JAN/FEB 2013

EVALUATION AND ASSESSMENT

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Organizational Review Using FMEP

PUBLISHED BY APPA

Facility Condition Assessments

Evaluating the Outdoor Physical Environment

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introducing WebTMA GO

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JANUARY/FEBRUARY 2013 VOLUME 29 • Number 1



EVALUATION AND ASSESSMENT

Professional Development through Organizational Assessment: Using APPA's Facilities Management Evaluation Program

By E. Lander Medlin and R. Holly Judd

APPA's Facilities Management Evaluation Program (FMEP) provides an integrated system to optimize organizational performance. The criteria for evaluation not only provide a tool for organizational continuous improvement, they also serve as a compelling leadership development tool essential for today's facilities management professional.

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Facility Condition Assessments From A to Z

By Frank Kaleba, P.E., AICP

This article provides an overview of the options for performing facility condition assessments, and covers a review of the basic reasons to assess, the methods, and a comparison of the output of each method.

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The Tale of Three Campuses: A Case Study in Outdoor Campus Assessment

By Erica L. Eckert, Ph.D.

This article presents selected results from a survey instrument designed for the assessment of the outdoor physical campus environment and conducted under the auspices of APPA's Center for Facilities Research.



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Roger Connors, Tom Smith

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APPAINFO DISCUSSION LIST CONTINUES TO ANSWER QUESTIONS, MAKE CONNECTIONS

For nearly 15 years, the APPAinfo

discussion list has been a continuous resource for information sharing, learning about new products and processes, and connecting with other educational facilities professionals. The following is just one recent discussion seen on APPAinfo; the comments have been edited for space considerations.

Q: We are in the design process for a new building, and are having a discussion as to the value of running the elevator to the mechanical space on the roof. Two questions: Do you run your elevators to mechanical spaces on the roof, and why did you choose to do that or to not run it to the space?

John D. Ott, CEFP The Ohio State University/OARDC

A: Our first building did not have the elevator to the 4th floor mechanical mezzanine and believe me it is a royal pain. Every motor, coil, drive, valve, filter, or whatever has to be dragged up that last flight of stairs. The rest of the buildings have the elevator to the mechanical mezzanine and it really makes a difference. It is much quicker, safer, and efficient to do repairs and maintenance to the equipment, and it also gives the custodians a place to park their larger equipment, such as autoscrubbers, that won't fit in janitor closets. Unless it means a big ticket change from hydraulic to traction on the elevators, I wouldn't even consider giving up that elevator.

> Paul Mace Wor-Wic Community College (MD)

A: Most architects don't like the dog houses on the roof. They are esthetically unpleasant to look at. Good news is that there are a few alternatives.

The elevator equipment room doesn't

need to be located on the roof. It can be located at the lower level adjacent to the elevator shaft. These are usually referred to as under slung units.

Hydraulic elevators can be installed with the hydraulic pump and equipment located in the lower level adjacent to the elevator shaft as well.

One consideration to think about is if there will be heavy items needed to be moved or eventually replaced on the roof like a 50-horse power motor or pump or air conditioning unit. I like to specify one service elevator to service the roof level and basement if such items may be required to be serviced or replaced. This makes it easier on the maintenance folks hauling items up for service or repairs.

> Jim Anicich Arizona State University

Other recent list discussions have included project management costs and procedures, restroom hand dryers, custodial supply costs, and residence hall/environmental health and safety checklists. Our thanks as always to the 1,050-plus subscribers and active participants in the list. If you would like to join the APPAinfo discussion list, please subscribe at www.appa.org/discussionlists/ index.cfm. (5)

Mar Glazne

Coming in Mar/Apr 2013

- Sustainability Theme
- Focus on Campus Water Resources



President Mary S. Vosevich, University of New Mexico

> **Executive Vice President** E. Lander Medlin, *lander@appa.org*

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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 credentialing. Formerly the Association of Physical Plant Administrators, APPA is the association of choice for 5,200 educational facilities professionals at more than 1,500 learning institutions throughout the United States, Canada, and aboad. For more information, visit us at www.appa.org.

Industry News & Events

By Anita Dosik

APA 2013 AWARDS FOR NOMINATIONS NOW OPEN Deadline for Nominations is January 31, 2013

Nominations are now being accepted for the following APPA 2013 institutional and individual awards:

- Award for Excellence
- Sustainability Award
- Effective and Innovative Practices Award (For questions contact your regional representative for Professional Affairs at http://www.appa.org/committees/
- professionalAffairs.cfm.)Meritorious Service Award
- Mentorious Service Awa
- Pacesetter Award
- APPA Fellow

(For questions contact your regional representative for Awards and Recognition at http://www.appa.org/committees/ awardsRecognition.cfm.)

The deadline for consideration for the 2013 awards is January 31, 2013. Visit *www. appa.org/recognition/* for award details and online nominations forms.

If you have questions about the award process, contact Christina Hills at *christina@* appa.org.



Aver the Date: Nagust 2-4, 2013 Hyatt Regency Minneapolis, MN

facilities

SEE YOU IN MINNEAPOLIS IN 2013!

Mark your calendars now to join us this August 2-4 at the "City of Lakes"— Minneapolis, Minnesota. APPA 2013 will be a major go-to event, offering career enrichment and advancement, a chance to discuss current topics with other thought leaders in educational facilities community, and much more.

Registration will open in December. In addition, the SFO Summit will take place on August 1.

ADVERTISE YOUR POSITION OPENINGS IN JOB EXPRESS

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



The Job Express audience consists of

professional facilities managers in top executive level positions, individuals who are retiring from the military with extensive facilities and engineering experience, graduates of APPA's Institute for Facilities Management, and members who have earned the EFP certificate.

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

EVENTS

Jan 13-17, 2013 APPA U: Institute for Facilities

Jan 13-17, 2013 APPA U: Leadership Academy,

Jan 18, 2013 Credentialing Prep Course (CEFP +

Apr 15-16, 2013 Smart and Sustainable Campuses

Aug 2-4, 2013 APPA 2013: Annual Conference &

For more information or to submit your organization's

Aug 1, 2013 SFO Summit, Minneapolis, MN

APPA EVENTS

Tampa, FL

EFP), Tampa, FL

Management, Tampa, FL

Conference, Bethesda, MD

Exhibition, Minneapolis, MN

event, visit www.appa.org/calendar.

APPA CERTIFICATION BOARD UPDATE



Tom Becker, left in photo, congratulates Jack Colby for his many years of service as the first chair of APPA's Certification Board. Colby helped develop and guide the EFP and CEFP credentials since early 2006. Becker took over as the second chair of the Certification Board at its December 7-8, 2012 meeting at the APPA office.

The Certification Board was joined by Ted Weidner (below left) and John Morris.

Established in 2007, the board is solely dedicated

to APPA's credentialing efforts: the Educational Facilities Professional credential (EFP) and the Certified Educational Facilities Professional (CEFP) program. Both programs seek to establish a standard for professional practice in the field of educational facilities management.

For information about credentialing, please contact Christina Hills at *christina@appa.org*.



PGMS AWARDS UNIVERSITY AND COLLEGE GROUNDS WITH TOP HONORS

The Professional Grounds Management Society (PGMS) has recognized several sites in the University and College Grounds category of the Society's 2012 Green Star Awards program.

St. Mary's College of Maryland was presented with a Grand Award. Honor Awards were given to **Drake University** in Iowa, **Baylor University** in Texas, and **Lewis University** in Illinois. Earning Merit Awards in this category were the **University of South Carolina**, **Wabash College** in Indiana, and **Queens University** of North Carolina.

These sites were honored during the PGMS's School of Grounds Management & GIE+EXPO in Louisville, Kentucky, Oct. 24-27.

The Green Star Awards program brings national recognition to grounds maintained with a high degree of excellence, complementing other national landscape award programs that recognize outstanding landscape design and construction. To view a complete list of winners, visit *http://pgms.org/2012-greenstar-award-winners/.* professional grounds management society





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Contact APPA's staff for any questions regarding membership, programs, or publications via phone or e-mail.

facilities



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John F. Bernhards, john@appa.org Associate Vice President, 703-542-3848 Provides management oversight for APPA programs, administrative support, and assists the Executive Vice President in general association management. Staff liaison to the ERAPPA region, the Membership

Committee, and the Standards and Codes Council.



Karen Aguilar, karen@appa.org IT/Web Services and Facilities Specialist, 703-542-3847 Provides IT, telecommunications, and help desk support to APPA staff. Assists with Web and print design. Provides support to Associate Vice President with building facilities and vendor relations.



Chong-Hie Choi, choi@appa.org Chief Financial Officer, 703-542-3823 Manages financial and administrative functions of the APPA office; staff liaison to the PCAPPA region and the Board of Directors.



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Anita Dosik, anita@appa.org Publications Manager, 703-542-3837 Managing editor of Facilities Manager, production manager of the BOK (Body of Knowledge), and manager of the APPA Bookstore. Responsible for coordinating, design, and production of publications,

including books and reports.



Steve Glazner, steve@appa.org

Director of Knowledge Management, 703-542-3836 Directs book, periodical, and research development, including the BOK (Body of Knowledge). Editor of Facilities Manager and Inside APPA. Staff liaison to the SRAPPA region, Information and Research Committee,

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Suzanne Healy, suzanne@appa.org

Director of Professional Development, 703-542-3833 Directs APPA's professional development programming initiatives through the Supervisor's Toolkit, Institute for Facilities Management, Leadership Academy, and Annual Conference. Coordinates corporate

development opportunities through the APPA's tradeshow and sponsorship initiatives. Staff liaison to the MAPPA region and the Professional Development Committee.



Christina Hills, christina@appa.org

Director of Credentialing and Benchmarking, 703-542-3844 Manages APPA's credentialing and certification effort, including the Educational Facilities Professional (EFP) and Certified Educational Facilities Professional (CEFP). Directs the annual Facilities Performance Indicators (FPI)

survey and report. Staff liaison to the CAPPA region, Credentialing Board, the Professional Affairs Committee, and the Awards and Recognition Committee.



R. Holly Judd, holly@appa.org

Executive Assistant and FMEP Coordinator, 703-542-3834 Supports general administrative functions. Coordinates the Facilities Management Evaluation Program (FMEP). Works with the APPA Board of Directors and Executive Committee.



Corey Newman, corey@appa.org

Professional Development Manager, 703-542-3828 Manages logistics for APPA conferences/events and serves as liaison with business partners seeking to exhibit at APPA's annual conference. Supports

professional development marketing activities, as well as membership and product sales initiatives.



Santianna Stewart, santianna@appa.org

Membership and Outreach Manager, 703-542-3846 Manages membership recruitment and retention, new member inquires, invoicing, and other customer service questions. Maintains accuracy of APPA's member records database; provides outreach support for regional and

chapter events and projects.



By Peter J. Strazdas

o you consider yourself a professional? Are you looked at by faculty, staff, and students as a professional? Or, is your career path in the educational facilities management discipline considered to be among those stereotyped in the 1997 Academy Award winning movie, Good Will Hunting? In that movie, there was a scene where a professor at a top Ivy League university walks into a boiler room, which is meant to depict the Buildings and Grounds Department office. There was a rude exchange between the professor and facility supervisor, involving a custodian who was on parole. If you didn't see the movie, here is a link to a short video clip: http://www.youtube.com/ watch?v=xUuDF58FLKA.

I don't know about you, but I was bothered about this old stereotypical view of our profession.

THE PATH TO RECOGNITION

We know that facilities management may not have a typical educational career path like engineering or medicine (which have specific curriculums and degrees.) And, how many of us received a bachelor's degree in FM and then entered facilities management? Unfortunately, even though facility managers have elevated themselves and their organizations well above the stereotypical scene in *Good Will Hunting*, we still lack the distinction of having a highly recognized FM degree. But, thanks to the visionary



leadership and the bold move by APPA a few years ago, we now have an internationally recognized professional credential and certification program. Yes, with a lot of hard work and study, you can earn the distinction of being a Certified Educational Facilities Professional (CEFP).

The APPA Credential & Certification program is dedicated to strengthening and sustaining the profession by increasing professional competency, and supporting the educational mission through



establishing and validating standards for professional practice. The well thought out program is a two-tier credentialing and certification program. The Educational Facilities Professional (EFP) is a knowledge-based certificate program, while the Certified Educational Facilities Professional (CEFP) is a full professional certification program. It has oversight by an independent board of directors and meets the test of being a highly recognized certification program. It recognizes competency levels, assures our educational institutions of the quality level of our staff, drives continuous professional development, and establishes a standard for professional performance in our discipline.

OPPORTUNITY KNOCKS

Our profession now has an opportunity that was not available in the past. It is incumbent on every educational institution and every chief facilities officer to seize the moment and channel their staff through this certificate and certification program. As leaders, they must invest in staff development and value employee competency. And as we see the seasoned staff retire in large numbers, we can offer our young professionals greater value in their chosen career of FM. I would urge chief facilities officers to change their FM job descriptions and include EFP/CEFP credentials as preferred (or even required) criteria for employment. We have an obligation for succession planning in our respective organizations, and we owe it to our profession to make sure the next generation is better prepared. The wisdom of a lot of people and APPA has opened the door and set the path we must take.

A CHALLENGE FOR THE APPA REGIONS AND CHAPTERS

We know that some regions offer the prep course and EFP/CEFP testing locally for their members. Some may offer a scholarship for the prep course or test.

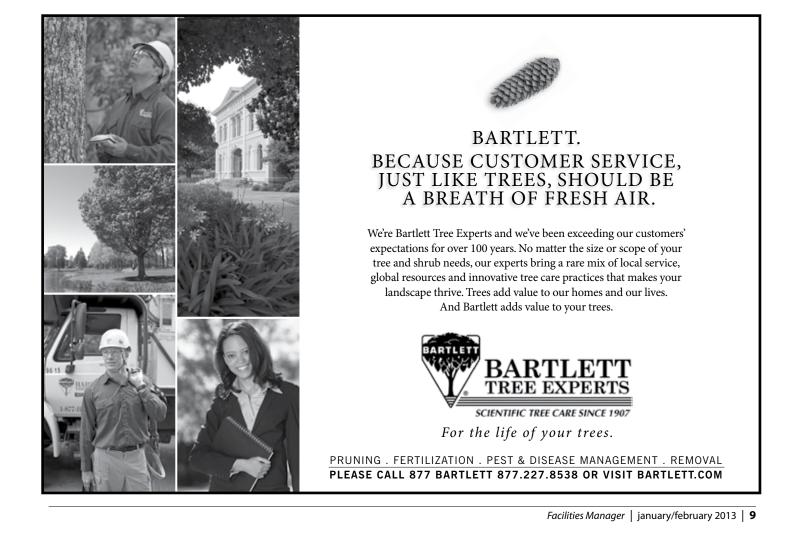


However, the Michigan APPA Chapter Board of Directors made a bold move this year. They saw the importance of moving the APPA credentialing along for their members, and offered up to 25 full scholarships to take the prep course and test. The MiAPPA Board has even committed to supporting this initiative every year. Additionally, some Michigan universities are committed to having all of their professional staff earn EFP/ CEFP credentials. On November 12, 26 people took the prep course. In 2013, MAPPA and MiAPPA will have a joint conference, and we intend to have 50 people take the prep course and test. We would like to challenge other APPA regions and chapters to match the number of people obtaining professional certification.

The APPA staff and leadership are providing an incredible opportunity to raise the bar for

individuals and our profession, where we can be viewed as a highly recognized professional in a profession equal to the best in society. (5)

Pete Strazdas is associate vice president facilities management at Western Michigan University in Kalamazoo, Michigan, and serves as APPA's Secretary-Treasurer. You can reach him at *peter.strazdas@ wmich.edu*.



2012 REGIONAL CONFERENCE REPORTS

For more information visit www.appa.org/regions/index.cfm

CAPP Central Region



CAPPA 2012 attendees.

Laurie D. Lentz CAPPA Newsletter Editor University of Texas at Austin

More than 140 members of the Central Region attended the CAPPA 2012 Annual Meeting held at the Fairmont Hotel in downtown Dallas from October 14-17. Hosted by Texas Christian University, the conference drew participants from 47 institutions, ranging from four-year colleges to medical schools, seminaries, community colleges, and public school systems. APPA guests included executive vice president Lander Medlin and staff liaison Christina Hills.

"Learning to Change the World" was the theme of the conference, inviting attendees to explore ways in which facilities organizations can become more effective and efficient in supporting our institutions. Educational tracks addressed maintenance and utilities, project design and construction, grounds and custodial services, and human resources. Across tracks, presenters emphasized sustainable approaches to developing and maintaining physical and human assets in the rapidly changing education environment. The conference also offered Supervisor's Toolkit to 18 facilities supervisors. TCU provided a campus tour, spotlighting the Amon Carter Stadium, utilities, grounds and landscape, and new construction.

CAPPA welcomed participation from 128 business partners representing 66 companies. The Exhibit Hall provided the kind of networking and information sharing that supports CAPPA institutions in learning to change their world.

Bryan Dodge, nationally known public speaker based in Dallas, gave the keynote address that launched the conference. During the keynote and in an educational session, Bryan stressed the importance of keeping our professional and personal lives in balance and offered guidelines for managing time.

CAPPA attendees balanced work and fun at the conference. They chose from a golf tournament at the Texas Star Golf Course, a trip to the Texas State Fair, or a visit to the Dallas World Aquarium. Later, they attended a football watching party at Dallas House of Blues. A special treat was the evening spent at the beautiful Dallas Arboretum, which featured an exhibit of glassworks designed by noted glass artisan Chihuly. Spouses and guests toured the 6th Floor Museum at the Texas Book Depository and visited historic Grapevine, Texas, for sightseeing and shopping.

The awards banquet wrapped up the conference with a delicious dinner and live



music performed by Of Many Colors. Numerous CAPPA members were recognized for their contributions to the organization and profession. Certificates of Meritorious Service were presented to Bob Everett, The Clark-Enerson Partnership; Cindy Brewer, The University of Texas at Austin; and Chris Snow, Oklahoma City Community College. Distinguished Member Award recipients were David Millay, University of Arkansas-Little Rock, and J.B. Messer, Oklahoma City Community College. Miles Abernathy, emeritus (UT-Austin) received the Newsletter Award. President's Awards were presented to Vickie Younger, emeritus (Missouri State University); Art Jones, Black Hills State University; and Mike Johnson, University of Arkansas.

THE 2012-2013 CAPPA OFFICERS

President – **Shelton Riley**, Texas Christian University 1st Vice President – **David Handwork**, Arkansas State University Senior Representative – **Larry Zitzow**, University North Dakota Junior Representative – **Ted Weidner**, Purdue University Secretary – **Jeanne F. Hanson**, Black Hills State University Treasurer – **Tim Stiger**, University of Science and Arts of Oklahoma APPA Liaison – **Christina Hills**

To view CAPPA's website and find a complete listing of the board of directors, please go to *http://www.cappaedu.org*.

PAEastern Region

Bob Cornero ERAPPA Vice President for Technology & Communications Monmouth University

ore than 630 attended with 126 institutions represented at the 2012 ERAPPA Annual Meeting, which took place September 30 -October 3 in Philadelphia, Pennsylvania. The theme for the Conference, "Holding Truths & Pursuing Happiness," was designed to strengthen and encourage the educational facilities professional. The keynote speaker, Stephen M. R. Covey, gave a compelling address challenging the assumption that trust is merely a social virtue and instead demonstrated that trust can be a hard-edged, economic driver that makes organizations more profitable,

people more promotable, and relationships more energizing. Marci Shimoff, the plenary speaker, author of *Happy for No Reason*, dazzled the attendees with her upbeat and positive message on choosing to be happy.

The conference was hosted by APPA's Delaware Valley Chapter under the leadership of Kathleen DiJoseph and Andrew Feick. The host committee provided a five track education pro-



Past-President Greg Scott (left) handing the gavel to President Dan Gearan (right).



Stephen M. R. Covey addressing the ERAPPA attendees on "the speed of trust."

gram and wonderful entertainment that took advantage of center city Philadelphia, including a night at the Franklin Institute. The conference finished with an enjoyable Awards Banquet where outgoing President Greg Scott (Pennsylvania State University) bestowed honor and recognition upon worthy ERAPPA scholarship recipients, APPA award recipients, and special, heartfelt thanks to individuals who helped make his presidency a success. ERAPPA Certificates of Appreciation and Merit were awarded to Committee Members, Host Committee Chairs and Members, and Past Chapter Presidents.

Dan Gearan took over as president at the awards banquet and took his cue from



the theme of the 2013 Annual Meeting in Rochester, NY (September 29 – October 2) "Focusing on the Future." Under Dan's leadership, we will be focusing on our alignment with APPA, supporting the chapters, helping our individual members achieve success, and focusing on the future of our profession.

THE 2012-2013 ERAPPA OFFICERS

President – **Dan Gearan**, University of Southern Maine President-Elect – **Michelle Frederick**, American University Senior Representative – **Greg Scott**, Pennsylvania State University Junior Representative – **Dan Gearan**, University of Southern Maine Secretary – **Kevin Mann**, Salisbury University Treasurer – **Art Walsh**, University of New Brunswick Fredericton APPA Liaison – **John Bernhards**

To view ERAPPA's website and find a complete listing of the board of directors, please go to *http://www.erappa.org*.

Midwest Region



Supervisor Toolkit Graduates.



Race Champions APPA President Mary Vosevich, Membership Chair James Harrod, and Shayne Jensson.

Kristie Kowall MAPPA President Illinois State University

II Aboard to a Great Adventure" was the theme for MAPPA 2012 this year in Minneapolis, Minnesota. The adventure took place October 14-17, 2012, at The Marriott Depot and included Learning, Networking, Sharing, Discovering, and much more.

Ruthann Manlet, University of Minnesota, took the lead and coordinated the teamwork of conference hosts Hamline University, Bethel University, St. Thomas College, MN State Colleges, the University of Minnesota - Crookston, Morris and Duluth Campuses, Carleton College, and Macalester College to deliver a successful week.

The 300 participants represented educational facilities staff and business partners from the Midwest. The educational sessions were well attended and covered topics such as energy savings, employee safety, integrated pest management, and performance measurement. There was lively competition in the Exhibit Hall as attendees bought matchbox cars and raced them to raise money for the Travel Ventures Charity.

The Big Ten and Friends Building Service Administrator's Conference and the Supervisor's Toolkit coincided with the MAPPA Conference for the second year. This provided an opportunity for additional networking.

President Brandon Baswell recognized John Hoffman (Iowa State University), Darius Bradley (Michigan State

University) and Aaron Ray (The Ohio State University) with the prestigious President's Awards. He also thanked outgoing APPA Board Members John Ott (The Ohio State University at Wooster), Senior Representative, and Doug Greenwood (University of Minnesota at Duluth), Professional Development Chair. Brandon passed the tiara and gavel plaque to President-Elect Kristie Kowall. Kristie shared highlights of her ongoing "APPA Journey" and encouraged everyone to leave a legacy that includes making a difference in someone else's career/life by "lifting others up."

The conference closed with a morning breakfast. Ten people attended the EFP Prep Course and three took the CEFP exam.



2012-2013 MAPPA Board.

THE 2012-2013 MAPPA OFFICERS

President – Kristie Kowall, Illinois State University

- President-Elect **Lowell Bromander**, Hamline University
- APPA Senior Representative Chuck Scott, Illinois State University
- APPA Junior Representative **Ruthann Manlet**, University of Minnesota
- Secretary Kris Ackerbauer, University of Wisconsin at Madison

Treasurer – Art Chonko, Denison College APPA Liaison – Suzanne Healy

To view MAPPA's website and find a complete listing of the board of directors, please go to *http://www.mappa.appa.org/ index.cfm*.

PCAPPAPacific Coast Region

Robert Andrews PCAPPA President CSU East Bay

his year's 2012 PCAPPA Annual Regional Meeting was a historic first for us. Jointly sharing this opportunity spotlight at the APPA 2012 Conference created a truly collaborative synergy for both our regional and national members alike. A special thank you to APPA, for allowing this idea to flourish. Together, this joint opportunity allowed renewed experiences for our region's universities to enjoy benefits, messages, and educational enhancements for everyone. Additionally, improving and increasing joint relationships with our business partners leads to greater benefit for our membership, and expands learning activities - no doubt our primary focus and commitment.

Denver was an opportunity to acknowledge several individuals committed to improving their institutions within our region and APPA: The President's Meritorious Service Award, presented by past-president David Gray, brought highlight to our western region. Tony Ichsan, PCAPPA Professional Affairs Chair (SCJCD,SRJC), Brian Worley, PCAPPA Secretary & Treasurer (Claremont McKenna College), Towny Angell, (Reed College), and Mark Hunter (CalPoly San Luis Obispo) and former



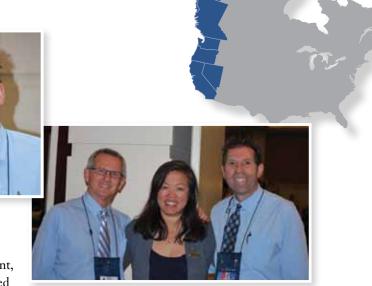
PCAPPA President Robert Andrews.

PCAPPA president, were each honored for their service. APPA's 2012 Sustain-

ability Award was proudly given to the University of British Columbia and the University of California Irvine. The 2012 Pacesetter Award went to Richard Davis, Evergreen State College. Tony Ichsan received APPA's Unsung Heroes Award, and Kunal Chitre, PCAPPA's past-communication chair, received the President's Award. David Woodson, PCAPPA VP Awards & Recognition Committee, received a special Annual Meeting Award for making this joint effort a success. Lastly, Chong-Hie Choi, APPA's liaison to PCAPPA, received Special Award for 25 years of Services to APPA. Her

> support and wisdom to our region has been outstanding. My appreciation goes out to these individuals and spotlights our region's all-stars.

Denver's joint partnership provided opportunities for attendees in the educational facilities industry, which is important in shaping the leaders of tomorrow. Our region's goal is to assist



PCAPPA Board members.

our membership in selecting and developing training opportunities—which will improve campus operations, while developing leadership characteristics today and in the future.

THE 2012-2013 PCAPPA OFFICERS

- President **Robert Andrews**, California State University East Bay
- President-Elect **David Woodson**, University of British Columbia
- APPA Senior Representative, Tony Ichsan, Sonoma Junior College
- APPA Junior Representative, **Tony Guerrero** – University of Washington, Bothell
- Secretary & Treasurer **Brian Worley**, Claremont McKenna College APPA Liaison – **Chong-Hie Choi**

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PCAPPA Board of Directors.

AROCKY MOUNTAIN REGION

Pat Allen RMA Conference Planning Committee Member Casper College

RMA's Annual Conference was held in Regina, Saskatchewan, Canada, from September 11-14. Over 240 RMA and WCUPPA (Western Canadian University Physical Plant Administrators) members joined together for a terrific conference. The host committee from the University of Regina did a fantastic job hosting a conference focused on "Harvesting Opportunities."

The conference participants were engaged in educational, recreational, and social activities. Holding true to the RMA tradition, a golf tournament kicked off the conference; the team headed by Dave Button (University of Regina) won the informal international "RMA Cup." For the non-golfers, there was a Fish-n-Fry at Last Mountain Lake and day-trip to Moose Jaw. All of the networking activities were a huge success and enjoyed by all.

Keynote speakers started each day with a moving message. On Tuesday, Andrew Brash shared his story of climbing Mount Everest, detailing the events of the trip ultimately to be stopped 200 meters short of the summit to help save the life of another climber. Then on Wednesday, Darci Lang motivated everyone with her message to focus on the 90 percent that is positive in your life.

Education continues to be an emphasis of the RMA conference. Presenters discussed relevant topics and needs for today's facilities professionals in 20 breakout sessions. Many presentations joined educational facilities professionals with business partners, enhancing the opportunity to form partnerships and increase collaboration.

RMA continues to promote member involvement by building on our unique mentoring program, known as the 14ers. This



2012 president Viron Lynch (left) handing the gavel to 2013 president Chris Kopach.

year, the 14ers welcomed a considerable change by adding RMA Business Partner

members as climbers. Several new climbers were welcomed into the group as they achieved their 14 peaks in the preceding year; they were awarded their 14ers pins at the banquet. John Morris (Northern Arizona University) was once again nominated as the lead climber; John's contributions to the 14ers are extraordinary.

At the closing banquet, President Dave Button recognized Lander Medlin (APPA), Polly Pinney (Arizona State University), and Nancy Hurt (Colorado State University) with the RMA President's Award for their service and enormous contributions to RMA and APPA. Joe Metzger (Arizona State University) received the Val Peterson Award for his efforts enhance and contribute to the RMA Newsletter, and Jim Knutson (Trane) was awarded the Lee Newman Award for Business Partners.

RMA was honored to have APPA's Immediate Past-President, David Gray (Middle Tennessee State University),





Host Mike Sawyer (middle) with The Blues Brothers, Elwood and Jake

presiding over the installation of the new RMA Officers for 2011-2012.

THE 2012-2013 RMA OFFICERS:

- President Chris Kopach, University of Arizona
- President-Elect Brian Johnson, University of Idaho
- Senior APPA Representative **Dave Button**, University of Regina
- Junior APPA Representative Viron Lynch, Weber State University
- Secretary Chris Eagan, University of
- Lethbridge
- Treasurer **Steve Hoskins**, University of Utah

APPA Liaison – E. Lander Medlin

To view RMA's website and find a complete listing of the board of directors, please go to *http://www.rma.appa.org/*.

SRAPPAsoutheastern Region



Left: SRAPPA '12 Exhibit Hall Activities

Below: Social on the Lawn, Canan Green, Washington and Lee University



Jay Williams Chairman, SRAPPA '12 Conference Virginia Military Institute

Ver 300 participants, from 50 colleges, universities, and K-12 institutions; 36 exhibitors; 39 educational session presenters, and many business partners came to the historic town of Lexington, Virginia on October 13-16, 2012 for the SRAPPA '12 Conference cohosted by the Virginia Military Institute and Washington and Lee University.

APPA attendance included Lander Medlin, APPA executive vice president; John Bernards, APPA associate vice president; Steve Glazner, APPA staff liaison; and Glenn Smith, APPA president-elect.

Twenty-four educational sessions, from Grounds Maintenance to Green Preservation to 7 Years After Katrina—How Ready are We? provided a comprehensive program for attendees. Glenn Smith taught us how to smile in his talk on the Pursuit of Happiness, Lander Medlin spoke on Balancing Your Choices, Balancing Yourself at the Plenary Session, and Michael Abrashoff, Keynote Speaker, delivered a thought-provoking presentation entitled, The Innovation Roadmap: Transforming Your Organization and Achieving Sustainable Growth, followed by a book signing.

James Whittaker, president, Facility Engineering Associates, led the credentialing preparatory course for ten attendees representing seven colleges, universities, and public schools and one business partner.

Social Events included Golf Outing, Lexington Golf and Country Club; Sporting Clays, The Homestead Resort; Welcome Reception, George C. Marshall Museum, VMI; Social on Lawn, Canan Green, W&L; and the President's Banquet and Dance, Evans Hall, W&L. Spouses and guests were treated to a Natural Bridge tour and lunch at the VMI Museum; local historical tours with Lexington carriage rides; and lunch at Wade's Mill followed by a trip along the Blue Ridge Parkway.

The President's Banquet and Dance was the culminating event of the conference. Paul Wuebold, outgoing President, recognized John Malmrose, Medical University of South Carolina, for his dedicated service. Friends and colleagues enjoyed a fun-filled evening socializing and dancing to sounds of Trademark.

THE 2012-2013 SRAPPA OFFICERS:

President – **Wayne Goodwin**, Jackson State University President-Elect – **Jay Williams**, Virginia Military Institute Senior APPA Representative – **Larry Blake**, Northern Kentucky University Junior APPA Representative – **Dan Young** Secretary/Treasurer - **Becky Griffith**, Embry Riddle Aeronautical University APPA Liaison – **Steve Glazner**

To view SRAPPA's website and find a complete listing of the board of directors, please go to *http://www.srappa.org/*.

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- 6. Learn how to best position your institution in critical times.
- 7. Expand your reach with business partners.
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- 10. Network Network Network.



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The "Inner Game" of Facilities Management Dealing with Stressors that Inhibit Performance

By Joe Whitefield

A strange thing happened to me this year. At some point in time unknown to me, I began receiving the Tennis Channel as part of my cable programming. Being the novice player that I am, I now find myself watching the tennis programs that involve lessons or tips for people like me. I have often thought that I would be motivated to play more if my game improved—so I watch. Most of the lessons I see are mechanical in nature showing how to produce a better stroke. However, I have come to believe that my problems are probably more mental than physical.

In his book, *The Inner Game of Tennis*, Timothy Gallwey, explores the common mental and emotional habits of tennis players, and their affect on performance. It turns out most of these habits actually detract from performance by ratcheting up the pressure, and inhibiting the mechanical and physical skills that produce actual improvement. Thinking too much, self judgment and criticism, and trying too hard are some common mental habits that often introduce more stress, and actually make it more difficult to face the challenges of competition. In addressing these habits, Gallwey provides some thoughts and advice on eliminating the negative and unproductive mental habits, and replacing them with a better approach—this is called the inner game.

REACTING VS. RESPONDING

Like a competitive tennis player, facilities managers face many challenges as part of the job. These challenges require a requisite amount of technical skill and administrative acumen. These challenges also produce mental and emotional responses, in many different forms, that can inhibit effective performances. How many times have you witnessed a difficult situation that was made worse by a person's emotional—possibly irrational—reaction? How many times have you *been* that person? When these C CompletionO OrganizationI InnovationN Being Nice

reactions happen, pressures mount, communication is strained, time is wasted, unnecessary and unproductive activities emerge, and progress is slowed. Little things become big things.

Of course the subject of self management/self control is not new. Experts in relationships and business and organizational management abound. There is a mountain of material on emotional intelligence, self-awareness, social compatibility and the like in print—and readily available. With that said, I would like to highlight a basic idea addressed

MENTAL STRESS IS MORE A RESULT OF OUR JUDGMENT OF THE PROBLEM THAN THE PROBLEM ITSELF.

by Gallway on the subject that may help someone struggling with the overreacting gene. The idea is simple: *stop judging*.

MENTAL STRESSORS

One of the keys to improved performance is to reduce or eliminate the mental stressors that produce so many negatives that make the situation worse. Most of the time, the mental stressors occur as a seemingly natural response to some mistake or negative event.

Reducing mistakes is a worthy endeavor. Eliminating them completely, however, is impossible. Therefore, we must learn to handle problems better. This begins with an attitude adjustment. Mental stress is more a result of our judgment of the problem than the problem itself. These judgments can lead to thoughts such as blaming oneself or others and invites a myriad of negative reactions that produce no value at a time when clarity and positive action are needed most.

In tennis, many points are won when one player hits the ball out of the court. There are typically three perspectives on this single event. The player who hit the ball out views this as a bad thing because the point is lost. The other player views this as a good thing because the point is won. The linesperson who called the ball out sees it as neither good nor bad—just a point played. As unusual as it may sound, tennis players should adopt the neutral mindset of the linesperson when evaluating their own shots. It is either in or out rather than good or bad. The player's physical skills can make the necessary adjustments for better shots much faster if they are not also overcoming the additional burdens caused by mental stress.

REPLACE JUDGING WITH INFLUENCING

In professional endeavors, the success of meeting challenges and overcoming problems can be affected greatly by adjusting an overly judgmental mindset. A mindset that is neutral can greatly reduce the emotions that add stress to a difficult situation. In the case of stressors, a neutral mindset is certainly better than a negative mindset and is even better than a simplified positive mindset. In short, the act of making judgments (negative or positive) subconsciously creates pressure that, very often, makes things worse.

Of course, simply saying "stop judging" is not enough in tennis or everyday life. Mental energy spent on judging should be replaced with a deeper focus on the situation at hand and things we can influence. What is the problem? What options are available to resolve the problem promptly and effectively? Who needs to be in the communications loop and when? These are all examples of attempts to increase our focus which accelerates both critical and creative thinking.

Think about a time when you saw someone respond well under pressure. More than likely they were calm, thoughtful, and decisive. They are typically well respected and their work speaks for itself. I am always impressed with people who exhibit these qualities and I want to be more like them in difficult situations. Like my tennis game, my shortcomings in this area may be more mental. I think I might try a new perspective.

Tennis anyone? 🕥

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



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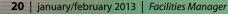


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ASSESS PROFESSIONAL DEVELOPMENT through Organizational Assessment

Manage



Using APPA's Facilities Management Evaluation Program

By E. Lander Medlin and R. Holly Judd

he facilities management profession has become more complex than ever before, and the challenges of meeting, and exceeding, customer demands 24/7 seem daunting at times. We are living in an environment of increasingly, if not rapidly, diminishing resources that will require our best efforts to do our work as efficiently and effectively as possible. We need to not only do things right, but consistently and predictably do the right things.

The problems surrounding our institutions and the facilities organizations themselves are mounting, and we must be part of the solution. This will require increased levels of productivity and accountability that are in alignment with the institution's vision, mission, and strategy.

APPA's Facilities Management Evaluation Program (FMEP) provides an integrated system to optimize organizational performance. The criteria for evaluation not only provide a tool for organizational continuous improvement, they serve as a compelling leadership development tool essential for today's facilities management professional. Since the first beta evaluation was conducted in 1989, more than 110 institutions have taken advantage of APPA's evaluation service an average of more than five per year.

The senior facilities officer can utilize this welldesigned set of performance criteria, measures, and metrics to establish a pathway for staff development and organizational continuous improvement whether formally delivered or informally applied. Utilizing the FMEP throughout the organization helps the SFO engage their staff in professional development opportunities necessary to their growth and development by virtue of their engagement in the process and seeking the desired outcomes to achieve overall success.

WHY CONSIDER THE FMEP?

The Facilities Management Evaluation Program is a highly customized, personally tailored evaluation process that can help facilities professionals assess their organizations' current performance levels and provide practical ideas and strategies to plan for improvement. With the right amount of staff participation and involvement, the process can garner the buy-in necessary to implement long-lasting, comprehensive change. Institutions conduct FMEPs for many reasons. Some feel the need to establish performance benchmarks, others have a desire for a performance "check-up," and still others are preparing for an external accreditation review or a formal internal administrative departmental review. Regardless of the reason, a comprehensive facilities review can help ensure high-quality performance and customer satisfaction.

WHO CONDUCTS THE FMEP?

Undergoing a formal facilities evaluation is much like going in for an annual physical examination: it's important for overall health and well-being, but there's always the fear that something unpleasant will be discovered. This is why people seek the most competent, thorough, and professional medical care possible. Likewise, the individuals entrusted to evaluate an institution's facilities operations should be respected and knowledgeable in the field of educational facilities management.

For this reason, the FMEP uses a peer-review approach. Evaluation team members are seasoned educational facilities professionals who understand the practice of facilities management within the education environment. Each team is specifically tailored to align with the features and circumstances of the institution requesting the FMEP. This high level of customization helps ensure a thorough, balanced review in a short amount of time. FMEP evaluators quickly focus on the real issues—quality and effectiveness.

IS THE FMEP RIGHT FOR MY INSTITUTION?

Whether an institution is seeking a baseline assessment, measuring the results of a wellestablished continuous improvement program, undergoing an administrative review, or concerned about institutional accreditation, the FMEP can assist. Every FMEP is designed to:

• Provide an evaluation team tailored to the specific needs of the institution.

• Focus on the most important, cogent issues in a short period of time (usually between three and five days).

• Assess facilities operations performance in relation to the institutional and departmental mission, goals, and standards. • Enhance the continuous improvement process.

• Assist in developing a planning tool for strategic and longrange purposes.

• Strengthen the institution's ability to serve its customers' needs.

• Emphasize department staff participation to create support for and commitment to long-term change.

Institutions Completing the FMEP

Acadia University Alcorn State University Appalachian State University Arizona State University Arkansas State University **Baylor University** Bridgewater State College Brigham Young University*** Brookhaven National Laboratory Calgary Board of Education California State University Monterey Bay Carleton University Central Michigan University City College of the City University of New York Colorado College*** Community College of Philadelphia **Cornell University** Dalhousie University Delta State University DePauw University Eastern Illinois University Elmhurst College Emory University*** Evergreen State College Gallaudet University Georgia State University*** Georgia Tech Housing Grand View University Grinnell College **Guilford** College Harrisburg Area Community College*** Hobart and William Smith Colleges Hong Kong University of Science and Technology Jackson State University Louisiana State University Medical Center Maryland Institute College of Art McGill University McMaster University Medical College of Wisconsin

Medical University of South Carolina** Memorial University of Newfoundland Millersville University

Mississippi University for Women Mississippi Valley State University Montclair State College*** Mount Allison University National Gallery of Art Northern Arizona University Northfield Mount Hermon School Ohio Agricultural Research and

Development Center Ohio State University Mansfield Ohio State University Wooster Ohio University Oregon State University Pepperdine University Philadelphia University*** Portland State University Providence College Purdue University** Queens University Roberts Wesleyan College Saint Cloud State University Savannah River Ecology Laboratory Shepherd University Smithsonian Institution*** Southern Illinois University Edwardsville Southern Oregon University St. Mary's College Maryland Tennessee State University Texas Tech University*** Towson University Trent University University of Mississippi Medical Center University of Virginia** University of Alabama

Birmingham*** University of Arizona* University of Arkansas Fayetteville University of British Columbia University of California Santa Barbara

University of Dayton University of Guelph University of Hawaii Manoa** University of Idaho Moscow University of Illinois

Urbana-Champaign University of Maryland Baltimore University of Massachusetts

Amherst University of Massachusetts

Lowell University of Michigan Housing*** University of Mississippi University of Missouri Columbia University of Montana University of New Brunswick

• Develop a menu of realistic, practical recommendations for improvement.

• Improve the understanding of facilities management issues within the department and throughout the institution.

In a few cases, we have undertaken a "system-wide" evaluation whereby all institutions in the system conducted an individual FMEP *and* the system office received an overall assessment for their collective institutions.



University of North Carolina Wilmington University of North Florida*** University of Prince Edward Island University of South Carolina University of South Florida University of Southern Maine University of Southern Mississippi University of Texas at San Antonio** University of Texas Austin** University of Texas M.D. Anderson Cancer Center University of Texas San Antonio University of Toledo*** University of Virginia** University of Washington Tacoma Weber State University Western Washington University Whitworth College

* In 1989, the University of Arizona was the beta site for the first FMEP evaluation.

** Indicates institutions that have completed the FMEP more than once.

*** Institutions that later applied for and received APPA's Award for Excellence in Facilities Management.

• For more information on the Award for Excellence, visit www.appa.org/recognition/awardsforexcellence.cfm

WHAT IS THE RELATIONSHIP BETWEEN THE FMEP AND APPA'S AWARD FOR EXCELLENCE?

The Award for Excellence (AFE), APPA's highest institutional award, provides educational institutions the opportunity for national and international recognition for their outstanding achievements in facilities management. APPA's Professional Affairs Committee judges AFE nominations using the same criteria used in FMEP evaluations.

Therefore, those institutions conducting an FMEP can see where they might improve or if indeed their institutions are worthy of application for the AFE. In fact in the past 20 years, 12 of the AFE winners participated in the FMEP prior to applying for the award. For more information on the AFE, *visit www.appa. org/recognition/awardsforexcellence.cfm*.

HOW DOES THE PROCESS WORK?

The FMEP process can take approximately 12 to 16 weeks or longer from "initiation through site visit." Institutions work closely with APPA staff and the FMEP team leader throughout the process to determine a schedule based on the needs of the institution.

THE SELF-EVALUATION

The evaluation process is most effective when an institution

has a clear understanding of its own needs. For this reason, the first step in the FMEP is a comprehensive institutional self-evaluation. This process of self-discovery reveals areas for further investigation. The selfevaluation addresses the same criteria that will be used later by the evaluation team. The criteria can be found on the next page.

THE SITE VISIT

The site visit provides an opportunity to clarify issues in the self-evaluation and talk firsthand to staff and constituencies throughout the organization. Outside evaluators can often draw out information that personnel may be hesitant to express to coworkers and supervisors.

An institutional representative should be available to guide the evaluation team and answer its inquiries. The FMEP team leader will work with the institutional representative to determine interview schedules and clarify aspects of the selfevaluation.

THE FMEP REPORT

At the conclusion of the visit, the team leader will share the team's assessment in an oral report. At this time, team members verify facts, reinforce their impressions, hear reactions,

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and give the group an idea of what the written report will contain. Detailed recommendations will follow in the written report, which can take 8 to 16 weeks from the date of the visit. An evaluation team can sometimes complete the assignment in a shorter time period if adequate preparation is made beforehand.

THE EVALUATION CRITERIA

1.0 LEADERSHIP

Senior leaders in an effective facilities organization set direction and establish customer focus, clear and visible values, and high expectations in line with institutional mission, vision, and core values. Effective facilities leaders facilitate the dialogue around larger leadership issues, such as total cost of ownership (TCO), sustainability, recapitalization requirements, and facilities reinvestment.

Leaders inspire the people in the organization and create an environment that stimulates personal and professional growth. They encourage involvement, development and learning, innovation, and creativity. Leaders act as both educators and change agents.

2.0 FACILITIES STRATEGIC AND OPERATIONAL PLANNING

Strategic and operational planning consist of the overall planning process, the identification of goals and actions necessary to achieve success, and the deployment of those actions to align the work of the organization.

The successful facilities organization anticipates many factors in its strategic planning efforts: changing customer expectations, business and partnering opportunities, technological developments, institutional master plans, programmatic needs, evolving regulatory requirements, building organizational capacity, and societal expectations, among other criteria.

3.0 CUSTOMER FOCUS

Customer focus is a key component of effective facilities management. Various stakeholders (faculty, students, staff, and other administrative departments) must feel their needs are heard, understood, and acted upon.

Various tools must be in place to assure customer communication, assess and assimilate what is said, and implement procedures to act on expressed needs. To be successful, a facility department must ensure that its customers have an understanding of standards, tasks, roles, frequencies of services, etc.

4.0 ASSESSMENT AND INFORMATION ANALYSES

Assessment and information analysis describes how your organization uses information and analyses to evaluate and drive performance improvements. Of interest are the types of tools used and how the tools are used to measure and enhance organizational performance.

5.0 DEVELOPMENT AND MANAGEMENT OF HUMAN RESOURCES

An organization's success depends increasingly on the knowledge, skills, innovation, creativity, and motivation of its employees and partners. The criteria in this section address the ways in which the facilities organization ensures a continuous learning environment and a positive and progressive workplace.

6.0 PROCESS MANAGEMENT

Effective process management addresses how the facilities organization manages key product and service design, delivery processes, and continuous improvement. Process management includes various systems or "core competencies," such as work management, performance standards, estimating systems, planning, design, and construction of new or renovated facilities, space management, event management, and other key processes that affect facilities functions.

7.0 PERFORMANCE RESULTS

The performance of a facilities organization can be assessed in a number of ways: campus appearance, customer satisfaction, employee satisfaction, effectiveness of systems operations, financial results, and supplier/business partner results. Having measurement tools in place to assess such performance is critical in an environment of continuous improvement.

8.0 OTHER CONSIDERATIONS

At the request of the institutional representative, this section would include any items or subjects that are not covered by the criteria in Sections 1 through 7. These items may include those things that are more specific to an individual institution's needs.

HOW DO I BEGIN THE FMEP PROCESS?

Because each evaluation is designed around the needs of each institution, pricing varies. Fees depend on the institution's gross institutional expenditure (GIE) and full-time equivalent (FTE) enrollment; size and complexity of the facility/institution; the number of evaluators and length of the site visit; and any additional considerations an institution would like to be covered as part of the evaluation.

To learn more about APPA's Facilities Management Evaluation Program and how to get started on the process, contact Holly Judd at 703-542-3834 or *bolly@appa.org*. (5)

Lander Medlin is APPA's executive vice president and may be reached at *lander@appa.org*. Holly Judd is APPA's executive assistant to the EVP and coordinates the Facilities Management Evaluation Program; she may be reached at *holly@appa.org*.

APPA's Facilities Drive-In Workshops

Attendance at Past Workshops

December 12, 2012 University of Washington Bothell, Bothell, WA Sponsored by ESC Automation and McKinstry Attendance: 48

November 16, 2012 American University, Washington, DC Sponsored by Tandus Flooring Attendance: 48

April 17, 2012 Washington & Lee University, Lexington, VA Sponsored by Spriotherm Attendance: 48

March 8, 2012 University of Texas at Austin, Austin, TX Sponsored by Tandus Flooring Attendance: 86

March 7, 2012 Skirball Cultural Center, Los Angeles, CA Sponsored by Digital Energy, Inc. and San Joaquin Chemicals, Inc. Attendance: 51

February 28, 2012 Arizona State University, Tempe, AZ Sponsored by Delta Controls Attendance: 46

Opportunities for Everyone!

APPA's Facilities Drive-In Workshops are an excellent way for APPA member institutions to encourage networking and professional development among educational facilities professionals within their local vicinity. Additionally, APPA Business Partners expand their networking opportunities by sponsoring Drive-In Workshops. The APPA Workshops offer objectives and benefits for all parties:

- Local delivery of professional development and training to educational facilities professionals located within a two-hour driving distance to the workshop site.
- Outreach to professionals who might not normally have access to training and professional development opportunities, due to operating budget restrictions or similar constraints.
- Networking of educational professionals at the local level.
- Introduction of educational facilities professionals to APPA, its regions, and its chapters, with the intent of fostering further engagement of these professionals with the APPA organization.

Upcoming Schedule

February 7, 2013 10:00am - 2:00pm College of San Mateo, San Mateo, CA Sponsored by Tandus Flooring

February 12, 2013

10:00am - 2:00pm University of Tennessee/Martin, Martin, TN Sponsored by Spirax Sarco

February 12, 2013

10:00am – 2:00pm Case Western Reserve University, Cleveland, OH Sponsored by Technical Assurance & Heapy Engineering

February 14, 2013

10:00am – 2:00pm Massachusetts Institute of Technology, Cambridge, MA Sponsored by Tandus Flooring

March 7, 2013

10:00am – 2:00pm Northern Kentucky University, Highland Heights, KY Sponsored by Nalco

To host a half-day workshop at your institution, contact Corey Newman at APPA at *corey@appa.org*.

To sponsor a workshop, contact John Bernhards (*john@appa.org*) or Lander Medlin (*lander@appa.org*) for details.

FACILITY CONDITION ASSESSMENT FROM

By Frank Kaleba, P.E., AICP

This article will provide an overview of the options for performing facility condition assessments. Quite often, the facility manager will choose a condition assessment method without deliberate examination of what type of assessment is best suited to the needs of the organization. In addition, the needs of diverse audiences usually differ-for example, the vice president for finance will have information needs that differ from those of the facility manager. This discussion will cover a review of the basic reasons to assess, the methods, and a

comparison of the output of each method.

REASONS TO ASSESS CONDITION

There are five reasons to assess:

- Describe conditions (snapshot in time)
- Analyze trends
- Confirm maintenance and repair (M&R) forecasts
- Identify energy conservation opportunities and accessibility needs
- Provide a basis for cost estimation

A written description of conditions is the most basic, and often the only reason for an assessment. It is first and foremost a snapshot of conditions at a particular moment in time, designed to "know where we are." Conditions change over time, and moment-in-time snapshots are likely to give false indications that there is no problem.

For example, clear sink drains in the pottery room today may overlook year-long repeated service calls indicating problems with the building drain. Despite the lack of context, the importance of this rationale should not be minimized. Conditions can only be analyzed if they are recorded. A descriptive assessment as of one point in time provides a basis for implementing other assessments. Knowing the roof didn't leak last year is important, even while that information is incomplete.

Analysis of trends is a natural progression from the basic description of conditions. Analysis of trends converts information into knowledge. The minor drip two years ago that worsened last year should indicate this year that the faucet needs repair. Trend analysis can point out the natural deterioration of components and the effect of insufficient or inappropriately applied M&R resources, and can help identify premature failure.

Assessments can also be used to confirm M&R forecasts. Forecasting is always a tricky business. The typical forecast may just be formulated as last year's expenditure plus inflation. Not sophisticated, this is often the only method used. More sophisticated methods examine individual facilities and the components within them, projecting the needs for preventive maintenance, expected maintenance and repairs, and replacement over the design life of the building or facility. An important use of component-based projections is to mitigate the impact of unusually high resource requirements in a future year.

For example, in Figure 1, the predicted M&R requirements, funding level, and deferred maintenance are displayed. In the figure, a condition assessment was performed in Year 15. If the predicted M&R of \$750 is added to deferred maintenance of \$500, the total (\$1,250) is less than the condition assessment value of \$1,500. This likely indicates faster than expected deterioration of building systems, and should be used to adjust the annual M&R prediction and deferred maintenance backlog.

The advantage of using an assessment to confirm M&R forecasts is to prevent surprises for management, particularly for the financial side of the organization. An unforeseen and unbudgeted replacement of a chiller usually means the deferral of other, also important, maintenance work. Predicting failure and using the assessment to confirm the prediction reduces the risk of unforeseen resource needs.

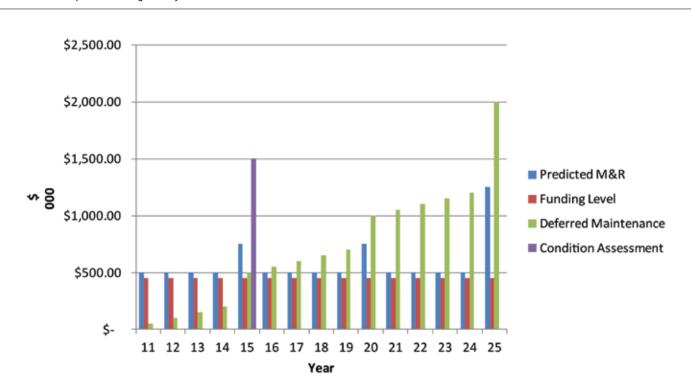


Figure 1. Facilities Department Budget Analysis

Harvey Kaiser pointed out¹ that the assessment can also be used to identify energy conservation opportunities and accessibility needs. Both energy and accessibility modifications are often overlooked in the normal course of business. But, if the condition assessment incorporates an awareness of these features, they are more likely to be identified and action taken. I would add that the idea of incorporating "functional" aspects of a building into a condition assessment makes good sense and is an efficient use of limited inspector resources.

For example, incorporating functional aspects such as heating, cooling and ventilation, storage, or Internet connectivity into the condition assessment process provides a more complete picture of the current state of a facility and obviates the need for a separate assessment. This does not require that a design architect or engineer perform the assessment – solutions developed by design professionals can be prioritized and resourced at a later date. Simply having the functional need identified and recorded allows subsequent steps to be taken.

Finally, the assessment is the basis for cost estimation. Depending upon the method used, cost estimates can range from detailed, component based estimates based upon local information to broader, order of magnitude estimates that are useful in establishing future, one-time requirements.

ASSESSMENT METHODS

The standard for condition assessments is ASTM Guide E2018-08. The approach in ASTM is undoubtedly familiar, even if the ASTM Guide is not: conduct a walk-through survey, make visual observations, but perform no probing or testing and use no special equipment. The Guide has six objectives:

- To define good customary practice
- Facilitate consistent and pertinent content
- Define reasonable observations
- Describe reasonable expectations for a condition report
- Provide a baseline for appropriate observations
- Describe a protocol for communicating the results of an assessment

Significantly, the Guide observes that there "...*is a point at which the cost of information obtained or time required...may outweigh the usefulness of the information... and may be a detriment.*"² An essential principle in choosing the appropriate method of assessment is understanding the cost in time and dollars of the information received.

Assessment methods can be divided into five broad types:

• Comprehensive

- System based
- Qualitative
- Hybrid
- Life-cycle modeling

Comprehensive Methods: Comprehensive assessments focus on the condition of the existing built environment. They are the most extensive, detailed, time consuming, and costly. They are performed at the component level (Uniformat II Level 4 or 5) – meaning they focus on components of systems (for example, chilled water distribution pumps, air handlers, or generator transfer switches). These assessments are typically performed by an experienced engineer or architect, often assisted by a technician with specialist knowledge in particular types of equipment. Quite often, because the organization is not staffed for this commitment of technical staff time, the assessment is performed through a contract with an engineering firm or a specialized inspection company.

Comprehensive assessments go beyond the minimal visual observations outlined in the ASTM Guide. The typical report is detailed, contains estimated repair costs, and will consider the backlog of maintenance, deterioration rates for components, and planned funding. Data is often provided to the client in electronic form, sometimes tied to a requirement to purchase software. Because these assessments are performed by design or maintenance professionals, the resulting data is usually the most accurate of all the methods.

But even this accuracy is insufficient for developing a cost estimate for contract or purchasing negotiation purposes. This is because (a) a complete design has not been developed and (b) cost estimates are based upon regional or national average costs for components and work methods that may differ considerably

...the idea of incorporating "functional" aspects of a building into a condition assessment makes good sense and is an efficient use of limited inspector resources.



from actual requirements. At best, the accuracy of estimates developed in this type of assessment are typically in the range of 60 to 75 percent.

System Based: This method predicts the deferred maintenance and repair cost based upon an assessment by a knowledgeable technician at the building system level – for example, the roofing or HVAC system. Perhaps the best known system-based method is that used by NASA³. Ratings are given at five levels, "excellent" to "bad", with nine separate systems evaluated. Each condition rating is assigned a numeric factor, based upon the type of system. For example, a rating of "fair" is defined as needing "more minor repairs and some infrequent larger repairs required. System occasionally unable to function as intended."

This rating assigns a multiplier (e.g., 0.38 is given to a roofing system, and 0.13 if given to the HVAC system). The NASA protocol assigns each system for each type of structure a percentage of the building replacement value. The calculation of deferred maintenance is then simply [replacement value] x [system percentage of replacement value] x [condition multiplier] = [system deferred maintenance]. Summing all the systems in a particular structure yields the total deferred maintenance cost.

In NASA's view, this approach has proven to provide reasonably accurate estimates at a fraction of the cost of more involved comprehensive assessments. Advantages of this method are that it can be done with in-house staff familiar with the maintenance history of the buildings they are assessing and can be done on a continuous basis as part of other work.

Qualitative Methods: Costs are not a product of qualitative methods. Instead, these methods, usually checklist-based, are designed to provide a relative rating to a facility or a component within the facility. For some owners, this limited information is all that is required and is often used as a pass-fail criterion for future action. For example, the U.S. Department of Housing

& Urban Development (U.S. HUD) Real Estate Assessment Center (REAC) conducts approximately 20,000 physical inspections on properties each year to ensure that rental housing that is owned, insured, or subsidized by HUD is decent, safe, sanitary, and in good repair. These criteria do not require a priced output, only a rating relative to a defined standard. The result confirms the property manager is providing adequate housing, or determines that substandard conditions exist that must be improved under the terms of the loan or subsidy instrument.

A similar method that has been used by the U.S. Army for many years is known as the Installation Status Report (ISR). This method is checklist-based, using reference pictures to describe conditions, with standards published in both printed and electronic form for various types of buildings. Ratings are simple and straight-forward, given as "red", "amber" or "green." This method has the advantages of using a uniform standard for all locations and the ability to be used by individuals with no background in facilities maintenance and repair. The simple output provides a relative rating of condition and can be used to initiate further investigation and prioritize budget assignments.

Hybrid Methods: The essential characteristic of hybrid methods is that they attempt to combine more than one process or objective in a single effort. One such hybrid recognizes that any assessment requires the investment of inspection time, so they attempt to leverage that investment by combining the assessment of present conditions with the identification of renewal opportunities. The University of Virginia pioneered this method, ultimately deriving a formula combining the Facility Condition Index (FCI) with a Facility Renewal Index (FRI) for a total termed the Facility Assessment Index (FAI). APPA's annual Facilities Performance Indicators (FPI) report also produces a related Needs Index.

Another type of hybrid is that designed to be used by nontechnicians. In this method, a non-technical, plain-language checklist is used by an observer. Software using the checklist input translates an observation into both a specific component and a price of the repair or replacement. An example would be observation of a hole in the wall, with automatic estimating of repair cost as follows: "patch and refinish ten square feet of gypsum board at a cost of \$50." The resulting list of deficiencies

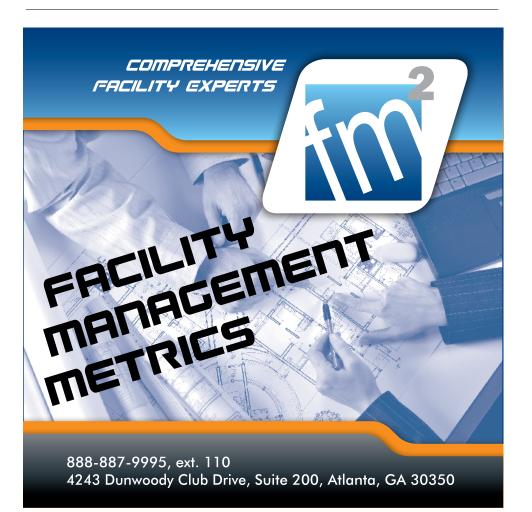




Figure 2. Summary of Assessment Methods

	Method					
Metric	Comprehensive	System Based	Qualitative	Hybrid	Life Cycle Modeling	
Cost	HI	LOW	LOW	MODERATE	LOW	
Time to Complete	SLOW	FAST	FAST	MODERATE	FAST	
Accuracy	HI	MODERATE	LOW	LOW	LOW	

provides an initial estimate of deferred maintenance and repair as a starting point for a further examination by technical staff.

The advantages of this approach are that the checklist can be prepared at low cost, using existing personnel who are most familiar with the building. If performed with a consistent set of definitions, this type of assessment can be used to perform trend analysis. The Department of Defense Morale, Welfare, and Recreation group uses an assessment that can be performed periodically by MWR staff at sports centers and pools to identify maintenance issues and provide a preliminary cost estimate for further development into a M&R service order or project.

Life-Cycle Modeling Method: It is possible to model the maintenance and repair needs of a structure over its design life. R.S. Means offers a parametric software product called *CostWorks®* that makes use of the industry-wide average costs collected by the Means organization. Parametric models using this method are component-based, that is, they are built at the Uniformat II level 4 or 5 (e.g., wood door, brass hinge) and are priced at that level for preventive maintenance, repair, or replacement. No visual inspection is performed, making this a purely theoretical approach. For the Department of Defense (DoD), CostWorks® components are selected to model actual "average" buildings, using average building areas and estimated service lives. Additional algorithms are incorporated into the models to account for DoD specific applications.

This method has been used by the DoD for more than 12 years, and has been reviewed and accepted by both the Government Accountability Office (GAO) and the budget committees of the Congress. Termed the "facility sustainment model," it provides an objective, auditable model used for long-range budgeting of maintenance and repair for over 600,000 facilities worldwide.

SUMMARY OF METHODS

We can compare the methods discussed on the basis of two critical metrics—cost of the assessment and speed of obtaining results. These two are critical because:

- The cost of the assessment is a drain on resources and can be a significant overhead expense, competing with use of those funds for actual repairs
- The speed of obtaining the results determines when requirements identified can be prioritized and moved into the budget Accuracy is not a critical metric—although it should be consid-

ered. This might be heresy in a world where bits and bytes have replaced the slide rule, but the logic is simple economics. The action resulting from assessments will typically fall into only two categories—annual maintenance expenses or specifically defined projects—for example, repair the thermostat (annual maintenance) or replace the roof on the chemistry building (project). Within the maintenance account of a facilities department, the day-to-day expenses can be relatively easily estimated and prioritized within the current budget cycle.

Project work, on the other hand, usually requires investigation beyond a condition assessment, and likely involves engineering plans and specifications for execution by contract. No matter what type of assessment is chosen, follow-on, detailed investigation, design and cost estimation will be required for project work. So, the central purpose of an assessment should be to identify and prioritize projects, rather than to spend scare resources on the diminishing return of 75 percent accuracy in condition assessment estimates.

CONCLUSION

In this article the reasons, methods, and outcomes of the methods of facility condition assessments were reviewed. Figure 2 summarizes the results and provides a quick guide for identifying the type of assessment which best matches the organization's need. At one end of the assessment spectrum, the comprehensive method offers relatively higher accuracy than the other methods, but at the price of speed and cost. Qualitative, life-cycle and hybrid methods offer faster results at a low cost, but they return results with either lower accuracy or a relative condition rating. The relative condition may be completely suited to the requirements of some consumers, however.

System-oriented methods appear to provide the best of all worlds—fast results at low cost with moderately accurate estimates sufficient to identify and prioritize repairs and projects. (\$)

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- 3. NASA Procedural Requirements, NPR 8831.2E

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The Tale of Three Campuses

A Case Study in Outdoor Campus Assessment

t an anecdotal level, it is obvious that a visually appealing campus environment is related to successful student recruitment, satisfaction, and persistence. Because a college education is abstract, marketing often involves "show[ing] evidence of what a college education experience will look like" (Anctil 2008), which often translates to a reliance on images of the campus environment. Images of campus have long been used to recruit students and are featured on university websites, advertisements, and in campus viewbooks.

In a study for APPA's Center for Facilities Research (CFaR), Cain and Reynolds (2006a; 2006b) linked the quality of campus facilities and the attractiveness of campus to college choice among their study's participants but also noted that facilities may not always be the primary motivation. Further, the physical campus environment can impact student feelings of safety and inclusion, their level of involvement in

By Erica L. Eckert, Ph.D.

campus life, and their sense of community on campus (Strange & Banning 2000).

The importance of the campus environment is clear, but how does an institution know how their campus environment is being perceived? The answer is, quite simply, assessment—and that will be the focus of the remainder of this piece.

The data provided here were collected as part of a doctoral dissertation, completed by the author in 2012. The results for three of the eight participating institutions will be detailed as a case study on how a campus planning unit could use an instrument like the Outdoor Physical Campus Assessment to engage in self-study to identify areas of strength and areas for improvement. The campuses presented (with identities removed) in this article were selected for their diverse campus settings and features. The full dissertation is available through APPA's Center for Facilities Research website.

ATTRACTIVENESS, AMOUNT, AND IMPORTANCE RESULTS: DASHBOARDS

The survey instrument used in the study comprised elementbased questions drawn from the work of Richard Dober (1992) and others to measure student satisfaction with the outdoor campus environment, along with the importance students attributed

> to the outdoor campus environment. The survey also included items on wayfinding and conceptual elements related to campus ecology literature. During the process of instrument development, intensive validation procedures were utilized (for a more

complete discussion, see original work on CFaR website). A total of 1,710 participants across eight public universities in Ohio responded to the survey between September and November of 2011. Results of the validity and reliability analysis indicated that the Outdoor Physical Campus Assessment collected valid and reliable student perception data for the field test administration.

CAMPUS PROFILES

Campus 1 is located in a rural area and well-known for its beauty and cohesive red-brick buildings. This institution has a long history and has been careful to blend new architecture with the older, prevailing architectural style. The area is replete with



Primary Element Scale Information:

Satisfaction Scale: 1 = Very Dissatisfied, 2 = Dissatisfied, 3 = Somewhat Dissatisfied, 4 = Neutral, 5 = Somewhat Satisfied, 6 = Satisfied, 7 = Very Satisfied

Importance Scale: 1 = Very Unimportant, 2 = Unimportant, 3 = Somewhat Unimportant, 4 = Neutral, 5 = Somewhat Important, 6 = Important, 7 = Very Important

Figures 1-3 Stoplight Dashboard Color Ranges:

Green: Important to Very Satisfied/Important Yellow: Somewhat Satisfied/Important to Satisfied/Important Red: Neutral to Somewhat Satisfied/Important Black: Neutral

Figure 1: Attractiveness/Importance and Amount Importance Dashboard, Campus 1

1.000			A BOARD
	Attractiveness	+ Importance Mea	sures
	Description	Attractiveness	Importance
	Description	Mean	Mean
	Trees	6.53	6.30
	Green Space	6.41	6.27
	Landscaping	6.22	6.06
	Building Exteriors	6.07	6.08
Campus Entrances Walkways Formal Meeting Space Informal Meeting Space	Campus Entrances	5.95	5.75
	Walkways	5.89	6.45
Ē	Formal Meeting Space	5.72	5.72
, a	Informal Meeting Space	5.62	5.92
	Benches/Seating	9 5.55	5.96
	Lighting	5.44	6.48
Statues and Artwork Trash Receptacles Water Features	Statues and Artwork	5.37	5.42
	Trash Receptacles	5.33	6.11
	Water Features	5.24	5.40
	Recycling Bins	5.24	6.08
	Cigarette Disposal	4.59	5.59

Amount + I	mportance Measu	ires
Description	Amount Mean	Importance Mean
rees	6.43	6.30
een Space	6.32	6.27
ndscaping	6.15	6.06
/alkways	6.14	6.45
enches/Seating	5.55	5.96
gnage	5.54	5.99
rmal Meeting Space	5.51	5.72
formal Meeting Space	5.51	5.92
ash Receptacles	5.40	6.11
ghting	5.40	6.48
atues and Artwork	5.32	5.42
cycling Bins	5.18	6.08
ater Features	5.03	5.40
garette Disposal	4.76	5.59
arking	4.06	6.21

trees, hills, and venerable details. The pedestrian is hard-pressed to leave the space without being in some way impressed by their experience.

Campus 2 is embedded in an urban area, buzzing with activity. This densely built campus is a mixture of new and old; the new buildings are cutting-edge with a fresh and modern look, while the older structures patiently wait renovation. Despite the urban location, this institution has infused its spaces with trees and bold landscaping as a means to provide a sense of oasis within the boundaries of campus.

Campus 3 is nestled in the suburbs, approximately 40 minutes from the nearest metropolitan area. The campus is a mixture of eclectic buildings surrounded by well-balanced grassy fields and hardscaping. It is neither completely green nor dense with buildings. Trees are well-placed throughout campus, often lining walks, to provide wind-screening and scenery for the pedestrian experience.

GRADING THE ELEMENTS OF THE OUTDOOR CAMPUS ENVIRONMENT

The Outdoor Physical Campus Assessment asked students to rate their satisfaction with the attractiveness and amount of elements of the campus environment on a scale of 1 to 7, (figures 1–3). Participants were also asked to rate how important an element was on a similar seven-point scale that allows a campus the



	Attractiveness	+ Importance Meas	sures
	Description	Attractiveness Mean	Importance Mean
	Landscaping	5.71	5.81
	Trees	5.60	5.88
	Green Space	5.60	5.91
	Walkways	5.44	6.35
Campus 2	Campus Entrances	5.23	5.49
R	Benches/Seating	5.18	5.81
Ē	Statues and Artwork	5.08	5.05
, Fig.	Building Exteriors	5.05	5.61
<u> </u>	Lighting	5.01	6.40
	Informal Meeting Space	4.98	5.72
	Trash Receptacles	4.97	6.09
	Formal Meeting Space	4.95	5.46
	Recycling Bins	4.76	6.02
	Water Features	4.58	5.27
	Cigarette Disposal	4.34	5.16

Amount + In	nportance Measu	res
Description	Amount Mean	Importance Mean
Walkways	5.58	6.35
Landscaping	5.48	5.81
Trees	5.30	5.88
Green Space	5.23	5.91
Trash Receptacles	5.09	6.09
Signage	5.06	5.95
Benches/Seating	5.01	5.81
Lighting	4.96	6.40
Informal Meeting Space	4.92	5.72
Statues and Artwork	4.89	5.05
Formal Meeting Space	4.82	5.46
Recycling Bins	4.61	6.02
Cigarette Disposal	4.53	5.16
Water Features	4.41	5.27
Parking	3.62	6.54

Figure 3: Attractiveness/Importance and Amount Importance Dashboard, Campus 3

	Attractiveness	+ Importance Mea	sures
	Description	Attractiveness Mean	Importance Mean
	Trees	5.77	6.14
	Green Space	5.64	6.01
	Landscaping	5.61	5.92
	Walkways	5.19	6.25
s 3	Benches/Seating	5.13	5.82
Campus 3	Trash Receptacles	5.05	5.98
Ē	Recycling Bins	5.02	6.05
a	Building Exteriors	4.93	5.86
•	Informal Meeting Space	4.93	5.69
	Lighting	9 4.92	6.16
	Campus Entrances	9 4.87	5.41
	Statues and Artwork	4.75	5.16
	Formal Meeting Space	9 4.71	5.51
	Cigarette Disposal	9 4.41	5.31
	Water Features	3.99	5.15

Amount + Importance Measures					
Description	Amount	Importance			
Description	Mean	Mean			
Walkways	5.57	6.25			
Trees	5.53	6.14			
Landscaping	5.49	5.92			
Green Space	5.42	6.01			
Trash Receptacles	5.18	5.98			
Recycling Bins	5.07	6.05			
Signage	4.88	5.94			
Benches/Seating	4.87	5.82			
Lighting	4.81	6.16			
Informal Meeting Space	4.80	5.69			
Statues and Artwork	4.68	5.16			
Cigarette Disposal	4.66	5.31			
Formal Meeting Space	4.52	5.51			
Water Features	3.97	5.15			
Parking	3.06	6.30			

ability to not only see how happy students are with an element, but also how much it matters to them in general.

When compiling assessment data, using a dashboard-type layout can help you conduct visual evaluation of your results. Although the use of dashboards emulating stoplights is at best a crude measure, it provides a way to organize information and to weigh student satisfaction against the importance attributed to an element. Using bar graphs to map responses to questions is another helpful way to evaluate data, and an example using wayfinding questions will be outlined later in this piece.

As Figure 1 demonstrates, students at Campus 1 (the rural campus with myriad trees and cohesive architecture) were satisfied with the attractiveness of trees, green space, landscaping, and the building exteriors. They were less satisfied with the attractiveness of statues and artwork, water features, and trash, recycling, and cigarette disposal receptacles, although the item means were still in the somewhat satisfied to neutral range. Presented alongside the attractiveness mean, the importance mean provides a sense of how important an element was to students at that campus; for example, lighting was rated as more important (6.48) than it was attractive (5.44) as was the case for walkways, trash receptacles, and recycling bins. Students at Campus 1 (the rural campus) reported high levels of satisfaction with the amount of trees, green space, landscaping, and walkways, and lower levels of satisfaction with the amount of statues and artwork, recycling bins, water features, cigarette disposal, and parking, with responses ranging from somewhat satisfied to neutral. As with the attractiveness questions, the importance responses are included for a more complete picture; parking (rated neutral in terms of amount) was rated as important. Additionally, students at Campus 1 reported lower levels of satisfaction with the amount of trash receptacles, lighting, recycling bins, and parking while rating them as important. Students at Campus 2 (the urban campus) were generally satisfied with the attractiveness of their surroundings, as Figure 2 demonstrates. The students at Campus 2 were more satisfied with landscaping, trees, and green space, but were comparatively less satisfied with meeting space, recycling, trash and cigarette disposal receptacles, and water features. When considering the items of greatest importance, Campus 2 had only moderate satisfaction (approaching neutrality) with walkways, lighting, trash, and recycling receptacles. The data presented in Figure 2 might lead a campus planner to consider targeting these lower-satisfaction, higher-importance items for investment.

Figure 2 also presents the average respondent satisfaction with the amount of elements for Campus 2. Students were most satisfied with the amount of walkways, landscaping and trees. Several elements (walkways, trash receptacles, lighting, recycling bins, and parking) were rated as important (closer to *very important*, in the case of parking) but student satisfaction with the amount of the elements was more moderate.

Students at Campus 3 (the suburban campus) rated the attractiveness trees, green space, and landscaping was most satisfying, and like other campuses, meeting space, and cigarette disposal receptacles were rated as less satisfying. Using the stop-light motif, however, one can observe the spread of satisfaction between campuses (with Campus 1 being most satisfying). Also apparent in Figure 3 are the five items rated *important* (but only moderately satisfying): trees, green space, walkways, recycling bins, and lighting.

A majority of the elements at Campus 3 (presented in Figure 3) were between *somewhat satisfying* and *neutral*, which is denoted by the majority of red and black icons. Nearly all elements were rated as more important than they were satisfying (in terms of amount). Most notably, there was a large spread between parking (*important* to *very important*, but the amount was *somewhat dissatisfying*) and water features (amount satisfaction *neutral* and *somewhat important*).

WAYFINDING ON CAMPUS: DASHBOARD GRAPHS

The instrument developed for the initial study contained items on a variety of topics, including wayfinding. Three items were included in the survey instrument to allow campus planners to consider how their campuses are being perceived:

- 1. How would you rate your familiarity with the layout (where buildings are located how to get from one location to another) on campus at [insert university name]?
- 2. How difficult was it to become familiar with the layout (building locations) on [insert university name]'s campus?
- 3. How would you rate your ability to provide a lost student or parent with directions to a specific location on the [insert university name]'s campus?

Figure 4 details the wayfinding results for Campus 1. Based on the results, it is clear students were familiar with Campus 1, but the distribution for the difficulty in learning campus was flat. No students reported the campus being *very difficult* to learn, but a fairly large number felt the campus was at least *somewhat difficult* or *difficult* to learn. A majority of students at Campus 1 felt they had an *excellent* or *good* ability to provide directions. Taken together, it appears as though learning campus was not an overwhelming challenge, and students were mostly comfortable providing directions—a good sign for wayfinding.

Contrast this with Figure 5 for Campus 2—the distribution for familiarity with campus was unsurprising, the distribution for difficulty in learning campus was bell-shaped, and the ability to provide directions had a similar pattern. This implies that the wayfinding efforts are reaching the middle of the population, although fewer students felt that they had an *excellent* ability to provide directions. Given the number of students

Figure 4: Wayfinding Dashboard, Campus 1

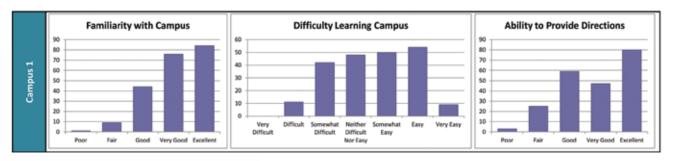


Figure : Wayfinding Dashboard, Campus 2

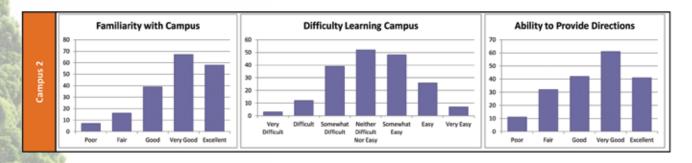
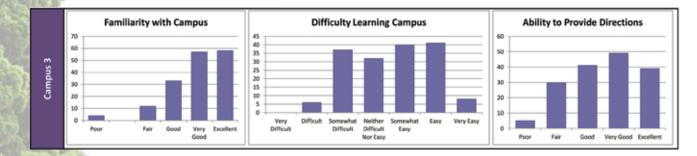


Figure 6: Wayfinding Dashboard, Campus 3



who feel that they know campus well, this may imply that signage or landmarks could be enhanced to assist newcomers to campus.

Finally, the results for Campus 3 are outlined; a majority of students felt that they had *very good* or *excellent* familiarity with campus, but as with Campus 1, very few students were on the extremes when considering how difficult it was to learn the campus layout. A large number (approximately 23%) reported that learning campus was *somewhat difficult*. The results for this campus are more mixed; students are familiar with campus, but like Campus 2, there is a population that is less confident directing lost persons—which is best investigated by native campus planning personnel.

CONCLUSION

Assessment is a powerful activity, and it can only enhance the effectiveness of campus planners in making decisions. Creating dashboards with the data collected allows for surface-level evaluation and guides further exploration of student perceptions. A smart step in any assessment endeavor would be to take the results from a campus environments survey and then convene student focus groups to gain a better understanding of the "why" behind the results.

Focus groups can provide pointed guidance. For example, many campuses in this study were found to have less lighting than students would like. A student focus group could provide guidance on *where* additional lights are necessary, or if the issue is more about how bright the individual lights are. For wayfinding, students might be able to explain why they are, on the whole, familiar with campus but struggle in providing directions to newcomers.

The use of an instrument, such as the Outdoor Physical

Campus Assessment, can be an effective first step in assessing your campus environment. Surveys are fairly quick to implement, inexpensive, and can yield useful information that allows a campus planner to put numbers to gut instincts and water-cooler conversations. It is important, however, to not simply accept the data from a survey as final—one must treat this data as one of many sources. ()

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Operational Guidelines for Educational Facilities – Custodial

By Alan S. Bigger, APPA Fellow

ne of the benefits of being an APPA member is reading the many articles in Facilities Manager. In the last edition Maggie Kinnaman, APPA Fellow, reviewed a research report published by APPA in 2006 that addressed the impact that facilities have on student recruitment and retention, and Kinnaman stated "... the survey suggested a significant number of respondents rejected an institution because facilities were missing, inadequate or poorly maintained." A significant component in maintaining facilities is the custodial operation that maintains the level of cleanliness and appearance of those facilities.

APPA recognized the important of custodial operations in 1992 and published the seminal work, Custodial Staffing Guidelines for Educational Facilities. It was the first work that sought to correlate the productivity of custodial operations (the amount of space cleaned) with the level of cleanliness (levels of appearance) and what a stakeholder could reasonably expect of the custodial function. Due to the popularity of this publication it was revised in 1998 and republished in 2012 as Operational Guidelines for Educational Facilities: Custodial as part of a trilogy of publications that also included the Grounds and Maintenance operations. APPA also offers a companion software program that enables the reader to input the data suggested in the book into a computer in order to make calculations, projects and worksheet that document the implementation of the

guidelines in quantitative form.

Have you as a facilities manager ever wondered if you are getting value for the dollars expended in your operation? Is your staffing adequate? Is the level of appearance or the level of clean adequate for your stakeholders? The Guidelines seek to address these questions and many others. seventeen authors were involved in writing the new edition to include members of the academic faculty, facility managers and students. The book includes 33 room types and enables the facility manager to add additional specialty rooms for his or her facilities.

THE BEAUTY OF THE GUIDELINES IS THAT IT PROVIDES A SIMPLE APPROACH TO CUSTODIAL OPERA-TIONS WHILE AT THE SAME TIME BEING ROBUST AS ATTESTED TO THE FACT THAT IT HAS ENDURED FOR NEARLY 25 YEARS.

We have all heard the acronym K.I.S.S. (Keep it Simple etc.). The beauty of the Guidelines is that it provides a simple approach to custodial operations while at the same time being robust as attested to the fact that it has endured for nearly 25 years. The Guidelines is based upon these simple elements:

• The task to be performed (example: mop a floor)

- The amount of time it takes to do a task (example: the amount of time it takes to mop a floor)
- The frequency that a task should be performed (example: daily)
- The type of space, or room type, to be cleaned

These four elements are used to make projections of how much space a custodian can clean (cleanable square feet) and what quality or level of appearance a manager can reasonably expect for the effort and resources expended for the custodial operation. APPA has collected data from member institutions over the decades and in this edition integrated the current data provided by ISSA-The Worldwide Cleaning Industry Association. With the inclusion of these data sources the overall productivity of the new data provided in this edition are significantly higher than the 1992 and 1998 editions.

In addition to the elements addressed above, APPA has collected data as to the amount of a specific space that a custodian can be reasonable expected to clean give the tasks to be performed, the amount of time allocated to the tasks, the frequency of the tasks and the room type. The data was collected for 33 specific room types such as classrooms, offices, shower rooms, entrances, public circulation, and others.

The book has a table that clearly displays what productivity can be expected and the outcome, or level of appearance of that productivity by room type (NOTE: If you have rooms that do not neatly fit into these room types you can design your own room type by using the tasks and times provided in the book). These are called appearance levels ranging from Level 1 to Level 5. The levels are clearly defined in the book and include:

Level 1	Orderly Spotlessness
Level 2	Ordinary Tidiness
Level 3	Casual Inattention
Level 4	Moderate Dinginess
T 1 7	TT 1 NT 1

Level 5 Unkempt Neglect

The following example extrapolated from the Guidelines provides a chart indicating the productivity and the expected level of cleanliness for two room types:

Standard Space Category	Classroom with hard floor*	Office with carpet*
Level 1	7,200	12,300
Level 2	17,000	24,500
Level 3	18,100	45,600
Level 4	23,600	74,000
Level 5	24,500	116,800

*The figures are for cleanable square feet (CSF)

The example illustrates that if a custodian is to clean 24,000 cleanable square feet or more of office space, that the expected outcome would be a Level 5, Unkempt Neglect. Likewise, it clearly illustrates that if a custodian is cleaning 17,000 CSF (an expectation of Level 2) of classroom space and a quality assurance assessment of the area cleaned indicated that the custodian is cleaning the space at a level 5, that there is a misalignment of expectations.

The book clearly explains how to collect data for your institution and how to compare and contrast the data, and is invaluable for benchmarking your custodial organization with peer or cohort data, and encourages facilities managers to use APPA's Facilities Performance Indicators along with the data provided in the book.

The Guidelines does not provide data about costs since that will be different from one organization to another, from one region to another, however it does allow the facilities manager to use the data in the guidelines to compute his or her costs based upon the hourly rate of pay and benefits, and then to compare that data against APPA's FPI or other industry standards. This will enable the facilities manager to determine if his or her costs are reasonable when compared to like organizations or regions.

The book enables the manager to analyze his or her operation and to provide clear and consistent data about how the custodial organization is performing, and this data can be used to building a benchmarking matrix that displays gross square feet, cleanable square feet, the level of appearance and using budget data, the cost per square foot to clean this facility. Keep this information current and on-hand is a critical during tight fiscal times, and can be clearly used to demonstrate the effectiveness of the custodial operation. The Guidelines also looks toward cleaning in the 21st century, and addresses scientific cleaning and the measurement of clean with a clearly documented case study that can be used to quantify clean. Using this data and qualitative data provided by auditing an organization's cleaning program will enable YOUR organization to be on the cutting edge of custodial operations.

Facilities managers are being challenged to be effective and efficient managers of the resources allocated to their operations. The implementation of the Guidelines in your custodial function will enable YOU to clearly demonstrate that you have risen to the challenge! (s)

Alan Bigger is an APPA Fellow and a Past APPA President. He was the Operational Guidelines Trilogy Editor-in-Chief and can be reached at *frugalperson@comcast.net*.



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Adopt Information Exchange Standards and Harvest Benefits

By William Brodt

dopting new industry standards, particularly the Construction Operations Building Information Exchange (COBie) and the OmniClass™ Construction Classification System are straightforward means to reduce costs associated with data collection, overcome incompatibility problems, and improve overall facility performance. Facility managers collect information in various combinations of hardcopy documents and electronic data. Too often it's "stove piped" for specific uses, incompatible with related systems, or simply lost by the time it's needed. Also too often, useful information, easily obtainable at the time of creation, is not captured because the cost to acquire it exceeds the budget and the benefit is not immediately accrued.

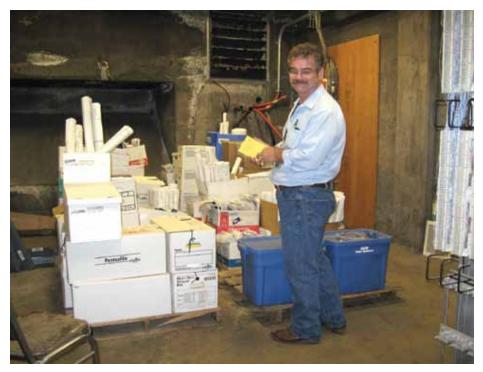
WASTE NOT, WANT NOT

There is more waste in the capital facilities industry than in the comparatively lean manufacturing industry, and much of this difference can be attributed to:

- 1. the lack of information exchange standards, and
- reliance on paper-based information exchanges [Eastman; Gallaher]. Although numerous obstacles existed, it was clear 20 years ago that a better way was possible [FFC; BICE]. Manufacturers, the authoritative source for product information, prepared documents electronically, and the least expensive and the most accurate

was through electronic data exchanges. Furthermore, facility management information systems had the capability to consume and use a considerable amount of product information data such as warranty and safety data, preventive maintenance schedules, spare parts, special tools, etc. A rigorous process of extensive market research to identify criteria for a new maintenance management system including product information data elements, followed by a thoughtful procurement process, do not necessarily yield all the anticipated benefits. While the selected product may provide

IT'S DIFFICULT TO DEVELOP STRATEGIES TO OPTIMIZE MAINTENANCE WHEN POTENTIALLY USEFUL INFORMATION IS MISSING.



An actual traditional pre-COBie construction project submittal handover. SOURCE: US ARMY CORPS OF ENGINEERS/ENGINEERING RESEARCH AND DEVELOPMENT CENTER/CONSTRUCTION ENGINEERING RESEARCH LABORATORY.

way of obtaining product information

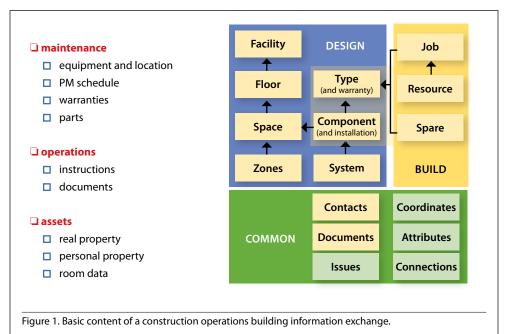
the prospect of substantially improving maintenance performance, there must also be resources to support data entry of the nameplate, warranty, safety, spare parts and other important information. Otherwise, much of the anticipated prospective capability is never realized. Building such a database via keystroke data entry and individual contract agreements is costly and rarely achievable.

Product manufacturers routinely print and ship numerous copies of technical documents for contract requirements and to replace those which become lost. This waste is hidden in overhead costs. The internet and various electronic documentation methods reduce the printing and shipping costs, but don't integrate the manufacturer's information with the owner's facility management systems. The solution is for manufacturers to provide required information electronically via a standard data exchange so that it can be incorporated into owner's systems automatically at nearly nil cost. With tens of thousands of building industry products and hundreds of information systems, transforming building industry practice involves both (1) creating a suitable information exchange standard and (2) converting the standard into standard industry practice.

COBIE AND OMNICLASS STANDARDS

COBie and OmniClass are now recognized internationally and incorporated into the National Building Information Model Standard–U.S., v.2 (NBIMS). An increasing number of the design, construction and facility management systems now include the capability to export and import data via these standards.

OmniClass is useful for many applications, from organizing library materials, product literature, and project information, to providing a classification structure for electronic databases. Although the name OmniClass is new, this classification system actually incorporates extant systems—MasterFormat[™] and



UniFormat are well known examples. Others are less well known, but important for their purposes. Typically, a locally developed classification system is not as robust as OmniClass.

OmniClass advantages stem from the concept of life-cycle facility management. Obviously when information passes from design, through construction, to the owner/operator, it's cheaper and more accurate to pass the information without modifying it. If a subsequent facility alteration or renovation contemplated, it's also easier and more accurate to provide the information to the new designer in the same form in which it was originally created.

Building control systems generate enormous amounts of data, and increasingly interface with maintenance management applications. COBie provides the structure for obtaining and exchanging key nameplate and specification information. OmniClass tables employed within COBie support these processes. New COBie derivatives and extensions address the specific real time processes.

Building commissioning and certification programs such as U. S. Green Building Council's Leadership in Environmental and Energy Design (LEED) and Green Globes require information about products and systems and their performance. COBie derivatives and extensions also facilitate such requirements. OmniClass tables complement these activities.

Maintenance strategies built upon the principles of reliability centered maintenance and failure modes and effects analyses benefit from COBie and OmniClass. Actually, it's likely that many of the potentially useful data elements within most existing equipment records are blank. It's difficult to develop strategies to optimize maintenance when potentially useful information is missing.

NOW IS THE TIME

Currently the real property management community is seeking ways to improve facility utilization. Federal agencies and commercial firms put considerable effort into the OmniClass tables which define facility spaces and types. Although some Federal agencies have long used very detailed facility classification tables, many others have used less rigorous tables. Similarly, space classification has largely been measured at relatively gross levels, but increased interest in sustainability and consolidation means that better metrics—typically metrics associated with specific functionality of spaces—become important. OmniClass tables support these real property management requirements.

The time to begin the transition is now with the tasks currently at hand. Ask facility management system providers to incorporate OmniClass tables and support the COBie standard. A big construction project, a modest renovation job, or a maintenance component replacement task is part of life cycle facility management and a suitable beginning point. (5)

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Bill Brodt is an experimental facilities development engineer at NASA, chair for the facility maintenance and operations committee of the National Institute of Building Sciences, and a member of the OmniClass Development Committee. He can be reached at *wbrodt@nasa.gov*.



power tools

A Strategy for Self-Funding Energy Efficiency Projects

By Paul Chamberlin

Reality managers have long struggled to fund pure energy efficiency projects, when that funding competes with repair and modernization needs. Through persistence and some good luck, the University of New Hampshire found a way.

IN THE BEGINNING...RESTRICTIVE REBATES

Through the early 2000s, steady investments in energy efficiency improvements had been made as the campus leveraged its own funds with rebate programs offered by the local utility companies. However, these programs became more restrictive, concurrent with UNH investing in a combined heat and power plant to better utilize on-site energy, but which essentially eliminated any remaining eligibility for rebate programs. While renovation and new construction projects continued to require high-efficiency lighting, motors and HVAC systems, investment in pure energy efficiency projects stopped and campus energy use intensity (total energy per GSF) started to climb; an unacceptable trend for a campus with a strong culture of being "green."

EEF: INVESTING IN ENERGY EFFICIENCY

Campus energy managers, members of the Office of Sustainable Programs and the campus Energy Task Force (ETF) recognized that a dedicated funding stream for energy efficiency improvements was needed if the trend was to be reversed and the concept of an Energy Efficiency Fund (EEF) was developed. The fund would invest in energy efficiency improvements and the value of the estimated annual energy savings would be returned to the fund through a surcharge on the utility rate charged to campus units. (UNH utilities operate as a cost center and charges campus units for utilities consumed.) This would replenish the fund and allow further investments.

However, an initial source of funds needed to be found. After several unsuccessful initiatives, in 2009, UNH was able to secure a \$650,000 grant of American Recovery and Reinvestment Act (ARRA) funds, and the EEF was launched. Since then, UNH has seen more than \$500,000 in energy savings "returns" and the Energy Task Force estimates that after a decade, the university will realize about \$3 million in energy savings and prevent more than 8,500 metric tonnes of greenhouse gases from being emitted-the equivalent of over 1,600 passenger vehicles or 19,000 barrels of oil.

The EEF is a "revolving" fund: savings from the energy efficiency projects are estimated using a combination of sub metering and engineering estimates that follow the International Performance Measurement and Verification Protocol. Savings are captured through a System's Benefit Charge included in the utility costs charged to campus units. Thus a slightly higher rate offsets lower consumption due to the energy efficiency improvements and the net impact of funding the EEF on campus units is cost neutral. Gas and electric utility companies recover similar costs from their customers using similar system benefit rate structures. The UNH Energy Office targets an average five-year payback on projects funded. Project selections are approved by the UNH Energy Task Force, which comprises administrators, faculty, staff, and students from across campus.

- The EEF has already invested in many projects, including:
- Efficient lighting retrofits across campus
- Digital lighting controls in the main library
- Insulating steam distribution piping
- Upgrading a lab ventilation system in the engineering building. The building will also see one of the next investments, a passive solar heating system

- Updated equipment in UNH's cogeneration plant
- A recently initiated retro-commissioning program which targets 5 to 20 year old energy-intense buildings where we believe returning HVAC systems to peak performance can result in significant efficiency improvements

In the most recent Fiscal Year 12, UNH saved over \$250,000 from projects the EEF funded.

MEETING OBLIGATIONS

The fund is part of UNH's climate action plan, WildCAP, and is an important element of the UNH strategy to meet its American College + University Presidents Climate Commitment obligations. In 2011, UNH joined 32 other colleges and universities to launch a national challenge to invest in revolving funds that finance energy efficiency upgrades on campus. Called the Billion Dollar Green Challenge, the effort is being coordinated by the Sustainable Endowments Institute. The challenge is inspired by the exceptional performance of existing green revolving funds, which have a median annual return on investment of 32 percent, as documented by "Greening the Bottom Line," a report published by the Sustainable Endowments Institute.

REFERENCES

 The University of New Hampshire (UNH) main campus, located in Durham, NH, has an enrollment of over 12,000 undergraduate and 3,000 graduate students. The campus has 5.6 million square feet of building space.

Paul Chamberlin is assistant vice president of facilities at the University of New Hampshire, Durham, NH. He can be reached at *paul.chamberlin@unh.edu*. This is his first article for *Facilities Manager*.

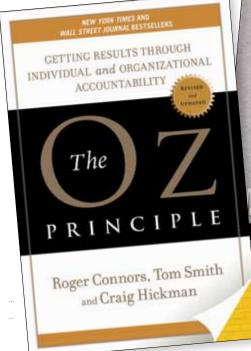




Book Review Editor: Theodore J. Weidner, Ph.D., P.E., CEFP, AIA

The New Year is a great time

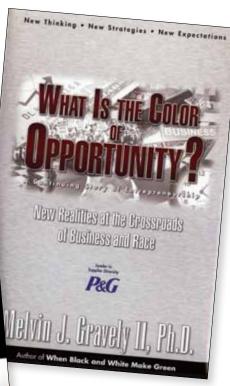
to reexamine previously held assumptions and revisit approaches to address problems. The two books reviewed provide some examples and guidelines that will help you meet your New Year goals.



THE OZ PRINCIPLE: GETTING RESULTS THROUGH INDIVIDUAL AND ORGANIZA-TIONAL ACCOUNTABILITY

Roger Connors, Tom Smith, and Craig Hickman, Portfolio, New York, NY, 2004, 222 pages, hardcover \$26.95.

There never seem to be enough analogies between literature and management techniques. It's almost a chicken and egg issue: which came first—the allegorical representation of good and bad characteristics in people—or the people and their good and bad characteristics. The authors Connors, Smith, and Hickman have identified corrections to management issues



demonstrated in the The Wizard of Oz with *The Oz Principle*.

While it may be obvious, *The Oz Principle* identifies in the four primary characters (Scarecrow, Tin Man, Lion, and Dorothy) the characteristics of people who shun accountability, instead looking for others to be responsible for correcting the situation they find themselves in. No brains? The wizard will fix it. No heart? The wizard has one. No nerve? The wizard will make you brave. Not sure how to get home? The wizard will show you the way. The same thing applies to those who shun responsibility for their situation at work.

While the various techniques about building accountability were instructive, I found parallels to APPA's Leadership Academy much more interesting. Individual and team/organizational accountability are described as different "levels" match the stages in the Leadership Academy that are part of APPA U. While the Academy focuses on interpersonal and managerial issues that are not clearly spelled out in *The Oz Principles*, those elements are demonstrated through the individual and organizational accountability examples presented.

If you're an Academy graduate, or planning to attend the Academy, *The Oz Principle* provides either a primer, or a refresher, of important personal and managerial concepts that will make you or your organization better.

I've already thought of ways to utilize them in my work; I expect you will too.

WHAT IS THE COLOR OF OPPORTUNITY? A CONTINUING STORY OF ENTREPRENEURSHIP

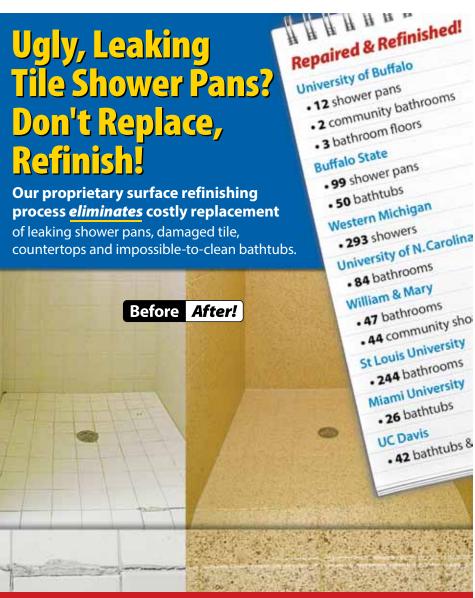
Melvin J. Gravely II, , Impact Group Publishers, Cincinnati, OH, 2011, 118 pages, \$19.95 hardcover.

Several weeks ago, I was invited to an event designed to foster minority participation in community business. The university was the "big dog" in the room and had helped sponsor the event for eight years. I had the opportunity to meet many talented minority business owners interested in selling their services or wares. And, it was a great way to meet potential contractors and consultants.

Featured at the event was Dr. Melvin J. Gravely II; a copy of his most recent book was provided to the attendees. While I often look at these opportunities with some suspicion, I enjoyed hearing Dr. Gravely's insights in the current state of minority businesses and the business climate in general. His observations, translated to more global perceptions, are outlined in *What is the Color of Opportunity?* Those observations are not terribly different from a book I reviewed over 15 years ago titled Who Moved My Cheese? The context may have changed, but the message is the same: the climate of business has changed and we need to change with it to survive.

While I'm not saying anything new to readers of this column or this magazine, the ever-changing world in which we live provides us with challenges that force us to observe, assess, and adapt. If we don't, the world will change around us and we won't be prepared to continue surviving.

In *Color of Opportunity* the message is delivered through a story of frustration, discovery, and reinvention. While the characters are often minority businessmen, there's a more universal reality



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to the message. We can't continue to assume success will be defined in the same form forever, and we can't expect to succeed for very long if we maintain a short-term perspective.

The long-term environment of "minority" businesses is that they are gradually becoming the majority. As a result, the traditional set-asides are becoming more dilute and companies are able to meet any minority goals simply by finding the best price. So, firms that want to continue to prosper and thrive under this minority-majority environment must do what other entrepreneurs have done for years—build on strengths, eliminate weaknesses, and leverage the expectations of their clients.

While your organization may not be affected by minority participation on campus projects or purchases, seeing the world from their perspective generates a new reality. These talented members of our local contracting communities are looking at ways to ensure their business viability. At the same time, we have both social and financial obligations to our institutions, and there are many qualified vendors to choose from. These vendors (including us) must recognize the new reality and focus on other drivers for company growth and success.

Color of Opportunity is a "slap in the face" for those firms reliant on setasides. While the message is delivered gently, it is also a wake-up call to those of us who have gotten too comfortable "with the way things have always been done." The author is a perceptive and articulate speaker who can help you identify the new order of things, and position you for success. (**5**)

Ted Weidner is senior director of project management and construction at Purdue University, West Lafayette, IN, and can be reached at *tjweidne@purdue.edu*.

new products



Compiled by Gerry Van Treeck

Russelectric's new Medium-Voltage (5-15kV) Circuit Breaker-Type Transfer Switches and Bypass/Isolation Switches are UL tested, listed, and labeled under UL 1008A, making them suitable for use in legally required emergency power systems. These switches transfer electrical loads between normal and emergency power sources through the carefully controlled opening and closing of circuit breakers and may be configured for open- or closed-transition



transfer. All switch functions are controlled by Russelectric's powerful and versatile RPTCS programmable microprocessorbased control system. Though designed for unattended operation, switches include controls for manual operation and provide maximum protection for personnel. All Medium-Voltage Circuit Breaker-Type Switches meet or exceed stringent IEEE, NEMA, and ANSI standards. To learn more about the this product and others from Russelectric visit *www.russelectric.com*.



Worksaver, Inc. now offers an adapter designed to allow the use of skid steer type attachments on tractors equipped with Massey Ferguson 232/236/832/838/ 932/1032 loaders with pin-on buckets retained with 1" pins. This adapter can also be used with MF

238/246/848/938/1036/1038/1048 loaders that utilize 1¼" pins if bushings are used. This adapter offers increased versatility, an all welded design, plated handles, springs, and locking pins. It is easy to switch attachments between skid steer loaders and trac-

tor loaders. For additional information about the Worksaver, Inc. *visit www.worksaver.com*.

General Equipment Company introduces the new EP8ACP15 BLOW-R-PAC® ventilation blower. It features a durable, corrosion-resistant polyethylene housing, which is a



lighter, more economical alternative to steel units. The EP8ACP15 is ideal for supplying fresh air to confined spaces in nonhazardous locations. It can also be used for a variety of other tasks, such as drying damp areas and cooling personnel in utility trenches. The EP8ACP15 offers an 8-inch output diameter and produces 900 CFM of free air flow. It is powered by a singlespeed, one-quarter-horsepower motor, which operates from a standard 115volt electrical outlet. To learn more

about General Equipment Company visit www.generalequip.com.

Dur-A-Flex is proud to announce that one of its floor systems has been certified by the National Floor Safety Institute (NFSI) for slip resistance, making the company the first resinous floor coating manufacturer to receive such a determination by the nationally-recognized agency. The NFSI provided Dur-A-Flex with the means to have their Dur-A-Quartz with Armor Top® epoxy flooring system independently evalu-



ated for slip resistance. Once the system passed the agency's rigorous evaluations, it was placed on the NFSI's Certified Products list, which is accessible by facilities looking to make a more informed buying decision. According to the NFSI, walking surfaces are most likely to be identified as the primary cause of a slip, trip-and-fall accident and comprise 55 percent of all falls. For more information regarding Dur-A-Flex visit the website at *www.dur-a-flex.com*.

FMC Corporation offers the Verifi[™] bed bug detector a breakthrough in bed bug detection technology. A bed bug detection tool that provides continuous detection of bed bugs for up to 90 days at a time, it's a small and easy-to-use device. Verifi provides facilities managers with peace of mind in the face of an ever-worsening bed bug epidemic. Verifi provides three months of active detection



before reactivating with affordable replacement components. A pest management professional can quickly and easily install the device for year-round monitoring in classrooms, dormitories, group homes, offices, hospitals, and other areas where bed bugs may become a problem. Unlike canine and other detection methods, Verifi

is discrete and unobtrusive, operates silently, and does not require occupants to vacate the room. For additional information please contact FMC Corporation at *www.verifibedbug.com*.

VersaFrame modular displays are now available and used by universities, schools, and businesses of all types and sizes. Their strength of VersaFrame lies in the ability to easily configure, install and maintain large displays of students, faculties, teams, and product photos. Images can be updated and changed out in seconds. The clean, simple displays let organizations build custom solutions for their facility spaces and display objectives. Strong aluminum channels hold hinged panes



which slide with ease. For more information about VersaFrame visit *www.versframe.com*.

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Resources for Campus Facilities Management

Strategic Capital Development: The New Model for Campus Investment

Harvey H. Kaiser and Eva Klein

Strategic Capital Development: The New Model for Campus Investment presents a bold approach for planning capital investments from a strategic and long-range perspective. The authors combine their extensive higher education experience and expertise to improve capital planning and decision making and to make a case for a new model that seeks to balance idealism with pragmatism. They define stewardship principles necessary to create and sustain a built environment that is responsive to institutional strategies and functions, remains attractive to faculty and students, and optimizes available resources. (A763)

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Operational Guidelines Trilogy Package

This package includes all three books in the popular APPA trilogy, *Operational Guidelines for Educational Facilities:* Custodial, Grounds, and Maintenance. All have been *fully revised and expanded* and include numerous figures, graphics, glossaries, and additional resources. (A767)



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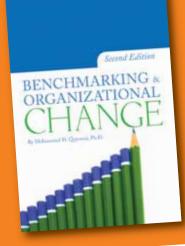
Benchmarking for Organizational Change, second edition

Mohammad H. Qayoumi, Ph.D., APPA Fellow

Fully revised and updated from the classic first edition, *Benchmarking & Organizational Change* will assist in integrating the technical, human, and economic aspects of an organization in order to optimize your business and planning results. Author Mo Qayoumi, president of San Jose State University, helps organizations embrace rapid and perpetual change and practice the principles of effective benchmarking. (A768)

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