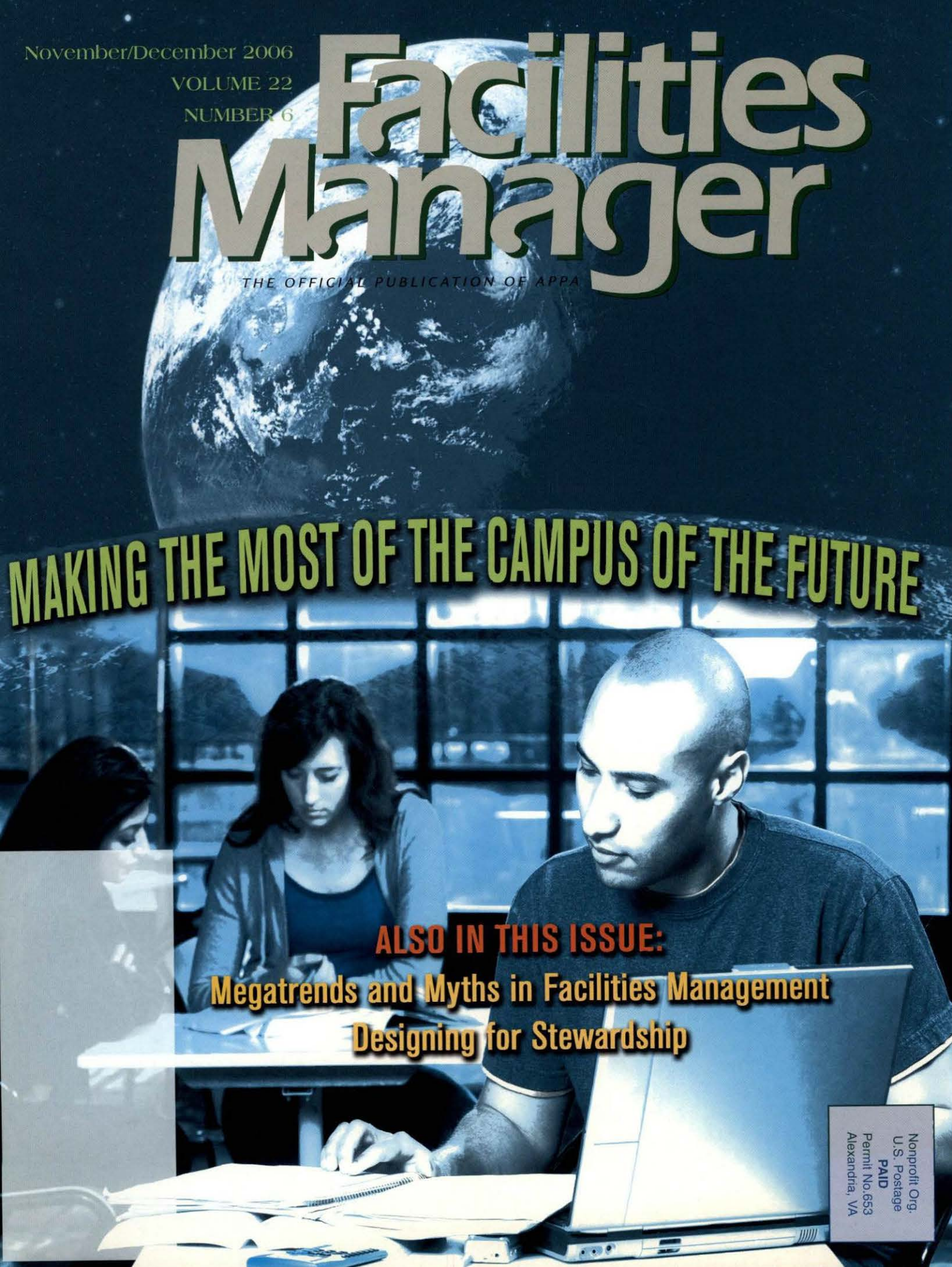
November/December 2006
VOLUME 22
NUMBER 6

Facilities Manager

THE OFFICIAL PUBLICATION OF APPA



MAKING THE MOST OF THE CAMPUS OF THE FUTURE

ALSO IN THIS ISSUE:

Megatrends and Myths in Facilities Management

Designing for Stewardship

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Facilities Manager
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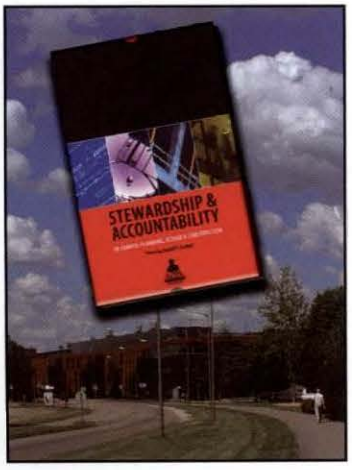
APPA
SERVING EDUCATIONAL FACILITIES PROFESSIONALS

Volume 22 Number 6 November/December 2006



THIS ISSUE:

MAKING THE MOST OF THE CAMPUS OF THE FUTURE

FEATURE ARTICLES

Facilities Manager

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Volume 22 Number 6 November/December 2006

Columns

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Facilities Manager (ISSN 0882-7249) is published six times a year (January, March, May, July, September, and November). Editorial contributions are welcome and should be sent to the address below.

Of APPA's annual membership dues, $53 pays for the subscription to ***Facilities Manager***. Additional annual subscriptions cost $66 for APPA members, $120 for non-members. For information on rates and deadlines for display advertising, telephone 847-562-8633 or 703-684-1446 ext. 237.

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

Published by APPA
1643 Prince Street
Alexandria, Virginia
22314-2818

APPA
SERVING EDUCATIONAL FACILITIES PROFESSIONALS

From the Editor

by Steve Glazner

APPA has a number of new staff members working to serve you and your institutions. Following is a list of APPA's professional staff, along with their contact information and short description of their roles and responsibilities. To reach APPA, call 703-684-1446, or visit on the Web at www.appa.org.

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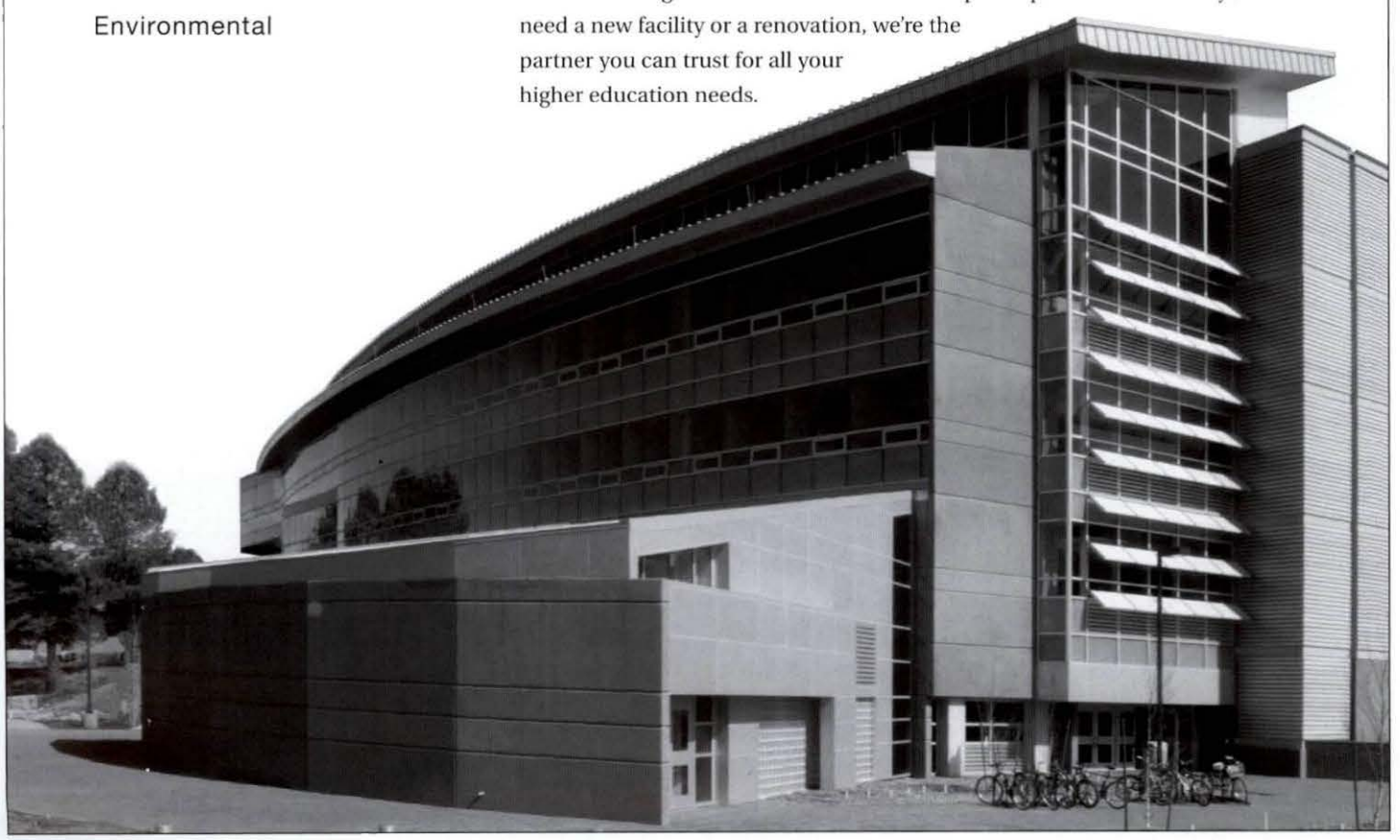
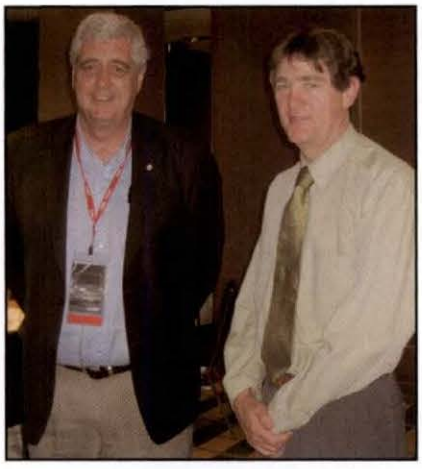


APPA Visits TEFMA

President-Elect Alan S. Bigger attended the successful annual conference of TEFMA, the Tertiary Education Facilities Management Association, held August 27-30, 2006 in Sydney, Australia. Also in attendance were Reenan du Plessis, representing the Higher Education Facility Managers Association of Southern Africa (HEFMA), and Graham Bell, representing the United Kingdom's Association of University Directors of Estates (AUDE).



Robert Kelly, left, immediate past president of TEFMA, chats with Geoff Dennis, newly installed TEFMA president.

TEFMA's Robert Kelly and Geoff Dennis greet international guests, from center, Reenan du Plessis (HEFMA), Alan Bigger (APPA), and Graham Bell (AUDE).

NUS's Michael Ng, left, and APPA's Alan Bigger sign the MOU in Singapore.

International APPA Section to Form in Singapore

In a Memorandum of Understanding signed on August 25, 2006, APPA and the National University of Singapore (NUS) expressed the intention to form an international section of APPA to improve the quality of facilities management in the North American and Asian-Pacific Rim areas. According to APPA President-Elect Alan Bigger, who was in Singapore for the signing of the document, "This will provide the NUS and other interested institutions with access to a vast array of resources and other facilities professionals within the APPA network. In addition, APPA and its existing members will receive great benefit from the increased breadth and diversity of perspectives and will make significant progress in its vision to become a global partner in learning."

Ahoy Receives IRPE Examiner Commitment Award

On September 26, 2006, APPA President Christopher Ahoy, associate vice president for facilities at Iowa State University, received the 2006 IRPE Examiner Commitment Award on behalf of ISU's Facilities Planning and Management in appreciation for providing leadership for the Iowa Recognition for Performance Excellence 2006 Process. Ahoy has been a State Baldrige IRPE examiner for the past seven years, and was appointed as a member of the 2006 National Baldrige Board of Examiners. This is the second time FP&M has received this award.

Registrations Open for APPA's Institute, Toolkit, and Academy

Registration is now open for APPA's twice-yearly **Institute for Facilities Management**, which will next be held January 21-25, 2007 at the Renaissance Orlando Resort at Sea World in Orlando, Florida.

APPA's *Supervisor Toolkit: Nuts and Bolts of Facilities Supervision* will also be held January 21-25 at the Renaissance Orlando Resort at SeaWorld Orlando, Florida.

In addition, registration will open December 1 for the April 15-19, 2007 Leadership Academy, APPA's profes-

sional, individual, and organizational development program. The Academy will be held at the San Jose Fairmont Hotel in San Jose, California.

Space is limited at both educational programs. To register or to learn more, visit www.appa.org/education.

AARP Chooses Campuses for "Best Employers" Award

AARP recently announced the 2006 winners of its Best Employers for Workers Over 50 award, and the following educational institutions were included:

- Brevard Public Schools
- Cornell University
- Massachusetts Institute of Technology
- University of Colorado Hospital
- University of Kentucky
- University of New Mexico Hospitals
- University of Texas M.D. Anderson Cancer Center
- Virginia Commonwealth University
- West Virginia University Hospitals

In addition, APPA Business Partner member Stanley Consultants was recognized with AARP's award, which "acknowledges the companies' commitment to addressing aging workforce issues and creating the road map for the workplaces of tomorrow."

To apply for the 2007 award or to learn more, visit www.aarp.org/employerresourcecenter. The deadline for applications is February 22, 2007.

Campus Sustainability Leadership Awards Presented

The Association for the Advancement of Sustainability in Higher Education (AASHE) presented its first annual Campus Sustainability Leadership Awards at its October 4-6, 2006 conference in Tempe, Arizona. Four institutions were recognized for demonstrating an "outstanding overall commitment to sustainability in their governance, academics, operations, and community outreach."

- Berea College, Kentucky
- Lane Community College, Oregon
- University of British Columbia
- Warren Wilson College, Oregon

For a complete description of the winning institutions' sustainability efforts, or to learn more about AASHE, visit www.aashe.org.

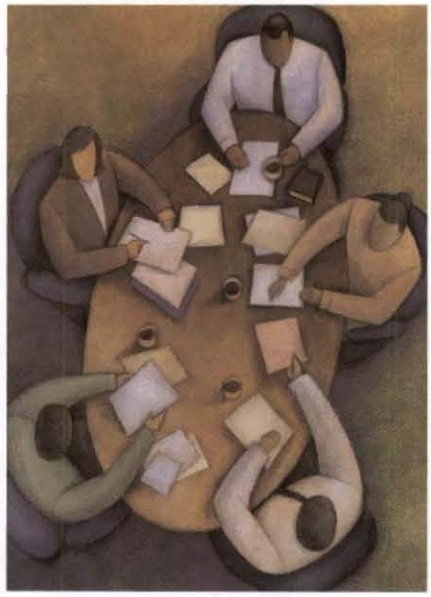
APPA's Thought Leaders Summit

by E. Lander Medlin

It is clear that the environment in which America's colleges and universities do their work has undergone significant changes. These are certainly social and demographic, but above all, the fiscal environment has changed dramatically. The federal deficit is ballooning exponentially, healthcare costs have skyrocketed, state support of higher education has declined steadily, student enrollments are burgeoning, and tuition costs have risen, sometimes disproportionately. These pressing issues will keep us fiscally challenged for many years to come.

Within this environment of scarce resources, it is becoming just as clear that the challenges of constructing, operating, and maintaining our educational facilities have been further compromised, if not exacerbated. Managing campus facilities is similar to managing a small municipality. To effectively manage the entire campus' physical assets, the educational facilities professional must understand all aspects of their facilities as well as their impact on the complex mission of the institution. The educational facilities professional must also connect the goals of the operation with the educational outcomes of the institution. Hence, linking programming, design and construction, and facilities operations in an integrated way is essential to achieve educational outcomes.

Educational facilities professionals need to engage in informed and meaningful dialogue to address these critical concerns. This is key for



America's colleges and universities to remain strong and vital, our myriad research programs to prosper, and our great contributions to the nation's economic development to continue.

What better way to approach this call to action than to engage both higher education community of leaders and facilities professionals in a dialogue about the future of higher education, the trends, issues, and concerns. The resulting report is interconnected with a list of the top ten issues educational facilities professionals face today to positively impact the future state of the facilities at their individual institutions. Clearly, the report should also document the critical role of facilities in enhancing higher education leaders' ability to shape their institution's future.

APPA, through the gracious sponsorship of Carter & Burgess, Inc., has created an annual "Thought Leaders Summit." The purpose of this summit is to engage in an annual discussion and distillation of the major issues impacting college and university facilities and to better inform educational facilities professionals on alternative ways to approach these vexing problems and concerns.

The first Thought Leaders Summit was held last May, consisting of senior institutional officers and facilities professionals to consider the future of higher education with particular attention to its built environment. The group identified the major trends impacting the future of higher education as: financial constraints, competition, changing demographics, a demand for innovation and tradition, changing student and other stakeholders' expectations, accountability, and resistance to change.

Truly the landscape of higher education is changing more rapidly than we might have expected just a few years ago. We are undergoing a dramatic transformation—one we will either choose to shape or allow to be shaped by it. Therefore, it is critically important for us to take heed of these trends and ensure alignment of our facilities mission with that of the institution we serve. Understanding what our senior institutional officers are concerned about will help us frame facilities issues more effectively.

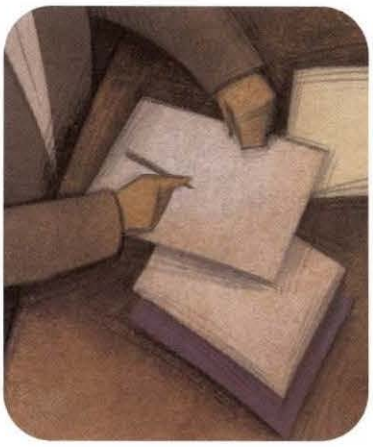
Our work did just that. The Thought Leaders report also highlights the top ten facilities issues we face and their relationship to these major higher education trends, which are:

- resource scarcity/affordability;
- performance measurement/ accountability;
- sustainability;
- energy and environmental resource management;
- laboratory and classroom spaces of the future;
- information technology;
- customer service;
- facilities reinvestment/total cost of ownership;

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

- safety and security/business continuity; and
- workforce management/ demographics.

The report documents the critical role of facilities in enhancing higher education leaders' ability to shape their institution's future. However, the greatest value to the facilities professionals will be to actively engage their senior institutional officers in a thoughtful dialogue to consider these trends and issues in greater depth and develop strategic approaches to addressing them at their specific institutions. Recognize that quality improvement is hard work, yet essential as it provides a framework for asking and answering difficult questions. It is time to engage, but with a very real sense of urgency. Remember,



"all change is local, if the change you implement is to be sustained."

Whether the change is driven by external influences and forces or by an internal choice to do so, the tricky part is to decide whether the change is directional (doing more, better) or transformational (doing something else). Archibald McLeish once said, "The rock on which the greatest universities are founded is the rock of change and recognition of the fact of change. The future is won by those creating the future and not the ones trying to maintain the status quo." I reiterate, will we choose to shape our future or be shaped by the future? The choice is ours.

Editor's Note: The Thought Leaders report will be available this January 2007 in both print and electronic versions.

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- Emissions Reduction Credits and Environmental Strategies
- Operations, Maintenance, Staffing – Training, Development and Safety

Tabletop exhibits are available to those companies that have already committed to exhibit at the 98th Annual Conference & Trade Show in Scottsdale. Please contact Tanya Kozel at (410) 518-6676 or tanya.idea@districtenergy.org for more information or go to www.districtenergy.org/calendar.htm. Limited spaces may still be available!

More detailed information on program agenda and registration for the conference will be available in November. Please visit www.districtenergy.org/calendar.htm or call IDEA at (508) 366-9339.

INTERNATIONAL DISTRICT ENERGY ASSOCIATION

What's Your Impact? Here and Now—Why Me?

by Jim Barbush, P.E.

Have you ever asked yourself any of the following: Why am I here in this place at this time? Why am I working at my institution in the position that I am in? Why am I in APPA, my region, and my chapter? Why am I serving or not serving in APPA, my region, or my chapter? What impact do I make on those around me, in my job, at my institution, and in APPA (internationally, regionally, and locally)?

Many have asked these questions and there are probably some that have not. Whether or not we have, we *should* be asking these questions of ourselves, and we should be asking them regularly. More importantly, we need to be answering those questions. We need to assess what we are doing, why we are doing it, and what impact we are having on those around us and the places we are in.

Why do we need to do that? Now there's a question about why we need to ask questions. We need to ask and answer these questions so that we can realize that we need to be assured that we are *adding value* to what we are involved in. We need to assess the level of value added and determine if it is sufficient, and then take action to increase or change that added value.

We need to understand that each and every one of us is *a focal point* of action that will affect what we are involved in. We need to understand that each and every one of us is *a filter* that will sift conditions and activities to determine what is appropriate and what is not appropriate in what we are doing, to allow or disallow things in our present situations and into our future situations.

We need to understand that we can motivate ourselves and those around us in ways that change how we work, how we think, what we get accomplished, and how we feel about ourselves and others.

In the recent years, I have been awakened to the massive influence that we as individuals can have on our surroundings. That can be a positive influence or a negative influence. I have been awakened to understand that where I am matters, what I do matters, and what I do where I am does make a difference. I have the power to make that impact as a positive influence or a negative influence.

I came to this awakening by asking and answering these questions and then taking steps to implement the answers. The results have been striking. My work has been impacted. People I work with have been impacted, and my family has been impacted. My horizons have been expanded and continue to expand. My territory (sphere of influence and places of operation) has been expanded, and that has spread to include my family.

By the time this article is published in APPA's *Facilities Manager,* I will have attended: 1) APPA's joint conference in Hawaii; 2) ERAPPA's 56th annual conference in Mystic, Connecticut (ERAPPA is my region of APPA); and 3) KAPPA's semi-annual conference in Cranberry, Pennsylvania (Keystone APPA is my chapter of APPA). My wife and son will have attended the APPA and ERAPPA conferences with me. We will have been to places that we never would have expected or planned to be except for my involvement in APPA, ERAPPA, and KAPPA. We will have been with people that we know and some we have never met before. We will have influenced others and been influenced ourselves. Our territory and horizons in the world will have expanded again.

I will have been encouraged that I am in the right place at the right time, having been with people that are focused on common goals. And possibly, I will have determined that I am to go into something new and different, something that I never expected. Then, the thought will come, *"If I would not have ventured out in APPA/ ERAPPA/KAPPA and gone to the places and experienced the education, events, and people, then I and my family would not have grown and developed as we have, we would not have benefited from what other people had to offer, and others would not have benefited from what we had to offer."* After

Jim Barbush, P.E., is the facilities contracts manager at the State System of Higher Education in Harrisburg, Pennsylvania. He can be reached at jbarbush@passhe.edu.

that thought, I will be thankful to have gone and been permitted to go.

So, in this column, I want to say that membership in APPA (internationally, regionally, and locally) *does* matter. It means a lot to my institution and me. It's something that you cannot fully understand until you experience it. It's something to tell people about. It's something that I should not be without at this time. It is well worth the time, money, and energy to be involved in APPA.

I want to thank my institution, the Pennsylvania State System of Higher Education, for being part of APPA and supporting me in this endeavor to be part of APPA, ERAPPA, and KAPPA. It's an investment that provides our system with great benefits. And it's not just me that our system supports. It supports numerous facilities personnel from the Office of the Chancellor and the system's 14 state-owned universities.

So, do some self-analysis, ask yourself some questions and answer those questions. Take some appropriate actions regarding those answers and see what happens in your life, whether at work, at home, or wherever, and find the answers to, *"What's your impact? Here and now—why me?"*

Membership in APPA

A Valuable and Life Changing Experience

"Why am I here in this place at this time?"

- Do some self-analysis.
- Ask yourself some questions.
- Answer those questions.
- Take some appropriate actions regarding those answers.
- Watch what happens in your life.

Be assured and understand that:

- You add value to what you are involved in.
- You are a focal point of action to affect what you are involved in.
- You are a filter to sift conditions and activities, to affect your present and future circumstances.
- You are a motivator for yourself and those around you.
- You are a massive influence on your surroundings.

Membership in APPA
(internationally, regionally, and locally)

- Attend international, regional, and chapter conferences to influence and be influenced.
- Experience the conference and its people to prove the value.
- Share the value of your experience.
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Student Recruitment and Canadian Campuses

by Gary L. Reynolds

As promised in the September/October Knowledge Builders column, this forum will be used to share a variety of information. David Cain and I are still analyzing much of the wealth of information we gathered in our APPA research project, "The Impact of Facilities on the Recruitment and Retention of Students." The research we have reported, so far, has focused on students attending institutions in the United States. (See previous articles in the May/June and July/August 2006 issues of *Facilities Manager.*) This column will review some of the results from students attending institutions in Canada.

A total of 16,153 students responded to the 2005 survey, with 2,313 students (14.4%) responding from two institutions in Canada. Note that this is a relatively small sample representing only two Canadian campuses, and the results reported here are only representative of the sample.

Demographics from the survey include:

- 66.6 percent of the respondents were female and 33.4 percent were male
- 84.1 percent were Caucasian, with 7.8 percent reporting as Asian and very small percentages were reported for other races
- 93.8 percent reported they were fulltime students, with 6.2 percent as part-time

Figure 1 shows the breakdown by class year, and Figure 2 shows the students' grade points.

- 21.9 percent reported that they did not visit the campus before enrolling, which compares to 10.2 percent in the U.S.

When asked about the characteristics of an institution that were important in their decision, students attending Canadian schools listed their top five as Essential or Very Important as shown in Figure 3.

This order of priorities for the top five is somewhat similar to students attending U.S. campuses. However, there are obvious differences in two other characteristics: 27.2 percent of the Canadian students ranked an Attractive Campus as Essential or Very Important versus 50.6 percent of the U.S. students; and 11.2 percent of the Canadian students ranked Climate/Weather as Essential or Very Important versus 27.2 percent of the U.S. students.

The students were asked to check all that imply to identify the importance of certain facilities in their decision. Canadian students ranked their top five as Extremely Important or Very Important as shown in Figure 4.

Statistically Canadian students ranked Technology and Bookstore higher than their U.S. counterparts and Classrooms as lower than their U.S. counterparts. Of particular note is that Canadian students as these two schools ranked Residence Halls at 16.6 percent versus U.S. students at 46.5 percent.

This is not surprising since Canadian students at the two schools reported that only 16.0 percent lived on campus their first year versus 69.2 percent for U.S. students. In addition, 41.8 percent of the Canadian students lived at home versus 11.5 percent in the U.S., and 42.2 percent lived off campus versus 19.3 percent in the U.S.

When asked to identify the one facility that was most influential in their decision, both Canadian and U.S. students ranked Facility in My

Gary Reynolds is director of facilities services at the Colorado College, Colorado Springs, Colorado, and he is the co-director of APPA's Center for Facilities Research. He can be reached at greynolds@coloradocollege.edu.

Major and Other as their top two choices.

Table A shows a comparison of Canadian versus U.S. students that rejected an institution for various reasons. For each of the reasons, Canadian students were statistically less likely to reject an institution than U.S. students.

The students were also asked if the good condition of the facilities was important in their decision. Approximately one-half of the Canadian students Strongly Agreed or Agreed with this statement versus approximately two-thirds of the U.S. students. Finally, approximately one-third of the Canadian students indicated that the campus was right for them when they first saw it versus approximately one-half of the U.S. students.

Watch this column for further information on students attending Canadian institutions. Coming up in subsequent articles, satisfaction levels of Canadian students with their institutions and differences between demographic groups.

For more information about APPA's Center for Facilities Research, visit www.appa.org/cfar.

Figure 1. Breakdown by Class Year

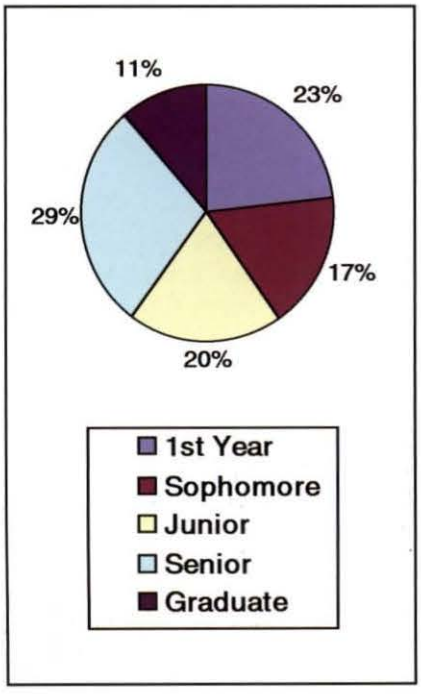


Figure 2. Grade Point Distribution

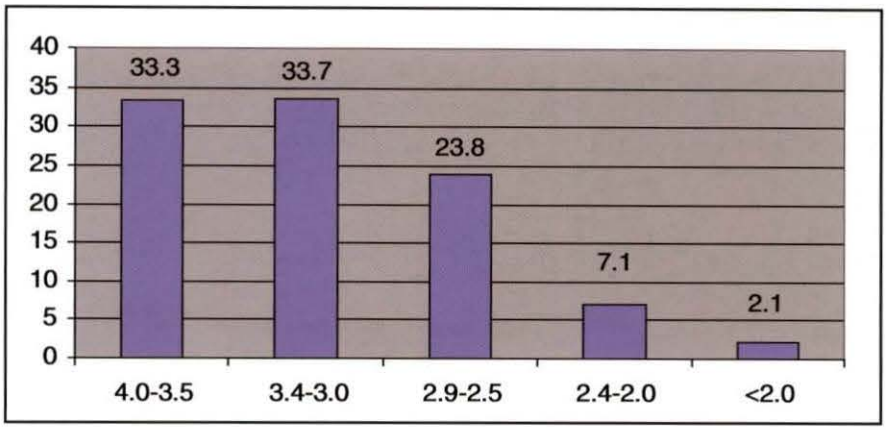


Figure 3. Top Essential or Very Important Characteristic

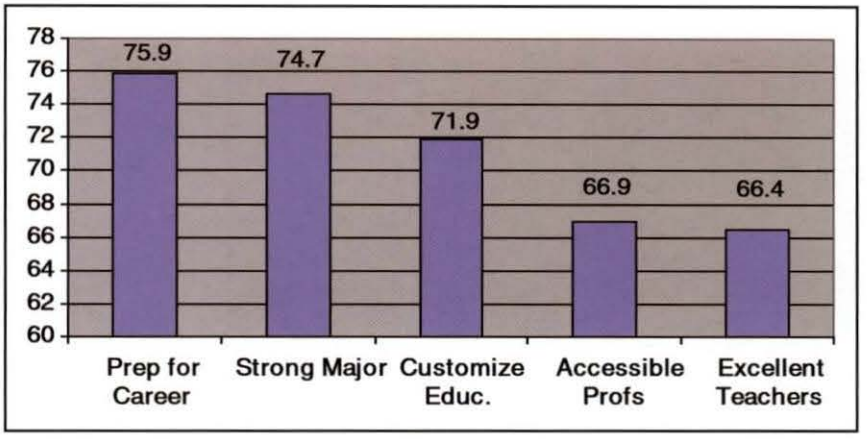


Figure 4. Extremely Important or Very Important Facility

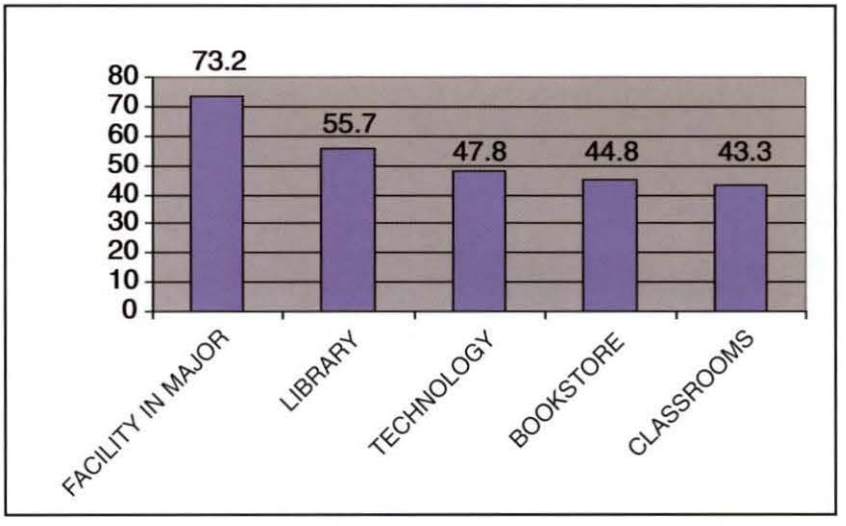
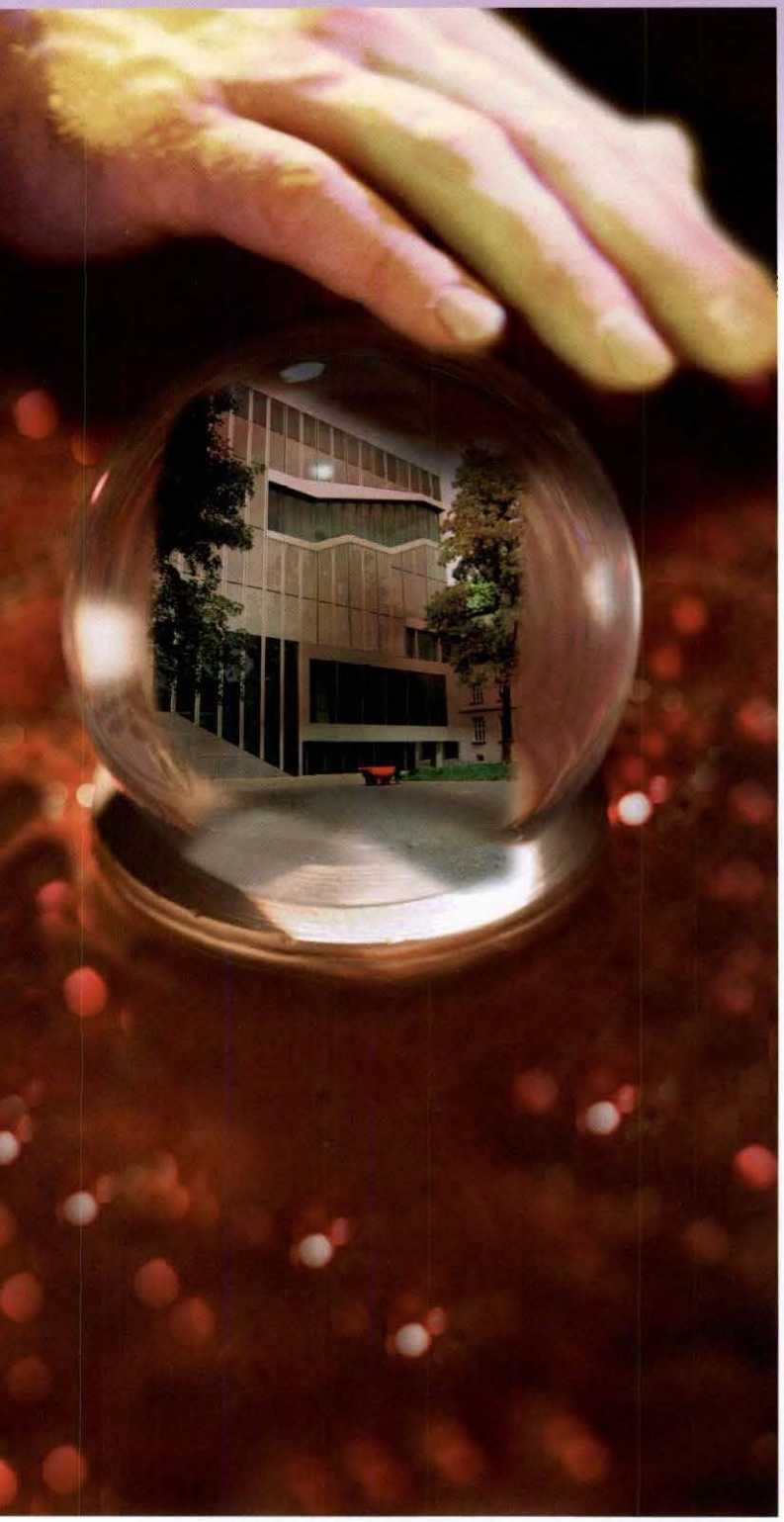


Table A. Percent of Students Rejecting an Institution

Reason	Canadian Students	U.S. Students
Missing Facility	24.6%	29.3%
Inadequate Facility	19.5%	26.1%
Poorly Maintained Facility	6.4%	16.6%

Make the Most of Tomorrow:

THE CAMPUS OF THE FUTURE



by Karla Hignite

Institutions should not assume that since we can't predict the future we should not consider it," asserts sociologist Stephen Steele, director of the Institute for the Future at Anne Arundel Community College (AACC). "Instead, we can use our imagination to anticipate any number of possible, probable, positive, and even preventable futures." Attendees of the joint Campus of the Future conference in Hawaii this past July—hosted by APPA, the National Association of College and University Business Officers, and the Society for College and University Planning—recently did just that. They joined colleagues from their respective institution types (research, comprehensive/doctoral, and small institutions and community colleges) to identify driving forces likely to shape the future of colleges and universities and to develop scenarios depicting what they believe is most likely to occur during the next five to seven years. *(See sidebar, "Conference Results.")*

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The act of futuring encompasses a variety of ways to apply foresight and creativity to a situation that is likely to take place in the short, intermediate, or long-term future, explains Steele. "A key aim of any futuring activity is to address in imaginative and logical ways the possible reality constructions that may act as a magnet for action." The goal is to then take a proactive stance toward the future—to become change capable rather than change averse.

Shaping Tomorrow

"We all will end up somewhere in the future, even if we don't think about it intentionally," says Steele. "If our perception about a particular future is positive, we can take steps to ensure that we are prepared. If the perceived future is undesirable, that likewise can engage us to think and act to bring about a different reality."

Consider that the world has so far avoided a head-to-head nuclear exchange, says Steele. He believes that may stem in part from scenarios developed in the 1960s by Herman Kahn, a military strategist, futurist, and founder of the Hudson Institute. Kahn's scenarios depicted how horrific the future would be in the aftermath of a nuclear war, and enough consensus emerged from society at large that the world should not allow this to happen, says Steele.

A more recent example Steele points to is Al Gore's lecture series and book and movie of the same title, *An Inconvenient Truth*. "Whatever you may think about the reality or politics of global climate change, this paints one scenario with the potential to impact societal behavior and strategy going forward," says Steele.

That same shaping of behavior and strategy can happen for institutions, organizations, and communities willing to reflect seriously on potential realities. No matter the challenge, an important starting point for any futuring activity is to recognize that organizations have their own inertia, cultures, and histories. When it comes to the future, it is far too easy to simply continue with a same-as-last-year approach—perhaps with a little extra stretch or growth, says Steele. *Preferred* futures require anticipatory thinking and action.

From Scenario to Strategy

One tangible way for institutions to put a futuring activity to use is within a strategic planning context. "Fifteen years ago if you were deciding as an institution how much to spend on IT infrastructure, your response would have been different based on whether you perceived technology as becoming ubiquitous or you imagined that paper and pen would still rule," says Phyllis Grummon, SCUP director of planning and education. "The particular future you envisioned ultimately shaped how—and how quickly—your institution moved forward with everything from wiring residence halls to training faculty to teach online courses." Building scenarios can also help leaders assess institutional strengths and how to maintain core competencies no matter what unfolds, says Grummon.

Leaders can help move discussion from scenarios to strategies and strengths with questions that reflect on how institutions should respond.

- What does the future of higher education look like for our region, our type of institution, and for our individual institution?
- Which scenario is most likely to occur? Which scenario is most desirable?
- Is it to our advantage to create this future? Do we want to make any part of this scenario not happen?
- What can we as an institution do to bring about this future?
- What strategies will steer our institution successfully through this scenario?
- What actions should we take now?
- What contingencies must we prepare for?
- How does this scenario tap into our core competencies and strengths? What weaknesses must we first address?

THE CAMPUS OF THE FUTURE

To be most effective, futuring activities such as scenario building must be integrated into long-term strategic planning and budgeting processes, believes Steele. "When scenarios are assessed, ranked, reflected on, and used to create actual goals, they provide a shared view about institutional priorities." That itself presumes the need to revisit the future on an ongoing basis to update plans and budgets, says Steele. At his own institution, monitoring of future forces and impacts is accomplished through collaboration between AACC's Institute for the Future and its institutional research office, but every institution can put in place an informal group of futures-focused faculty and staff, says Steele.

Building a Better Reality

One key question about futures-focused thinking is how far to expand the group of people to involve. Often, the wider you can cast your net, the better, believes Steele. "Where one individual or one department might not see a particular scenario, many will identify a trend. The idea-gathering process brings to light certain possibilities that none of us will typically see on our own." While institutions benefit from internal scenario building, including your larger local community can also yield valuable outcomes, says Steele.

In any futuring process, drivers and scenarios will emerge that seem obvious and are widely held in common, but other isolated or weak signals may also surface, says Steele. "These

aren't weak in the sense of being unimportant. It could be that they simply aren't yet recognized by a majority." Take for instance the growing use of electronic devices by K-12 students for everyday communication. Several years ago, that may not have made the radar for most of us, says Steele. Yet, the reality of those technology preferences is now spelling necessary change for how institutions of higher education must continue to adapt their approaches to teaching and customer service for the future.

For those new to futuring, looking too far ahead may seem overwhelming, says Steele. As an institution engages in ongoing futuring activities, it's most helpful to look near and far—as far out as 25 years, suggests Steele. "Most institutions can't act on what they may envision 25 hence, because it's too fuzzy." Even so, entertaining that cone of uncertainty is quite valuable in setting a course even for the short term, argues Steele.

"Consider the possibility that artificial intelligence will replace your faculty," says Steele. In a five- to seven-year time frame, that would seem laughable to most people. But when you try to imagine how education delivery might occur 20 years from now, there may be greater consensus about the likelihood that this could happen at least on some level. "Current planners may not focus on artificial intelligence today, but they need to have that idea out there so they continue thinking about it and adjusting for it for the long term," says Steele.

Another example is considering the possibility that additional physical infrastructure won't be needed on many campuses because of an increased prevalence of online and distance learning. In an online world, what should a learning environment look like, and who will populate that learning environment? "We have to increasingly think in those terms with the infrastructure and budget decisions we make today," says Steele.

Proactive Posture

An academy without walls may seem a frightening prospect to many, but institution leaders don't have to be frightened about the next era of higher education if they begin thinking about potential futures and responses to remain relevant, says Steele. For him, the best way to develop good strategies is to have many ideas.

Tapping the collective brainpower of all individuals within an organization or a community provides a powerful resource for shaping the future you want, says Steele. "Good leadership demands futures thinking."

Get Futures Resources Online

Materials used for the Campus of the Future scenario-building exercise are available at www.nacubo.org/documents/futures_handouts.pdf. Materials include worksheets used for brainstorming key drivers of change and for developing group scenarios. Additional resources highlight scenario-building exercises and other futures-focused methods and techniques.

Conference Results

Conference Results

In total, 1,004 Campus of the Future conference attendees participated in the scenario-building exercise. Representation included approximately 30 percent from research institutions, 28 percent from comprehensive/doctoral institutions, 27 percent from small institutions, and 15 percent from community colleges. The exercise asked participants to identify key drivers of change, develop scenarios based on the intersection of two prominent drivers, and select which of the four resulting scenarios they believed most likely to occur during the next five to seven years. Several sub-themes of note emerged from the scenarios developed: the likelihood of future mergers or consolidation among institutions, a need for institutional branding, and survival going to those institutions that are most technologically fit.

"Not knowing how this might play out with such a large group, we were pleased that there did emerge some consensus in terms of major drivers of change identified," says Susan Jurow, NACUBO senior vice president of professional development and communications. Jurow was likewise pleased that participants expressed strong interest in applying a similar scenario-building technique on their campuses.

Themes. As a whole, participants selected *rising student expectations* as the top driving force of change. (When combined with the related driving force of *rising consumer expectations,* the general notion of "rising expectations" was a clear concern.) Across all types of institution, driving forces consistently picked as top shapers of the future included *increased competition, technological change,* and *population changes.* In building their scenarios, many groups paired technological change and *increased competition* as the two key forces driving change in their institutions.

Nuance. Some groups reworded the driving forces provided to expand or clarify the focus of their scenarios. For instance, the "global" concept from *global economy* became global outreach, global resource demands, global access and competition for students and faculty, and globalization in general. Most groups that marked *energy* and *environment* as driving forces combined the two in their scenarios. Many groups that combined *rising student expectations* and *rising consumer expectations* in fact expanded the category to more broadly include *stakeholder* expectations to cover consumers, students, faculty, staff, parents, donors, and the community at large. Many also revised the wording from *rising* expectations to *shifting* or *emerging* expectations. Likewise, some specified enrollment *challenges,* not *enrollment declines* only. And finally, many expanded the concept of *population changes* to include concepts of changing demographics in general, such as an *aging workforce* (a separate category on the worksheet) and the diversity of students, faculty, and staff.

Off-the-list thinking. In building their scenarios, participants were encouraged to add to the list of driving forces provided on the worksheet. Here are some of the additional forces indicated by type of institution.

- *Research institutions:* human capital development, knowledge decentralization, increasing obsolescence, academic capitalism, delivery mechanisms, public policy regarding scientific research, availability of qualified students and staff, economic development, and increased competition for faculty.
- *Comprehensive/doctoral institutions:* diverse student needs, competition for talent, sustainability, increasing importance of experiential learning, local market environment and climate, productivity, market forces changing education delivery, and skills necessary to deliver education.
- *Small institutions:* faculty/staff housing, external expectations, affordability, impact of governing boards/trustees on operations, delivery of education services, institutional inertia, and collaborative learning.
- *Community colleges:* expectation of 24/7 access, sustainability, lack of preparation in K-12 students, institutional rigidity, developing more commitments from external stakeholders, market forces, delivery of learning, ever-changing community needs/demands, workforce development needs, program offerings, minority access, and facilities expansion.■

Institution Scenarios

Institution Scenarios

After selecting two driving forces, conference participants developed scenarios based on the intersection of those forces along a high/low axis and then identified the scenario they believed would be most likely to occur during the next five to seven years. What follows is a sampling of scenarios developed by institution type.

Research Institutions

- *Changing student expectations* (high) *and external mandates* (high): External mandates hamstring universities and prevent them from meeting expectations of increasingly demanding students and the research choices of faculty. Result: Further proliferation of alternative types and locations of institutions or shrinkage of the role of American research universities as students and faculty seek more accommodating environments to achieve objectives. Student and faculty makeup will change as more go overseas, yielding more niche institutions at home.
- *Increased competition* (high) and *energy/environment* (high): More international students stay in their home countries. International competition soars, with dramatic failures of some universities. Institutions will have to prioritize, focus on education, and outsource other functions. Competition for faculty becomes fierce. Some institutions share faculty, close down some majors. Organizations combine for economies of scale. Universities are forced to move quickly toward sustainable, efficient buildings. More housing is needed since fewer students want to commute.

Comprehensive/Doctoral Institutions

- *Increased competition* (high) and *technological change* (low): Competition is fierce since institutions can't succeed at utilizing technology. Some institutions soar, some flop. The gap widens. Some small private and state systems fold. Several regional systems grow mega, including SUNY and California.
- *Population changes* (high) and *technological change* (high): Immigration laws and patterns continue to introduce large numbers of new students from other cultures who may not speak English as a first language. Technological changes put pressures on institutions in terms of providing current infrastructure, equipment, and training for students. Student learning stratifies as brightest students keep up and less trained fall behind.

Small Institutions

- *Rising student expectations* (high) and *increased government regulation* (high): The only institutions that can afford to meet both forces are the elite and very wealthy, creating a class-divided education system. Two types of institutions emerge: those providing student-centered education and those delivering training while meeting the administrative requirements of governmental regulations. For institutions forced to deal with administrative requirements (and where student expectations take a back seat), dollars are shifted from faculty and student services to administrative/regulatory compliance staff. Institutions resemble the DMV.
- *Rising consumer expectations* (high) and *technological change* (low): Small colleges will prosper because they are better able to deliver on expectations. Desire for human interaction, increased socialization, and citizenship responsibility to the world means a focus on technology as a tool. Institutions can catch up with technology, focus resources on other things.

Community Colleges

- *Increased competition* (high) and *technological change* (high): For survival mode, institutions must be nimble and early adopters, with large investments in technology. Would need to operate within a true business model, willing to invest in risk, and create collaborative partnerships with private organizations to maintain cutting-edge technology.
- *Enrollment declines* (high) and *global economy* (high): With declining enrollment, little opportunity exists to turn enrollment around within local economy. Community colleges risk becoming irrelevant. Flexibility and agility are required to answer demand for skill-set enhancement. As enrollments decline, community colleges may explore international markets, which change and challenge their existing roles. ■

How to Bring the Future Home

How to Bring the Future Home

Get your campus charged up for what's beyond the horizon. Focused "what if" thinking can help your institution shape its future reality.

Focus on Process

From the outset, planning for the Campus of the Future scenario-building exercise was based on the premise that process is as important as product. "Because of the unique makeup of this joint conference, we wanted an experiential learning activity that would encourage colleagues from different institution roles to interact and share perspectives," says SCUP's Phyllis Grummon.

One decision made upfront to streamline the process was to provide participants with a list of driving forces so they would not have to brainstorm them from scratch, though participants were encouraged to add to the list. Logistical decisions ranged from the ideal number of participants per group to the number of tables per room. A more weighty decision centered on how to categorize participants. "We decided to organize by type of institution," says NACUBO's Susan Jurow. "Dividing participants by geographic region or by size of institution might have produced different outcomes that would have been equally interesting, but we were curious to see how responses would vary by institution type."

Early on, the conference program advisory committee met with representatives from the National Consortium for Continuous Improvement in Higher Education (NCCI) to design and fine-tune the idea and to right size the exercise in a way that would be workable. NCCI also provided many of the small group facilitators to keep participants on pace throughout the 90-minute process. Prior to the conference, Jurow and Grummon tested the exercise with various groups from NACUBO and SCUP. "The benefit for institutions is that they can go far beyond the initial discussion we could accommodate at the conference," says Jurow. Adds Grummon: "Even if you don't do anything beyond creating scenarios, getting people to think about the future in other than reactive terms allows them to start developing a positive mindset about the future."

More Methods and Techniques

Following are a handful of other futures-focused resources to guide your campus activities.

- *The Art of the Long View: Planning for the Future in an Uncertain World,* by Peter Schwartz, is considered by many as the ultimate resource for futures thinking and scenario building (Doubleday, 1991). Another good book is *Learning From the Future: Competitive Foresight Scenarios,* edited by Liam Fahey and Robert M. Randall (John Wiley & Sons, 1998).
- In addition to the scenario-building approach, many other methods exist for gathering ideas and data to think strategically about the future and to position institutions to succeed in their planning efforts. One great resource is the World Future Society, which provides an overview of methods at www.wfs.org/futuringmethods.htm.
- Descriptions of a scenario-building process at the University of Michigan are available at www.si.umich.edu/V2010/scenproc.html.
- Descriptions of techniques from a University of Arizona course are available at www.ag.arizona.edu/futures/tou/sem2-techniques.html.
- The Institute for the Future at Anne Arundel Community College provides resources, courses, and services. Go to www.aacc.edu/future.■

Megatrends and Myths:

Facilities Management Practices in Higher Education

By William A. Daigneau

Higher education is going through a period of unprecedented change. And what do those changes portend for the future? For those of us involved in the planning and management of facilities for higher education, this question is particularly germane. Few of the professions involved in the conduct of higher education have as much impact on its future as a facilities management officer. The choices a facilities professional makes today often affects a higher education institution for years, and decades, to come. And that in turn affects the capacity of higher education to successfully fulfill its mission of education and research.

Any decision to create space needed to support educational or research processes can and should be viewed as an investment decision. When we create space, are we not investing current and future resources into a facilities asset with the expectation that this investment will result in future benefits? If so then any investment should be evaluated by its future returns, measured by the length of time the asset is productive and the benefits it generates. If we extend this logic to every campus facility we own, we could theoretically rank each investment decision in terms of its return on investment (ROI). In a purely economic sense, greater success for a university means that it is maximizing its returns per dollar invested. In equation form, a successful university would do the following:

In the 1950s through the 1970s, higher education in the United States faced a period of unprecedented change as it tried to grapple with a rapid increase in the number of eligible students. Many of the buildings constructed during this period are now considered obsolete or inadequate for meeting today's educational needs. The question is what could, or should have facilities professionals done differently back then to improve universities' returns on their investment?

While we are probably not any better in predicting the future than our predecessors, we do have more sophisticated tools than they for identifying and measuring major trends and forces that shape the future. These are what some call

Maximum ROI = Increased Returns / Fixed $ Invested
and/or
Maximum ROI = Fixed Returns / Reduced $ Invested

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"megatrends," using the term first coined by John Naisbitt in his 1982 bestseller.

The megatrends that drive the future are important for us to understand since they fundamentally influence the returns side of the ROI model. If in fact the space in a university is configured at any point in time to support the functions and processes employed by that institution, then one can say that the usefulness of that space will be altered if the functions and processes for which it was originally designed are changed.

If the space can no longer support the new function, the return from that space drops to zero, and either reinvestment to alter the space is required, the space is abandoned, or a different function is assigned to the space if it can be successfully accommodated. Only through one of these three choices can ROI be maintained or increased, otherwise a negative ROI will occur.

So the question must be asked: what megatrends will influence the functions and processes of higher education in the future?

Megatrends can be grouped into one of five categories. The forces that define the future are related to changes in Society, Economics, Technology, Government, and the Environment. While the following summary of these megatrends is primarily focused on higher education in the United States, what evolves here is likely to be extrapolated to other countries and their higher educations systems.

Megatrend #1: Changing Student Demographics

For many decades, higher education served a fairly homogeneous student population, all sharing many common characteristics. But that has and continues to dramatically change. Diversity amongst those seeking postsecondary education has significantly changed from the previous student pool. The changing mix of students includes gender, nationality, race, economic class, age, employment, family, and more. In response we have seen greater customization of educational systems necessary to address the larger variance in educational needs and goals. As educational processes and functions evolve, how will older space support these changes and what will be future facility requirements, both in terms of type and location?

Megatrend #2: Access and Efficiency

Since 1980, the growth of tuition has outpaced inflation by 179 percent. This at the same time we have actually seen deflation in the cost of many other essentials. It is certain that such increases cannot be sustained without eventually closing the door to large groups of potential students. The bottom line is that if economic and societal development is to be maintained in the United States and across the world, a well-educated workforce is required, and demand will continue to grow. Given a choice between putting higher education out of the financial reach of large portions of the population and finding more efficient ways to deliver higher education, the latter is likely to prevail. The pressure to control these costs will undoubtedly drive changes in educational processes and thus the design and demand for different types of facilities.

Megatrend #3: Technology

Technology and higher education systems have two dimensions. The first is information technology (IT). It has been postulated that IT has made possible the shift from the traditional "instructional" paradigm to a "learning" paradigm, where face-to-face time with a faculty member will be devoted to laboratory or demonstration style sessions and not on lecture type instruction. This educational process and others like it would not only make classrooms and lecture halls obsolete, but also could significantly improve efficiency and reduce the cost of instruction.

The other dimension of technology is cost, primarily as it pertains to the research mission of higher education. Today's research facilities are some of the most costly to build, equip and operate. As the cost of supporting research increases, more and more research may be concentrated at fewer and fewer institutions, those that possess the critical mass to continue to support this investment. Again such concentration will reshape the missions of higher education institutions and thus affect both existing and future space requirements.

Megatrend #4: Accountability

With a stable society and economic development at stake, government has increasingly inserted itself into the debate about higher education. Will greater activism by government in the management of higher education lead to more mandates on the what, where, and how? If government more tightly controls resource allocation and programs decisions, both in education and research, will there also be greater controls of building construction?

Megatrend #5: Green and Lean

Reduce, reuse, recycle. Never has concern over environmental protection been greater than it is now. Issues about the environment include indoor air quality, day lighting, and energy efficiency. As energy prices again begin to rise, there will be even greater pressure to revise buildings (reuse) or adopt new design standards (recycle), and even more importantly to actually improve utilization (reduce). What impact will environmental concerns have on future facility decisions?

While no one knows exactly what the future holds, the above-mentioned megatrends have the capacity to dramatically reshape higher education. How dramatic? Let's just say that there is the potential for significant changes in a relatively short period of time. And if such changes do happen, there will be dramatic changes in how educational facilities are planned, designed, and managed.

Decisions on where and how much to invest in educational facilities are what is called "long fuse-big bang" decisions. In other words if a mistake is made in a major investment, it

Continued on page 25

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Continued from page 23

may not be apparent for years, but when it is, it can be disastrous. When making a decision today on what and how much space to build, how will the megatrends affect that decision, and how quickly? While no one knows the answer to that question, there are some current facilities management practices and beliefs that should be seriously reexamined. These are the current "myths" of higher education facilities management.

Myth #1: Build for the Long Haul

Many facilities managers believe they should construct buildings to last for 50, even 100 years. But space built to satisfy a specific need or technology today, may not provide the expected returns tomorrow if higher education goes through a major paradigm shift.

Myth #2: Build Flexibility into the Design

The question is "flexibility for what?" Hedging one's bet on change by building those so-called flexible buildings means one knows enough about the future to plan for it in the design. Many such investments prove worthless.

Myth #3: Form Follows Function

Today almost every building constructed in higher education is a custom building. Unfortunately, as program needs change and the building does not, form begins to "influence," or worse, "dictate" function. During any period of change, all design standards based on past practice need to be openly challenged.

Myth #4: Deferred Maintenance is Bad

Some existing facilities are not likely to generate a future return on their initial investment. These buildings represent a sunk cost, and further investment in them should be curtailed. We need to understand that not all deferred maintenance is bad, only that which is unplanned.

Myth #5: Facilities Attract Students

In fact, facilities are not a primary motivator in a student's decision to pursue higher education. APPA's own recent research study, "The Impact of Facilities on Student Recruitment and Retention," states that while the appearance of the campus facilities are important in a student's selection process, the fact is that the top reason for their selection is the educational programs. Most students are motivated by factors other than how the campus looks. What's its reputation (for quality), does it have the programs they want, can they afford it, what do others think (for example, parents or friends), and where is it located? Money spent beyond that necessary to support good education or research is just wasted. A university's leadership does not need to make a world-renowned

architectural statement for every building. A good clean, well-lighted classroom with comfortable chairs, good audiovisual, and comfortable temperatures and ventilation is fully satisfactory to meet educational needs. The fact that it has painted concrete block walls in lieu of rosewood paneling or marble floors makes little difference to students who are trying to learn. We should spend less money on fancy buildings and instead invest that money in good faculty possessing the best technology.

As the cost of higher education spirals upward, we need to get back to basics, and facilities professionals need to lead the way. Institutions should spend money on building the least expensive building they can, that is easily maintained and operates well and efficiently, and then spend the rest of the money to provide the best faculty they can with the latest equipment.

The megatrends that drive the future fundamentally influence the returns side of the ROI model.

In discussing these megatrends and myths, it is not suggested that anything in higher education will, for certain, change in the next decade. It's a lot like predicting the weather. If you say that tomorrow's weather will be just the same as today, you will be correct 50 percent of the time. The problem is that you also will be wrong 50 percent of the time. Let's just say that like the weather, forces for change are prevalent that could mean either rough seas or smooth sailing. And like good captains of a ship, facilities professionals should hope for the smooth seas, but prepare their institutions for rough weather.

The people who plan, design, and manage education's facilities are in a critical position to prepare for change and ensure success, and there are a few things that will help them fulfill that responsibility. First, senior facilities officers must understand the impact of their decisions in terms of both today's and tomorrow's context. Second, they need to treat the various campus buildings as a portfolio of investments, and should maximize the value of the total portfolio, not the individual investments alone. Third, they must make a more proactive effort to develop facilities strategies that will better position their institutions to deal with changing paradigms and economic conditions.

And lastly, they must shed their own narrow view that they are just the stewards of facilities and must better understand the complete functioning of higher education: its economics, its processes, and its purpose. Only then will they be able to help higher education meet its worthy mission of enhancing the knowledge of humankind.

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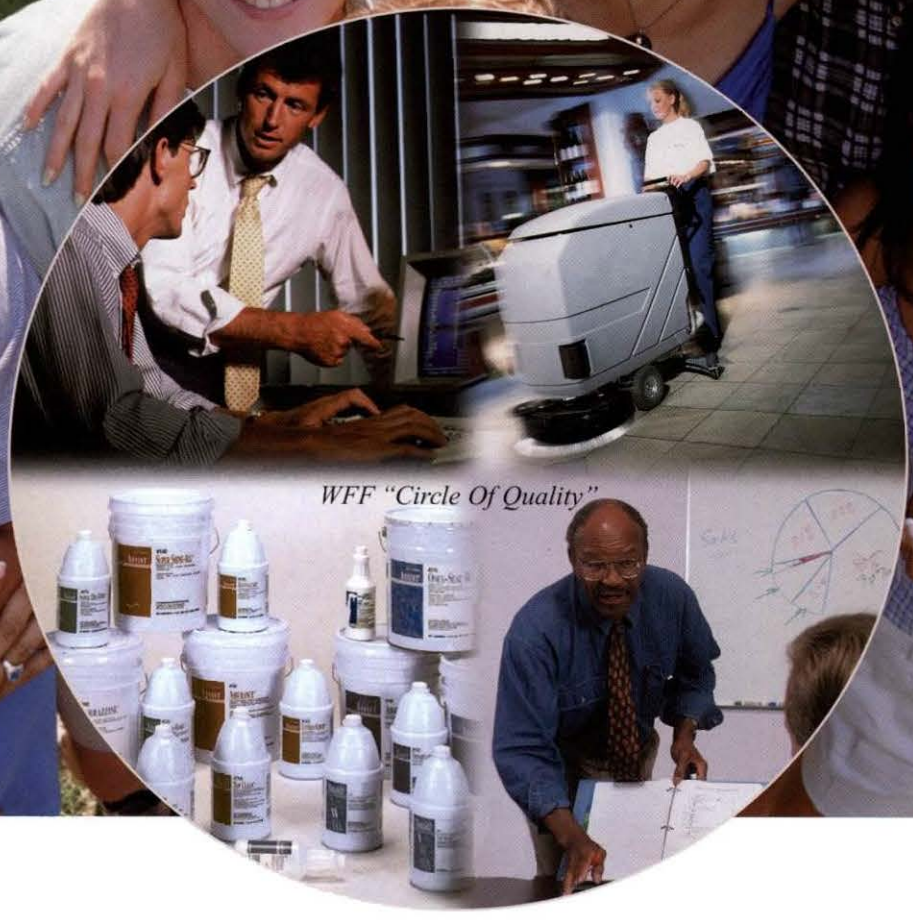

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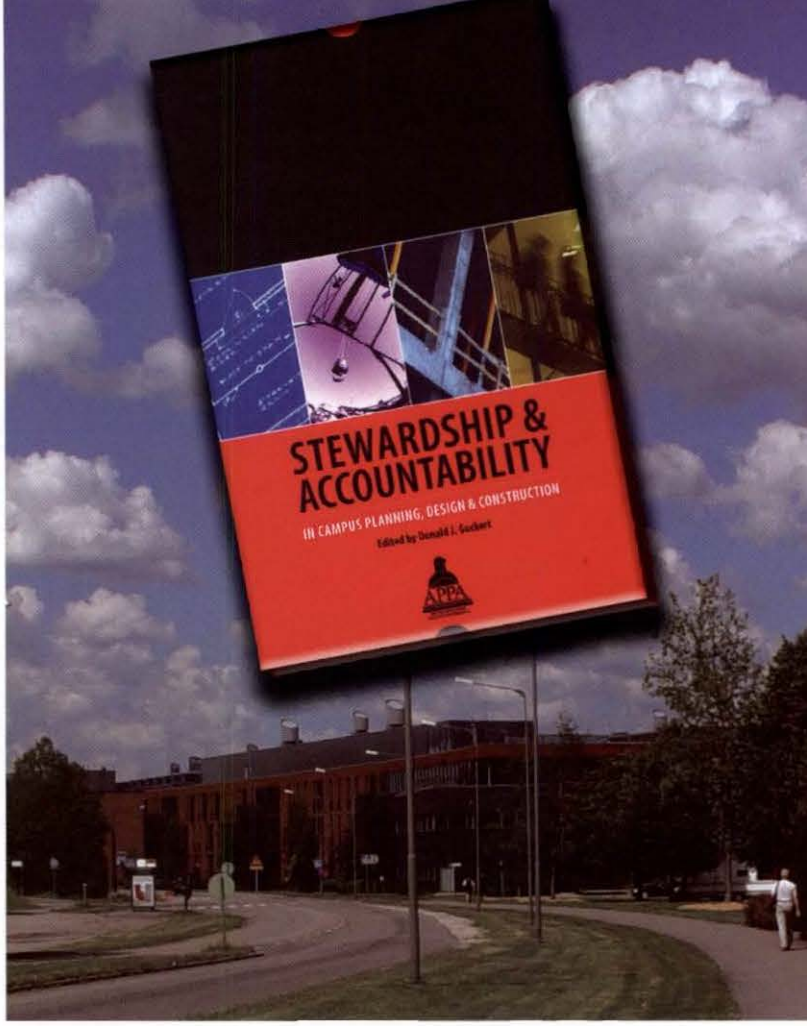
Designing for Stewardship:

Aligning Project Decisions with the Total Cost of Ownership



By Donald J. Guckert, P.E. and Jeri Ripley King

As the dust begins to settle after the building boom of the past decade, campus administrators and governing boards have developed a heightened sensitivity and awareness of the commitment necessary to support their expanded facilities portfolios. Many are discovering that their facilities require financial obligations of an unexpected magnitude. Others, however, are celebrating the completion of projects that employed commissioning and sustainable design and are therefore touting the institutional successes attained by serving as good stewards of limited resources. Nevertheless, all are learning that the decisions they make about projects have long-term implications for future budgets.

Project budgets have long been the responsibility of facilities project managers, who balance the scope of the project and the time it demands against the budget for the project. However, institutional budgets include costs required for operating and capital renewal for the completed project, and these budgets have been the responsibilities of others. Thus, administrators now recognize the impact that early decisions have on the operation and renewal of a building and are therefore starting to hold project managers accountable for ensuring that the decisions that are made and the scope of the project that has been determined take into account the optimal return on the institution's investment in the project. To meet this requirement, project managers will need to align their craft—creating physical assets—with the long-term stewardship of the facilities for which they are responsible.

A stewardship approach to the planning, design, and construction of campus facilities is based on a comprehensive perspective of the total financial and operational impacts that a facility will have on the institution. Moreover, the planning horizon for a facility that is yet to be built is extended through its complete life cycle and into the far reaches of the university's resources—both financial and human—that will be affected. Because of the long-term impact that project de-

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cisions will have on the institution, decision making needs to be increasingly institution-based rather than customer-based. Meeting this demand is particularly challenging because of the forces that push against making the best long-term financial decision.

Competing Perspectives

Project managers have long been expected to serve a myriad of often competing needs and interests in order to serve multiple institutional customers and stakeholders. There is undeniable tension in negotiating the scope of trade-offs, which must be made to fit the needs and desires of the customers within a project budget that never seems quite large enough. Predictable clashes occur at points when the customer-driven program and architectural design meet the institutionally driven concerns for cost-effective operations and maintainability. A classic example of this problem is the case of a customer who wants to move dollars earmarked for the mechanical room to the atrium at the same time that a facilities manager wants to move dollars from the atrium to the mechanical room. Compounding the issue is the disjointed higher education financial model created by separate funding sources for capital costs and the long-term operation and eventual capital renewal of the facility. This creates a disjointed financial model that logically leads to competing perspectives.

After successfully raising funds for the planning, design, and construction of a building, deans, department chairs, faculty members, and development officers frequently turn to the campus administration to ante up the finances needed to support the operational demands of the facility. Over the years, faced with rising costs and budget constraints, institutions have tended to either underfund or fail to fund the operating costs of new facilities. Even when adequate operational monies are dedicated initially, in future budget cycles the funding is at risk of being reduced when budgets are tight. This situation has a tremendous impact on operational staff's ability to serve users' needs. Project managers can help by making decisions that assume that the operating money will never be proportionately more than the amount that has been allocated the day the building opens.

Similarly, campus administrators and budget officers, faced with the challenge of funding the operation of the new building, have not been focused on annually investing 1 to 2 percent of the building's replacement value in order to address capital renewal needs that will occur 20 or 30 years down the road. To plan, design, and construct facilities that will mitigate these costs, project managers should have an understanding of how operations staff care for the facility, what resources the facility will consume over its life cycle, how and when building systems and components will be renewed, and how and when the building will be decommissioned when it reaches the end of its useful life. By looking at the total life cycle of the asset, rather than at the life of the project, the project manager can guide the planning and decision making involved in the project according to the total cost of ownership.

Total Cost of Ownership

The total cost of ownership is a composite of building costs from concept for the original design through decommissioning or demolition. The amount includes design and construction costs, operating costs, and the costs associated with plant renewal. Thus,

Total Cost of Ownership = Total Project Cost + Operating Costs + Capital Renewal or Deferred Maintenance + Decommissioning

From the perspective of total cost of ownership, the capital cost for a new building represents less than half of the total cost of ownership during the life of the facility. The costs associated with renewal and operations (maintenance, custodial care, and utilities) are just as important as the cost of designing and constructing a building.

Project managers are well aware of the "first costs"—the project costs related to the design and construction of both new buildings and renewal or renovation costs. But to understand the total cost of ownership of a building, project managers also need to understand operating costs: the annually budgeted expenses for all activities necessary for the routine, day-to-day use, support, and maintenance of a building or physical asset. This budget item includes the costs required for routine maintenance, minor repairs, preventive maintenance, custodial services, snow removal, groundskeeping, waste management, energy, and utilities. Within the myriad of operating costs, energy consumption is generally the highest and often commands the most attention in the design of the facility. However, the cumulative effect of all the other operational needs can also have a profound impact on annual operating budgets.

Decisions made in the design phase of a project frequently pit programmatic needs and desires against institutional financial interests. Project managers generally are not in a position to make this decision unilaterally. Instead, campus policies and standards can set minimum institutional requirements for the decision making involved in the project.

Standards

Having an institutional baseline for standards of design and construction can help to ensure a total cost of ownership approach to decision making. Just as state and local building codes, fire and life safety codes, and the Americans with Disabilities Act (ADA) establish minimum standards that protect the public interest while using a facility, campus design standards should be developed, implemented, and enforced to protect the institutional operational and financial interests in the project. No one would debate whether a building's design should comply with fire and life safety codes; similarly, there should be no debate about whether to invest in money-saving

energy-conserving systems, or whether equipment that requires servicing should be designed for safe access by maintenance workers.

Over the last two decades, an increasing number of campuses have developed institutional design standards. Recognizing the value of such standards, the project management staff usually has taken the initiative to develop and revise the institution's design standards manual. These design standards generally apply to materials, equipment, building components, design guidelines, and design details that campus stakeholders and service providers have found to facilitate the facility's serviceability and cost effectiveness. However, the initial standards were often based more on preferences than on sound life cycle cost principles. In these cases, there may be a perception that the standard has been "gold plated," leading project managers and customers to become critical of design standards that were determined primarily by stakeholders. To avoid this perception, standards should seek to be based on the best life-cycle value.

Standards should take into account that the best life-cycle value does not mean always specifying the building component that has the lowest cost of maintenance. Instead, the best life-cycle value should be a balance between the initial cost and the operating cost of a component. Generally the higher quality, higher cost item will yield a longer service life—but often only to a certain point. Sometimes, the total cost of ownership can be lower when a component that has a lower cost and lower quality is used.

Design standards should also incorporate qualitative decisions that are not based solely on the total cost of ownership. A prime example is the debate between users and custodians about classrooms that have a hard surface versus carpeting. When viewed from the total cost of ownership only, hard surfaces will win every time. However, the quality of the acoustics in the classroom, which cannot be measured in dollars, generally points toward carpeting for the better classroom learning experience. Project managers should still facilitate this discussion with users and custodians, and all should recognize that decisions involve more than just the bottom line.

Developing campus design standards that reflect both institutional qualitative and quantitative priorities demands hard work and commitment. Effective standards are those that involve all invested parties in a collaborative effort.

Collaboration

The most successful project managers in educational facilities are those who have discovered the richness of the body of institutional knowledge that lies within the operations, maintenance, and utilities staffs. Institutions achieving the highest level of success with a total cost of ownership approach are those that have developed enabling procedures and processes that tap into operating staffs as resources for reviewing plans, developing standards, and commissioning buildings.

Commissioning, in particular, has served the needs of users and operating staff by ensuring that facilities are built systematically to comply with standards of quality and serviceability. The days of "working the bugs out" of new facilities for the first four seasons of operation are quickly disappearing, as operations staff members work side-by-side with project managers to design, inspect, test, and accept building components and systems prior to occupancy. Customers are now enjoying their new and renovated facilities with fewer needs to call back facilities management staff or contractors to correct deficiencies. The integration of the skills and knowledge of the project manager and the operating staff—coupled with the enormous benefit this

collaboration provides to users and operating budgets—is the reason why the concept of commissioning is changing from that of a best practice to a standard practice.

Another example of the power of collaboration is found in the increasing popularity of sustainable design. The interests of customers, project managers, and operations staff are converging through efforts to reduce energy costs and resource consumption involved in new and renovated facilities. Sustainable design generally is a customer-based initiative that builds on the tools of commissioning and design standards and drives better institutional decision making that is aligned with total cost of ownership principles.

The reason why collaboration is so effective for sustainable design projects is that the customer, project manager, and facilities operator align their various perspectives to reach a common goal. The customer wants the image and reputation that sustainable design brings; the project manager enjoys the challenge of thinking creatively about meeting the goals for sustainable design; and the facilities manager achieves an outcome that requires fewer resources to be consumed. As a result, the institution gets a physical asset that is designed for effective stewardship and for the lowest cost of ownership.

If the goal of good stewardship represents the destination for project managers, understanding expectations is the road map that gets them there. The challenge for the project manager is to understand the expectations of the customer, the institution, and stakeholders before making the trade-offs and sacrifices that will accomplish the goal of facilities stewardship.

Whether the project manager is faced with competing perspectives, the need to develop standards, or the requirement to take into account the demands of many stakeholders whose interests are represented by the total cost of ownership, the key to effective project management is alignment with facilities stewardship. By using the compilation of institutional understanding of building systems, operations, and construction, the project manager can produce a life-cycle approach to facilities operations that goes well beyond the design and construction of a building. Collaborating with others enables project managers to solve complex problems and formulate a comprehensive facilities strategy for long-term stewardship.

Conclusion

As project managers accept responsibility for decisions that will affect long-term institutional needs, they are transforming their accountability to capital projects from first cost to total cost. This transformation needs to be built on a solid foundation that takes into account competing perspectives, develops defensible standards, and provides collaborative compilation of knowledge that can help align decisions to facilities stewardship. Overall, the decisions made today will have an impact on creating, providing, and caring for the physical facilities that provide a place for current and future generations of individuals involved in academic pursuits.

Adopting a long-term stewardship approach accepts the fact that individuals come and go, but our institutions live on. For generations to come, the institution will live with consequences of the decisions made during a relatively brief design period. As project managers wrestle with the day-to-day challenges posed by new projects, using facilities stewardship as their compass will guide them toward the right choices and decisions to make when considering the design and construction of a facility.

OUTSIDE THE BOX: Reduce and Simplify

by Frederick W. Plant

For many years, Valparaiso University Physical Plant Services staff has worked at energy conservation and management. We have been able to flatten the increased consumption in natural gas and electric consumption even while adding renovated and new buildings. We continually look for opportunities to advance plans awaiting the right time to proceed.

There are certain constants that most institutions wish to achieve: be more efficient, decrease deferred maintenance, fund future known maintenance needs, improve customer service focus, and provide system reliability. Fundamentally, all of the paths save money or allow reallocations as a by product of reducing and simplifying an operation. "Plan the work—work the plan" is the overarching theme.

Project 1

Because we continually evolve and develop our strategies, Valparaiso University (VU) was able to take the maximum advantage of opportunities in 2005-06. Our staff spent a year working with a design team planning new natural gas and high voltage electrical distribution systems. The desired outcome would be that the university would no longer own nor maintain the natural gas, the high voltage system, nor the substation.

Project 2

In October 2005, as the heating season was just beginning; our first heating distribution system leak of the season occurred. Leaks in this system had been occurring over the previous five winters because the system was deteriorating. Our president stated he wanted a recommendation for a way to replace the heating distribution system as soon as possible, with the understanding that a way would be found to fund it, but it had to be operational by October 2006. Two events—construction of a new natural gas system and the failure of the heating distribution system—had converged.

Project 3

For some time, we had been considering the reengineering of our Physical Plant Services trades shop from several small shops for each trade to one maintenance shop. Events occurring relative to the new gas, electric, and heating system changes, coupled with several vacant positions, made the timing right to make this change as well. The replacement of the substation, high voltage, and natural gas systems were going to reduce the full-time equivalent staff required to maintain these systems, allowing these individuals to have a much greater focus on routine and preventive maintenance.

The Convergence of Projects 1 and 2

The planning for a new high voltage system, substation, and a new 50-PSI natural gas main to all campus buildings was about to begin construction and was to be completed before August 2006. This created the option for us to install high efficiency boilers in the 15 buildings served by the heating system and thereby to eliminate the 45-year-old boiler house.

The boiler house had been maintained well. Several boiler efficiency features had been added such as: electronic ignition, tube turbulators, stack sensors, energy management, aggressive management of system pressure and temperature. Our campus is southeast of Chicago in an area that has air pollution controls, thus stack emissions were monitored carefully. One of the boilers was a dual fuel (natural gas and fuel oil), thus a 20,000 gallon underground storage tank is present. This is our last UST on campus and is in the path of a future campus road project.

The boiler house operation had several operations of FTE, cost, and risk exposure. These systems require boiler water feed and chemicals, and in our area they also require the water to be softened. The distribution system also was chemically treated and the makeup water softened. The aspect of water treatment creates a potential for employee exposure to chemicals and accidents from heavy lifting. We used nitrogen

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to maintain pressure on the system requiring the monitoring of volumes, switching tanks, and tank exchanges. There are costs for the consumption of electricity for the circulation pumps, pumps inside the boiler house, pump and motor maintenance. The boilers were annually cleaned, serviced, and inspected. We maintained an alarm system that provided pager signals 24/7.

The heating distribution system was a jacketed direct buried system in large part. It was of various vintages and the cathodes protection was largely spent. Such a system had manholes where valves were maintained and had to be pumped out from time to time. Another aspect to this system was the confined space requirements, training, and equipment that had to be accomplished.

System failures were occurring at the rate of one to three leaks per year. Since these occur during heating season, the impacts on residence halls as well as classrooms/offices was extremely disruptive. These leaks were costing from $80,000 to $280,000 per failure and were difficult to budget and were a significant distraction to staffing efforts. These repairs left scars on the campus landscape at a time when there is a focus on campus beautification. Even though insulated, the system heat loss was sufficient to melt snow and kill grass.

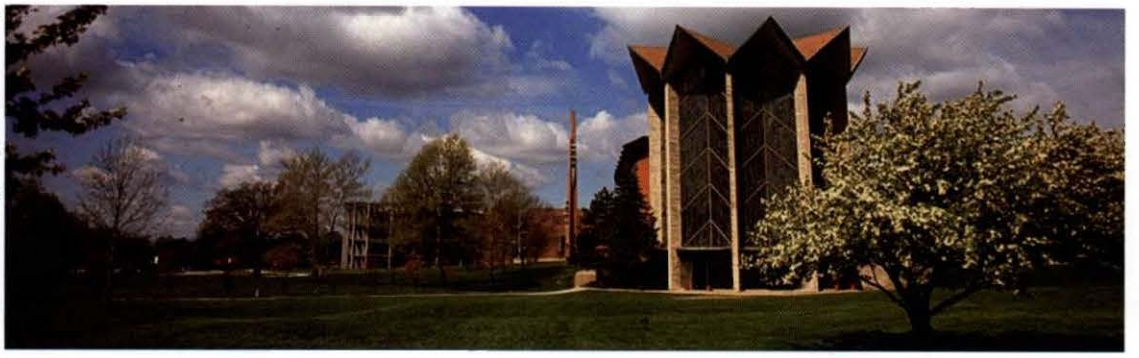
of the heat system down paid for the chiller in three cooling seasons.

Thus timing, opportunity, boiler efficiency, eliminating the last UST, and getting the distribution system out of the way of potential future construction all led us in the direction of a decentralized system.

Installing the high efficiency boilers, a decentralized system, seemed the best route.

In most of the 15 buildings space is available in the mechanical rooms. In those buildings where space was not available, it could be made available. The second task was for Valparaiso University to identify the boilers, their operating characteristics, warranty, factory willingness to install and train our personnel, and to meet our delivery schedule. This selection process included site visits for each supplier being considered.

It was critical these be condensing boilers, at least one set had to operate at temperatures to satisfy an absorption chiller. All controls had to allow connection to our energy management system and had to operate in groups. The objective was to develop a controls package that kept all units working in their highest efficiency range and to allow boilers to be added in the future if there was a building addition.



Courtesy Valparaiso University

We considered rebuilding the distribution system, but to take full advantage of the new life expectancy, the boiler house should also be updated. The cost to update both was beyond our financial capability. The lead time to develop plans for both was greater than the one year available. A new distribution system might be constructed along routes that would be considered for future building construction. Further, the ability to update a central boiler house might require additional real estate, the continued maintenance of the UST, and the maintenance of emissions permits.

The most attractive option was to decentralize heating production to the 15 buildings. This could be done in the time available. We knew from previous engineering studies that technology had improved package boilers in terms of size and efficiency. We also knew that we could quantify the range of heat loss in our distribution system. Two years earlier we had replaced an absorption chiller with a DX unit with no cooling tower, the financial savings paid by being able to shut that leg

This strategy provides boilers that are much easier to service and manage. The redundancy at each locations provides a spare parts inventory for emergencies. This strategy allows the reallocation of labor. These boilers are sort of "plug and play" in that the diagnostics gives us a pretty good idea of the component part that needs to be serviced or changed. This strategy eliminated all of the UST, emissions, chemical water, water softening, and confined space issues.

As a result of the new natural gas and electric systems, every building has pulse metering. Valparaiso University has access to these pulses so that we can capture real time consumption data. The energy management system allows us to identify and manage each building's consumption. As a result, we have the ability to measure the actual gas consumed by these new boilers.

Physical Plant Staff developed an RFP to pursue the decentralized system. The RFP specified condensing boilers that operated at 95 percent efficiency over a wide load range.

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The burner specified to have a 20-year life expectancy, factory start up, and factory training. Each site had no less that two boilers sized so that with any one boiler off line the remaining boilers could carry 70 percent of the load. The boiler controls to be programmable to allow load shifting between the boilers to maintain maximum efficiency. The boilers had to fit into the existing spaces without modification. Stack location had to be approved. (This could mean the boilers could be taken apart to arrive at the space, but in that instance, they had to be re-assembled by factory representatives.)

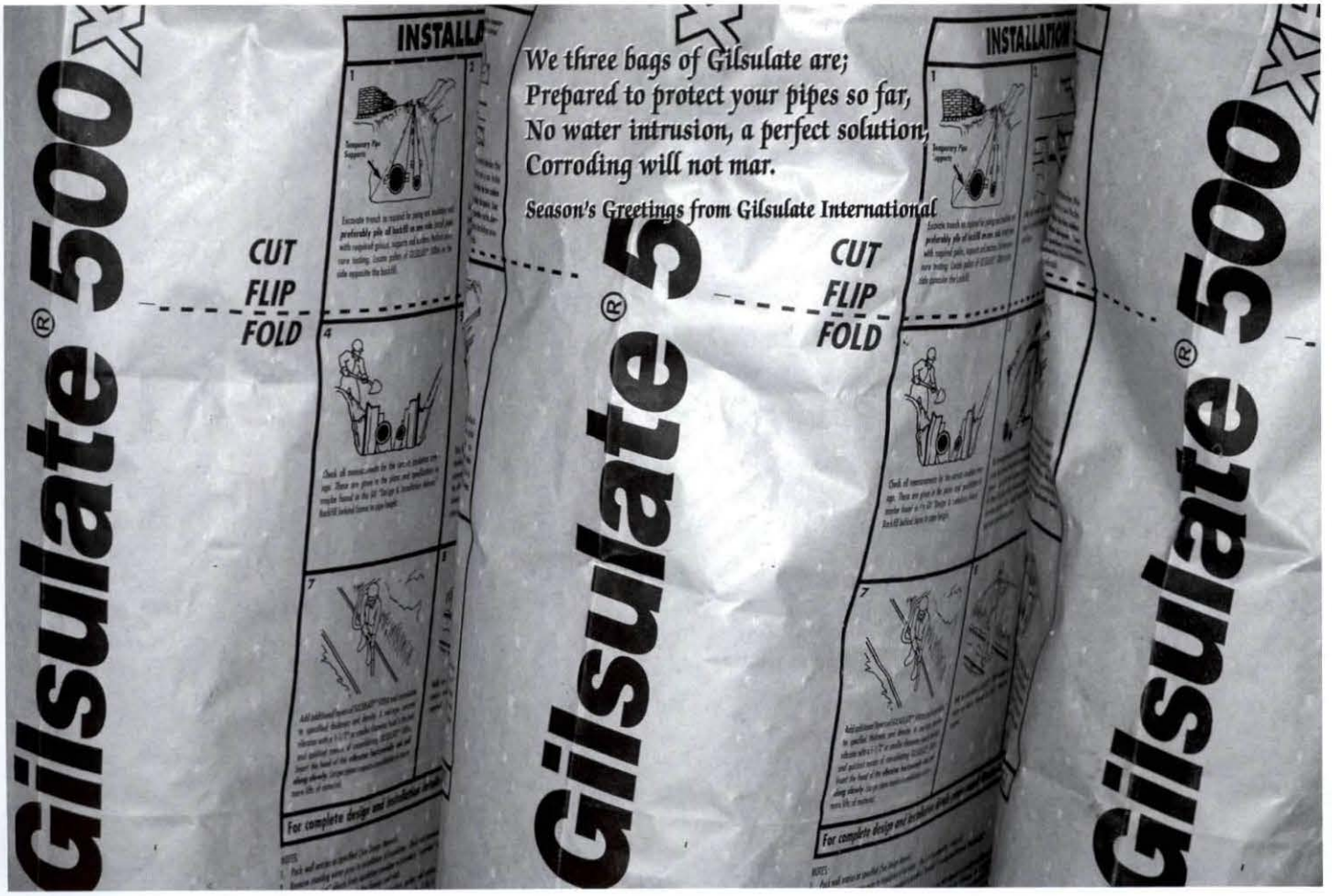
Installation sequence was important as one system had to be capable of absorption cooling, thus it had to be operational by May 2006. Residence halls had to be operational by August 2006, and the balance of the buildings by October 2006. The project had to be coordinated in terms of schedule, contractors, and paths with the natural gas and high voltage projects. All of this work was concurrent with all the same mechanical and electrical rooms as destinations. All respondents to the RFP had to attend a pre-bid meeting and walk through.

The RFP sought funding options that would allow the university to examine options as a performance contract and/or financing rates. This was also a means for respondents to explore partners that might give each a particular advantage. To aid in this process the university provided unit costs for utilities (since this was changing as a result of natural gas and electric projects). Valparaiso University provided respondents with current system operating costs except we did not include labor or installation costs as those were being reallocated. Each respondent was to calculate the cost of operation of this new configuration and approximate payback. Each respondent was to offer the university financing options such as a Performance Contract, as a financed project, or cash where the university would secure its own financing.

Three firms completed the process. Our staff met with each respondent for: careful scope reviews, careful checking of delivery dates for the boilers, and careful checking of natural gas/electric project progress.

Project Outcomes

This project has a guaranteed payback in seven years (consistent with our in-house estimates), which depends on the price of natural gas as well as the severity of winters. The project costs were financed independent of the contractor because of more favorable rates. Central boiler house distribution and distribution system were decommissioned in May



2006. The central boiler house is now being considered for a retro fit to some other purpose...sort of "found space."

Component parts are being offered for sale to help offset the costs. Boiler and system chemicals reallocated to other buildings or returned for credit. A portion of the boiler house is being used as a contractor office for another project (reducing the general conditions cost on that project). Removal of all manholes is now underway and with that maintenance and confined space issues. The distribution system path is being worked and seeded in some locations, while in others the system is being dug up and used to route a new water main. Parts of the old high voltage system route are being used for this new water main and a new section of the storm sewer.

The deferred and planned maintenance for the boiler house and distribution system have been removed from our ten-year capital plan. There is a Physical Plant Services operating savings because of this shift with a non-PPS savings in insurance premiums that are funding the project. The budget uncertainty caused by the large breakdowns from this source is now eliminated.

The "freed" labor is now available to service the new buildings we are adding and the new high efficiency boilers. We reduced our regulated exposure (UST and air pollution), confined space, and reduced our employee exposure to chemicals for boiler water treatment.

This project has a guaranteed payback in seven years (consistent with our in-house estimates), which depends on the price of natural gas as well as the severity of winters.

Natural Gas and Electric Replacement

The university owned its natural gas, substation, and electrical distribution systems which were, in large part, 40 to 50 years old. The system had some sections and components replaced in the last ten years. A consultant assessed the system as at its life's end. The natural gas system operated at 10 PSI and did not have capacity to add the anticipated future projects. The electric system was a 4160-volt system that was increasingly experiencing component failure resulting in at least single building outages about one time every six weeks and a circuit failure about three times per year.

The system was near its maximum capacity. The 4160 system was underground with switches and link boxes in manholes. Keeping manholes dry and confined space entry permits/training were a constant task. The university did not have sufficient staff or equipment to effectively maintain the high voltage or natural gas distribution systems. The universi-

ty did not have the necessary equipment or expertise to repair the natural gas distribution system. Both of these systems were resulting in large energy expenses, maintenance expenses, and service interruptions.

For about five years we looked for a partner who would:

- Provide the cash to replace these two systems.
- Provide the maintenance for these two systems.
- Bill us monthly for the capital investment, maintenance, and consumption.

The intended outcomes of our search had been to establish a larger substation at a higher voltage (12,500) and to establish capacity in both natural gas electric systems to service our facility's growth potential. Further, it was our desire to transfer the cost of labor to an outsourcer that was properly trained, equipped, and could manage the spare parts inventory to maintain reliable services. This would allow Physical Plant Services to reallocate our labor to a focus on our core mission. Secondly, personnel could focus on the maintenance of our existing buildings and the new/renovated ones planned.

Eventually the partner who presented the best opportunity was our local energy provider who provides both electricity and natural gas from a subsidiary of this provider. This provider had been the successful bidder in recent natural gas transactions. Electricity had been provided to the university substation via a single feed from their grid.

In order to advance this discussion Valparaiso University would grant a site for a substation to be owned by the provider along with all of the necessary easements via paths defined by the university. This substation would be served by two sources and would provide service to the neighboring community. The campus would also have the potential for service from a second existing substation from a third source.

Natural gas and electricity would be routed to each and every building. The capacity of the system would allow the construction, renovation, additions to all of the university plans over the life expectancy of these systems. Valparaiso University would move these two utilities into the building and connect. Since this work would involve several contractors and subcontractors; since the natural gas system had to be in place for the decentralized boiler project; since all of this had to be done before students returned in August 2006, schedule management and coordination would critical.

The payoffs for the university were that several systems old systems were replaced. All electric and heating distribution system manholes were eliminated, and with that all the con-

fined space and maintenance issues. Many of the hours spent in chemical water treatment are now reallocated. The new electric rate structure avoids most demand rates, power factor correction, and maintenance of a capacitor bank.

Clearly, a long list of deferred maintenance and future planned maintenance has been wiped away. Future capacity issues are now gone. Reliability issues are now gone. The capital investment will be repaid over 30 or 36 months depending on the item. The "new business" construction of a new parking ramp and university union will also help offset the costs. The new union could not have been constructed without these new utilities.

The provider and university are now working together to produce an electronic billing system that can be downloaded into our spreadsheets for purposes of utility analysis. The pulse metering and energy management now allow the university to monitor consumption by building and to explore working with building occupants to influence consumption.

Valparaiso University has been able to sell many of the old high voltage system components and boiler house components to of set some of the costs. As a windfall, recent copper price increases made it feasible to pull all of the old 4160 wire and sell it, to help offset project costs.

The payoffs for the provider include a new substation that serves many other customers. This substation real estate was free with no zoning variance issues. They have locked in VU as a customer at standard rate structures, which was an aid in their relationship with the state regulatory agency. They also have a clear sense of the future campus growth and their potential revenue streams. Our work with this provider will now include exploration and testing of some new technologies.

Convergence of Projects 1 and 2 with the Physical Plant Services Reengineering Plan

With the changes discussed, it was possible to consider the reengineered organization for our trades group. Thus our carpenters (including painters and locksmiths), plumbers, electricians, and HVAC are now divided into two maintenance teams.

With the elimination of the boiler house, HTHW distribution, natural gas, and high voltage we could offer a different type of service. This now allows Physical Plant Services to hire personnel with more general maintenance skills. The buildings the university is now constructing and planning are far more high tech, but there is less potential to require an increase in the size of our workforce.

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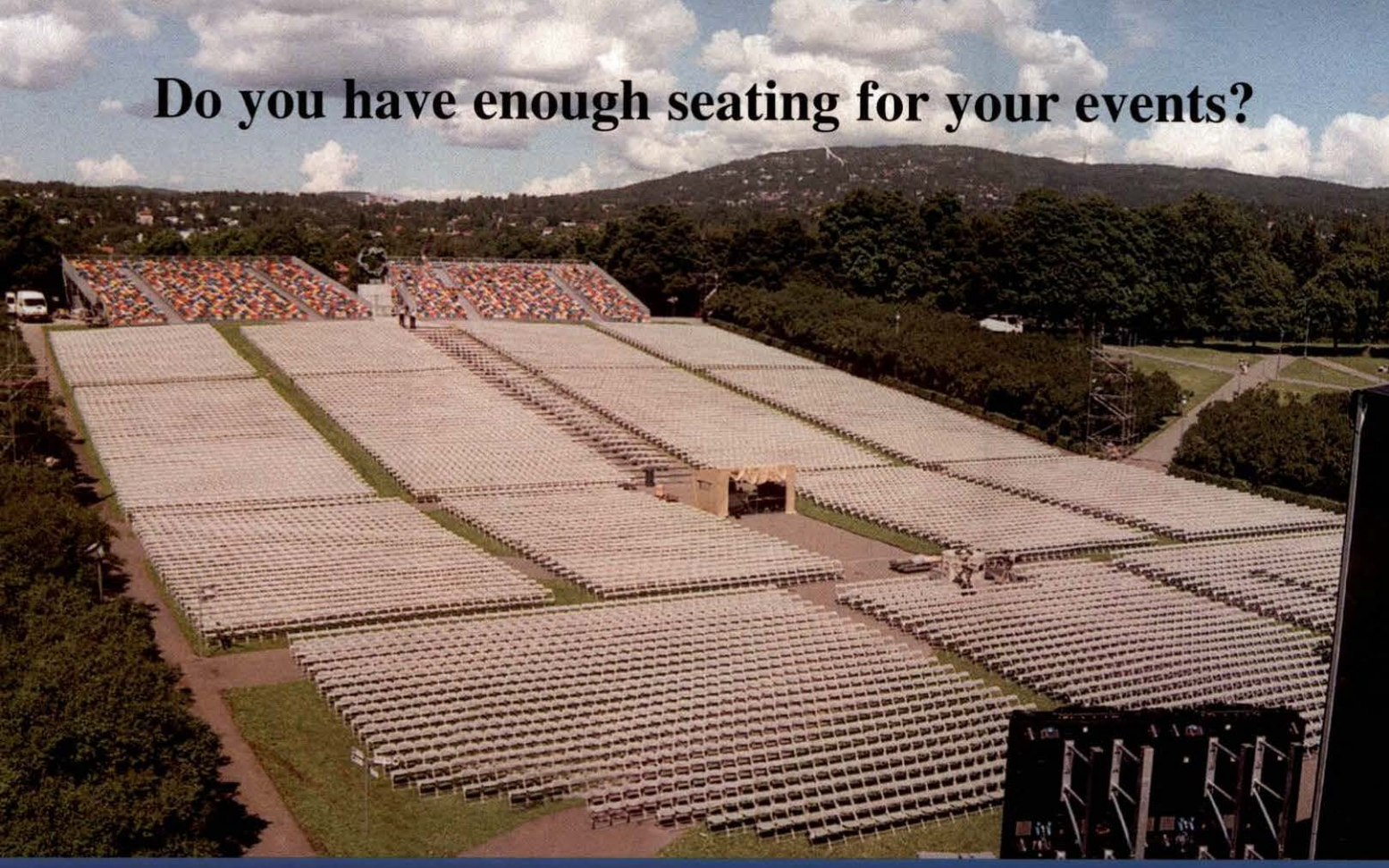

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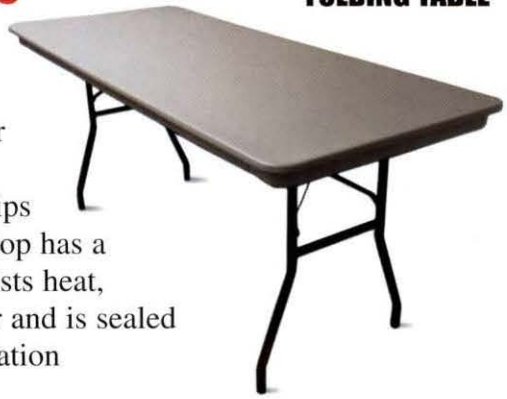

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The ability to shift our current talent to the new technology and reduce the time they spend on utilities and utility emergencies would provide improved ability to focus on our core mission, more face time with customers, and recapture a focus on preventive maintenance.

Our reengineered trades group is now a team devoted to maintenance and a team devoted to preventive maintenance, with approximately half of the staff on each team. Each team has a mixture of skills and experience. There are times when workers will move to the other team to meet some focused need. There is one billing rate for both teams, making estimates much easier to prepare and much easier to explain to customers. We also now avoid the delays and coordination issues that passing a multi-trade work order among the shops creates.

Our outcomes have been a reduction from five supervisors to two. The two former supervisors have been reassigned. The third individual is now training on the energy management system. Many training and safety equipment needs are eliminated through the elimination of the manholes. We simplified our billing and rates.

Our schedules have been met, our budgets have been met, and our reengineered trades shop is complete. Gary Greiner, associate director of maintenance; Bruce Monnier, assistant director of special services; Dick McNamara, associate director of construction and renovation; and Matt Maynard, assistant director of maintenance, represented VU in the execution of these plans. Clearly, the convergence of these plans at the implementation stage required the cooperation of many VU departments, companies, and service providers.

At the end of the summer of 2006 we held a "savor the moment" breakfast!

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Desiccant Dehumidification Beats Heat as Construction Drying Method

Desiccant dehumidification underway at an elementary school construction site near Austin, Texas.

by Russ Brown

Moisture within a building under construction can become a real headache to contractors and a danger to its future occupants.

All construction materials inside the structure absorb moisture, including wallboard, fireproofing, lumber, block, and concrete. Unless that moisture is reduced to acceptable tolerances, the condition can delay the construction timetable or, even worse, cause performance failure of some material or lead to the formation of mold.

Surfaces often include freshly sprayed fireproofing, joint compound, concrete slabs, floor leveling products, concrete block walls, and stored building materials. Water-laden fireproofing and joint compounds dry slowly inside closed areas when applied. Often, the humidity that results can encourage mold contamination. Finished flooring products such as vinyl composite tile and fiber-backed carpet are applied with adhesives extremely sensitive to moisture. Without proper drying, large amounts of water can be trapped in concrete, preventing the installation of flooring. Hardwood flooring and trim absorb moisture easily, causing warping.

Contractors generally use one of two methods to accomplish drying during the construction of commercial, educational, industrial, and high-rise residential buildings—direct-fired heaters or desiccant dehumidification systems.

Some contractors also attempt to dry by using the HVAC system, but that has been proved highly ineffective. HVAC systems are engineered for temperature control and not moisture removal capacity. Running the blowers can spread dust and mold spores throughout the ventilation system and even cause damage to the HVAC equipment, coils, or filters. And using HVAC prior to commissioning the building can lead to warranty issues and concerns. Because of these reasons, some building owners no longer allow the use of the HVAC system during construction.

***Russ Brown is national accounts manager with Munters Moisture Control Services, Indianapolis, Indiana. He can be reached at russ_brown@munters.com. This is his first article for* Facilities Manager.**

The issue of which drying method is best is no longer open to debate by some professional trade groups. The Northwest Wall and Ceiling Bureau (www.nwcb.org) is a professional trade association that serves contractors, manufacturers, dealers, and labor. Regarding wallboard, for example, NWCB states in its technical bulletin #303: "Cold damp weather contributes to joint bond failure, delayed shrinkage, ridging, nail pops, joint flashing, and board sagging. Proper temperature and humidity levels (environmental conditions) are important factors in achieving satisfactory results. Some sources of temporary heat will cause high humidity. The NWCB recommends a desiccant dehumidification system for best results in joint finishing and final decoration of gypsum wallboard."

'Proper Drying' Defined

A key factor is "proper drying." Principles of physics dictate that simply introducing heat into a building space is not an effective method to dry the air. Conventional HVAC systems are not designed to dry out construction-related moisture. The moisture load from wet materials is simply too large and the drying task too complex for systems that are intended for comfort.

In uncontrolled atmospheric conditions, water molecules that exist in the air exert vapor pressure on the materials of which it comes into contact. The warmer the air, the more water vapor is present.

Permeable materials—and that includes almost everything inside a building—absorb water vapor to differing degrees.

A mixture of desiccant dehumidifiers and indirect fired heaters is powered by a propane-fueled generator to operate the heaters and the blower fans, eliminating the need for an electrical connection.

Unabated, that process will continue to the point that Equilibrium Moisture Content (EMC) is reached, when the material neither gives up nor takes on moisture from the surrounding air. By lowering the vapor pressure between the material and the ambient conditions around it, the material will begin to give up moisture.

Moisture will travel from areas of high vapor pressure within the material to the areas of lower vapor pressure surrounding it, which are being mechanically created. The moisture vapor will be desorbed from the material into the air and will be pushed out of the space by air movement.

The Problems Using Heat

While heat can act to temporarily reduce relative humidity, it does not reduce vapor pressure. The process is not effective at significant moisture removal. In fact, heating the space with standard direct-fired construction heaters often will add moisture to the space, through combustion, which may compound the problem.

Using the traditional method of heating with direct-fired heaters, it is often difficult to maintain conditions that minimize formation of mold or mildew. As a result, humidity rises, allowing condensation to form on surfaces throughout the building interior, such as metal studs and wallboard.

Direct-fired heaters generate initial air temperatures of about 150°F. The heated air is pumped into the structure at about 95°F, where it rises to the ceiling.

As the heated air cools, moisture again is released into the atmosphere. The atmosphere can be compromised further because buildings under construction usually have openings that allow moist outside air to infiltrate the indoor environment.

Another negative is the high cost of fuel and labor to operate direct-fired units. The boilers consume comparatively large quantities of propane or natural gas to generate high temperatures. And, more intensive labor is required to frequently refuel.

Safety also is an issue. Often, fire codes preclude the use of the units in high rise construction because they involve an open flame. A typical example would be a 30-story multi-use structure in which the lower half of the floors already are occupied by businesses, while the upper floors are being completed for residential use.

Direct-fired heaters are recommended in applications in very cold climates where a lot of heat is required and in non-enclosed areas such as general construction, ventilated warehouses and parking garages.

Desiccant Dehumidification

The more efficient, productive, reliable, and faster method of moisture abatement is aggressive drying through a desiccant dehumidification system. Desiccant dehumidifiers have proved effective to create low relative humidity and dew points when drying air at a condition far from saturation or at low temperatures.

Desiccant units used for drying are different than those used as permanent installations in commercial buildings. Portable units, delivered to the site on trailers, are designed to withstand the construction environment and to provide the drying capacity required to establish and maintain proper atmospheric conditions.

Portable, inflatable plastic ducts are used as part of the airflow system, precluding any reliance upon the HVAC distribution system. Also, the temporary ducts can be moved easily as work progresses to other areas of the construction site. To be effective, the dry air must be contained. If a building under construction is open to the exterior, temporary enclosures may need to be erected to contain the dry air where needed.

Unlike cooling-based dehumidifiers, which cool the air to condense moisture and then draw it away, desiccants attract moisture molecules directly from the air and release them into an exhaust air stream. Desiccants can attract and hold from 10 to more than 10,000 percent of their dry weight in water vapor. They are effective in removing moisture from the air at low humidity levels and do not freeze when operated at low temperatures. The end result is an extremely dried air source capable of drying the most saturated materials.

Depending on the amount of moisture to be removed and the conditions present, the number of hourly air changes to be effective can vary greatly. Air change rates can fluctuate depending on ceiling height, tightness of envelope, type of vapor barrier or lack of one, outside weather conditions and other variables.

Trades workers can continue to work in the spaces being dried. However, they must be informed not to tamper with equipment, fans, or ducts. They must keep the "envelope" secure by closing doors and windows. If possible, the best results are achieved when work is limited in an area being dried.

In summer applications, one might consider combining temporary cooling systems in conjunction with the desiccant dehumidification to provide more comfortable working conditions for the workers while still creating the perfect drying conditions.

The Issue of Mold

Mold and fungus are present in almost all materials in educational, residential, commercial, industrial, and municipal structures. For example, just one square-inch of surface on drywall may contain from one to 10 million spores.

In order to grow, mold requires air, suitable temperatures and a moist nutrient. Of those, moisture is the major contributor as a "food medium" that sustains mold. The moisture does not need to be in liquid form. Because microscopic organisms need so little moisture, they can use what is present in solid materials, on the surfaces or in the air as condensation or humidity. The key to mold control is moisture control.

In Summary

Heat alone cannot reduce vapor pressure in an interior construction environment. As a result, materials cannot give up the moisture they retain. Because desiccant dehumidification reduces both humidity and vapor pressure, it is the preferred method to dry construction materials. Materials dry in a matter of days, not weeks. The method also reduces the potential for mold growth. And it establishes a more comfortable working environment.

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Supervisor's Toolkit

Nuts and Bolts of Facilities Supervision

Indian Wells Programs Mark Another Session of Success

September 2006 marked another successful APPA educational program offering with the Institute for Facilities Management and the Supervisor's Toolkit in Indian Wells, California. The week was marked with outstanding course offerings and numerous opportunities for networking among facilities professionals from all over the world.

The Institute continues to offer top-notch content in the core areas of general administration, maintenance & operations, energy & utilities, and planning, design, and construction. The dedication of the Institute deans—Mary Vosevich, General Administration; Jay Klingel, Maintenance & Operations; Cheryl Gomez, Energy & Utilities; and Don Guckert, Planning, Design, and Construction—once again was evident through with the variety of course offerings that provided broad range of topical material for the facilities professional. Students had the opportunity to interact with experts who brought not only their knowledge but their experiences from vast backgrounds that provided a rich environment.

While our Institute faculty were submerged with their students, our Supervisor's Toolkit Master Trainers, Nancy Yeroshefsky and Carol Trexler, were teaching the newest techniques to front-line supervisors. This group spent an intense week learning how to operate in their new role as supervisors or hone their skills as they advance through the facility organizations they support. The Toolkit participants benefit tremendously from this tailored program designed *for* facilities professionals *by* facilities professionals.

Although the week was full of learning and networking, all participants were able to take advantage of the wonderful sites of Indian Wells. Many spent time on the beautiful golf courses while others did some sightseeing of the extensive desert terrain. Although a 'hot' week, it was a beautiful opportunity for such a part of the country.

The week concluded with graduation of 49 members of the Class of September 2006. Celebration of graduation was also joined with those who completed various core areas of the Institute program and the Supervisor's Toolkit. Sharing the achievement with old friends and new colleagues made for a great evening.

Registration is open for the January 2007 Institute and Toolkit programs. Visit www.appa.org/education for more information. We hope to see you soon!

List of Graduates

John Alius	**Brigham Young University**
Appi Alla	**Edinboro University of PA**
Vincent T. Allen	**Illinois State University**
Robert B. Andrus	**Salt Lake Community College**
Griffin Avin	**East Carolina University**
Timothy J. Barbagallo	**Academy of the New Church**
Stanislaus Bouyea	**California State University/Monterey Bay**
Gary L. Bowersock Jr.	**Colorado School of Mines**
Emmet J. Boyle	**University of Regina**
Timothy C. Brown	**California State University/East Bay**
David R. Butterbaugh	**University of Rochester**
Jody Dicarol	**Emory University**
Robert D. Dixon	**California State University/San Bernardino**
Othello A. Doering	**University of Miami**
Brian Dominick	**Univeristy of British Columbia**
William D. Filardi	**New York University**
Marcela D. Frink	**Cornell University**
Michael B. Gautney	**University of North Alabama**
Betty-Jane Glenn	**Cornell University**
William Haerle	**University of Miami**
Yoshiko Hill	**University of Michigan**
Brenda Hill	**Georgia Tech Research Institute**
Herman A. Howard	**Emory Univeristy**
Ken Irwin	**Portland State University**
Melissa Keeney	**University of Missouri/Rolla**
Claudia Kent	**Haverford University**
Rick L. Lobato	**New Mexico State University**
Jorge Martinez	**Johnson & Wales University**
Christine A. Matheson	**Dalhousie University**
Brian McConville	**California State University/Northridge**
Dan J. Miceli	**University of California/Santa Cruz**
Theodore G. Minnick	**Michigan State University**
Mike Murphy	**Dalhousie University**
Ben Myers	**Virginia Tech**
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George A. Podrebarac	**Joliet Junior College**
David Reed	**University of Virginia**
Gilles Richard	**Univeristy of Moncton**
Shelton D. Riley Jr.	**Texas Christian University**
David S. Rogers	**University of California/San Diego**
Gina Shoemaker	**East Carolina University**
Chris M. Snow	**Oklahoma City Community College**
Cherryl Sodorff	**University of Idaho**
Hernan D. Solis	**Florida International University**
Kathleen L. Stapleton	**Cornell University**
Ted Suchodolski	**Wistar Institute**
Stephen L. Tolley	**Babson College**
Louis Gerry Von Ville	**Ohio University/Zanesville**
Jeffrey A. Zumwalt	**University of New Mexico**

Tip of the Spear

by Matt Adams, P.E.

Years ago while I was part of a Facilities Management Evaluation Program team working on an APPA evaluation at Eastern Illinois University, the then-AVP for facilities, Ted Weidner, described his routine facility department current events presentation to the Faculty Senate. We questioned the frequency of these presentations and he told us that he presented at least annually and more often if they would receive him.

Intrigued by Ted's response at the time, we pressed him on the subject and he stated that one in his position could not "over communicate to the campus" the mission and message associated with the facility department. For the last ten years I have observed this to be true, time and again. In fact, what Ted called communication is much more than just presentations. It is all forms of outreach from the facility department to the campus stakeholders.

With respect to information and understanding in the institutional, or most any business setting, we have learned the dangers of inadequate communications. Specifically, when a customer is not informed, the default judgment or assessment of any given service relationship is negative. This is really just human nature. For plant operations, this is even more acute due to the vast array of sometimes technical services delivered.

First is the relatively poor understanding by customers of what services and to what levels we are entitled to. Checking our peer websites lately, many have begun to more clearly define the services of the plant department. While the Web is not enough by itself, providing specific descriptions of delivered services with the normal details, but in layman's terms, is a best practice.

Test yourself. Do your campus customers know specifically what maintenance repair and improvement services are available to them and who pays for various types of work requests? Do they understand what APPA level of housekeeping the general fund budget provides for their space? If the answer is no, you are at square one.

APPA has placed emphasis on customer service for years. Despite this, we as an industry are still missing some easy opportunities for improvement. Now I know that most of our peers are at least sensitive to customer service and the message that our actions "communicate" to the campus. However, with the stakes so high for upholding or improving our image as a service provider on campus, a formal review and subsequent policy and procedure addressing the "tip of the spear" is a great idea.

Why not identify and rank the duration, nature, and context of each routine plant employee and customer contact event? The most weighted are obvious contacts made by the work control desk, housekeepers, project managers, planner/estimators, etc. We are viewed by the campus most often with non-technical and subjective judgments of the interaction they have with our staff. Given this reality, it behooves us to respond in such a way to enhance the event, specifically in the eyes of our customers as opposed to ourselves. The good news of this customer satisfaction strategy is that it is simple and relatively intuitive. The bad news is that, despite this, very few of us are doing it. For example, if you have in fact made a formal inventory of the major customer contact events, what have you done with this data?

Matt Adams is president of FM² (formerly Adams Consulting Group), Atlanta, Georgia. He can be reached at matt@adamsfm2.com.

It strikes me that there are some primary categories of customer interaction that can be identified and, therefore, improved. For example, at the work control desk the contacts might fall into the following categories: 1) service requests with an emotional element; 2) work requests with a financial element; 3) service requests with a time-planning element; and perhaps 4) status request with an information element. Now understand that most of us use the "one size fits all" approach to most of our customer-driven processes.

When a customer is not informed, the default judgment or assessment of any given service relationship is negative.

Clearly there is room to design more effective communication procedures that respond more effectively to each of the aforementioned work control desk events. We should ask a focus group of customers if we have assembled the correct list. If so, what specifically is the response that best suits each event? We need to know from the customers what will make them satisfied and perhaps even feel good about this contact event with our staff and the physical plant. We have the ability as an organization to serve up virtually any information that the customer might want and we can, with some training, do it in a way that best suits their state of mind or expectations.

At this point in our internal review we should have identified the event list by service center. Next, we asked the customers to clearly tell us what information is needed from us to satisfy their needs. Then we formally list the "must-have" and the "nice-to-have" information that we collect from the customers. If you visualize this, we are assembling a service contact matrix and it has three or four columns so far.

The next column of information is perhaps the most important as it relates to meeting overall customers' expectations. Once again we query our focus group to specifically identify what are the top three to five characteristics of this interaction that are most important to the satisfactory resolution of the event. This exercise will take some fresh ideas. For example, we have the event; one service request with an emotional element from above. Previous research by our peers has shown that this type of request often requires a non-technical response; for example, take "empathy and concern." When someone has a strong reaction during a "hot/cold" call, the appropriate response might not have any technical elements. Customers might not care that we are in "shoulder" months. The fact remains that impassioned calls will come to our work control desk forever, and we can laugh them off and get a bad reputation on campus or proactively try to respond effectively to these customers. Moreover, we can respond in predetermined ways that are based on research and customer feedback. Seems like an easy win to me!

One might consider that this is way too "touchy-feely" for our business. However, we know that perception is reality and this is doubly true for our non-facilities savvy customers. In fact, there are already staff members that intuitively recognize the ideas being discussed here and apply some of the improved response we would hope for.

That is great! The next step is to consistently spread this to everyone that represents the "tip of the spear." This is done with defined policies, procedures, training, and measurements. It's just like any form of continuous improvement we undertake.

New Products

New Products listings are provided by the manufacturers and suppliers and are selected by the editors for variety and innovation. For more information or to submit a New Products listing, contact Gerry Van Treeck, Achieve Communications, 3221 Prestwick Lane, Northbrook, IL 60062; phone: 847-562-8633; e-mail: gvtgvt@earthlink.com.

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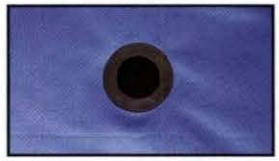

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VFA, Inc., a provider of software and services for facilities capital planning and asset management, has announced the release of version 7 of VFA.facility, which is designed to assist capital planners, facilities managers, and financial executives in managing their capital assets and forecasting maintenance, renewal, and capital spending requirements. VFA also announced the availability of VFA.auditor, a new software product that assists in collecting baseline data about facilities and systems. The Web-based software guides facilities managers to gather consistent and reliable information across a diverse portfolio. Data collected with VFA.auditor can be used to support development of portfolio-wide budget estimates and to identify areas requiring detailed assessment. For more information visit VFA, Inc. online at www.vfa.com.

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Award for Excellence

The APPA Award for Excellence is designed to recognize and advance excellence in the field of educational facilities. Originally established in 1988, the Award for Excellence is APPA's highest institutional honor and provides educational institutions the opportunity for national and international recognition for their outstanding achievements in facilities management. The award is designed to highlight the essential role of facilities operations in the overall institutional mission and vision. Award for Excellence nominations are evaluated using the same criteria applied through the Facilities Management Evaluation Program (FMEP) in the areas of leadership; strategic and operational planning; customer focus; information and analysis; development and management of human resources; process management; and, performance results. Selected institutions are visited by an evaluation team. The Award for Excellence designation is valid for a period of five years.

Effective & Innovative Practices Award

APPA's Effective & Innovative Practices Award recognizes programs and processes that enhance service delivery, lower costs, increase productivity, improve customer service, generate revenue, or otherwise benefit the educational institution. Entries can describe either a new program or significant restructuring of an existing program or process. Up to five ranked submissions will be eligible for a cash award of $4,000 sponsored by Sodexho USA.

APPA Fellow

While most awards recognize past achievements, the APPA Fellow designation brings with it both recognition for specific accomplishments to date and expectations for continuing involvement in APPA's leadership program through research and mentoring. The Fellow is APPA's highest individual achievement award. Individuals must have: been an active member of APPA for a minimum of ten years; graduated from APPA's Institute for Facilities Management; completed APPA's Leadership Academy; completed an approved research project under APPA's Center for Facilities Research; prepared an article accepted for publication by APPA; and must submit two references from colleagues in the educational facilities profession that speak about the individual's successes and dedication to the profession.

Meritorious Service Award

Each year, APPA members bestow the Meritorious Service Award upon the individual member or members who have made significant, life-long contributions to the profession of education facilities management. APPA's highest award for individual service, the Meritorious Service Award is given to no more than three individuals a year. Individuals must have been an active member of APPA for a minimum of ten years; attended and participated in meetings and other functions at the international level; and demonstrated continued and distinguished service to the association.

Pacesetter Award

The Pacesetter Award is designed to encourage further participation in APPA among those who have made significant contributions at the regional or chapter level. Up to seven Pacesetter Awards may be given each year.

APPA encourages those interested in applying for an award to contact your regional Professional Affairs or Awards and Recognition Committee representative. A list of committee members can be found on-line at: www.appa.org/Leadership/committees/home.cfm.

AWARD DEADLINE: FEBRUARY 15, 2007, MIDNIGHT GREENWICH MEAN TIME

Visit www.appa.org/recognition for all award criteria, application and nomination details.

Coming Events

Coming Events

For more information on APPA's educational programs, visit www.appa.org/education, call 703-684-1446, or e-mail education@appa.org. Also visit our website's interactive calendar of events at www.appa.org/applications/calendar/events.cfm.

APPA Events - 2007

Jan 21-25—*Institute for Facilities Management.* Orlando, FL.

Jan 21-25—*Supervisor's Toolkit: Nuts and Bolts of Facilities Supervision.* Orlando, FL.

April 15-19—*Leadership Academy.* San Jose, CA.

July 15-17—*APPA 2007: Back to the Future.* Baltimore, MD.

Sep 9-13—*Institute for Facilities Management.* Phoenix, AZ.

Sep 9-13—*Supervisor's Toolkit: Nuts and Bolts of Facilities Supervision.* Phoenix, AZ.

Other Events - 2007

Jan 17-20—*Association of American Colleges & Universities Annual Meeting.* New Orleans, LA. Contact: www.aacu.org.

March 1-3—*General Education and Assessment.* Miami, FL. Contact: www.aacu.org.

March 12-13—*2007 International Conference on Biocontainment Facilities.* San Diego, CA. Contact: www.tradelineinc.com/conferences.

April 2-4—*2007 AUDE Conference. Association of University Directors of Estates.* Bath, United Kingdom. Contact: j.eyles@bath.ac.uk.

April 16-17—*Lean Management Models for Capital Projects & Facilities Management.* St. Petersburg, FL. Contact: www.tradelineinc.com/conferences.

April 23-24—*Fire Safety, Law Enforcement, and Emergency Medical Services.* Columbus, OH. Contact: www.campusfiresafety.com.

May 7-8—*Research Buildings 2007.* San Diego, CA. Contact: www.tradelineinc.com/conferences.

July 7-11—*SCUP-42—Shaping the Academic Landscape: Integrated Solutions.* Chicago, IL. Contact: www.scup.org.

July 21-24—*NACUBO's Annual Conference. National Association of College & University Business Officers.* New Orleans, LA. Contact: www.nacubo.org/x41.xml.

Oct 28-31—*NACAS 39th Annual Conference. National Association of College Auxiliary Services.* Las Vegas, NV. Contact: www.nacas.org.

Dec 3-4—*Academic Medical Centers: Capital Projects & Facility Management.* San Diego, CA. Contact: www.tradelineinc.com/conferences.

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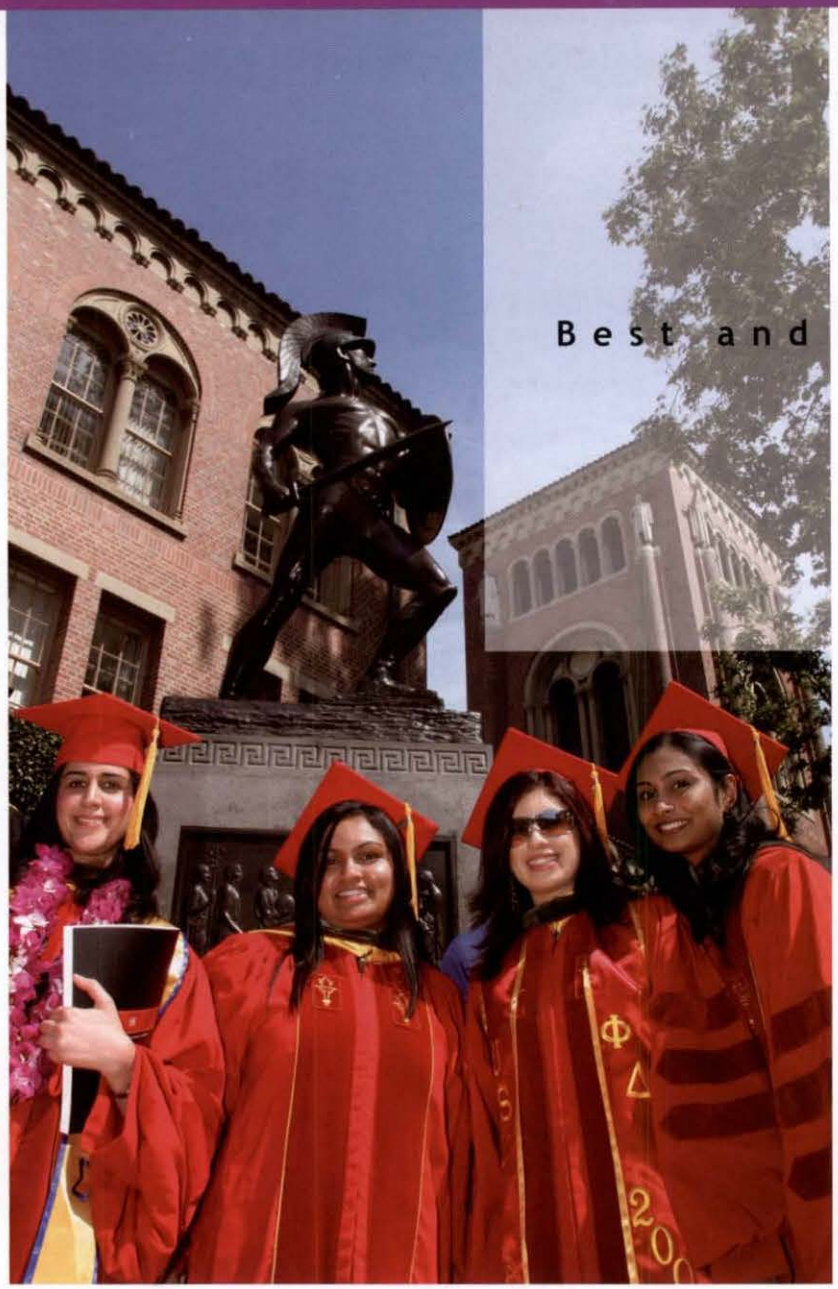

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