum, and quick-stop capability. Taken individually, there is no forward momentum. Indeed, as the definition of synergy implies, the whole is greater than the sum of its parts. This is one example of synergy in action.

An example of synergy amongst people

is demonstrated by the baseball teams in this year's World Series between the Philadelphia Phillies and the New York Yankees. Each individual player must deliver his specific talents and strengths during each game for the team to successfully compete and ultimately win. During



every game in the series, both teams work to seize the momentum and turn it into a winning advantage. For example, the New York Yankees has one team member they call an outstanding, master "closer" – Mariano Rivera is considered the world's best. This is a pitcher whose sole responsibility and contribution is to enter the game when the odds are completely against them (e.g., in the extreme when the bases are loaded and there are no outs), to close down the opposition's game-changing rally, and to keep his

team's momentum. Yet, it isn't any one person who ultimately wins the game. It's all of them combined, all the individual players' talents and strengths combined to create that winning combination and achieve victory. This is synergy in action, hence, the whole is greater than the sum of its parts. They have learned to embrace the power of their people.

Although the challenges we face today are real, many, and serious, the people working in our organizations today constitute game-changing "closers"; they are the key to our success. Are we embracing the power of our people, our team, and our organization? To do so we must:

- Celebrate their differences
- Recognize their contributions and value
- Encourage out-of-the-box, creative, and innovative thinking
- Foster unity, squelch divisiveness
- Challenge and resolve conflicts with mutual respect
- Set the tone by your own positive response
- Keep hope alive
- Create the organization's momentum

Most recently I read that "a train traveling 55 mph on a railroad track can crash through a five-foot thick steel-reinforced concrete wall without stopping. That same train, starting from a stationary position, won't be able to go through an inch-thick block of concrete in front of the driving wheel." Now that's embracing the power of momentum. Without momentum we can be stymied by even small obstacles, but with momentum we can face seemingly insurmountable odds. In the face of the tough economic road that lies ahead, we must find ways to seize the momentum, embrace its power, and change the game altogether.




APPA can be a source of help! Especially since our purpose is transformational – to elevate educational facilities professionals into influential leaders who, in turn, create inviting and supportive learning environments, which increase the profession's credibility. Specifically:

- Invest in your professional development through our educational programs (the Institute, Academy, Toolkit, and APPA 2010 conference in Boston);
- Benchmark with your peers by filling out the FPI survey (open through December 7, 2009; the report is available free to member participants);
- Engage in our rich network of peers (by becoming a member and participating in our educational programs and conference);
- Share your successes and lessons learned with your colleagues (by contributing website content, doing a research project, or writing an article);
- Demonstrating your competency and credibility within your institution and the profession (by gaining your professional certification with an EFP or CEFP credential, engaging an FMEP site visit team, or applying for an individual or institutional award); and ultimately,
- Building yourself and your organization for the future.

We do this best collaboratively and collectively. The sustained growth and strength of the California Redwoods is a marvelous example of how this works. The root growth of a California Redwood tree is actually very shallow. However, the roots of *all* these redwood trees are *intertwined*, which creates phenomenal strength for all of them in the face of the most severe storms and weather conditions. This is the unique secret of the strength of these magnificent trees. In fact, a redwood tree is unable to stand alone – a lesson that should not be lost on us as we face today's challenges. APPA is the organization that helps intertwine individual educational facilities professionals to build on our collective strength and gain this synergistic effect. What we

can achieve collectively pales what we can do individually.

By creating this synergistic environment for these things to happen in our own organizations, we can regain our momentum. Michael Eisner, former CEO of Disney, said of his 'Imagineers,' "My

inventory goes home at night." Do you have that same attitude concerning the great value of the people in your organization? Have you embraced the power? 

Lander Medlin is APPA's executive vice president; she can be reached at [lander@appa.org](mailto:lander@appa.org).

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# Your People – Your Most Critical Resource

By Suzanne Healy

*“Good morning. Today we have you scheduled for a budget meeting with the finance department; a director’s meeting to outline possible budget cuts; lunch with the business officer; and the custodial unit would like an hour of your time as well. Then we should probably review your schedule for the week, as I understand there may be an impromptu meeting with the President regarding a public relations matter and some finance issues.”*

*“Ok – let me get my coat off, turn on my computer, grab some coffee. I will be right back and we can touch base.”*

*You walk into your office and close the door, drop your briefcase in your chair and look out the window where you see the vast acres of the campus and students milling about. You take a deep breath and start to wonder which drawer the aspirin is in.*

*It’s 8:15 a.m. and already you are thinking – what a day this will be . . . . .*

For today’s senior facilities professional many mornings start like this, and even more seem to be starting this way lately. But take a step back. You have been a senior professional in tough times before, and you know it doesn’t last forever. Think about how to lighten your load, keep your institution heading in the right direction and be able to balance the demands in these tough economic times.

You know that as a senior facility professional it is critical to have a team who can function in situations such as the ones we are in – constant cutbacks, staff elimination, growing enrollments, etc. – because this is the very hard reality for our members at this moment in history. How can you prepare your team to be the best it can be? Answer: You invest in their professional development. Now, like at no

other time, we must take the leap of faith and spend on behalf of the institution. This is no time to pinch pennies!

The professional development of any individual must be as customizable as the individuals themselves. With that said, you are in a perfect position as a member of APPA, and your respective region.

**REGIONAL ANNUAL MEETINGS ARE SUCCESSFUL IN PART DUE TO THE SUPPORT OF MANY OF THEIR LOCAL BUSINESS PARTNERS, WHO ARE ABLE TO SUPPLEMENT MUCH OF THE COSTS.**

Between these two partnering entities, offerings are abundant for any professional and financial level.

As you know, APPA comprises six regions: CAPP, ERAPP, MAPPA, PCAPP, RMA, and SRAPP. Each of these regions offers an annual event that provides the type of training that is both local and technical in nature. It is at these gatherings that our new staff members can see just how the organization can best support them as they begin their path. These annual programs are created and executed by a dedicated group of professionals who have assessed the needs of their constituents in a way that only a regional event could. These events are often centered on possible regional governmental matters, technical training that is prudent to their location, or other topics. Regional annual meetings are successful in part due to the support of many of their local business partners,

who are able to supplement much of the costs. This allows for a registration fee that is affordable to institutions – who are in turn able to send more than one individual from their team to attend.

Additionally, your regional communities have supplemental resources such as drive-in workshops, lending libraries, and training networks. These programs that are most notably executed by CAPP, ERAPP and MAPPA often provide opportunities to attend national or international training programming.

Then, as your international organization of choice, APPA provides an array of offerings for professional development (of which a number are customizable, allowing for local/campus delivery.) It is our core mission to provide the next level of training and development that allows you to make the investment in your most critical resource – your people!

**Supervisor’s Toolkit: Nuts and Bolts of Facilities Supervisors** is a program that answers the needs of the workplace that has been transformed in recent years by a variety of forces. Intense competition, advancing technology, changing values, and a global economy have created new possibilities as well as challenges. This transformation is changing the nature of management and the roles of supervisors. Our supervisors must develop a systematic approach toward organizing, managing, motivating, and meeting customer expectations. The traditional role of the supervisor/manager is no longer adequate. The new business environment demands leadership. This week-long program is now available at your campus. Our pool of qualified trainers has grown in recent years and schedul-



ing can be done to accommodate any situation. The program has taken off in a direction we would never have imagined, as it is perceived to be as critical for new supervisors and extremely beneficial to supervisors who have been in the ranks for many years—but are looking for new ways to connect with the changing demographics of the team.

The **Institute for Facilities Management** which is offered twice a year, is the cornerstone of our professional development offerings. Participants in these programs will be exposed to the APPA Body of Knowledge (BOK) that is based in general administration, maintenance & operations, energy & utilities, and planning, design & construction. The value of the Institute goes beyond the classroom, and networking opportunities at this event are perceived as critical as the classroom hours themselves. Each of our six regions supports the program by the issuance of scholarships. For additional information on how to submit for these valuable assistances, visit your region's website.

The **Leadership Academy** has been developed for, and focuses on, the educational institution's administrative professionals. These include facilities staff, buyers/purchasing agents, business/finance professionals, and auxiliary services professionals. The program is designed in tracks, with each track emphasizing a different perspective and type of leadership skill. The purpose of the Leadership Academy is to enhance and further develop leadership throughout the educational industry. The Leadership Academy provides opportunities for professionals to increase their awareness of industry issues, to learn the skills necessary to handle today's changes, and to discover the leadership potential within each of us. Your regions also support this program via scholarships. In addition, APPA is able to offer Track I & Track II of this program locally at your campus. This in turn provides you the opportunity for true team development at your time and place of choice.

The **annual meeting** provides a look at current trends, best practices, and the future of facilities, offering sessions to challenge, motivate, and transform you and your facilities operations. Each year, this event attracts internationally known speakers and features a Hall of Re-

sources, showcasing the latest products and services in the industry from APPA's Business Partners. This offering allows us to partner with our sister associations as well to provide you a one-stop shop for the gathering of information necessary to be prepared for the changing future.

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Suzanne Healy is APPA's director of professional development. She can be reached at [suzanne@appa.org](mailto:suzanne@appa.org).

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# Standing on Shoulders

By Douglas K. Christensen, APPA Fellow

As one of the “mature” members of APPA, I have had the opportunity to sit at the feet of remarkable leaders. Some have been leaders by example. Others have been able to preach sermons and touch hearts. Other have spent time talking about their vision for the association and the profession. Still others spend their entire life being in the background getting the job done.

Because of the good works that our colleagues have contributed to this project, we all stand a little higher, and I trust that the BOK experience will move us all into the future.

## THE NEED TO LEARN

In my tenure as a facility professional I have had to be in places where the wisdom of the present solved problems created in the past. We met reality face-

share a concept that I learned standing on the top of some very strong shoulders. The need to learn this principle took place when an experienced heating plant chief operator of 35 years decided to retire. As a management team, we did everything we could to turn him upside down and take from him all the knowledge, understanding, and wisdom he had learned. As a management team we did a poor job.

What he knew and had shared with his employees was all that we had. All of the important learning of how to handle the heating/cooling plant and equipment during an array of emergencies over the 35 years was lost. We did learn some lessons, but not everything. We tried to duplicate that. We had him write down key learning. It did not work. We saw a lot of experience walk out the door. The impact we saw was the potential of having to relearn our mistakes. We needed to learn another way.

## THE PRINCIPLE LEARNED

I learned that we needed to find ways to preserve what we have learned and experienced. The current process of

**IF YOU TAKE TIME TO LOOK BACK AT YOUR JOURNEY, NO MATTER HOW LONG OR SHORT IT HAS BEEN, YOU WILL SEE THE HELPING HANDS OR THE ENCOURAGING LIFT FROM SOMEONE WHO HELPED WITH A DIFFICULT PROBLEM OR TAUGHT YOU SOMETHING THAT SAVES TIME AND EFFORT.**

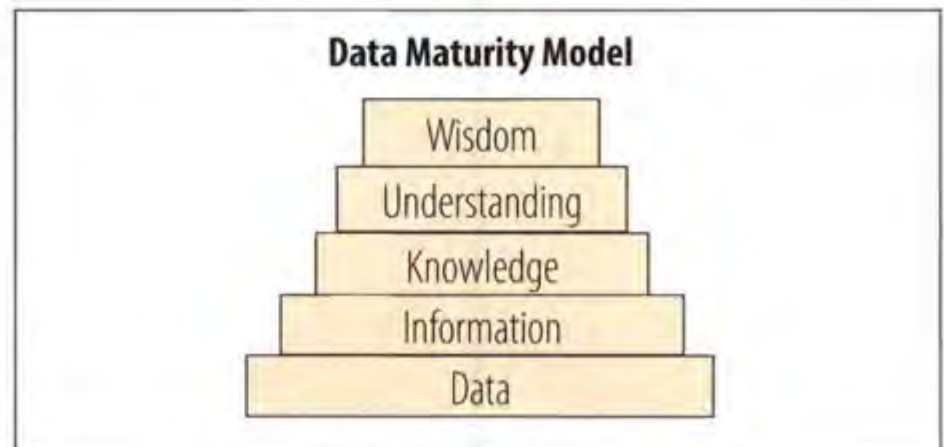
In every case, when you mention the profession, the association, or their contribution to the big picture, they have a story to tell. The stories always include a special moment, a caring person, or an event that allowed them to stand on the shoulders of those who offered helping hands, so that they could someday be in the position to return the favor. If you take time to look back at your journey, no matter how long or short it has been, you will see the helping hands or the encouraging lift from someone who helped with a difficult problem or taught you something that saves time and effort. I would like to say thanks to the many people who have helped me in all that I have attempted to do. The shoulders have been very broad and very strong.

I would also like to say to all of my colleagues and friends that the new APPA Body of Knowledge (BOK) is a way for us to stand on the shoulders of those people whom all of us admire,

to-face and the future won. This seems to happen more often than not as we find the need to deal with change.

A mature leader in our profession stated, “Change has no respect for time and situation, yet the result needs to reflect great wisdom.” When I teach at the Institute for Facilities Management or the Leadership Academy, I try to

Figure 1





capturing experience in people was not the way to go. Then I learned a key principle that would capture what we were learning and allow it to be available for future generations. It was a Learning Principle.

I was reading an article from a study completed by Carnegie Mellon on the subject of the impact the digital age is having on experience titled "The Data Maturity Model." It concluded that because things are changing so fast with information technology that you cannot get enough experience to make correct decisions. Future decisions will be based on what we are learning from the data

we are gathering. The model is shown in Figure 1: The data maturity model focused on what the best maturity levels are to make decisions. Figure 2 is a model of how organizations need to gather data and share the results, but in the information age it is critical that we turn information into what it is telling us. What knowledge and understandings we can gain so we can make wise decisions. How do you do this?


Figure 3 is a graphic that explains the differences within the model and how you know what level you are at. To get from data gathered information you need to organize and label the data

elements. This informs you like a home utility bill does. The data is the monthly readings and the information is the graphic that show trends. Over time the information will be consistent enough so you will know and by applying that knowledge you will understand so well that you can make the right decision about utilities. This becomes a wise decision using good judgment because of the supporting data.

## BEST PRACTICE

So what does this have to do with standing on shoulders? This regular column in *Facilities Manager* is titled Knowledge Builders. In Maggie Kinnaman's article titled "APPA BOK: The Big Reveal" (July/Aug 2009), she introduced a new tool for members to use. We will not need the personal experience of 35 years to cover an entire situation coming our way. Instead, we will have the experience of many at our fingertips 24/7.

As we fill this library with what has been learned from the members and industry, the experiences of so many will help us in our day-to-day decision-making. Over time it will become the premier source of data, information, and knowledge for our industry, and will help us be wiser in what we do and what we say. Today and in the future we are all going to make better decisions.

As this body of knowledge becomes a valuable reference for the education community, we will have a learning tool that can educate us on the good, the bad (or even the ugly) when dealing with our stewardships. We all need to become the builders of new shoulders, producing wise stewards who will be grounded in the ability to use knowledge and understanding in making their own decisions. 

Doug Christensen is a Past APPA President and director, facility solutions & compliance at Brigham Young University, Provo, UT and can be reached at [douglas\\_christensen@byu.edu](mailto:douglas_christensen@byu.edu).

Figure 2

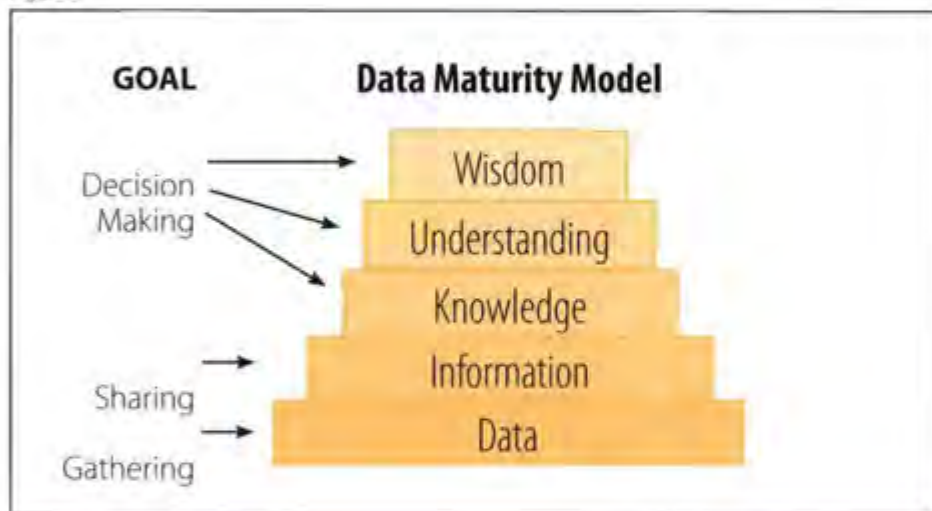
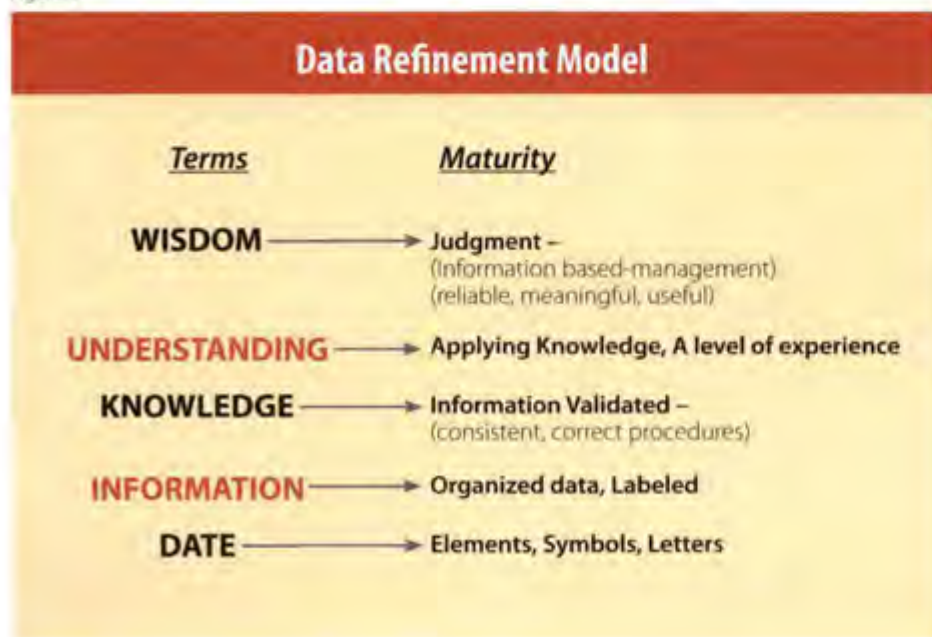


Figure 3









**W**ith economic pressures restricting campus budgets and healthcare policy issues capturing national attention, facilities managers at university-affiliated hospitals and other healthcare entities say they feel more urgency than ever to provide cost-effective services to patients, providers, medical researchers, and students.

Managing facilities at a university-related medical center is, in many ways, much like doing it on an academic campus—except in the many ways it isn't, and that's what makes their positions as facilities directors at major medical institutions particularly challenging. But it is also exciting, according to several APPA members who hold those positions.

# THE LIFE-AND-DEATH FACTOR FOCUSING ON HEALTHCARE FACILITIES

"Life and death," literally, is how they describe the principal difference between their management responsibilities at medical and non-medical facilities. "If a chiller fails at a medical or vivarium facility, it can be a life-and-death situation, while at a non-medical facility it could just mean folks are uncomfortable for a while," says John C. Malmrose, chief facilities officer at the Medical University of South Carolina (MUSC).

Similarly, he says, while repairs of an after-hours elevator or power outage could probably wait until the next day at a non-medical facility, there is no waiting in a hospital. "We deal with the same issues as the rest of the university. The big difference is that there is a heightened sensitivity when everything doesn't run perfectly," Malmrose says.

**BY ALAN DESSOFF**



"The hospital component is huge. You have patients on life support who rely on the facilities to be as close to perfect as possible. There are tensions and details necessary to make that happen. It's a whole different mindset and level of intensity and accountability and risk," says Gary Kittell, director of physical plant at the Upstate Medical University in New York.

"If the lights go off on an academic campus, everybody says, 'Well, we're going to get them back on as soon as we can.' If they go off in a medical facility, it's not tolerable. There is an extra burden to ensure that there are no glitches related to all the building systems essential for patient care," adds William A. Daigneau, vice president for operations and facilities management at the University of Texas M.D. Anderson Cancer Center.

To keep systems operational, there are backups for everything at his facility, Daigneau says, including electricity, water and sewers, and "all sorts of testing requirements." Emergency generators get monthly full-load tests. "We don't just run them, we actually switch over and demonstrate that they can take their full load," Daigneau explains. M.D. Anderson also has on-site water storage, and sewer systems have valving to prevent sewer backups. "You can't have contaminants coming back into the facility," Daigneau says.

Even when facilities have to be shut down for utility repairs, "you have to make accommodations for them, because unlike someone on a regular campus who maybe won't get a hot meal or a warm shower that day, patients' lives can be at risk," says Kittell.

#### NO DOWNTIME ALLOWED

Compared to an academic campus, where students move in at the beginning of the school year and out at the end, "new patients move into our rooms every five or six days and the rooms need to be ready for them," he continues. With the emergency department, operating rooms, and other units all operating around the clock, "you have to be absolutely on top of your game," he declares.

In patient care, "there is no downtime allowed," agrees Donald Rau, director of facilities management at the University of Kansas Medical Center (KUMC). "If a



**Upstate Medical University**, formerly SUNY Health Science Center, in Syracuse, N.Y., is a campus of 2.6 million square feet of managed facilities, half academic and half clinical, including a university hospital and health-care center and colleges of graduate studies, health professions, medicine, and nursing. It's energy consumption is 1 trillion Btus annually. Its 6,570 total employees include 185 in facilities management.

**Gary Kittell**, director of physical plant, previously held positions in facilities management and engineering at facilities in Utah and New York. He holds a B.S. in civil engineering from the University of Vermont and is a licensed professional engineer in Vermont and New York. He also has healthcare facility manager certification from the American Hospital Association.

patient is in a room and there is no air conditioning in the summer or heat in the winter, it can get pretty bad. You have to respond right away and prevent as many things from happening to those patients as you can."

#### ALWAYS ON YOUR TOES

At the same time, he adds, "If you're around patients, you have to be courteous," because how patients score their level of satisfaction with a facility is "extremely critical" in the intense competition among hospitals in an area.

Rigid oversight by accreditation agencies and government regulatory authorities helps ensure that their facilities are operating efficiently and effectively but also keeps them on their toes, these facilities professionals agree. They cite the Joint Commission on Accreditation of Healthcare Organizations (JCAHO), the

key accrediting body for hospitals nationwide. "They are pretty unforgiving. They can come at any time, and you have to be on your game," says Kittell of the Upstate Medical University.

"If you have a large facility like ours, they not only inspect the medical part of it but they bring along a 'life safety' specialist who goes through all your records, from generator testing to firewall locations to preventive maintenance. Then they spend a day or more touring the facility, looking above the ceilings, checking to make sure everything is as it should be. No areas are out of bounds," Kittell says.



**The Medical University of South Carolina**, in Charleston, the state's only comprehensive academic medical center, encompasses 7 million square feet divided equally into clinical, research/academics, and auxiliary functions, including a 709-bed hospital and six colleges. It uses about 1 trillion Btus annually and maintains a facilities management staff of about 300.

**John C. Malmrose** joined MUSC in 1998 as assistant director of engineering and became chief facilities officer in 2001. He is a registered professional engineer with more than 30 years of design, construction, and facilities management experience. He is a graduate of the United States Coast Guard Academy and holds a master's degree in civil engineering from the University of Illinois at Urbana/Champaign. He currently serves as president of SRAPPA.



"The Joint Commission is taking a much more aggressive approach. It drives you to a state of constant preparedness for a visit, which I think is a good thing," adds Skai Dancey, director of facilities operations at Oregon Health Sciences University (OHSU). Other accreditation bodies important to healthcare facilities, particularly those with research units, include the Association for Assessment and Accreditation of Laboratory Animal Care (AAALAC).

JCAHO and AAALAC "expect strict compliance with policies and procedures" and that can make a difference between accreditation and probation, says MUSC's Malmrose.

#### SAFETY AND QUALITY

In addition to accreditors, "we have regulatory agencies that a regular campus wouldn't have," adds Mark Kenneday, vice chancellor for campus operations at the



The University of Arkansas for Medical Sciences, in Little Rock, the state's only academic health center, occupies 3.6 million square feet that include a 373-bed hospital plus six colleges of nursing, medicine, health-related professions, pharmacy, and public health, as well as a graduate school. It has a \$15 million utility budget and its 10,000 employees include 360 for facilities management.

Mark Kenneday, vice chancellor for campus operations since 2008, previously was director of building care and operations at the University of Texas M.D. Anderson Cancer Center. He has a healthcare facilities manager certification from the American Hospital Association. He received a bachelor's degree in civil engineering and construction management and a master's degree in business administration, both from the University of Houston.

University of Arkansas for Medical Sciences (UAMS). He cites a recent visit by nuclear regulators who were "looking at how we take care of our isotopes. There's always someone who has an interest in ensuring that we are being safe."

"The patient care adds another level of regulatory oversight that can be challenging," agrees Dancey, but can "drive us to a higher level of quality." But in other ways, he adds, complying with the regulations can lead to increased costs, which can be a hard sell to other administrators who keep a close eye on budgets.

While facilities related to patient care get much of their attention, facilities officers also are responsible for other aspects of their

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campuses. "I find it hard not to sink all my attention into the hospital, but I also have to actively make sure that I'm looking out for our academic side, too, so that it doesn't run on autopilot," asserts Dancey.

#### **SIMILAR ISSUES FOR ANIMAL HEALTHCARE**

Even healthcare facilities where four-legged creatures are patients and research subjects require intense management. "Our hospital runs 24/7, every day of the year, and we have to maintain the temperatures and keep the water running and the lights on," says Christopher J. Phillips, director of facilities management at the University of Pennsylvania School of Veterinary Medicine.

He also maintains facilities for animals used in research and "if I don't protect those lives, the research stops," Phillips says.

"I have a hard time making clear even inside the university that just because it's a vet school, it's still a healthcare facility. Sometimes the university doesn't see that," Phillips states. "If the university is shut down and students are sent home for some reason, like swine flu, I still have to keep this facility up and running. We're not going to shut down. We're dealing with lives, and if we don't keep a building up and running, we are in jeopardy of losing a life. It's an animal's life, but it could be just as meaningful to somebody as losing a mother or father."

Similarly, while accreditation of his facility is not at "the same high standard" of a hospital for humans, "if I don't keep that accreditation, they're liable to shut the door," Phillips says.

#### **INNOVATIONS DESPITE THE CHALLENGES**

Facilities officers at healthcare facilities say they face many challenges. A key one is related to the economy. "Money is tight, and that translates into staffing reductions. But the demands of the campus haven't changed. So the challenge is to meet facility needs with significantly reduced funding. How do we do it?" says Malmrose.

One way he is doing it, he says, is with technology "to help us manage our work," including software that allows for mobile work order management and another software solution that eliminates duplicate databases. "That should make us more effective and efficient," Malmrose says.

"We're cutting out a lot of services, but we're trying hard to keep our preventive



The University of Pennsylvania School of Veterinary Medicine, in Philadelphia, the only veterinary school in the state, covers 2 million square feet equally divided for academics, research, and animal care, with a 150-bed hospital. In addition to the university's main facilities management group of 300, a team of nine is dedicated to facilities at Penn Vet.

Christopher J. Phillips, director of operations at Penn Vet for four years, earned a bachelor's degree in business at Pennsylvania State University and previously worked in HVAC service.

maintenance strong. That's a priority because we think it pays off in the long run," he adds.

OHSU's Dancey agrees that economic challenges "top the list." He cites rising energy costs. "We're doing a lot to reduce our consumption and spend in that area," he says. Rau of KUMC says lack of funding is holding back about \$70 million of deferred maintenance on campus buildings that are 45 years old on average. "All the basic infrastructure is shot," he says.

On Kittell's Upstate New York campus, a major construction program is underway, funded by state bonds, that includes several new buildings and renovations of older ones. "Making sure we're able to ser-

vice them at the standards that are necessary is going to be pretty demanding," he says. "The economy is impacting operations."

On all healthcare campuses, facilities officers say it's important keep up with professional development for themselves and their staffs. "We have put together a training matrix that we try to track," says Malmrose. In addition to in-house training, employees often take outside courses and attend seminars in their specialties. "It depends on the certification requirements," he says.

Daigneau of M.D. Anderson says that plumbers on his staff have to be certified to work on medical gas systems. He notes that health departments and some professional associations offer specific training programs in environmental health and safety, like testing water systems for Legionnaire's Disease. Infection control in hospitals remains "a major issue," he says.

The American Society for Healthcare Engineering (ASHE) offers programs that "a number of our people attend to stay updated on requirements for Joint Commission accredita-

The Oregon Health Sciences University, in Portland, occupies 5.3 million square feet, with 2 million for healthcare, including a 500-bed hospital, and the rest for academic and administrative uses. It spends \$19 million annually on energy. The total staff of 11,000 includes a basic facility team of 110.

Skai Dancey, director of facilities operations since 2006, previously was a mechanical engineer and engineering manager. He earned a bachelor's degree in mechanical engineering from Oregon State University and a master's in business administration from Portland State University.





tion," Daigneau adds. Facilities officers also cite APPA and the International Facility Management Association (IFMA) and report that local technical colleges often are good professional development providers.

#### LESSONS LEARNED


Given the responsibilities and accompanying stresses of their jobs, facilities officers at university-affiliated healthcare institutions say they have learned lessons about how to do their jobs well. "If you're going to be effective at this," says Kittell, "you have to think well beyond the facilities box, because there are a lot of sophisticated people in the various aspects of medicine, and they need to be advised about facility situations that impact their care of patients." That means, Kittell explains, "being able to talk to them in terms they understand, and translate facility-speak to medical-speak and back-and-forth."

The facilities officers say they also gain satisfactions that balance the demands of their positions. "Nobody really sees us unless there is something that isn't getting done. But it's very rewarding knowing that we are helping patients and doctors and researchers," says Rau.

The University of Texas M.D. Anderson Cancer Center, in Houston, is one of the world's largest cancer centers. The physical plant of 11 million square feet includes a 507-bed hospital as well as ambulatory care, research, educational, and auxiliary facilities. Utility bills total about \$65 million annually. Its 17,000 total employees include 1,700 in facilities management.

William A. Daigneau, vice president for operations and facilities management, who joined M.D. Anderson in 1994, has served as chief facilities officer for two major research universities, a comprehensive doctoral university, and a public university system component. An engineering graduate of Case Western Reserve University, he earned an MBA from Bradley University and has completed doctoral level work in organizational behavior at the University of Iowa. He is also an APPA Fellow.



"I've worked both sides of the house," says Daigneau, "and the thing I enjoy about healthcare is that it's a focused mission. Higher education has a pretty diverse and sometimes diffused mission of what it is trying to accomplish, but in a healthcare environment, everybody works toward the same goal. It's enjoyable to work in that environment." 

Alan Dessoiff is a longtime writer for *Facilities Manager*. He is based in Bethesda, MD and can be reached at [adedit@verizon.net](mailto:adedit@verizon.net).



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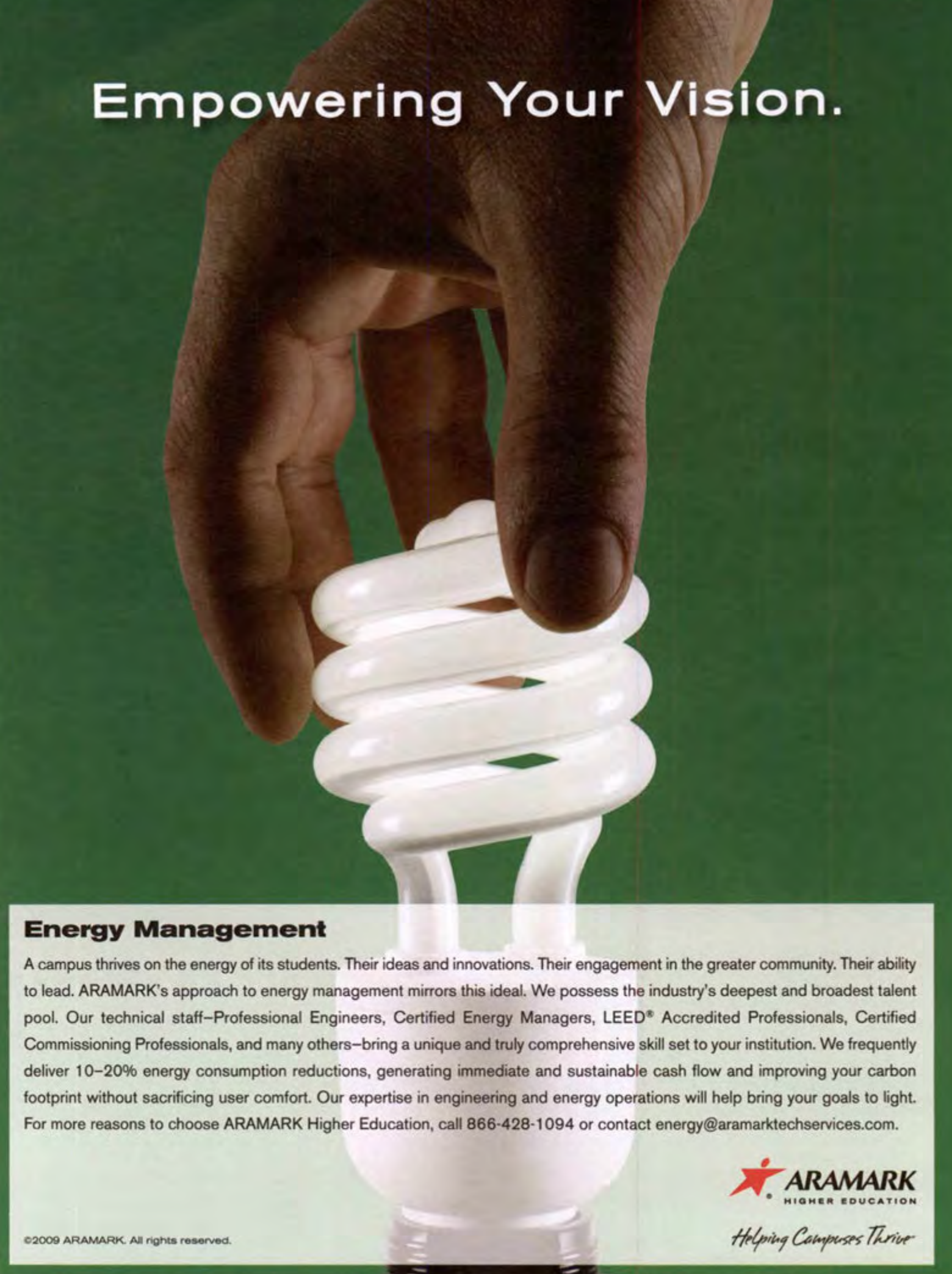
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# University System of Georgia Uses FPI to Support Its Internal

## EVALUATION PROCESS

A large, dark stone marker for the University of Georgia. It features the university's seal, which includes a classical building and the year 1776. The text on the marker is engraved in a serif font. The background of the page shows some foliage and a building in the distance.

UNIVERSITY OF GEORGIA

Endowed with 40,000 acres of land in 1784 and chartered in 1785, the charter was the first granted by a state for a government controlled university. After Louisville and then Greensboro were first selected, the current site was chosen.

**A**PPA's Facilities Performance Indicators (FPI) Survey and Report has grown from 190 institutions to a survey reflecting the input of 225 institutions, another 36 institutions preparing to participate in the survey, and 150 institutions that participated in a customized utility consortium survey through a partnership between APPA and the Midwestern Higher Education Compact (MHEC). APPA is well on its way to engage well over 300 participating institutions in the current 2008-09 FPI survey.

### A NEW FORMAT

History has shown us that momentum around the survey will build as new resources and tools are embraced by our members. Additionally, the Express/Detailed survey options built into the survey framework allows participants to choose their areas of interest to focus on. Finally, the new structure of the survey and report utilizes an Essential Questions format, which allows the ratios and performance indicators to reveal unique results for each institution. This new format creates a story line for our profes-

sion, following the Total Cost of Ownership model as described in the APPA book, *Buildings...The Gifts That Keep on Taking*, and helps our members properly utilize the data.

APPA also created a series of webinars and an FPI Advisor team to help assist institutions with the completion of the survey and interpretation of the report. This was a major part of our strategy, not only to create a tool but to provide the support that our members needed in order for them to take full advantage of the tool and to convert information to knowledge and wisdom.

### COHORTS

A highly successful approach that has been employed is to reach out to those cohorts who have the desire to complete the survey and interpret the results together. This was first done with the 17 institutions within the University of North Carolina System, followed by 23 institutions within the California State University System. This past year, we have worked extensively with 36 institutions of the University System of Georgia. The rest of the article will focus on the results of this initiative.

By Maggie Kinnaman, Ernest R. Hunter Sr., and Greg Adams



## USG DEMOGRAPHICS

The University System of Georgia consists of 36 public institutions that cover all Carnegie classifications and represents a diverse community of institutions within APPA. The Carnegie demographics are shown on the next page.

The University System of Georgia (USG) already had an in-house peer evaluation process in place for its 36 institutions, specifically focusing on the facilities management departments. Such a huge initiative needed to be guided by data. Prior to USG's FPI survey initiative, much time was spent by the peer review teams collecting data for each peer review. It was decided that this data would be more efficiently captured using the APPA FPI instrument. Such a complex undertaking required a great deal of coordination and logistics.

Although USG wanted to be trained to participate in the 2008 regular FPI data collection cycle, the timing of the training made that desire impossible to achieve. It was decided that the FPI process would be begin off-cycle from the regular FPI cycle so that the Georgia cohort could be well-trained and pre-

pared to take the survey as well as to interpret the results. The training and off-cycle survey data input would fully prepare them to participate in the 2009 FPI survey cycle, which commenced in the fall of 2009.



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## THE KICKOFF

Beginning in December 2008, Greg Adams, director of management and operations, as well as Sandra Neuse, assistant vice chancellor for compliance and operations at USG, headed up the USG initiative with a kick-off webinar conducted via teleconference. A number of realities made this engagement somewhat different from UNC. The first being that USG consists of 36 campuses, which is 19 more

than UNC. The second factor was the economic reality present at the time, which presented a real challenge for institutions needing to travel to remote sites to attend the training.

Coordinating the training session required a Herculean effort for all parties involved. Originally, the goal was to conduct the training in mid-November in order for all USG institutions to participate in the 2008 regular FPI cycle. Due to logistical hurdles, the first training session was not conducted until February 19, 2009. This off-cycle survey would now

serve as a test run prior to participating in the official 2009 FPI survey. There would also be enough flexibility built into the schedule to provide adequate time for training, evaluation, and data scrubbing prior to participating in the real deal. This first session focused specifically on how to complete the survey and USG agreed that they would focus on only the essential questions (about 75) and exclude auxiliaries from their responses.

To ensure participation while providing an interactive learning environment at minimal expense to participants, the first training session was hosted at Georgia Institute of Technology (Georgia Tech). Six co-host institutions across the state received representatives from each of the 36 institutions who made their way to one of these sites. The training session was broadcast from Georgia Tech to the co-host sites via Wimba distance conferencing technology. The day-long session consisted of an overview on the importance of data collection, a review of the Essential questions within the survey and some group case studies.

Additionally, the participants identified a number of items that USG would have to resolve for the collective cohort group. The first

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## Distribution of Respondents by Carnegie Class

Fiscal Year 2007-2008 (USG) APPA FPI Report



	2008 Published Report	2008 USG Report
Associate (Two Year)	18	12
Baccalaureate	35	8
Masters	22	68
Doctoral/Research	32	11
Research High	10	45
Research Very High	10	10
Specialized	10	10
Specialized Medical	10	10
K-12	10	10

was a process for computing current replacement value (CRV). The key component to this computation is to have an agreed upon current cost of construction for different types of spaces. The research campuses within the cohort agreed to identify those costs of construction per Gross Square Foot (GSF) for various types of space. The next hurdle to overcome was to determine a value for the useful life of buildings and infrastructure. This data point elicited a great deal of conversation and

the System settled on something close to 50 years. A few of the research campuses chose to utilize 30 years.

Armed with enough information to be dangerous, the 36 campuses set out to complete their surveys. Greg set up discussion groups using an online project collaboration software called Basecamp™ so people could stay in touch and ask questions and receive answers from the collective group. In April 2009, the survey closed and data scrubbing commenced.



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The second training session was held on June 24, 2009, with four remote locations using distance education technology. The session focused on the reports and how to use them to tell your story. The agenda included an overview and orientation of the report, a demonstration of how one would use the Executive Report to tell an institutional story and workshop exercises designed to turn the keys over to each of the sites to work in

teams to tell their unique story. For the group work, we set up four cohort groups within the USG system. Each group was assigned to one of the four groups to focus their presentation. The teams were instructed to mine the data and to tell their story using the Executive Presentation feature of the report. Two groups were able to report out their results before we concluded with a "next steps" discussion.

Challenges presented to the group mimic those presented to first time survey participants. Perhaps the biggest question was where to find the source data for some of the data points. Additionally, some of the USG campuses continue to use book value or insurance value as the basis for CRV and that does create an issue. Book value under values the current replacement value numbers and does not present a true CRV value. Current replacement value is defined as the cost in current dollars to replace the campus to its optimal condition. Optimal condition is the operative word. Insurance value is the cost to return the asset to the condition in which the loss occurred, and this would include depreciation. So we really are not looking at an apple-to-apple comparison.

#### IT'S A JOURNEY

In completing this engagement, it is the hope of APPA that the USG cohort participants will gain the confidence to understand the model, identify areas in their approach for data collection that need strengthening, and most importantly, that they see this as the first step to a continuous improvement journey by participating each year in the FPI survey. In this way, they will be able to chart their progress and educate key decision makers within their respective institutions.

Some key points to take away from this experience is that even in time of reduced budgets, USG found a cost-effective way to bring the necessary training to its 36 schools through creative use of distance learning and teleconferencing facilities. It is easy to shy away from taking on a bold new initiative such as the FPI survey during time of tight budgets; however, Greg Adams of USG recognized that it is during tight budget periods when data driven decisions are most valuable to an institution. By getting in a position through the APPA FPI survey to measure performance, track trends, and compare metrics across the 36 USG institutions and the other 225 institutions in the APPA survey, each Georgia cohort will have one more weapon in its arsenal to fight the current day budget battle.



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With the current economic downturn, the USG, like most public university systems, is experiencing tremendous financial pressures even while enrollments are climbing to record levels. USG facilities officers across the system showed tremendous support for participating in this survey. They understand the importance of capturing the key facilities indicator data necessary to justify budgets, to make the case for needed capital renewal projects, to identify best practices and to establish a baseline from which to improve future performance.

The system has not had a workable method for capturing this data before now, especially in a consistent fashion across institutions as well as allowing data to roll up to the system level. That is where the cohort group is especially useful. The USG recognizes that there are other FPI assessments available in the marketplace, but the APPA survey proved to be a very affordable option in tough times. This put participation in the survey within financial reach, and the benefits to USG institutions are expected to far exceed the resources required to participate in the survey.

These factors are reason enough to justify USG participation in the survey. However, the icing on the cake is the efficiency gained by being able to use the data as the basis for moving ahead with the USG Facilities Peer Evaluation Initiative, a strategic initiative set in motion by the Board of Regents of the

Some key points to take away from this experience is that even in time of reduced budgets, USG found a cost-effective way to bring the necessary training to its 36 schools through creative use of distance learning and teleconferencing facilities.

USG at the recommendation of Regent Willis Potts. The use of the survey results as evaluation criteria helps combat the potential perception of bias among peer evaluators and provides a well established set of tried and true criteria developed by APPA in conjunction with its member institutions. 

Maggie Kinnaman is a Past APPA President and longtime contributor to APPA's Facilities Performance Indicators survey and report; she can be reached at [maggiekinnaman@comcast.net](mailto:maggiekinnaman@comcast.net). Ernest Hunter is a retired APPA member and president of Hunter Consulting & Training; he can be reached at [ernesthunter@gmail.com](mailto:ernesthunter@gmail.com). Greg Adams is director of management and operations for the University System of Georgia; he can be reached at [greg.adams@usg.edu](mailto:greg.adams@usg.edu). This is Hunter and Adams' first article for *Facilities Manager*.

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# APPLYING APPA Guidelines for Custodial Staffing

THE CASE OF SLIPPERY ROCK UNIVERSITY





- ☒ ordinary tidiness
- ☒ shiny floors
- ☒ clean surfaces



Slippery Rock University (SRU) was founded in 1889. It is a state university with 8,500 students and 400 faculty. Facilities and Planning (F&P) employs 178 staff, of which 50 are custodians. F&P is responsible for the maintenance of 560 acres and 60 major buildings that comprise approximately 2.3 million gross square feet.

Currently work is assigned to the custodians, by two custodial supervisors, who use their 25 years of work experience at the university to determine the workload for the custodians. No standards, calculations, or other scientific methods are applied in this process.

The main goal of our recent research and analysis project was to evaluate the current staffing assignments and to provide a general picture of the custodial needs and the current level of cleanliness at SRU. SRU's goal is to maintain an aggregate Level 2 cleanliness in its buildings. Level 2 is defined as "ordinary tidiness" and includes "shiny floors and base moldings and no buildup in corners or along walls, vertical and horizontal surfaces are clean but may contain dust and fingerprints upon close inspection, lights and fixtures work, and washroom and shower fixtures gleam and are odor-free." (APPA Guidelines)

The project started with data collection in two phases: (1) taking an accurate cleanable space inventory of all buildings at SRU and (2) performing the cleaning audits. The process of data collection and analyses lasted for nine months, from September 2008 through May 2009.

By Albena Iossifova, Ph.D., Dennis Hemphill, Diana Brest, and Scott Albert



## PHASE 1 - CLEANABLE SPACE INVENTORY

All buildings cleaned by F&P at SRU were measured by hand using the original blueprints as guidelines. All spaces were also classified into different categories following the APPA *Custodial Staffing Guidelines for Educational Facilities*, second edition, e.g., "classroom hard floor," "classroom carpet floor," and so on. After the categorization was completed we used the Staffing Service Levels provided by the APPA Guidelines to determine the workload for each floor. We used the floor as a unit of analysis because the current work assignments are typically by floor, i.e., each floor is assigned to one custodian, although one custodian could be responsible for several floors in different buildings. The cleanable space inventory allowed us to determine the staffing requirements per building and the current workload per custodian.

## PHASE 2 - CLEANLINESS AUDITS

We decided to audit four random spaces from each floor that were used more regularly. For example, for a classroom building we chose a classroom, a washroom, an entranceway,

and an office on each floor. We developed audit sheets for different spaces, where we weighted different elements in the space differently.

Based on the four audits per floor, we calculated the average level of cleanliness per floor as an average from the four audits. We were also able to calculate the average level of cleanliness per building by averaging the levels for each floor. Since each floor was assigned to a specific custodian we were also able to calculate the average level of cleanliness per custodian.

## RESULTS

The analysis revealed that SRU was understaffed for Level 2; there were 69.71 custodians required, but only 50 available. At the same time the average level of cleanliness was 1.87 (Level 1 being the highest), which was a surprising result. The reason for this result is there are other factors that impacted the audit results, and are discussed in the last section of this article.

## CUSTODIAN PERFORMANCE

We calculated the current workload and the average level of

Custodian Initials*	Workload index	Cleanliness index	Workload group	Cleanliness group	Recommendation
AA	0.75	1.50	LOW	HIGH	INCREASE WORKLOAD
AB	0.70	1.83	LOW	ADEQ	INCREASE WORKLOAD
AC	1.56	1.84	HIGH	ADEQ	NO CHANGE
AD	1.09	2.08	ADEQ	ADEQ	NO CHANGE
AE	1.14	1.87	ADEQ	ADEQ	NO CHANGE
AF	2.38	2.50	VERY HIGH	LOW	REDUCE WORKLOAD
AG	1.40	2.00	ADEQ	ADEQ	NO CHANGE
AH	1.26	2.13	ADEQ	ADEQ	NO CHANGE
AI	2.07	1.95	VERY HIGH	ADEQ	PROVIDE REWARD
AJ	0.99	2.04	ADEQ	ADEQ	NO CHANGE
AK	1.57	1.60	HIGH	HIGH	PROVIDE REWARD
AL	1.26	1.38	ADEQ	HIGH	PROVIDE REWARD
AM	0.48	1.13	VERY LOW	HIGH	INCREASE WORKLOAD
AN	1.89	1.59	HIGH	HIGH	PROVIDE REWARD
AO	0.49	1.14	VERY LOW	HIGH	INCREASE WORKLOAD
AP	0.77	1.79	LOW	ADEQ	INCREASE WORKLOAD
AQ	1.96	2.57	HIGH	LOW	REDUCE WORKLOAD
AR	2.35		VERY HIGH		PERFORM AUDIT
AS	0.73	1.72	LOW	ADEQ	INCREASE WORKLOAD
AT	3.06	1.72	VERY HIGH	ADEQ	PROVIDE REWARD
AU	2.83	1.85	VERY HIGH	ADEQ	PROVIDE REWARD
AV	1.40	2.00	ADEQ	ADEQ	NO CHANGE
AW	0.77	1.39	LOW	HIGH	INCREASE WORKLOAD
AX	2.07		VERY HIGH		PERFORM AUDIT

\*Disguised

Table 1. Workload and level of cleanliness per custodian and the recommended human resource strategy with the results from the analyses for Slippery Rock University (50 custodians total, 4 with outstanding audits)



cleanliness for each custodian. The workload was not normally distributed but skewed towards 1.00 with the majority of custodians assigned workloads higher than 1.00. The workload ranged between 0.48 and 3.45. Ideally the workload should be 1.00, but we expect to have some variability in the work assignments. It is important to determine accurately the acceptable ranges for the workload. In our case we decided to make the adequate range of workload, 0.8 to 1.5, as the majority of the workload assignments fell within this category.

Similarly, we categorized the level of cleanliness into three categories. The average level of cleanliness was 1.87 with a standard deviation of 0.51. It was not normally distributed, but skewed towards 2.0 with the majority of observations falling between Level 1 and Level 2. We decided that a level between 1.0

and 1.7 would be considered a high level of cleanliness, between 1.7 and 2.3 an adequate level, and between 2.3 and 5.0 a low level. Again, these cutoffs pertain to SRU only and other schools may decide to have different cutoffs.

**AUDITS ARE ALSO CLOSELY RELATED TO THE TRAINING OF THE CUSTODIANS AND IF YOU CHANGE THE WAY YOU AUDIT, YOU INEVITABLY NEED TO CHANGE THE WAY YOU TRAIN THE CUSTODIANS**

Next, we classified each custodian into different groups based on his/her current workload and current level of cleanliness (Table 1). Finally, we recommended a generic human resource strategy for each group. For example, if the workload is very low and the level of cleanliness adequate or high, then the recommendation was to increase the workload for this custodian.

Table 2 presents the 15 groups and the corresponding strategies for each group. It also presents the aggregated results for the SRU custodians. These results show that for 17 custodians no change in the assignment is required, for 14 custodians we need

Custodian Initials*	Workload index	Cleanliness index	Workload group	Cleanliness group	Recommendation
AY	1.41	3.57	ADEQ	LOW	PROVIDE TRAINING
AZ	1.23	1.40	ADEQ	HIGH	PROVIDE REWARD
BA	0.87	1.93	ADEQ	ADEQ	NO CHANGE
BB	0.82	3.10	ADEQ	LOW	PROVIDE TRAINING
BC	2.35		VERY HIGH		PERFORM AUDIT
BD	0.90	2.00	ADEQ	ADEQ	NO CHANGE
BE	1.65	2.30	HIGH	ADEQ	NO CHANGE
BF	0.49	1.14	VERY LOW	HIGH	INCREASE WORKLOAD
BG	1.29	2.25	ADEQ	ADEQ	NO CHANGE
BH	1.24	2.00	ADEQ	ADEQ	NO CHANGE
BI	1.38	2.29	ADEQ	ADEQ	NO CHANGE
BJ	2.07		VERY HIGH		PERFORM AUDIT
BK	1.83	1.81	HIGH	ADEQ	NO CHANGE
BL	0.70	1.83	LOW	ADEQ	INCREASE WORKLOAD
BM	0.77	1.28	LOW	HIGH	INCREASE WORKLOAD
BN	1.34	2.83	ADEQ	LOW	PROVIDE TRAINING
BO	0.77	1.39	LOW	HIGH	INCREASE WORKLOAD
BP	1.88	1.54	HIGH	HIGH	PROVIDE REWARD
BQ	0.77	1.28	LOW	HIGH	INCREASE WORKLOAD
BR	1.49	2.27	ADEQ	ADEQ	NO CHANGE
BS	0.77	1.22	LOW	HIGH	INCREASE WORKLOAD
BT	1.12	2.14	ADEQ	ADEQ	NO CHANGE
BU	0.48	1.13	VERY LOW	HIGH	INCREASE WORKLOAD
BV	3.45	1.86	VERY HIGH	ADEQ	PROVIDE REWARD
BW	2.10	1.95	VERY HIGH	ADEQ	PROVIDE REWARD
BX	1.57	1.80	HIGH	ADEQ	NO CHANGE



to increase the workload, for 2 custodians we need to decrease the workload, for 3 custodians we need to provide training, and for 10 custodians, if possible, we need to provide a reward for their outstanding performance.

## PRACTICAL IMPLICATIONS

Performing the audits was the most critical element in the process. It was also the most challenging, because even though the APPA Guidelines provides examples of performing audits, it is up to each school to develop its own audit sheets and audit procedures. We were trying to balance the frequency and the level of detail of the audits with the limited resources available. Audits are also closely related to the training of the custodians and if you change the way you audit, you inevitably need to change the way you train the custodians.

Many factors impacted the outcome of the audits. Since it is difficult to create a structured procedure that will take into consideration all of the factors, we recommend starting with the APPA Guidelines and modifying them based upon school specific standards and the expertise of the school's custodial supervision. Over the course of the project we found a number of factors that were not addressed in the APPA Guidelines for

which we had to make modifications. Listed below are some of the considerations and factors with which we had to deal with, in our project. Other schools going through the same process will need to make similar decisions.

## CONSIDERATIONS FOR THE AUDITS

1. The level of cleanliness depends highly on the age of the building. The newer buildings are much easier to clean than old ones. This should be a consideration when assigning work.
2. The level of cleanliness depends on the usage of the building/space. For example, if the Football Stadium is not used regularly, you may need fewer employees than the number provided by the APPA Guidelines.
3. The level of cleanliness depends on the number of people that use the space. Spaces that are used by fewer people (for example an office) have higher level of cleanliness than spaces used by many people (for example classrooms or bathrooms).
4. The level of cleanliness depends highly on the time of audit. For example if you audit in the afternoon it will be more "dirty" than if you audit in the morning. At SRU, the custodians work 6:00 a.m.- 2:00 p.m. with the majority of

**WE STRONGLY BELIEVE THAT THE CUSTODIAL SERVICES AT SRU AND AT ANY OTHER SCHOOL WILL BENEFIT GREATLY FROM TRYING TO APPLY THE APPA GUIDELINES.**



### REPORT TOTALS FOR ALL THE BUILDINGS SURVEYED FOR THE OPERATION CLASS

BUILDING	FLOOR	CODE	SPACE	SQ. FT	CUSTODIAL INITIALS	CURRENT LEVEL	APPA 2	Required # people for
BUILDING1	1ST	CCF	Classroom - Carpet	1,960	AA	2	21700	0.090322381
BUILDING1	1ST	FHF	Cafeteria - Hard Floor	608	AA	2	16400	0.037073171
BUILDING1	1ST	LCF	Library - Carpet	60	AA	2	36900	0.001626016
BUILDING1	1ST	LCF	Library - Carpet	1,131	AA	2	36900	0.030650407
BUILDING1	1ST	LCF	Library - Carpet	13,343	AA	3	36900	0.361388916
BUILDING1	1ST	OCF	Office - Carpet	988	AA	2	18200	0.054285714
BUILDING1	1ST	OCF	Office - Carpet	1,056	AA	2	18200	0.058021978
BUILDING1	1ST	OCF	Office - Carpet	1,178	AA	2	18200	0.064729275
BUILDING1	1ST	PCF	P.C. - Carpet	1,244	AA	3	40400	0.030792079
BUILDING1	1ST	PHF	P.C. - Hard Floor	85	AA	3	20500	0.004146341
BUILDING1	1ST	PHF	P.C. - Hard Floor	1,470	AA	2	20500	0.071707317
BUILDING1	1ST	STO	Store Room	60	AA	2	210000	0.000285714
BUILDING1	1ST	VEN	Vending	657	AA	2	11100	0.059189189
BUILDING1	1ST	WAS	Washroom	60	AA	2	2400	0.023076923
BUILDING1	1ST	WASHU	Washroom - High Use	357	AA	2	1300	0.274615385
BUILDING1	1ST	WASHU	Washroom - High Use	420	AA	2	1300	0.323076923
BUILDING1	2ND	CCF	Classroom - Carpet	578	AB	3	21700	0.026633945
BUILDING1	2ND	CCF	Classroom - Carpet	700	AB	3	21700	0.032258065
BUILDING1	2ND	CCF	Classroom - Carpet	1,000	AB	3	21700	0.046082049
BUILDING1	2ND	CCF	Classroom - Carpet	1,091	AB	3	21700	0.050276498
BUILDING1	2ND	LCF	Library - Carpet	9,504	AB	3	36900	0.257560976
BUILDING1	2ND	OCF	Office - Carpet	98	AB	2.5	18200	0.005384615
BUILDING1	2ND	OCF	Office - Carpet	225	AB	2.5	18200	0.012362637
BUILDING1	2ND	OCF	Office - Carpet	290	AB	2.5	18200	0.015934066
BUILDING1	2ND	OCF	Office - Carpet	300	AB	2.5	18200	0.016483316
BUILDING1	2ND	OCF	Office - Carpet	399	AB	2.5	18200	0.021923077

Figure 2. Part of the Excel spreadsheet with the collected data



public area being cleaned prior to 8 a.m.

5. The level of cleanliness depends highly on the season when it is performed. During winter time, the buildings are "dirtier" due to the snow and rain that is tracked in by the building occupants.
6. The level of cleanliness may be impacted by the number of people assigned to clean one floor. If more than one person is assigned to a floor/area, we found the area had a lower level of cleanliness if specific responsibilities were not provided.
7. When more than one person is assigned on one floor, we also assume the workload is evenly distributed between the people and that they can clean at the same level and with the same speed. At SRU we found that this wasn't always the case.
8. The level of cleanliness appears to depend on the experience of the custodian. At SRU, we tended to find that the higher the level of experience, the higher the level of cleanliness.
9. When determining the current level of cleanliness, all buildings/floors/spaces were given the same weight. For example we gave the same weight to a classroom as to an office. Different schools may wish to put different weights on different space types and buildings. Currently the APPA Guidelines do not provide any recommendations for weighting space types.

#### FACTORS THAT IMPACTED OUR PROJECT


1. Length of the work day. The guidelines assume an 8-hour work day, while SRU has a 7.5-hour work day.
2. How often should audits be performed (once a year, twice a year, twice per month)? How much space should be regularly audited (15%, 25% of the total space) and what space types (classrooms, offices, washrooms, lockers)?
3. How to weight the different spaces? For example, do you want to have the same weight for a classroom as for an office, or a washroom?
4. How to weight different elements in the audit of one space? For example, when you audit a classroom, do you place the same weight on the floor as on the air vents?
5. How to take into consideration productivity improvements from new cleaning equipment and chemicals.
6. How to determine the ranges for adequate workload? For example, do you want to have a range between 0.8 and 1.2 or a range between 0.9 and 1.1?
7. How to determine the ranges for adequate cleanliness? For example, do you want to have a range between 1.8 and 2.2 or

	Very low workload (< 0.5)	Low workload (0.5 - 0.8)	Adequate workload (0.8 - 1.5)	High workload (1.5 - 2.0)	Very high workload (>2.0)
Low cleanliness (2.3 - 5.0)	Provide training N = 0	Provide training N = 0	Provide training N = 3	Reduce workload N = 1	Reduce workload N = 1
Adequate cleanliness (1.7 - 2.3)	Increase workload N = 0	Increase workload N = 4	No change required N = 13	No change required N = 4	Provide reward N = 5
High cleanliness (1.0 - 1.7)	Increase workload N = 4	Increase workload N = 6	Provide reward N = 2	Provide reward N = 3	Provide reward N = 0

Table 2. Number of custodians in each category for Slippery Rock University

a range between 1.9 and 2.1?

8. How to determine the training needs? Besides the standard training provided to the custodians, the supervisors at SRU created a video on how the audits are performed. When custodians watch the video and know how the audits are performed they will know how and what exactly to clean.
9. What is a good way to reward people for outstanding performance? Reward does not always have to be monetary. There are many articles and books on rewarding people. Some simple rules are: reward for long-term performance not short-term, reward individuals not teams, and personalize the reward.


In conclusion we found the whole experience extremely helpful and a great learning exercise. Collecting data and identifying the trends in the data was very insightful for the custodial supervisors. We strongly believe that the Custodial Services at SRU and at any other school will benefit greatly from trying to apply the APPA Guidelines. The guidelines themselves may not provide direct answers to all operations questions, but they definitely initiate the cycle of performance measurement, quality control, and continuous improvement. 

#### NOTES

1. APPA Custodial Staffing Guidelines for Educational Facilities, second edition.

The authors are all staff members at Slippery Rock University in Pennsylvania. Albenia Iossifova is assistant professor in management ([albenia.iossifova@sru.edu](mailto:albenia.iossifova@sru.edu)); Dennis Hemphill and Diana Brest are custodial work supervisors ([dennis.hemphill@sru.edu](mailto:dennis.hemphill@sru.edu) and [diana.brest@sru.edu](mailto:diana.brest@sru.edu)); and Scott Albert is director of facilities ([scott.albert@sru.edu](mailto:scott.albert@sru.edu)). This is their first article for *Facilities Manager*. The authors would like to thank all students from the fall 2008 and spring 2009 operations management class who assisted in the data collection process.





# Environmental Liabilities and Sustainability for Educational Institutions

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"Green" is the new mantra for many institutions. School districts as well as colleges and universities across the country are constantly searching for new ways to reduce energy use, waste and the harmful greenhouse gas emissions emitted into the environment.

In fact long before "carbon footprint" became a common phrase, educational institutions nationwide have been concerned about the possible environmental impact and/or liabilities produced by their activities. This includes the growing emphasis on sustainability and the impact these practices can have on environmental insurance as well as the numerous environmental exposures that can be encountered during nearly any phase of construction and operation.

For example, a school district based in the Northeast encountered two separate instances of mold impacts during the construction of two new institutions. As a result, the front of a new building had to be demolished to remove mold that infested gypsum used during construction. The repair work was expected to add between \$5 million and \$10 million to the cost of the three-story elementary school that was initially budgeted at \$42 million. In the second instance, the discovery of contaminated soil on the construction site of another new school led to its partial demolition and additional re-construction costs, which were not included in the original planning. In both cases, the district was in the process of pursuing legal claims against the contractors to recover massive repair costs.

In another example, a small school located in Madison, Wisconsin was closed, partially demolished, cleaned and reconstructed to rid the mold found in many of its classrooms. A subsequent investigation found that the facility's damp interior walls were the result of builder negligence that allowed moisture problems to go unchecked along ceiling tiles and baseboards, among other areas of the building. The final settlement included a \$650,000 pay out by the builder to the school district.





by John J. Heft





Furthermore, several college students in a university dorm room were sickened from mercury contamination found in the basement. The dormitory had formerly served as the college's science building, which also stored mercury and other toxic chemicals used in laboratory experiments. When investigated, "balls of mercury" were actually discovered in and around a floor drain in the basement. The resulting remediation and third party bodily injury claims exceeded \$1 million.

As the above-mentioned claim scenarios show, educational facility owners should have significant environmental concerns regarding new construction activities as well as the operation of existing premises. That's because property contamination can result from numerous sources that include historical usage. The fact is that many educational facilities in the United States have operated on the same sites for more than 100 years and past practices, including the improper disposal of waste material, over this time may have caused adverse soil and groundwater conditions that can create present liability issues.

#### **RISKS AND RECORD KEEPING**

Another concern involves poor or inadequate record keeping related to historical activities or endowed properties. Therefore, many times problems are only identified as the property is developed. In addition, even if environmental assessments are performed, especially Phase I, they often only include cursory reviews of the property obtained through property "walk-throughs."

In other instances, numerous other issues can develop related to the illegal or "midnight" dumping of waste, inadequate containment or improper disposal of hazardous chemicals, existence of carcinogenic materials like lead or asbestos and poor underground or aboveground tank management programs. Claims of "Sick Building Syndrome" must also be taken seriously since its symptoms can result from the occurrence of fungal or mold growth in ventilation systems and the build up of bacteria (*legionella*) in air conditioning drip pans.

In addition, if the educational facility is associated with a hospital, medical school, laboratory and/or biology department, other commonly reported environmental risks can include:

- Incinerators that cause air emissions of pathogens if the burn rate or temperature is not properly controlled
- Laser smoke, which contains toxic gases such as benzene, hydrogen cyanide, formaldehyde, bio-aerosols, dead/live cellular material (i.e., bone fragments, viruses).
- Improper disposal or improper use of sterilization unit waste, disinfectants, antiseptics, reagents
- Biological and infectious waste (bandages, needle tips, specimen containers, blood bags).
- The release of radioactive materials and wastes
- The spill of contents (e.g., fuel, cleaning products, sealants, solvents, acids, lab waste, various gas cylinders, etc.) during their transport

#### **MANAGING THE RISKS**

Environmental liabilities need not provide obstacles to educational institutions if they are proactively identified, managed and mitigated. Several of these methods include the utilization of risk management techniques, contractually, or via environmental insurance. Over the past five years, environmental insurance has become very competitive within the soft insurance marketplace and readily available with new providers continually entering the market.

At the top of the (\$2.5B annual premium) environmental insurance spectrum are the five leading environmental liability insurers of AIG, XL Capital, Zurich, ACE USA, and Chubb, which account for approximately 90 percent of the total premiums written. However, the remaining 10 percent of the environmental liability insurance market is growing with a number of very solid insurers providing at least some form of environmental liability insurance. These include Great American, Liberty, Markel Underwriting Managers, American Safety, Freberg Environmental/Endurance and Everest. Other new entries are Navigators and Philadelphia Insurance Company.

#### **AVAILABLE COVERAGES**

Each environmental liability insurer offers its own manuscripted coverage forms. To complicate matters even more, each insurer offers a portfolio of environmental liability coverage, with the largest carrier offering up to 15 different coverages totaling over 100 forms in the marketplace. Among these are Contractors Pollution Liability (CPL), Premises Environmental Liability (PLL) and Professional Liability (PL).

#### **CPL AND PL**

Contractor's Pollution Legal Liability (CPL) is intended to provide pollution liability coverage for any type of contracting operations including general contractors and artisan contractors performing typical construction. All contractors face environmental liability in four major areas: job site operations, transportation of waste/materials, disposal activities and owned/leased properties. CPL can be structured to address each of these areas of environmental risk. The typical CPL policy provides coverage for third-party bodily injury, property damage, clean up costs and defense costs which arise from covered operations performed by or on behalf of the contractor or named insured. Furthermore, CPL provides coverage to the named insured for vicarious pollution liability from subcontractors.

Contractors Professional and Pollution Liability (CPL/PL) were also created to offer a cost-effective financing solution to those contracting firms that possess both professional liability and environmental liability exposures. Rather than purchasing two separate policies, they combine to provide both coverages without the need for two separate premiums and retentions. Whether it's from design/build projects, in-house and sub-contracted design services or professional liability associated with "at-risk" construction management, professional liability



coverage can provide necessary protection against a construction firm's professional environmental activities. This includes the four major areas of job site operations, transportation of waste/materials, disposal activities and owned/leased properties.

In addition, CPL/PL coverage protects against direct and vicarious professional and pollution liability arising out of services performed by or on behalf of the named insured. It also covers damages, acts, errors, omissions and pollution conditions that occur from professional services and/or contracting operations. Some CPL/PL products also offer a first-party "protective" coverage. This coverage is a key enhancement to those construction firms that offer design/build services and subcontract other services to design professionals. The "protective" provides first-party indemnity for damages the named insured incurs in excess of the underlying design professional's professional liability policy. Typically, a minimum of \$1 million insurance requirement is placed upon the prime design professional for the protective to be offered. The CPL/PL product can be written on a project specific or practice/blanket basis.

At a minimum, educational institutions should require a certificate of insurance from the GC evidencing CPL coverage with a minimum Limit of Liability of \$1 million. For larger projects, a dedicated Project CPL Policy with the educational institution named as an Additional Insured is the recommended approach.

#### **PREMISES ENVIRONMENTAL LIABILITY/POLLUTION LEGAL LIABILITY (PLL) COVERAGE**

PLL provides coverage for pollution conditions or events on, at, under or migrating from a covered location(s). Coverage is afforded for third-party bodily injury, property damage, clean up costs and legal defense expense. A unique feature of many PLL policies is their ability to offer various and different coverage parts under one policy form. Such coverage parts include, but are not limited to:

- New pollution conditions
- Existing pollution conditions
- On site clean-up coverage
- Transportation coverage
- Non Owned Disposal Site (NODS) coverage
- Business interruption including Loss of Rental Income
- Mold liability coverage and clean-up
- Fines and Penalties and Punitive Damages where allowable by law
- Natural Resource Damages

PLL is an effective risk management tool for commercial real estate for a number of reasons. The coverage helps fill the "environmental gap" left in most general liability policies for property owners and facility operators. It, therefore, helps reduce the uncertainty about environmental liability associated with the property and provides simple asset protection from potentially catastrophic environmental events associated with day-to-day operations. In today's environmental insurance market, available

programs can be tailored to address the diverse needs of each property and then structured to meet a variety of requirements and objectives, including, but not limited to, regulatory obligations, contract requirements, lender requirements, landlord obligations, and business objectives. Another important aspect of coverage offered under PLL is that it can be structured to provide coverage if a known environmental condition exists on site.


#### **SUSTAINABILITY AND ENVIRONMENTAL INSURANCE**

Although the Commercial Insurance Marketplace is generally responding to Green Building trends, the environmental insurance marketplace is standing on the sidelines. In addition, in light of the fact that the American Institute of Architects recently supported the U.S. Green Building Council's LEED (Leadership in Energy and Environmental Design) Certification, insurers are presently trying to determine if the certification can be an effective risk differentiator for architects and engineers involved in green projects.

At the same time, professional liability insurers already have received claims brought against architects and engineers involved in green building for a range of issues. This includes failure for a building to achieve desired LEED certification, leaks associated with vegetative roofing as well as indoor air pollution.

Casualty underwriters reportedly have the most significant concerns about green building exposures with most viewing such projects as potentially riskier than traditional construction. These concerns range from the lack of appropriate qualifications and experience of contractors and subcontractors, which could result in faulty workmanship and construction defect claims, to the use of new and untested products, materials, and processes that could lead to an increase in products liability, structural and water damage, and completed operations claims.

Uncertainty also exists about new HVAC handling systems and their performance and air quality issues, as well as the possibility that inadequate maintenance could increase liability risk for construction contractors. As a result, the commercial and environmental insurance markets are continuing to gather more loss data on green project liability issues. Currently, the primary areas of concern relate to contractor and subcontractor qualifications and experience, in addition to the quality control programs instituted during the construction and maintenance phases.

Subsequently, with concerns continually on the rise about risk liabilities in environmental and sustainable construction, educational institutions nationwide are also beginning to take even greater advantage of the many benefits provided by the proper insurance coverage. Fortunately, it is a market that has continued to adapt and broaden in accordance with the specific needs of facility managers representing nearly every American industry. 

John Heft is vice president of New Day Underwriting Managers, LLC, Bordontown, NJ. This is his first article for *Facilities Manager*, and he can be reached through [www.newdayunderwriting.com](http://www.newdayunderwriting.com).





# New Dimensions in Maintenance Zone Design

By Matt Adams, P.E.

The "zone" as a service delivery design concept is alive and well. Within the industry, at least half of our peers have experimented with the application or adopted it completely. The benefits are numerous, not the least of which is the pairing of specific resources within close proximity of specific service portfolios. Typically, the overall campus or institution is systematically cordoned into relatively equal sized tracks and then adjusted, balanced, and rationalized into maintenance service zones. I've discussed the standardized method of designing zones in previous issues. When the zones are designed to be of similar size in terms of workload, the implementation becomes somewhat easier (repetitive) and the measurement is also easier, at least from a comparative benchmark perspective. However, most of the benefits of implementing zones can be achieved without homogenous design. In fact, a potentially powerful application is available using varied and unique zone designs within the overall campus portfolio.

Any zone design effort is based on the business rules or design constraints imposed by the design team. New and progressive design rules offer a wider spectrum of benefits for zone implementation. Forgoing some of the logistical benefits due to layout features of the campus, a transition zone can still be introduced. A transition zone or extended commissioning zone is one where management desires to completely change the stewardship philosophy of the new facilities coming online. As opposed to

coasting during the first five years of ownership with little or no maintenance, testing, or active warrantee management, this strategy aggressively manages these new assets. The term, "extended commissioning" is perfectly suited to this philosophy. In fact, a zone where new

**WHEN THE ZONES ARE DESIGNED TO BE OF SIMILAR SIZE IN TERMS OF WORKLOAD, THE IMPLEMENTATION BECOMES SOMEWHAT EASIER (REPETITIVE) AND THE MEASUREMENT IS ALSO EASIER, AT LEAST FROM A COMPARATIVE BENCHMARK PERSPECTIVE.**

facilities are placed for the first five years could certainly be called the extended commissioning zone, or ECZ. Despite the lack of a normal zone perimeter with easy to recognize boundaries and small commutes, other equally or more powerful service goals are incorporated. Over time, the option to transition facilities from the ECZ to more conventional zones remains.

## PRIMARY DRIVERS

Zones do not necessarily have a physical shop within one of the component facilities. Once again, if there are compelling reasons to create a zone, the benefits can be realized without the logistical feature. Furthermore, a zone might not even have customer service as its primary focus! Before we sound like we have forgone the mantra of our business, let's make it clear that one or more other

zones or service centers must prioritize customer service. Given this, there are other beneficial zone designs that provide very real returns. For example, the Enterprise Zone is one that many peers have been experimenting with lately. This zone represents another dimension of measurement and design. In this case, the system and its boundaries and controllability represent a zone. Based in the central power plant, chiller/boiler plant, or BMS hub, this zone is designed to maximize the stewardship and efficiency of the campus heating, cooling, and even electrical supply systems. Contrasting

with more traditional organizational designs, this zone is expanded to reach from the purchased utility supply all the way into the buildings to the diffuser or light fixture. This asset stewardship prioritized zone is complimented by a more traditional customer service zone to insure both needs are met. This zone is measured more like a rural utility electrical cooperative. System performance and energy management are given top priority and the zone is designed specifically to achieve this. The logistical travel time parameters have little to do with this design. Organization and system control are the primary drivers.

So far, we have covered new zone designs that are based on either 1) asset types or as in the example given new facilities and 2) system control and boundaries. Each is a distinct departure from the traditional approach of putting



a composite mix of trades up close and personal with the customers. In other words, we have two new (for a total of three) zone design strategies: the original customer service; a stewardship design; and finally a system control design. Utilizing all three zone designs within a campus might seem potentially confusing. Who does what when, and who is in charge? These are all good questions and the trade staff will be correct to ask them. Peer best practice has shown that mixed zone designs require a high degree of policy and procedure coupled with a slow, transparent, and thoughtful implementation schedule.


#### IMPLEMENTATION

Next the enterprise zone is designed and implemented. In this case, much of the maintenance specifications will likely exist, at least partially. The expanded

### MANY CAMPUSES ARE DIFFICULT TO SPLIT INTO EQUAL MAINTENANCE ZONES.

control of this zone requires a cultural change within the plant department and between the traditional HVAC, Controls, and Central Plant service units. From the staff perspective, the most work is in the area of policy and procedure. This department must establish clear protocols with the work control desk as well as the traditional customer service zones. There is heavy emphasis on technology. Most importantly, this zone is measured more aggressively than the others in that it must generate extended life cycles and reduced net energy usage per square foot on campus.

Finally, the customer service zones are designed by incorporating traditional business rules as much as possible. The composition of these zones is likely lighter due to the addition of the new zone designs that incorporate some behind-the-scenes service load.

Many campuses are difficult to split into equal maintenance zones. The geography of the campus can create difficulties. In addition, master plans sometimes create diverse mixes of facilities in close proximity, rendering the isolation of similar facility types into a zone very difficult. However, logistical considerations are only one of at least three valuable zone design philosophies that are available under current best practices. 

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# What is the Campus Fire Safety Right-to-Know Act and How Will it Affect Colleges and Universities?

By Terri Konchesky, MS and Nancy Key, MS, GSP

On August 14, 2008, former President George Bush signed the Higher Education Reauthorization Act into law, which included the Campus Fire Safety Right-to-Know Act (RTK). The Department of Education held a series of meetings involving experts from across the nation to develop the proposed regulations, which were published in the *Federal Register* last summer and expected to be finalized in November 2009. Shortly after finalization, the regulations should go into effect in June 2010.

The RTK was introduced by Representative Bill Pascrell (NJ) and Senator Frank Lautenberg (NJ) following the

In the RTK, schools will make an annual report to the Department of Education on fire safety that will include:

- Number of fires and the cause of each fire
- Number of injuries related to a fire that result in treatment at a medical facility
- Number of deaths related to a fire
- Value of property damage resulting from a fire
- Description of all on-campus student housing fire safety systems
- Number of regular mandatory supervised fire drills
- Policies on smoking, open flames, and portable electrical appliances

However, it is important to note that if a Greek house resides on property owned or controlled by the university, then the fire information for these buildings will have to be reported. According to University of Illinois at Urbana/Champaign Police Chief Barbara O'Connor, who is also a trainer for the Clery Act reporting system, if a school currently reports crime statistics for occupancy then it will also have to report fire statistics for that same occupancy.

## WHAT CONSTITUTES "A FIRE"?

The definition of fire needs to be as clear as possible and this is something that the team, brought together by the Department of Education, worked long and hard on developing. One of the concerns was student cooking because more residence halls are outfitted with kitchens and microwaves, which lead to unwanted or nuisance fire alarm activations when smoke arises from cooktops or overdone popcorn. It was felt that only incidents that caused significant damage or resulted in open flames should be reportable.

The fire definition was arrived at after reviewing those used by the National Fire Protection Association and the National Fire Incident Reporting System (NFIRS): "Any instance of destructive burning or uncontrolled open flame that results in combustion of solid, gas, or liquid."

The goal is to capture incidents such as open flaming wastebasket fires or a

ONE OF THE CONCERNS WAS STUDENT COOKING BECAUSE MORE RESIDENCE HALLS ARE OUTFITTED WITH KITCHENS AND MICROWAVES, WHICH LEAD TO UNWANTED OR NUISANCE FIRE ALARM ACTIVATIONS WHEN SMOKE ARISES FROM COOKTOPS OR OVERDONE POPCORN.

January 2000 Seton Hall University dormitory fire that killed three students and injured 67 others. The objectives of this legislation are to provide parents and students with information about a school's fire safety and establish incentives for schools to establish a higher level of fire safety for their students.

RTK is similar to the Clery Act, which requires schools to report crime statistics to the U.S. Department of Education.

- Procedures for evacuation
  - Training and safety education for students, faculty, and staff
  - Plans for improvement, as needed
- This legislation is intended to cover on-campus residence halls only. Administrative, academic, and other buildings on campuses are not included in the reporting. Also not covered are fraternity/sorority houses and other off-campus housing not under the jurisdiction of the schools.



burning piece of paper on a bulletin board. Such fires may show a pattern of behavior indicative of arson. Without reporting and tracking, it would be difficult to note a pattern and intervene before a significant fire occurred.

#### REPORTING


Reporting is tentatively set to begin in Fall 2010. Schools will need to develop an internal reporting system for fires, no matter how small, so they can begin tracking incidents. The Department of Education was emphatic in that they are not going to create a new reporting system for schools and that an additional module for fire safety reporting will be added to the existing crime statistic reporting system. Since the crime statistic reporting system is well known by schools, the goal is to mirror this to make it as easy as possible for the schools to report.

As for reporting damage, it has been recommended that a range of values be used to eliminate the need for determining an exact cost. Also, the value of damage should be from the fire and fire suppression itself and not the subsequent clean up costs.

#### BENEFITS TO SCHOOLS

There are a number of specific benefits to tracking fires, large and small. Arson fires often start with a series of small fires and progress to larger or more deadly ones. Identifying small incidents can help to recognize patterns and problems. Authorities can then create solutions and take early intervention steps that will prevent larger incidents from occurring.

Currently, the only public reporting of fire safety data is done voluntarily through the *Princeton Review*, which is inconsistent in its evaluation and is not a transparent reporting system. The RTK levels the playing field by making data on all schools publically available in a uniform manner. This information will help prospective parents and students when selecting a school.

Schools will be able to benchmark their efforts against those of their peers and schools with exemplary programs can showcase their efforts. Strong fire prevention programs also increase property values and reduce insurance premiums. 

Terri Konchesky is program administrator

at West Virginia University Environmental Health and Safety, Morgantown, WV, and can be reached at [terri.konchesky@mail.wvu.edu](mailto:terri.konchesky@mail.wvu.edu). Nancy Key is health and safety specialist at West Virginia University Environmental Health and Safety and can be reached at [nancy.key@mail.wvu.edu](mailto:nancy.key@mail.wvu.edu). This is their first article for *Facilities Manager*.



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

Through a combination of need and good luck, this issue looks at two books that present ways to overcome adversity from different perspectives. The past year has certainly presented us with adversity, and it's not clear as I prepare for my deadline whether the economy is on the mend, and whether higher education will survive intact or not. Regardless, these books should provide some insight and guidance to address what most facility managers need to know at some point in their career.

—TW

**PEAKS AND VALLEYS: MAKING GOOD AND BAD TIMES WORK FOR YOU – AT WORK AND IN LIFE**

By Spencer Johnson, Atria Books, New York, 2009. 101 pages, hardcover, \$19.95

Almost ten years ago I was told to read *Who Moved My Cheese?* by Dr.

Johnson. It was a beneficial book, and at least one APPA President referred to it directly several times. So when *Peaks*

**PEAKS AND VALLEYS IS ABOUT THE GOOD TIMES AND THE BAD, GETTING FROM ONE PEAK TO ANOTHER WITHOUT GETTING STUCK IN A VALLEY (A FUNK).**

and *Valleys* became available I purchased and read it with high expectations. My expectations were met.

*Peaks and Valleys* is about the good times and the bad, getting from one peak to another without getting stuck in a valley (a funk). How does one get through a funk? There's no simple answer, and this book is not the Holy Grail. But it does provide a clear set of recommendations that will help most people. The principles described aren't new, just as the principles in *Who Moved My Cheese?* weren't new, but the story presenting the principles was compelling, just as it is here, and thus the message comes across quickly.

This book is not a long read. You can complete it in one sitting or put it down for a couple days, as I did, and pick it up easily. In parts of the book, each page seemed to contain stand-alone ideas that facilitated the quick pick-up after a break. I found the book helpful because it made me focus on opportunities.

If we ever needed a quick read on getting through the tough times, we need it now with *Peaks and Valleys*.

**A SENSE OF URGENCY**

By John P. Kotter, Harvard Business Press, Boston, MA, 2008. 128 pages, hardcover, \$22

While motivated people may have the drive and determination to tackle the peaks and overcome the valleys, it takes a leader to create *A Sense of Urgency* in an organization. But while a leader often knows what needs to be done and can select good people, it is possible that external influences may evolve and create the need for change. Convincing those same good people to change can be difficult if not impossible.

Without change, the organization may fail or wither away and the fault will be

# Peaks and Valleys

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## URGENCY IS NOT A ONE-TIME EVENT, IT CAN BE A CONTINUOUS OR LONG-TERM NEED.

placed on the leader who was unable to redirect the organization—not the people who resisted the change.

Kotter has said in other books (*Leading Change*, 1996) that those organizations that continue to succeed and thrive are the ones that identify the need to change, gather the appropriate forces to make the change, and then enact the change. As has been discussed in many management/leadership books, that change from the grassroots is the best way to create effective change; change from above usually doesn't stick.

Kotter's focus is about situations where change is needed, but the leaders lieutenants don't see the need to change or aren't comfortable making a change (their cheese got moved.) Or, in Kotter's terminology, their "iceberg" is melting.


### SO WHAT'S A LEADER TO DO?

There are several scenarios reviewed. The lower level (often newer employees) might see the need to change, but are prevented from helping because their supervisor doesn't want to change. There's a need to shelter this good employee to avoid the potential for failure. Another scenario is of the lieutenants who are positioned to kill the change efforts from inside (one of the "Nonos"). The negative influences opposing change are overcome by creating *A Sense of Urgency*.

Urgency is not a one-time event, it can be a continuous or long-term need. The scenarios to make urgency continuous, or easier to start and maintain, are discussed and presented with several examples. The

executive attempting to lead changes must not become complacent by thinking that urgency will be self-sustaining; it is very difficult to maintain urgency. Kotter describes how to maintain urgency and how to avoid losing it.

Due to recent experiences, I used *Urgency* almost while still reading the book. It works, but it's also important that I keep inspiring urgency among my staff. So instead of providing a relatively weak recommendation based on whether I agree with the author or

not, I can say that I have personally applied many of the techniques outlined in *Urgency* and, so far, recommend it as a success-leading tool. 

Ted Weidner is assistant vice chancellor of facilities management & planning at the University of Nebraska-Lincoln and president of Facility Asset Consulting. E-mail him at [tweidner2@unlnotes.unl.edu](mailto:tweidner2@unlnotes.unl.edu).

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# Professional Development

## WRAP-UP

### TOUGH TIMES DON'T KEEP FACILITIES PROFESSIONALS AWAY

By Suzanne Healy

September 2009 marked another successful APPA professional development offering with the Institute in Hilton Head, South Carolina. While our historical attendance numbers were reduced due to the financial issues facing many of our institutional members, an excellent showing was made by those who were able to join us. Participants enjoyed a rich week of outstanding content, expert speakers and many networking opportunities.

Our Institute continues to be the cornerstone offering for APPA as we deliver content in the core areas of general administration, maintenance & operations, energy & utilities, and planning, design and construction. The dedication of the Deans — Mary Vosevich, General Administration, Jay Klingel, Maintenance & Operations; Lynne Finn, Energy & Utilities; and Don

Guckert, Planning, Design & Construction — once again delivered a variety of course offerings that provided a broad range of topical material for the facilities professional.

During the week-long program we welcomed a new “class” of first-time attendees. This new grouping of individuals reaffirms that even in tough economic times, our members see the intangible value in the Institute program (and professional development in general) for themselves and their staffs.

As the week drew to a close we celebrated with a graduation ceremony for the Class of September 2009. The evening was filled with sharing the achievement with old friends and new colleagues.

Please visit [www.appa.org](http://www.appa.org) for more information and registration dates. We hope to see you soon! ☺

Suzanne Healy, is APPA's director of professional development; e-mail her at [suzanne@appa.org](mailto:suzanne@appa.org)

James Battle, Catholic University of America  
Carl Beasley, Georgia Technical Institute  
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Compiled by Gerry Van Treeck

**Lutron Electronics Co., Inc.** announced the launch of the Diva® 0-10V Wall-box Control. The new unit adds the classic Lutron Diva aesthetic to its line of 0-10V controls capable of dimming 0-10V fluorescent ballasts and LED drivers. The Diva 0-10V has been designed to seamlessly integrate with paddle switches and fits a standard wallplate opening. Features include a large paddle switch with a captive, easy-to-adjust linear slide dimmer, user adjustable high-end and low-end trim control, and power failure memory. The Diva 0-10V utilizes standard single-pole wiring and can be installed in 1-6 gang configurations without derating. Installation requires a Lutron Power Pack, such as models PP-20, 120H, 227H or PP-347H. For more information visit Lutron Electronics Co., Inc. at [www.lutron.com](http://www.lutron.com).



**RIDGID®** introduces Endura-Clear™ thread cutting oil, the newest addition in the thread cutting oil product line. Designed for hand threading and high speed machine threading, the RIDGID thread cutting oils allow users to produce effective threads in a variety of materials. The improved RIDGID threading fluids are mineral oil-based and do not contain any chlorine, halogens, PCBs, or heavy metals. The formulations effectively reduce friction and extend the life of dies. The formula has been tested to assure chemical compatibility with FlowGuard Gold®, BlazeMaster®, and Corzan® CPVC pipe and fittings and has been added to the FGG/BM/CZ™ System Compatible Program. Endura-Clear thread oil contains an anti-mist formulation to inhibit inhalation and decrease mess. It maintains a workable viscosity for cold weather threading to negative 20 degrees Fahrenheit. For greater detail visit RIDGID® at [www.RIDGID.com](http://www.RIDGID.com).



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**Zoneworks™** announces the SCH Series of heavy-duty fabric wall systems to address the most demanding conditions when used as a cost-effective and flexible way to create or reconfigure industrial or commercial space. Zoneworks SCH stationary and sliding curtain walls can be as interior or exterior.





rior walls in virtually any facility, saving time and money when compared with permanent walls or rigid panelized systems. The modular walls are engineered with heavy-duty industrial fabric for facilities that encounter the toughest environmental conditions. The curtains, constructed with 18-ounce fabric, are fire retardant and meet NFPA-701 standards. For additional details about Zoneworks visit [www.zoneworks.com](http://www.zoneworks.com).




**West Chester Holdings** new Lunar Foam Nitrile palm dip gloves are ideal for all types of commercial and industrial applications. Foam nitrile gloves are well suited for wet, oily, and dry applications such as recycling, manufacturing, materials handling, maintenance applications, small parts assembly and more. A white or salt and pepper nylon shell is dipped over the palm and fingertips with full saddle coverage. This gives them extra grip



on wet or oily materials, and better surface adhesion on dry applications. For more information, please visit West Chester Holdings at [www.west-chester.net](http://www.west-chester.net).

**Worrell Water Technologies** is offering its new HydroSecure II™ water purification system. The only system designed to cleanse your water supply of virtually all known contamination, HydroSecure II™ is unmatched by any water purification product on the market. Countless studies show the prevalence of water contamination in the U.S., even where water-quality regulations are the most stringent. HydroSecure II™ is a "Point-of-Entry" water purification system that combines the best of proven, commercial water filtration and purification components with unique proprietary technology. For more information about Worrell Water Technologies visit <http://hydrosecure.com>.



  
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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](mailto:gvtgvt@earthlink.net).

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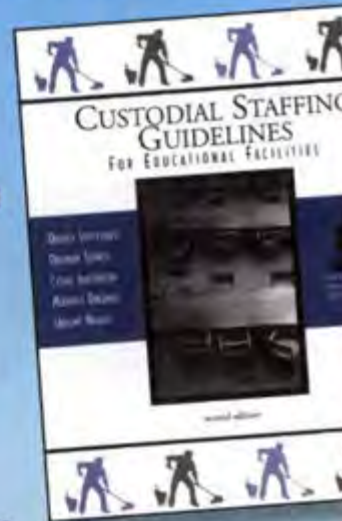
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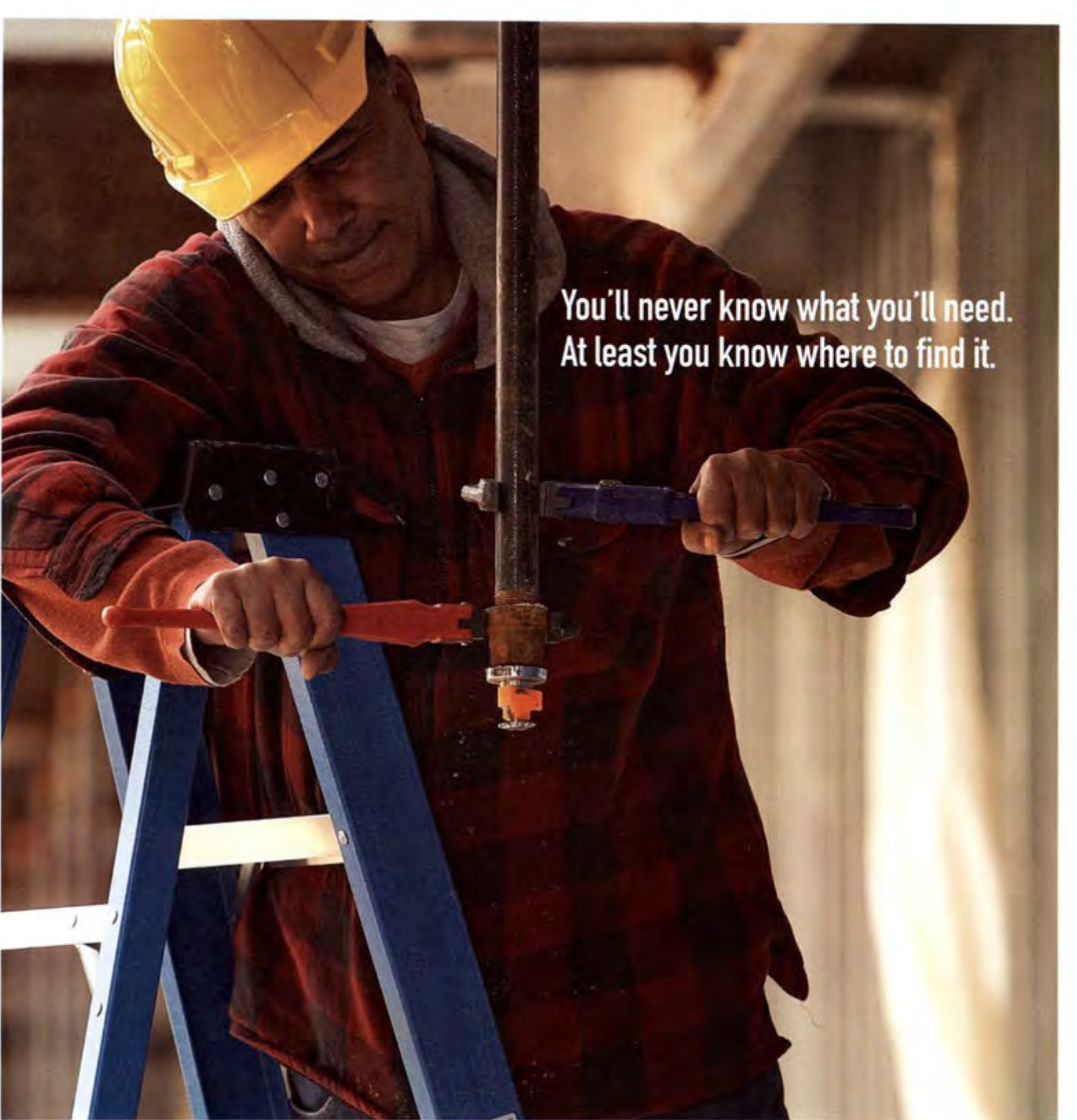
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