

May/June 2003

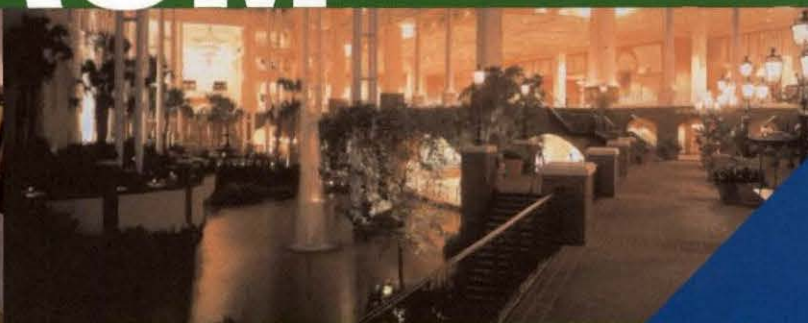
VOLUME 19

NUMBER 3

Facilities Manager

The official publication of APPA: The Association of Higher Education Facilities Officers

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Facilities Manager

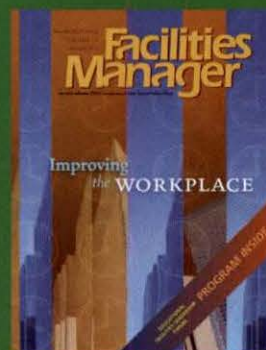
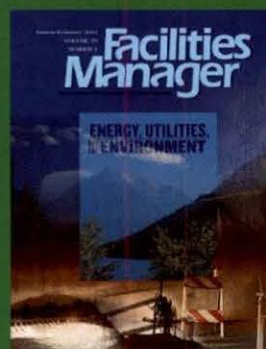
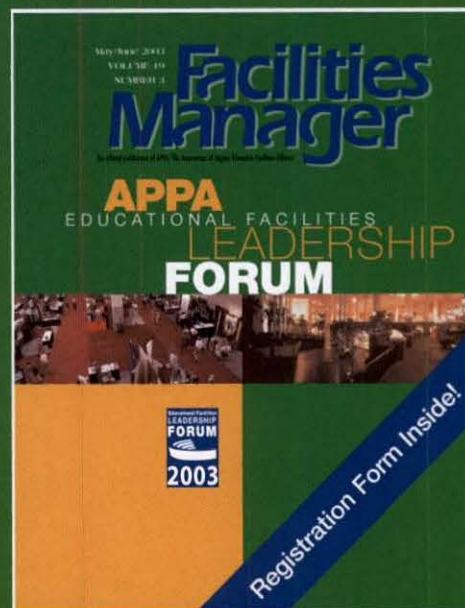
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Global Partner in Learning

From the Editor

by Steve Glazner

As you read this, the APPA staff, Educational Programs Committee, and Board of Directors are busily making final preparations for the 2003 Educational Facilities Leadership Forum. The Forum will be held July 27-29 at the Opryland Hotel in Nashville, Tennessee, and we are excited about co-locating our Forum with the annual meeting of NACUBO, the National Association of College and University Business Officers.

This issue of *Facilities Manager* provides an advance look at just some of the content and professional development that will be offered at the Forum. Included are features based on presentations that will be made this July.

First you'll find Don Guckert and Jeri King's description of the elements that contribute to the perception, and reality, of the high cost of campus buildings. And you won't want to miss their sidebar on the "surprise" costs that an institution will have to bear after accepting as a gift or buying that "bargain" house in the community.

As one of our many collaborative efforts with NACUBO, we are jointly publishing a new book called *Planning and Managing the Campus Facilities Portfolio*. Edited by Bill Daigneau and written by APPA and NACUBO members, the book stemmed from the APPA/NACUBO Institute for Facilities Finance and builds on the themes and issues raised at that valuable educational program. One of book's key chapters, Daigneau's "Implementing the Capital Plan," is being published in this issue of *Facilities Manager* as well as the current issue of *Business Officer*. The new publication will be sold in the APPA bookstore at the Forum and through APPA's catalog and website.

We are also pleased that Chris Ahoy has shared his experiences in process management at Iowa State University, and Dan Sze provides an update on the new initiative on DOE's Rebuild America and the college and university sector.

On the APPA project side, Mike Besspiata reports on the results and recommendations of last year's APPA survey on the matter of certification. In addition, Wally Glasscock gives us an introduction to an exciting new educational training program, *Supervisor's Toolkit: Nuts and Bolts of Facilities Supervision*. Glasscock has chaired a task force of facilities trainers and administrators to develop a weeklong training program for new supervisors or those being considered for supervisory positions. The task force has just completed a series of three pilot programs, and all have returned excellent feedback from the participants. Many thanks to Howard University, Reed College, and the University of Central Florida for hosting our three pilot programs.

The time is now to register for the 2003 Forum, and you can do so at www.appa.org/education. With an excellent slate of educational programs and exciting general sessions with Chuck Farnsworth, Rosabeth Moss Kanter, and Al Gore, you are certain to return to your institution from Nashville armed with renewed enthusiasm, resources and references to share with your staff and administration, and a long list of professional colleagues upon which you can call for assistance.

The coming academic year will be a challenging one for education. APPA continues to work hard to anticipate and meet your needs. Your attendance at the Forum in Nashville will serve you well. 🏛️



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Proposed Bylaws Change: **Passed**

The Bylaws change becomes effective immediately. The successful candidates will take office at the Forum in Nashville. Many thanks to the Tally Committee for counting the ballots: Chair Al Stearns, member emeritus; Patrick Andriuk, Episcopal High School; Al Guggolz, member emeritus; and



Dave Petersen, Fairfax County Public Schools.

See You in Nashville!

There is nothing that can replace the value of a face-to-face meeting. APPA is pleased to announce that we will be holding our 2003 APPA Educa-

tional Facilities Leadership Forum alongside the National Association of College and University Business Officer's (NACUBO) annual meeting. To enhance what APPA and NACUBO have to offer, joint programming tracks for facilities finance and planning, design, and construction have been developed for facilities and business officers. Also, many networking events have been planned for the Forum. Register today at <http://www.appa.org/education>.

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Community College Woes?

In his 2004 budget, President Bush has proposed eliminating the \$1.2-billion currently set aside for the Perkins program, plus about \$80-million in additional funds for vocational programs. He has called for a new \$1-billion Secondary and Technical Education program, which indicates a shift from providing traditional vocational education to providing high-quality technical education at

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the community college level that would be coordinated with local high schools.

In an article in *The Chronicle of Higher Education* (February 14, 2003, page A27) community college officials state that they are not clear how the program would be coordinated or how the money for it would be doled out. Another fear is that the proposal would result in more than a 20 percent cut in federal dollars for technical education.

Perkins money is given to the states to be apportioned to high schools and community colleges based on a formula driven mostly by the number of low-income students an institution serves. Currently in the U.S., four out of every ten Perkins dollars go to postsecondary institutions, most of them community and technical colleges.

Under the new budget request, the administration proposes linking higher education's share of the funds to its ability to form partnerships with local high schools. Community college lobbyists had advocated this move to some extent.

Community colleges now say that these postsecondary-secondary linkages are overemphasized in the request and would stretch further an already reduced amount of funds available for improvement of technical programs.

"We shouldn't be using technical-education money to try to force community colleges and schools to work together," says Thomas N. Applegate, executive dean at Austin Community College in Texas.

Keith W. Bird, chancellor of the Kentucky Community and Technical College System, said he believes the state's vocational programs will fare well under the proposal and that most community colleges already have articulation agreements with local high schools.

UB Blowing in the Wind

New York Lt. Governor Mary Donohue praised the University at Buffalo for its commitment to become the state's largest purchaser of wind-generated electricity. The university was the first campus in the State University of New York (SUNY) system to purchase a portion of its power from a commercial supplier of wind-generated electricity.

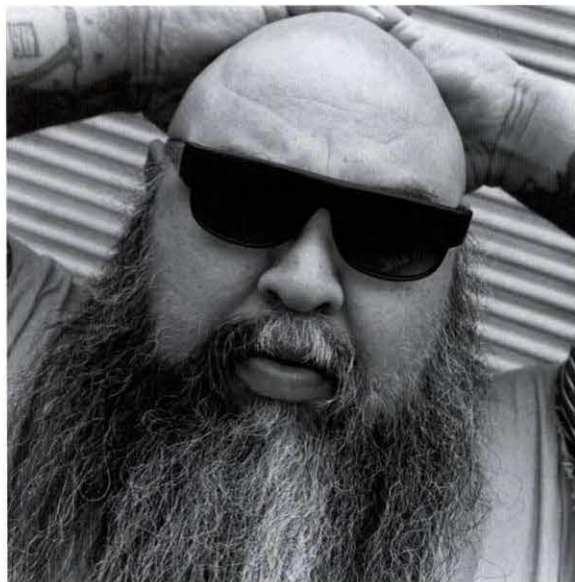
"We at UB are pleased and proud to lead the way in utilizing clean, renewable sources of power such as wind energy," said UB President William R. Greiner. "As the state's largest and most comprehensive public research institution, UB has historically been very aggressive on energy conservation and sustainability issues through many different university initiatives—we see it as a natural outgrowth of our larger public mission."

Under the Governor's Executive Order, state agencies in New York are

required to meet 10 percent of their electrical needs with environmentally friendly "green" power generated from renewable sources such as biomass, wind, and solar by 2005. The percentage will increase to 20 percent by 2010. In terms of future wind capacity, the governor said that the New York State Energy Research and Development Authority has announced new awards of \$17 million to support five new wind projects that would increase the number of wind projects in New York from three to eight, and the installed capacity from about 50 to about 365 MW.

UB's "green" power purchase will provide a significant environmental benefit by reducing pollutants associated with acid rain and smog. It is estimated that by 2004, carbon dioxide, sulfur dioxide, and nitrogen oxide emissions will be reduced annually by more than eight million, 92,000, and 36,000 pounds respectively as a result, according to Community Energy, Inc.

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1. Tie the numbers to your vision.
2. Build it from the "bottom-up."
3. Avoid taking a "pie-in-the-sky" approach.
4. Give Finance a real seat at the table.
5. Drive carefully, but be ready to shift gears.
6. Make friends with technology.
7. Don't rush a good thing.
8. Be open year-round.
9. Raise the bar.
10. Be willing to take a stand.

From *Community College Times*
March 18, 2003

Connected by Cell

An experimental program at Marshall University is a go for next fall. Students moving into the new dormitories will be provided cell phones instead of having the usual ones that hang on the wall or sit on a bedside table. According to *The Chronicle of Higher Education* (April 4, 2003, page A35), the \$30 monthly fee for the phones will be part of the residence fees and will include unlimited local and long-distance calls. Voice mail will be extra. The phones will have a range of 30 miles from the Huntington, West Virginia campus. Residence halls will still be wired for land-line phones to accommodate the Internet.

One of the problems to overcome was who would deal with billing, service, and repairs. It was decided to make these transactions occur directly between students and the providers.

There are some serious considerations in using the cell phones. How do you call a specific room in case of a noise complaint? Another issue could be safety. Emergency services can find the address of a land-line phone that has been used to call 911, but not so with a cell phone.

"The program is an experiment. It will be interesting to see how successful it is," says Ed Grose, senior vice president for university operations.

Emergency Planning for Businesses

Businesses are just as vulnerable to emergency situations as individuals. Business owners should develop emergency plans for the sake of their employees as well as the survival of their businesses.

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families can be contacted if necessary.

- Having a plan in place to evacuate staff and customers quickly and safely. The plan should include a designated meeting place outside the building.
- Practicing the plan with staff.
- Backing up computer data regularly and storing it offsite.
- Purchasing ample insurance coverage to minimize losses.
- Identifying crucial business operations and developing plans to ensure their continuation in the event of an emergency.
- Ensuring local police have up-to-date emergency contact information for key personnel.

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From "Your Guide to Emergency Preparedness," published by Northern Virginia Regional Commission 2003:6.

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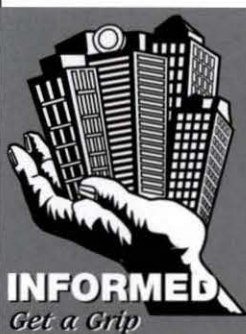
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Your E-mail Address is Important to Us!

by Suzanne Healy

The venues of communication have changed so rapidly over the last few years that you almost catch yourself coming and going trying to make contact with your colleagues. Place a call, check a page, and answer an e-mail. Respond to a fax and draft a letter to answer an inquiry. With so many ways to exchange information, finding a balance is key. Trying to stay informed, being involved, and avoiding burnout with everything coming at you all at once can be a full-time job in itself.

During 2003, APPA will undergo a massive database migration. Since

Suzanne Healy is APPA's director of meetings, conventions, and education. She can be reached at suzanne@appa.org.

November 2002, staff has been involved in assessing the daily operations of the association and member needs. One common item that continually arises is the delivery of information. What mode of communication should we be using? How often should we be communicating? The dissemination of information is crucial to you, the member. We realize that your time is valuable; spending it sifting through mail bins and e-mails should not occupy the majority of your day.

With this in mind, we need your help. As we move toward the new database we will be 'cleaning' data in order to have the most up-to-date member information. As you partner with us during this transition we are offering you a number of ways to update your record.

- Update your information in the online Membership Directory (www.appa.org/membership/directory).
- Provide all updated information on your membership renewal invoice.
- Contact staff members. If you are dealing with a staff member on another matter, ask them to update your record. If you are not in contact with a staff member on a regular basis, please call Betty Farley, administrative support staff (703-684-1446).

We understand that in an era of privacy e-mails are as sacred as social security numbers. Keep in mind that APPA does **not** participate in the practice of selling our membership lists to nonmembers. **So your e-mail is as safe as gold with us!** 

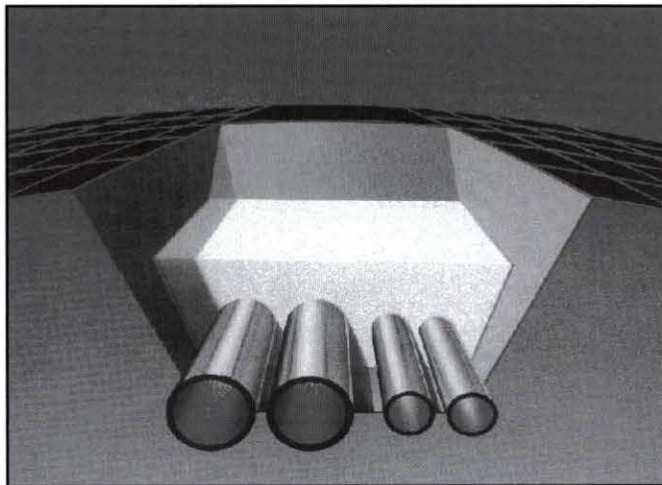
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Executive Summary

APPA and NACUBO Co-Locate July Annual Meetings

by James E. Morley Jr. and E. Lander Medlin

Collaboration among associations with mutual interests and concerns is key to serving members effectively, comprehensively, and cost efficiently. Many higher education associations serve a lot of the same institutions or "customers" and, thus, have good reasons to work together. In co-locating the annual meetings of APPA and NACUBO July



27-29, it is the intent of our two associations to enhance our efforts at collaboration.

The bringing together of the facilities professional and the business officer provides an opportunity for communication and informal dialogue

that can enhance the credibility of each profession to the other and to the higher education community in general. At the same time, the co-locating of our annual meetings gives APPA and NACUBO the chance to strengthen programming in a cost-effective manner, providing more value to our members. Members of both associations will have the opportunity to share, expand, and refine the fundamental concepts of their respective professions.

The educational content of these two meetings, positioned under one roof—the Opryland Hotel in Nashville—will provide the business officer with advanced exposure to the language of facilities and construction management; offer the facilities professional the opportunity to hone business acumen; and give all attendees a forum to examine issues of institutional policy in a unique and mutually beneficial manner. And the joint hosting of APPA's and NACUBO's exhibits will provide a convenient means for the facilities professional and the business officer to become acquainted with the services available from each other's business partners.

The timing of this event, albeit essential, could not be more appropriate, given education's current environment, future needs, and issues. The focus of education is shifting from teaching to learning; one-way to two-way; passive to interactive; producer to consumer; and monopoly to competition—all within an environment no longer bound by time and place. Higher education is now a market-driven, growth industry. The fabric of the higher education enterprise is being rewoven. Education, research, and public service are morphing into the more dynamic

James E. Morley Jr. is president and chief executive officer of NACUBO. He can be reached at james.morley@nacubo.org. Lander Medlin is APPA's executive vice president. She can be reached at lander@appa.org.

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The timing of this event, albeit essential, could not be more appropriate, given education's current environment, future needs, and issues.

modes of learning, discovery, and engagement. This is not simply semantics, but a definitive shift from passive to active and from isolation to involvement and integration within the entire community. Frankly, higher education is at a critical juncture—one that needs all of our best efforts.

Thus, a formal exchange between two parties of critical institutional decision makers is of great significance. We must prepare, through substantive and creative mediums, to address the pressing issues in higher education, of which there are four of particular urgency: recruitment and retention of students and faculty; community building; the cost of education; and the impact of changing technologies. By working collaboratively, APPA and NACUBO can endeavor to impact these critical, strategic issues at the institutional policy level.

The annual meetings will feature interactive discussion panels, target experts in a variety of topical areas, address different perspectives on common industry concerns, stimulate open discussion on relevant issues in higher education, and provide a marketplace of products and ideas. In the marrying of what constitutes the annual professional highlight for each of our respective associations, we hope to promote an enhanced understanding of and appreciation for one another's role. From our perspective, the benefits of a joint conference are:

- sharing in quality education through joint programming;
- increasing the value for attendees by broadening exposure to topics, speakers, networking, and trade show exhibitors;
- providing a two-in-one opportunity for smaller campuses,

where one person wears many hats;


- pursuing partnerships and collaboration as key strategies in serving members;
- building upon economies of scale;
- building synergy and trust across the higher education community; and
- collectively increasing our ability to influence higher education.

We see the co-location of our meetings as a perfect opportunity for each

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Membership Matters

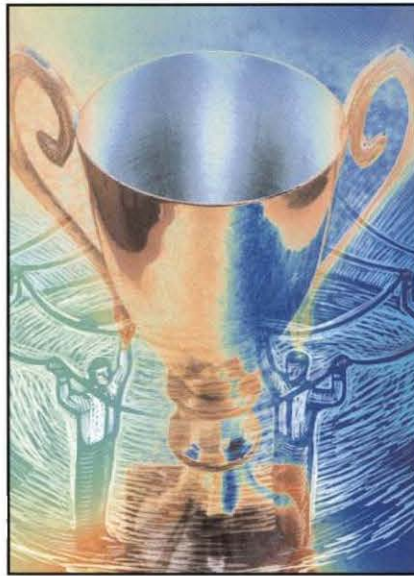
The Value of Membership in APPA State Chapters

by Jewell Winn

As past president of the Tennessee chapter of APPA, I reflect back over the many rewards I received from being associated not only with an APPA chapter, but with a great organization on a state, regional, national, and international level as well. Along with the rewards, I also faced many challenges and was constantly looking for ways to improve the organization's effectiveness for individual members as well as for the institutions we serve. Such benefits as professional development, publishing opportunities, mentoring programs, regulatory and legislative updates, and educational programs unique to the educational facilities arena made those challenges actual stepping stones for growth and personal development for me as an individual.

The value of our state organizations is outstanding. The relationships that develop and the networking opportunities are limitless. Some state chapters allow the entry-level employee to attend state annual meetings for training purposes. The employee then begins to feel involved and important; this is truly an asset to management because it increases the employee's motivation. These employees look forward to the state meetings where they get a chance to see old friends, make new ones, and learn how others perform their jobs. The manager's reward is knowing that the employees are getting the training they need at a minimal cost.

Jewell Winn is superintendant of administrative services at Tennessee State University, Nashville, Tennessee, and vice president of communications for APPA's Southeastern region. She can be reached at jwinn@tnstate.edu.



State chapters operate similarly to the regional chapters. They have a constitution and Bylaws written in a similar manner. They have a Board of Directors that oversee the operations of the organization. For instance, the Tennessee chapter of APPA recently achieved goals that are similar to that of the regional chapter: e.g., obtained a 501(c)(3) tax-exempt status; obtained insurance coverage for its board members; and published a quarterly newsletter. Throughout the region, several states have chapters of APPA that are just as active if not more so than Tennessee. From personal experience, I have been active in all levels of APPA and can appreciate the unique and different value of the state chapter. In state chapters you are usually preaching to the choir—people with the same set of concerns and challenges. Similar camaraderie exists on a regional and international level, but it is a little more personal on the state level.

Dr. Sam Polk, Tennessee's past state chapter president, has often stated that the "key to our success" is in recruit-

ing new members and encouraging the participation of the membership. Thus, his aggressive HBCU (historically black colleges and universities) recruitment efforts have not been in vain. As he made the decision to visit various state association's annual meetings, I wondered what he hoped to achieve by taking on such a phenomenal task. He actually had several goals in mind when visiting the meetings, the main one being to increase diversity among our membership and especially among our elected officers. Although he stated that many of the state organizations are not truly represented by gender and race, he agreed that Tennessee APPA was the most diverse to date. Still, state organizations are needed and he challenged all states to form a chapter.

As I pondered over how to best state my case in support of state chapters, I decided to capitalize on our president's goals and concerns. Being successful in any organization means moving ahead—planning and leading the way toward the future. The leadership of an organization must be *diverse, dedicated, and diligent*. As APPA President Phil Cox stated, "As leaders, we have the additional responsibility of setting the example for how everyone in our organization should support a more diverse and inclusive workplace and society in general. We must lead the effort toward greater diversity by example. It is up to the APPA leadership to make personal choices that foster greater diversity and inclusiveness in our association." That statement meant a lot to me as an African-American woman. Women were a rarity in facilities 21 years ago when my association with APPA began. Now women are present in greater numbers than ever before

and are much more active. For example, our construction liaison at Tennessee State University is a woman. She is also an engineer, a TSU graduate, and very knowledgeable in her field.

I worked very hard to achieve leadership in TNAPPA as well as SRAPPA, and I feel that it was my perseverance within the state association that made my move to leadership in SRAPPA possible. For example, I was the first

Active state organizations in the SRAPPA region

- Mississippi School Plant Management Association
- Kentucky chapter of APPA
- West Virginia chapter of APPA
- Louisiana chapter of APPA
- Tennessee chapter of APPA
- Georgia chapter GAPPA

Dr. Sam Polk, Tennessee's past state chapter president, has often stated that the "key to our success" is in recruiting new members and encouraging the participation of the membership.

woman to become a manager in physical plant administration at TSU; I was the first physical plant employee to complete APPA's Institute for Facilities Management; I was the first African-American woman to teach a class at the Institute; and I was the first woman president of TNAPPA and the first African-American woman to serve on the SRAPPA Board of Directors. I have learned that people need to see you perform before you gain their confidence, and I believe that as women, we have to perform harder.

Often I am referred to as Dr. Polk's secretary and on the occasions when my spouse has accompanied me to conferences, he would be greeted first and asked what he does at TSU. These actions used to bother me, but now I just smile and let him tell the real story. My state association groomed me, my state association supported me, and most importantly, they believed in me and gave me the opportunity that I needed and desired.

Support for involvement in facilities organizations is greatly needed from the administration at our individual campuses. If there is no chapter in a state, facilities managers need to reach out for help in forming one. If you are interested in learning about a great facilities organization and are not yet affiliated with a state chapter, please feel free to contact me or one of the other SRAPPA Board Members. We would be happy to assist you in any way we can. 🏢

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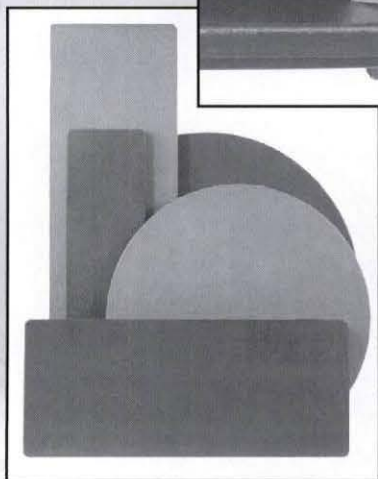


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The High Cost of Building a Better University

by Donald J. Guckert and Jeri Ripley King

Higher education design and construction project managers perform their work on the forward-edge of an ever-changing world. We face increasingly complex facilities, shortening timelines, proliferating code and regulatory requirements, emerging technologies, and growing concerns for indoor air quality and environmental sustainability. As we strive to keep abreast of these changes, we continue to hear one question from governing boards, administrators, and customers: "Why does it cost so much?"

We cannot deny that educational facilities cost more to build than many other types of construction. Even in the realm of education, there is a hierarchy ranging from sophisticated research facilities to parking structures. Yet, all our facilities seem to come at a premium cost. Lower cost alternatives are always available, but our institutions choose, instead, to build to a quality level that is above the baseline. These choices flow from the institution's vision and strategic plan. The facilities we construct reflect the values and aspirations of our institutions.

A Sense of Place

Many universities are vying for national and international recognition. To do this, they compete for students, faculty, and research funding. More than ever before, university building designs are viewed as enhancing and preserving our institutional heritage, while creating an attractive environment in which to learn, discover, and live. We do not just build or renovate structures; we create a "sense of place."

Don Guckert is associate vice president and director of the facilities services group at the University of Iowa, Cedar Falls, Iowa. He serves as dean of planning, design, and construction for APPA's Institute for Facilities Management, and he can be reached at don-guckert@uiowa.edu. Jeri King is senior management analyst for planning, design, and construction at the University of Missouri-Columbia. She can be reached at kingj@missouri.edu.



Clearly, this "sense of place" plays an important role in marketing the institution. In a 2001 study of college-bound high school seniors by Noel-Levitz, a market-research firm, the most notable experiences seniors encountered on their best college visit had to do with the appearance of the campus and its facilities. This study confirmed the report by the Carnegie Foundation for the Advancement of Teaching in 1986 that found 62 percent of prospective students thought that "appearance of the grounds and buildings was the most influential factor during a campus visit."

The attractive appearance of the grounds and buildings comes at a cost. In constructing a new building for a campus environment, we seek elaborate designs that convey emotions and reactions that range from stimulating debates over architecture to communicating notions of continuity and timelessness. Often the little extras add a lot to the quality of the built campus environment: prominent building entrances, buried utilities in tunnels and chases, hidden downspouts in interior walls, screened waste receptacles, underground cooling towers, discrete access for service vehicles, and extensive landscaping and courtyards.

Land must be used carefully, with attention to gathering places and circulation. The need for green space must balance the need for building space. This drives us to optimize building footprints, by building skyward and below grade to conserve precious campus real estate. Multiple stories require more costly foundations and structures designed to withstand seismic and wind loading standards. Stair towers and elevators consume project resources and decrease the percentage of assignable space. All these factors lead to a higher cost per square foot.

Codes, Regulations, and Standards

The type of occupancy determines the applicable building code requirements. The large assemblies, found in most university facilities, dictate the highest level of life safety design. These code requirements have a tremendous impact on cost by requiring stair towers, fire rated corridors, fireproofing on structural members, fire alarm systems, sprinklers, and

An often-overlooked impact on cost is the expectation that construction activities will be conducted with minimal disruption to campus life.

smoke evacuation systems. Even the grade of carpeting in a university facility is selected to minimize concerns about flame spread.

In addition to codes, building design and construction must meet a myriad of legislative mandates and regulations. The list reads like alphabet soup: ADA, EPA, OSHA, and more. These laws and agencies govern building accessibility, removal of hazardous waste, asbestos, light ballasts, lead paint, storm water runoff, construction dust control, noise control, and more. Then, there are the state permits, local permits, contracts, agreements, and requirements by donors and funding agencies that must be managed.

The type of facility and occupancy also drives ventilation requirements. Labs require more ventilation than classrooms; classrooms require more ventilation than offices. Increased ventilation leads to upsizing HVAC systems, because outside air must be heated or cooled before it is delivered to the finished space. In a trend toward thwarting indoor air-quality problems, building mechanical codes have increased ventilation requirements far beyond the infrastructure capacities in many buildings built before the 1990s. The impact is profound on renovation projects where HVAC costs alone can consume the majority of the project budget.

Institutional and Statutory Requirements

Institutional and statutory requirements can drive up costs, too. Contractors must provide the highest industry coverage for insurance and bonding and construct in accordance with the highest industry standards. Architects may be required to furnish professional liability insurance. Public owners must follow state procurement statutes, which increase design and bidding costs and constrain the use of more cost effective delivery approaches. Many institutions require contractors to pay prevailing wages to their workers, equating to union-scale.

An often-overlooked impact on cost is the expectation that construction activities will be conducted with minimal disruption to campus life. The campus is a protected environment that accommodates learning, social interaction, discovery, living, dining, recreation, and public service. As invited guests into this haven, contractors are required to conduct their activities in a manner that minimizes the impact on the institution's primary missions. This is not a typical construction site. Project costs go up dramatically when universities restrict access to building sites; limit space for

staging; require off-campus parking; enforce jobsite cleanliness, add fencing and protection; route construction vehicles around, rather than through the campus; limit noise and hours of operation; and impose complex phasing schemes to accommodate academic calendars.

Time is Money

Demanding schedules are an inherent part of higher education design and construction efforts. In general, shortening the timeline will drive up costs, lengthening the schedule will drive them down. An aggressive three-month renovation will be unaffordable if we only allow six weeks for completion of the work. Conversely, easing the schedule to six months will yield savings.

Contractors, when bidding a shortened schedule, will increase their bids to reflect overtime payments to workers, incentive payments to vendors, reduced worker productivity, and contingencies to cover the risks of falling behind schedule or completing late. On the other hand, extra time in the schedule reduces the contractor's risk, facilitates effective coordination among subcontractors, provides sufficient time for fabrication and delivery of materials and equipment, and other accommodations that result in a more cost-effective project delivery.

More often than not, we aggressively work toward inflexible milestones, such as semester starts and athletic event schedules. In research environments, the need to be up-and-running is paramount. When the higher education environment demands design and construction projects delivered on increasingly shorter timelines, this drives up the cost of university projects.

Complexity

The facilities we build are among the most challenging in the building construction industry. We build state-of-the-art research facilities, high occupancy performance and athletic venues, heavily trafficked and technological learning environments, and living and social environments that must appeal to a new generation. In short, we are constructing complex communities.

Program activities often dictate the need for a combination of classrooms, laboratories, meeting rooms, and offices. While grouping one type of activity in a facility would reduce costs, our buildings rarely house only one type of activity. In addi-

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Your House on Campus

by Donald J. Guckert and Jeri Ripley King

"You've got to be kidding! I could build a nice house for that amount!!"

How many times have we heard that the cost of a "simple" renovation would buy a high-end home in a nice neighborhood? Customers typically react with sticker shock over the cost of a campus renovation when they receive the initial project estimate. This is the point at which world's collide; where the institutional construction world of the project manager meets the customer's residential construction frame-of-reference.

Trying to justify the costs of institutional construction within a residential frame of reference is not easy. These two types of construction are a world apart. However, just for the fun of it, we wondered, what would it take to renovate your house into a campus facility? Suppose you request that we renovate the living room into a classroom, the kitchen into a lab, and the bedroom into an office, and that this facility is located on campus. Let's take a walk through your house to see what we will need to do.

To begin with, we'll need to make the facility safe and accessible. We'll add an elevator to the second floor, and an exit stair connecting all floors to the outside. To make this building look like it belongs on our campus, we'll arrange for matching towers and give the building an identifiable look. Unfortunately, this will add considerable cost and space to the building, while not adding any space for program needs. After we widen the interior hallways and stairways for increased traffic, and install a utility chase from the basement to the attic, we will actually reduce the amount of assignable space.

As a university facility, the house will fall under a different classification as far as building codes are concerned. This means we'll need to replace the \$15 battery-operated smoke detectors with a \$15,000 fire protection system. This system, which includes a fire alarm panel, wired sensors, and sprinkler system, meets all of the requirements of the local fire marshal. To inhibit the spread of flames and smoke from one room to another, we will have to reconstruct the walls that separate the rooms from the hallway and make them "fire-rated walls." This is not cheap! Neither are the solid doors mounted to the metal doorframes that we'll use to replace the house's hollow doors and wooden frames.

We know the budget for this renovation is limited. Before the money runs out, we need to look at the mechanical systems. By code, our lab,

classroom, office, and restroom require outside ventilation that your house doesn't have. The small air conditioning unit and gas furnace will have to go. With the big increase in airflow, it wouldn't keep up after the first five minutes. We'll connect to chilled water and steam from our central plant. Our campus building will need redundant, dependable, code-compliant, and cost-effective mechanical systems.

Finally, we move to the kitchen. To convert it to a lab, we'll take out the \$600 kitchen stove and hood, and replace it with a \$25,000 variable flow fume hood. Let's hope we won't need a strobic air fan for that hood; you don't even want to think about that cost. Those kitchen cabinets will come out to allow for the built-in lab casework. The refrigerator will have to go, too. In its place will be a \$10,000 environmental chamber. We'll open up the walls when we install the lab gases, electrical conduits, and corrosion-resistant plumbing. While we are in the walls, let's replace the wooden studs with metal studs. Then, to complete this "kitchen remodeling," we'll replace the linoleum with an \$8,000 epoxy floor, and the Formica counters with epoxy resin.

We're going to need to remove the ceiling above the kitchen to increase the structural support necessary to handle the small library in the office above. The anticipated weight of books will stress the existing floor joists. While the ceiling is open, we'll install the circulating hot water system, designed to serve the lab and

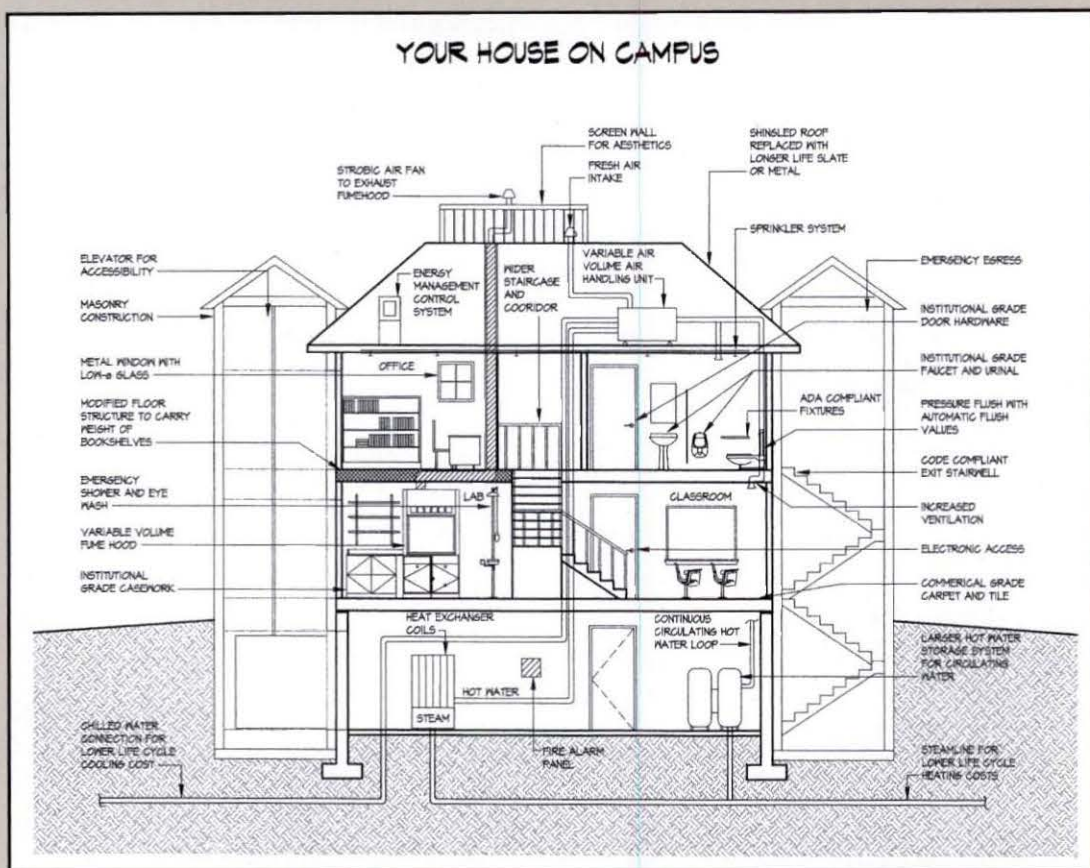
restroom, and we'll upsize the mechanical ductwork to meet the new airflow requirements. Speaking of airflow, that "whooshing" sound will be distracting in the classroom next door, so we will need to put in sound attenuation devices.

To meet institutional standards, the wooden windows will need to be replaced with metal, commercial grade windows that have energy-efficient glazing. Similarly, the roof shingles will need to be replaced with slate, due to concerns about life cycle maintenance and architectural consistency. While we're on the roof, let's screen the unsightly mechanical systems. Oh yeah, we can't forget to do something about the pigeons.

Let's look at the outside again, just for a minute. Only the front façade was bricked when your house was originally constructed, so we'll need to install bricks on three sides. After all, our university is trying to project a certain image, and your house is now on campus.

At this point, we have more scope than budget. Money is running out, and there are more things we need to do to bring your house into compliance with our institutional standards.

What happened here? In trying to meet the more stringent codes, efforts to reduce future operating costs, aesthetic requirements and programmatic needs, we exceeded the funds available for this renovation. For the money this renovation will cost, you really could build a nice house. But, not on our campus!



We are resolved not to repeat the shortsighted mistakes that were made by a previous generation of campus administrators and facilities managers.

Continued from page 19

tion, they must meet the functional requirements of the campus environment.

For example, classrooms and auditoriums are usually on the lower levels of a building and demand larger, column-free spans. The lower levels may then have to support upper floors designed to accommodate floor loadings for bookshelves and lab equipment. Inverting these spaces, by placing the column-free classrooms on the upper floors and the heavy load-bearing spaces on the lower floors, would be more cost effective, but less functional in a campus setting.

Our facilities must accommodate a mix of functions and heavy traffic. To manage this, we install complex building systems. Mechanical systems are designed for extreme conditions: hottest and coldest temperatures, humidity extremes, strictest climate control, and highest occupancy. We recognize that the design of a mechanical system represents the greatest opportunity for energy conservation in the future. Investments in energy efficient mechanical systems will yield a lower stream of future utility costs.

Maintainability, Sustainability, and Longevity

Good stewardship involves constructing buildings that will last, buildings that can be easily maintained, and buildings that can be converted to other programmatic or technologic uses in the future.

With many people using university facilities in frequent cycles throughout the course of a day, not only do the structures need to be able to handle this, but also the components of these facilities must be of a quality to withstand constant heavy use and abuse. Because of the campus building boom in the 1960s, we know all too well the consequences of cheaper designed and constructed facilities that were not built to survive the test of time. Our requirement for durability raises the price of doors, door hardware, carpeting, entrance mats, floor tile, and restroom fixtures, but it lowers the future costs of maintaining and replacing the lower quality products. We are resolved not to repeat the shortsighted mistakes that were made by a previous generation of campus administrators and facilities managers.

The way we use our facilities demands that we construct utility systems within the building to high reliability standards. This often results in paying for system redundancies, generators, uninterruptible power supply systems,

harmonics reduction, and central utility systems. In addition, telecommunication/computer wiring and pathways are often over-built to enable user flexibility, and save the expense of rewiring and reconstructing walls or ceilings in the near future. We have learned that planning for tomorrow can cut down on the costs of retrofitting existing buildings.

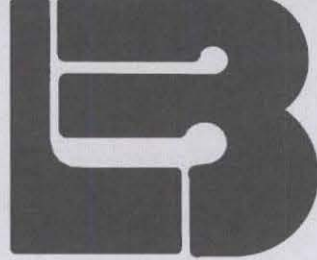
Environmental sustainability is another factor having an increasing impact on construction costs within higher education. An emerging trend on campuses, facilities are being constructed with recyclable materials, materials are certified as manufactured from renewable sources, and building and system designs are using progressive methods and technologies to conserve energy and reduce the waste stream. Pursuing Leadership in Energy and Environmental Design, or LEED certification, developed by the U.S. Green Building Council, brings the prestige and positive publicity sought by many institutions seeking a progressive and environmentally sensitive image. However, this comes at a higher cost.

Making these long-term, sound, investment choices is what separates higher education from the vast array of other building environments. Higher education, more than any other built community and commercial environment, constructs buildings to last beyond our lifetimes. Every institution with an active building program envisions itself in existence into perpetuity. We make the choice to invest in higher quality construction of our campus, in part, because we have so many years ahead of us to reap the benefits on these initial investments.

Why Does it Cost so Much?

It is said that excellence is in the details. Thousands of details go into the construction of a university building. Rarely can we point to one item as driving the high project cost. The high cost of university construction is caused by the accumulation of investments in all of the details that go into building a quality facility. If we are to compete with the best institutions, we must meet the demands for higher quality facilities.

Construction costs mirror the values and aspirations of the institution. Our universities choose to provide stimulating, enriching environments that will serve our students, faculty, and researchers well into the future. We are building a better university, one that is built on the traditions of the past and constructed to compete for faculty and students into the next century. 🏛️



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Implementing the Capital Plan

by William A. Daigneau

Note: This article is being published jointly with the National Association of College and University Business Officers and will appear in the June 2003 issue of Business Officer.

Developing a comprehensive long-term capital plan to manage the facilities portfolio is a major challenge. Implementing that plan is yet another. This article provides a template of the critical issues that must be considered when devising a strategy for implementing the institution's capital plan.

Generally four questions must be addressed in developing the implementation strategy:

- When should the projects be implemented?
- How should the capital improvements be implemented
- What will it actually cost in terms of project costs as well as operating costs?
- Who will implement the plan?

Answers to these questions provide the information necessary to implement the capital plan.

Bill Daigneau is vice president for operations and facilities management at the University of Texas M.D. Anderson Cancer Center, Houston, Texas. He can be reached at daigneau@mdanderson.org. This article is excerpted from the forthcoming book, *Planning and Managing the Campus Facilities Portfolio*, a joint publication of APPA and the National Association of College and University Business Officers.

Priority

Not all projects in the capital plan carry the same priority. Generally, most projects fall into one of two categories: 1) projects necessary to maintain the operational integrity of the institution, including code compliance or regulatory mandates, support infrastructure such as utilities or transportation, and major repairs or rehabilitation; or 2) projects that have a strategic importance to the institution and those that further its mission and goals, such as new construction or renovations necessary to enhance programs or accommodate growth or mission expansion or redirection. Some projects may have elements of both categories; for example, the renovation of an older building to support a new program may also include a number of repair projects, such as a new roof and upgrades to the building façade, as well as necessary code compliance improvements.

The number of methods developed to set priorities in a capital plan is about as numerous as the number of higher education institutions. Most of these methods are highly subjective, trying to weight various factors such as need, timing, coherence with objectives, and the like. Such methods are well documented in various publications of both APPA and the National Association of College and University Business Officers (NACUBO).

The application of financial measures is less common. However, as is in most business enterprises, decisions to invest capital in plants or equipment should be evaluated in terms of the return on investment (ROI). This is especially true for projects related to the institution's growth or program redirection; for example, a new classroom building should accommodate increased enrollment or credit hour production. This can be directly translated into increased revenue. In this case, the ROI for the investment can be com-



puted. Similar computations can be made for residence halls, food service areas, recreation facilities, student unions, parking garages, and athletic facilities. The higher education institution's ROI may not compare favorably with investments made by for-profit businesses, but it can be used to weigh the relative priority of various investments.

For projects that maintain the viability of campus operation, the same computation is possible if the costs resulting from a "do-nothing" decision are estimated. For example, what would be the cost of disrupted campus operation, fines, or further damage if the investment were not made? Such an analysis is called a cost-benefit analysis. The Federal Emergency Management Agency, an extensive user of this method, routinely uses it for ranking various decisions on projects undertaken to mitigate damage caused by floods, earthquakes, or other natural disasters.

Applying cost-benefit analysis for a renovation or capital renewal project begins with an estimate of the lost revenue resulting from the complete or partial downtime should the facility or equipment fail. For example, the loss of a classroom building can be estimated by computing the credit hours that would not be produced and the reduction in net revenue from the loss of that credit hour production. In computing net revenue, only those expenses that would actually be avoided are deducted from total revenue. Faculty salaries would continue to be paid, while the costs of electricity might actually decrease in the inoperative facility. The net revenues for the time required to reactivate the facility can then be evaluated against the cost of a planned renovation, for which work can be scheduled when facility use is minimal. The relative cost-benefit ratio for each project can be established, and the projects can be prioritized based on their impact on the institution. The importance of this technique for ranking projects lies not in comparing the cost-benefit ratio against external measures but in comparing them for all such projects in the capital plan.

While a financial measure of the relative importance of each project is the most objective measure, it is also necessary to consider intangible factors, including issues related to faculty retention, public relations (community, alumni, parents, and so forth), and political issues with trustees and other gov-

erning entities. If financial measures are initially used to establish relative priorities, final priorities can then be adjusted based on those subjective factors. However, it is always important to establish the criteria to be used to determine priorities and how such criteria are weighted and applied. Failure to establish a systematic and defensible prioritization methodology will lead to distrust and manipulation.

Methodology

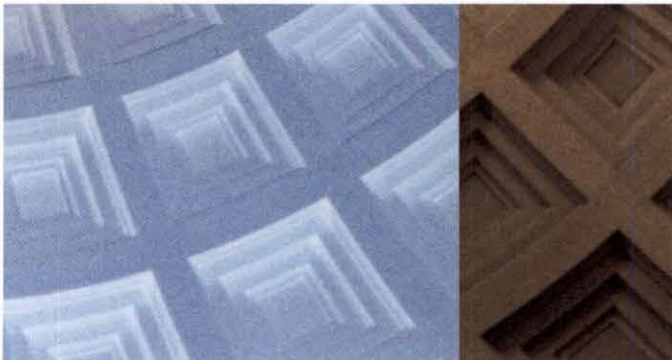
Too often little thought is given to how the capital plan will be executed. Yet such decisions can often have a profound effect on the cost of a project as well as the time before expected benefits—especially financial ones—will begin to flow. Decisions on the best delivery method must be made on a project-by-project basis, given its unique characteristics. Most campus officials would agree that a serious roof leak should be repaired immediately. Taking the time to prepare specifications in order to gain the benefits of the lowest price through competitive bids may greatly outweigh the cost of continued damage to the building and its contents. Yet even

The benefits of reducing acquisition time require campus officials to be sensitive to the process used to plan, design, bid, and acquire an asset.

mundane projects will often have characteristics that dictate a method of accomplishment that either maximizes benefits or reduces costs, or both.

Traditionally, the field of higher education has not been concerned with the factor of time. Yet as in industry, speed of project delivery or acquisition is extremely important, because time itself erodes the benefits of any capital decision. The most vivid example of this is the effect of time on the acquisition of new information technology. Examples abound showing that the installation of a new information system took years to complete, just in time to find the technology obsolete.

Reducing the time needed to complete or acquire any capital project has three significant benefits. First, the impact of inflation or market fluctuations is reduced. Often funds are raised to pay for a project based on certain assumptions about its cost and the anticipated escalation of costs during the construction or acquisition period. The longer it takes to build the facility, the more speculative such assumptions become. If they prove erroneous, the funding will be insufficient to complete the project, and thus changes in scope or quality will need to be made during the period of time a building project





is planned and the time it is completed. Reducing the total time from inception to completion reduces an institution's exposure to changes in pricing that often occur in a dynamic economic environment.

Second, shortening time to completion reduces an institution's exposure to changes in technology or leadership. Change orders in construction projects are a fact of life. However, change orders that adjust program scope as a result of a change in leadership, and the consequent revisions to vision or operational philosophy, are very costly. In addition, changes prompted because recent advances in technology have made the original specification obsolete are similarly expensive once acquisition or construction has begun. Reducing the cycle time for asset acquisition reduces the opportunity for change, and thus change orders.

Third, reducing the completion time also means that the asset will be able to produce the intended results sooner. In other words, income (or cost avoidance) that comes as a result of the asset will be produced earlier. If, for example, the institution can reduce the construction period of a building from 24 months to 18 months, the returns from the asset increase by 6 months at no additional expense. Moreover, interest expense from construction period financing is reduced, as well as expenses such as insurance or contractors' general conditions.

The benefits of reducing acquisition time require campus officials to be sensitive to the process used to plan, design, bid, and acquire an asset. In the construction industry, recent studies have indicated that the use of the design/build approach can shorten the construction period by as much as 30 percent from the more traditional design/bid/build method. This and other improved procurement methods suggest that the factor of time as well as price should be considered in any capital plan.

Regardless of the methodology chosen, the time required to acquire or construct an asset must be incorporated into the capital plan, because it will affect both the cost to acquire that asset as well as the income or benefits that flow from that capital investment.

Costs and Cash Flow

It is said that you can spot the true expert by the person who predicts a project will cost the most and take the longest. It is not uncommon to underestimate the true cost of acquiring an asset. Although some of this underestimation is a result

of over optimism, it is more often a result of an inaccurate estimate of the true costs, which come in the form of capital and operating expenses.

To better estimate the capital cost of a project, an institution should generate a total project cost (TPC) budget. This budget should include not only the raw construction cost but also other "soft" costs, such as fees, licenses, loss of income, and other less apparent expenses resulting from the project or acquisition. Such questions as "Are the cost of telephones included?" or "Will additional furniture be required for tenants or public areas?" should be asked to make sure that the budget covers all potential cost exposures. Much has been

Another major cost category, which is often overlooked, is the increase in operating expenses during and after a capital project.

written about the importance of generating a realistic TPC, and the methods are well documented in the various reference sources listed in this book. However, the best source often is the institution's own history. An accurate project accounting system for major projects and equipment acquisition will often establish the types and magnitude of costs experienced for implementing various capital projects. Retention of this history in a database for future reference is important in developing and implementing the capital plan.

Another major cost category, which is often overlooked, is the increase in operating expenses during and after a capital project. These operating expenses are related to the internal expenses for project administration and management; commissioning; activation and occupancy; and subsequent operational expenses for building and equipment maintenance, insurance, utilities, and other routine operations. Estimation and inclusion of these expenses are important elements in implementing the plan. Such expenses should be budgeted in annual operating budgets as the capital plan is implemented. The acquisition of any capital asset will result in long-term recurring and episodic expenses that must be recognized and accounted for in the institution's operating budget. To do otherwise is wishful thinking. Again, a detailed accounting system that properly identifies such expenses is a useful source of information for estimating future operating costs.

Staffing

Because the consequences of errors can be costly, managing the implementation of the capital plan is an important job in

One of the greatest obstacles to timely implementation is the institution's inability to accommodate the additional time and effort the capital plan requires beyond routine job responsibilities.

itself. In some instances, poor implementation can threaten the very existence of the institution. Developing an implementation strategy and plan should take into account the requirements on existing staff as well as the need for additional staff or professional services to attend to the countless details of construction or acquisition. Preparing the institutional community for the time and effort required to deliver the capital plan is a key contributor to its success.

One of the greatest obstacles to timely implementation is the institution's inability to accommodate the additional time and effort the capital plan requires beyond routine job responsibilities. For any capital project, the commitment of internal staff and executive time is necessary to develop the information, to create documents, to establish budgetary and schedule controls, and, most important, to make critical decisions. Establishing a project work plan that defines workload requirements according to various participants and specialty areas helps the institution prepare for implementing the plan.

Integrating the Essentials

Each of the four elements (priority, methodology, cost, and staffing) is a necessary component of an implementation strategy. But in themselves these elements do not form a complete picture. A method for displaying the complete capital plan in terms of both time and cost is necessary.

A simple but very powerful tool for displaying the plan for implementation purposes is the electronic spreadsheet. A detailed list of categories and cost factors appears in the forthcoming book. Once the spreadsheet is developed, numbers for each cell should be entered, reflecting the current best estimates. In the year columns, estimates should be made for the actual cash outlays expensed that year (not encumbered) for each project.

With the spreadsheet completed, it is possible to analyze the capital plan further. Some questions regarding the implementation of the plan can now be asked, including the following:

- **Are there interrelationships between the projects or acquisitions?**

Projects may have either a lead or lag time or a concurrent relationship. One example would be the timing of a major roof replacement (under capital renewal) with a proposed renovation of a building. Concurrent implementation of the two projects would reduce disruption to operations

and may reduce total costs. Similarly, an infrastructure project, such as roadways or utility systems, may have to be implemented either before or after completion of a new construction project. The grouping and display of the whole plan allows adjustments to the timing of projects in order to optimize the interrelationships between projects.

- **What is the estimated cash flow in any given year and can it be managed?**

The preferred priority and desired dates of implementation may create significant funding and financing requirements. The financial officer should ask if these are realistic, given the financial condition of the institution and its ability to raise the necessary funds. For example, a gift may be given over a period of years, raising such questions as Do the anticipated expenses for the project match the years in which gift funds are to be received? If not, can loans be secured to cover this difference in timing? Other issues that need to be considered are the timing and packaging required for debt issuance, funding available from operating margins, and the effect on revenue streams resulting from the projects (increases and decreases). Again, adjustments in the phasing of projects should be made to help achieve optimum financial conditions.

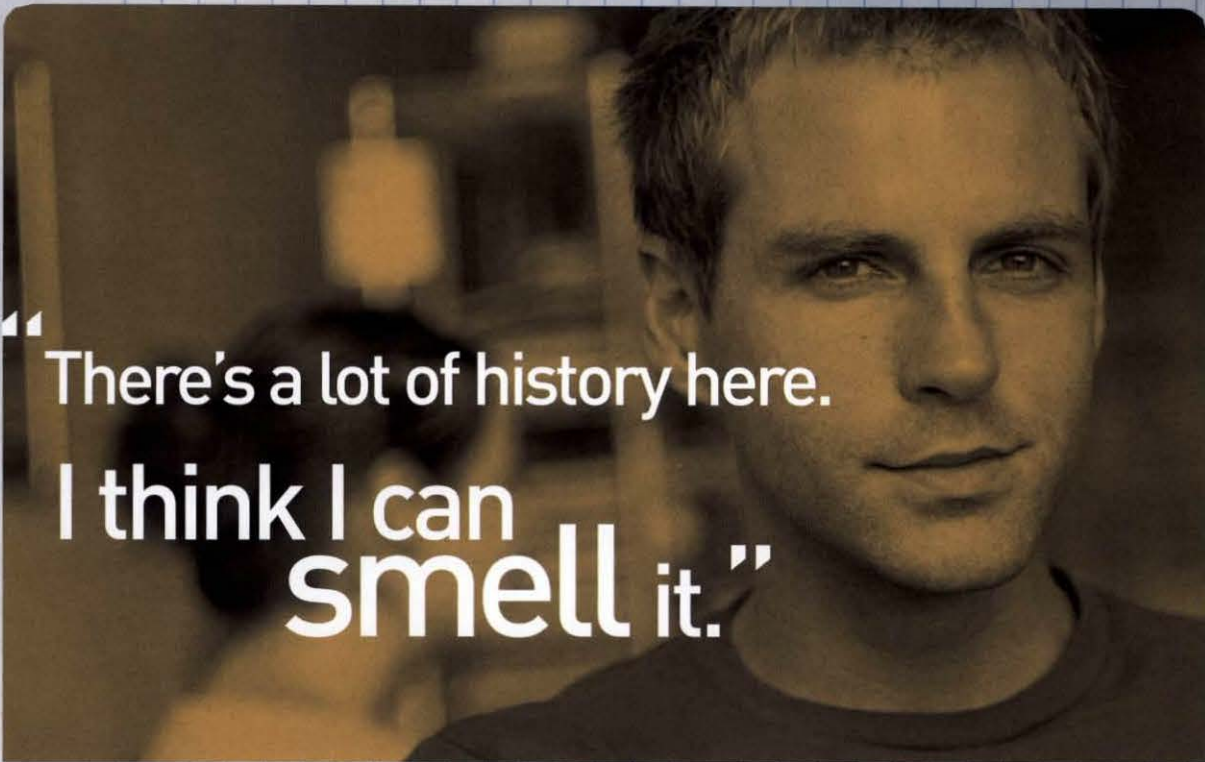
- **Are requirements for staffing and other operational considerations realistic?**

Ambition to implement various projects must be tempered by the ability of the institution to actually devote the time required to manage the various elements of the capital plan. Considering other commitments that are likely to occur, will the institution have the resources to manage the projects as preferred? When do workload commitments peak, and how will this be managed? If the timing of projects is adjusted, can those peaks be reduced or eliminated?

- **How does the capital plan affect other institutional plans?**

The capital plan and adjustments in the timing of projects or acquisitions will induce reconsideration of other institutional plans or strategies. The most common are decisions on ongoing facility operations and maintenance. If a major building is to be completely renovated in two or three years, the facilities manager may choose to

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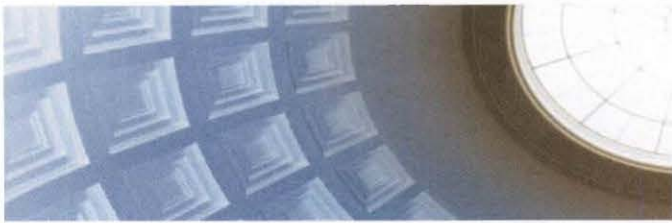


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Continued from page 26

selectively reduce maintenance or remodeling projects in the building. Similarly, energy conservation improvements should be deferred unless the payback period is less than the time needed for renovating the building.

Other plans may also be affected. Increases in externally funded research may be delayed until new research space is completed. Or plans to increase enrollment may be delayed until additional faculty office space is created and the necessary facility improvements are completed. Further adjustments in the plan may be necessary to achieve strategic objectives, especially if those objectives influence the financial condition of the institution and, therefore, its ability to fund its capital plan.

The development of a capital implementation plan is useful, because it helps the institution's leadership understand the impact of various decisions in real time.

The Final Implementation Plan

In reality, there is no such thing as a final plan. As should be evident, the number of variables in developing a plan for implementation is considerable, and the variables are interrelated. Yet a plan must be put in place that will guide capital and project decisions that must be made today in order to initiate a capital project that will take months or years to complete. In this regard, the final plan is the one that exists today, but with the understanding that a changing environment will require constant review and adjustments in implementation.

The development of a capital implementation plan is useful, because it helps the institution's leadership understand the impact of various decisions in real time. In this regard, scenarios can be prepared to show the effect of both intended and unintended decisions and results. What happens if the full amount of a grant is not received, or general economic conditions change? What would be the impact of changes in technology? The implementation plan can help in analyzing the sensitive areas so that certain decisions or events can be evaluated and, therefore, can guide the institution in its

preparation for the "what-if" questions. Thoughtful consideration of such questions is particularly useful in dealing with trustees, legislators, and other internal constituent groups.

Conclusion

This article examined the elements necessary to develop a strategy for implementation of the capital plan. Regardless of the format used, an implementation plan should include consideration of all the elements that may be unique to a particular institution.

Who is responsible for developing such an implementation strategy? Although implementation involves a number of skills and different types of knowledge, the keeper of the implementation strategy really requires a unique partnership between the institution's chief financial officer and chief facilities officer. Formation of this partnership and the particular responsibilities of each individual are discussed in detail in the new APPA/NACUBO publication, *Planning and Managing the Campus Facilities Portfolio*. 🏢

Condition Assessments

Facilities Inventory

Capital Planning

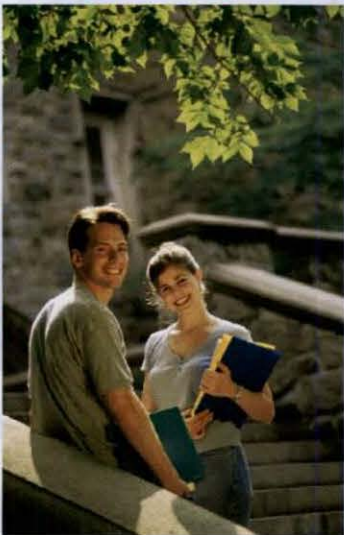
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Process Management

by Christopher K. Ahoy

*"Quality is doing the job right every time.
Perfection is doing the right job every time."*

Process management is one opportunity that brings to the forefront a vehicle for managing changes and facilitating change in facilities operations in these turbulent times. Change is inevitable—whether it is in our personal life or as a quality journey to improve an organization's processes. In both circumstances change will come with time. We are at a point in the history of organizational change where we have no choice but to move swiftly with agility. We must use all the skills, expertise, experience, and methodologies at our disposal in order to be competitive.

Knowledge-based workers will have the necessary skill sets to initiate actions and to motivate themselves by managing things and leading people through a "learning and teaching" organization. Knowledge-based workers will be able to make appropriate choices and take actions to deal with changes because they will have a thorough understanding of organizational processes and a profound knowledge of their work processes, which is brought about by process management, the management by methods. This is the advantage that world-class corporations are actively seeking.

Why Process Management?

We look at "process improvement" when we want to define process management methodologies for facilities managers. We are now at the point where managing the organization in which you and I are intricately involved comes down to managing processes. This means paying attention to details, making sure we are performing up to our potential,

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and constantly improving our operations and communications through "metrics," that is, fact-based, data-driven, knowledge-based measurements allowing us to make *constant and never ending continuous quality improvements*. In this hyper-speed, global economy a holistic, ecological, system-thinking approach is necessary to meet a world environment where quality products and services are required with speed of delivery and cost reduction. The agility to adapt to this new environment of "better, cheaper, faster" is paramount to be competitive—using metrics for creating the benchmarks for best practices discovery and transferring these skills to our staff.

Leading or coaching people and creating the best environment make it possible for all of us to be *empowered, knowledge-based workers*. New technology allows us to collect, data mine, and disseminate information quickly. The creation of an environment where managers are leading, coaching people, and managing projects has been and will continue to be a difficult one. Old habits are hard to break, and change is unsettling for all of us. Though the tendency is to succumb to "if it ain't broke don't fix it," the competitive edge resolution should be to "change it" to meet the constantly changing situation at hand.

Process management is one of the pillars of the seven management system categories of the Malcolm Baldrige National Quality Awards Program. Process management is used in developing critical measures and the instrument panel, or "dashboard." Metrics for key performance indicators will be the success of any facilities endeavor. In an era where business is conducted across the continent and around the globe, literally at the speed of thought, new tools are needed for managing organizations. Using process management in product and services "flow" and in the work in process is key to understanding what we don't know. The process must be mapped for a better understanding of our critical success business factors. It must be monitored constantly for improvement to achieve a competitive advantage.

Why is it so essential that we be disciplined in tracking performance of our people and processes? As the saying goes, "If we can't measure it, we can't control it. And if we can't control it, we can't manage it."

Facilities officers urgently need to look at using process management metrics to spur change in facilities' operations, to help remove many barriers including "silos," and to provide a common instrument panel for monitoring the pulse of an operation. To achieve higher levels of customer satisfaction, process management must move from common sense to common science and then to complex science for solutions. Acquiring data-driven management metric tools and measurement panels will allow us to measure the health and well being of our respective organizations.

An analogy would be like checking one's physical health. For instance, if the human body's survival were dependent on the functioning of vital organs, the key critical success factors would involve the heart, the brain, the lungs, etc. The measurement of these critical success factors would depend on key performance indicators to reveal proper operation of the vital organs. To understand the proper operation of the bodily functions and the process measurement instruments used to derive critical measurement information, one must observe and analyze the data received through a number of medical measurements performed with the aid of medical instruments. The results would be the key performance indicators. For instance, the critical success for proper operation of a heart valve is determined by the key performance indicators obtained through systolic and diastolic variation observed through a blood pressure monitor.

What is a Process, and What is Management of a Process?

An organization is a collection of people and processes. Many of the present processes were developed as a necessity over the years; and no one really had the time or the responsibility for designing them. Many people have had a hand in developing the processes, but it has not been an apparent

practice for a single individual or department to be accountable for the overall process result. In a process-centered approach it is possible to remove the non-functional "silos" and look at complexity, fragmentation, lack of technology, layers of approval, lack of a process owner, redundancy, number of forms, degree of customer focus, cost of non-value added activities, number of hand-offs, and the reworking of some sub-processes. The question often crops up, "Which should we be more concerned about—the quality of our products or services, or the quality of our business process?"

Customers are five times more likely to be adversely affected by poor business results because of a defective process than by poor products and services, i.e., lack of ownership of a facilities activity process and too many handoffs within the facilities organization.

Process is a series of activities and events. Modern management science began in the early days with management of doing things, management of direction, and the management of results. This is the scientific management theory propounded by Frederick Winslow Taylor (1856-1915) that has now ascended to process management in place of organization management. "A completely different thought pattern occurs when you focus your emphasis on the process," wrote Dr. H.J. Harrington in *Business Process Improvement*.

The table below is indicative of the new paradigm: *The Concept of Business Process*. A business process is an organized group of related activities that together create customer value. Many of today's processes are in a sad state. Processes are fragmented across isolated functional departments. Processes are plagued by numerous organizational handoffs. Handoffs are the source of non-value-adding work and create problems such as:

- Delays, errors, and inflexibility.
- No one involved in the process can see or understand the whole endeavor.
- The process or a sub-process is invisible, unmeasured, and unmanaged.

Organizational Focus

- Employees are the problem
- Employees
- Doing my job
- Understanding my job
- Measure individuals
- Change the person
- Can always find a better employee
- Motivate people
- Controlling employee
- Don't trust anyone
- Who made the error?
- Correct errors
- Bottom-line driven

Process Focus

- The processes are the problem
- People
- Help to get things done
- Knowing how my job fits into the total process
- Measuring the process
- Change the process
- Can always improve the process
- Remove barriers
- Developing people
- We are all in this together
- What allowed the error to occur?
- Reducing waste and variation
- Customer driven

- No one has accountability or management responsibility.
- Different offices or work units view each other with suspicion.
- Even if you have the responsibility, how can one be held accountable for that which you could not possibly get the appropriate information—the “whole” story—in order to make corrections.

Focusing on Process. We need to create organizations in which people do their tasks but think about their processes. We must refocus people's attention away from the task and onto the process. Focusing on our processes leads to important benefits for our customers and our organization. These include:

- Alignment of everyone involved in performing the process.
- Creation of common focus and elimination of non-value-adding work.
- Faster cycle times, lower error rates, greater flexibility, and reduced costs.
- More manageable and repeatable work.

The Implications of a Process Focus. The shift to a process emphasis is about changing people's thinking and therefore their behavior. Process focus has enormous ripple effects throughout an organization:

- Jobs become bigger and more complex.
- People must have a broader range of skills and knowledge.
- The organization must break down the walls between functions.
- Culture and attitudes must change.

There are three essential enablers of a process organization. First is a set of process tools:

- ▶ People need to be aware of their processes.
- ▶ The process must be well designed and carefully documented.
- ▶ Teams must be put in place to perform the processes.
- ▶ The technological and physical infrastructure must also support processes.

Second, people in the organization need an entirely new set of attitudes:

- ▶ They must value teamwork, accept responsibility, and focus on the customer.
- ▶ Attitudes are shaped by the measurement and compensation systems.
- ▶ Cultural norms are established and communicated by senior executives.

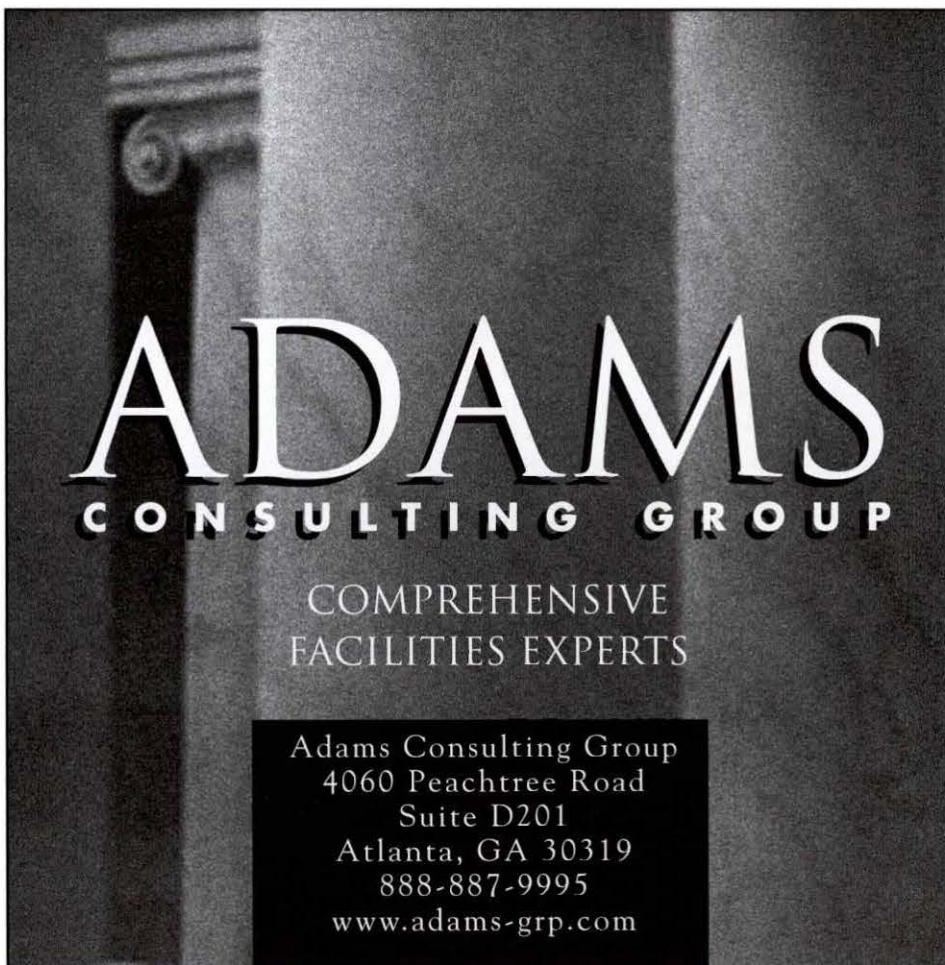
Third, the management of the organization must be aligned around processes:

- ▶ Process professionals make their own decisions, understand their context, and are motivated to achieve.
- ▶ The three kinds of managers in a process organization are process owners, coaches, and leaders.

The New World of the Process Organization

- ▶ The process organization creates more fulfilling jobs and a more satisfying work environment for its people.
- ▶ Everyone must think and behave like a senior executive, making decisions and coping with a complex environment.
- ▶ People must balance the customer's needs against those of the organization.
- ▶ They must pursue multiple goals and do so without the benefit of hard and fixed rules.
- ▶ People are connected to each other, to their customers, and to the value of their work.

Process improvement implies change, and becoming a *process-driven* organization is big change. To meet the challenges of a **big change**, process management must be an innate part of an organization's *modus operandi*. 🏰



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APPA and Rebuild America: Helping Colleges and Universities Save Energy Dollars

by Daniel Sze

While our colleges and universities face unprecedented financial challenges, many use outdated, inefficient heating, cooling, and lighting systems. Even those with modern buildings and equipment often fail to recognize that the key to optimizing building energy performance lies with sound operations and maintenance (O&M) practices. By implementing energy-efficiency improvements and practices, institutions of higher learning can reduce energy bills while creating healthier environments for students, faculty, and staff.

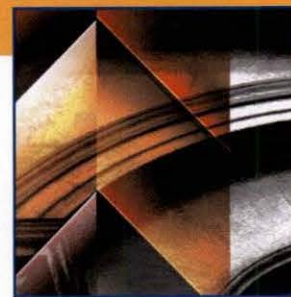
In an effort to encourage energy savings, APPA is partnering with the U.S. Department of Energy's (DOE) Rebuild America program, a national network of more than 500 public-private partnerships committed to improving communities through energy efficiency.

More than 40 Rebuild America college and university partnerships are actively implementing energy-saving initiatives on campuses across the country. For example, the University of Utah, a partner of Rebuild Utah, is renovating 5.35-million square feet in 81 buildings. By entering into a performance contract with a Rebuild America business partner, the univer-



Rebuild America
U.S. Dept. of Energy

Dan Sze is national program manager for the U.S. Department of Energy's Rebuild America program. He has spoken at APPA conferences and workshops and can be reached at daniel.sze@ee.doe.gov.



sity is using future energy cost savings to finance \$39.5 million in energy-efficiency improvements. The improvements are expected to cut the university's energy use by 22 percent annually.

The Rebuild Duke University Facilities partnership, led by Duke's facilities management department, has also achieved remarkable success since joining Rebuild America in 1998. Rebuild Duke University Facilities has successfully completed retrofits to 3.3-million square feet of space, yielding \$1.2 million in annual energy cost savings.

Energy-saving projects range from campus-wide lighting, ventilation and air-conditioning improvements to the installation of 1,000 faucet aerators and 900 low-flow flush valves throughout campus to save water. The water conservation retrofit paid for itself in less than one year through lower water and sewerage bills.

Even universities with strong track records of saving energy are partnering with Rebuild America. The University of New Hampshire campus in Durham was ranked in the top 5 percent of energy-efficient research universities before joining forces with Rebuild America. Also, the university formed a partnership to save more energy by utilizing resources offered by Rebuild America and its partners.

Rebuild America's college and university partnerships have invested more than \$37 million in energy-efficiency projects that affect 44-million square feet. By partnering with Rebuild America, these improvements and new projects will result in \$10.85 million in energy savings each year.



Rebuild America works with colleges and universities to identify energy-efficiency projects, perform energy audits, and implement action plans. Business, financing, and technical tools—such as guides, handbooks, software, workshops, and referrals to state and local resources—are available through Rebuild America.

Partnerships also have access to the expertise of DOE's national laboratories, as well as onsite technical assistance.

Professional organizations and trade associations that join Rebuild America as strategic partners

help promote energy efficiency to members who share common goals with specific market sectors—such as colleges and universities—served by the DOE program.

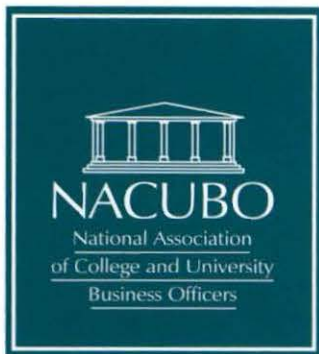
Colleges and universities can reduce their energy expenditures by as much as 25 percent by applying energy-efficient technologies and enhanced O&M practices. To help this sector save energy dollars, Rebuild America is implementing the College and University Sector Initiative for 2003-04. Plans call for adding 12 to 18 new partnerships or projects by July 31, 2004. At a time when higher education institutions need to expand to accommodate increasing enrollments, these partnerships will help colleges and universities reduce costs and use the savings for other educational expenditures.

As a leading organization for educational facilities planning, APPA's partnership with Rebuild America has pro-

duced many dividends such as several state-based and regional briefings with colleges and universities to develop and implement en-

ergy action plans. APPA has also provided data for a Rebuild America report on energy performance at 180 institutions.

Other partners working with Rebuild America in this sector include the National Association of State Energy Officials (NASEO) and the National Association of College and University Business Officers (NACUBO). Through the College and University Sector Initiative, NASEO surveyed state energy offices to identify those interested in working on more energy projects with academic institutions. APPA, NASEO, NACUBO, and Rebuild America will use the results to identify colleges and universities in those states for potential partnerships.



To learn more about the resources Rebuild America provides to the college and university sector, visit The Solution Center at:

www.rebuild.org/SolutionCenter/productservices.asp

Categories include:

- Low/No Cost Improvements
- Energy Efficiency Retrofits
- Major Renovation
- New Construction

Under each project heading, resources are organized by category to help you find exactly what you need, including informative books and CDs, downloadable files, and links to useful websites.

APPA is holding its 2003 Educational Facilities Leadership Forum concurrently with NACUBO's annual conference, a first for the two organizations. By co-locating the conferences, members from both organizations will have the unique opportunity to attend joint sessions for facilities finance and planning, design, and construction.

At a time when college endowments are on the decline, Rebuild America partnerships are helping to ease the financial burden of institutions whose budgets are strained by high energy bills. Energy cost savings are especially important for publicly funded institutions, that are feeling the pinch of state governments' budget cuts.

Rebuild America helps improve communities through energy efficiency, by bringing partners together with technical and other resources. By advancing energy-saving improvements in colleges and universities, Rebuild America is helping to support APPA's mission to maintain, protect, and promote quality educational facilities.

For more information, visit the Rebuild America website at www.rebuild.gov or call the Rebuild America Clearinghouse at 252-459-4664. To volunteer your institution to participate in a Rebuild America project, contact College and University Program Coordinator Kirk Bond at 816-587-0311 or kirk.bond@pnl.gov. 🏢



SUPERVISOR'S TOOLKIT

NUTS & BOLTS OF FACILITIES SUPERVISION

by Wallace E. Glasscock

All too often outstanding employees at educational facilities are promoted without any prior training or experience and are required to perform as front-line supervisors. Colleges and universities have long recognized this fact and understand the importance and need to train and develop these individuals.

Colleges, universities, and other educational facilities desire to offer supervisory training. However, budget demands, lack of qualified staff to do the training, and time restraints often prohibit formal development of promoted staff. Upper management recognizes that untrained front-line supervisors create the opportunity for violations of federal, state, and campus laws, rules, and regulations. Lack of training front-line supervisors can result in high employee turnover, low employee morale, requests for transfers, and overall poor production of the shop, crew, or team. These can translate into possible monetary costs as well.

APPA has highlighted the need for front-line supervisory training through surveys, regional and local meetings, and

personal contacts by APPA members. As a result, APPA has developed a front-line supervisor's management and development training program. *Supervisor's Toolkit: Nuts and Bolts of Facilities Supervision* includes many ideas and suggestions from APPA members, as well as personal input and survey results provided by educational institutions. The final product will be available for preview at the Educational Facilities Leadership Forum in Nashville, Tennessee this July.

In addition, the *Supervisor's Toolkit* will be presented as a separate track at the Institute for Facilities Management in Indian Wells, California on September 14-18, 2003. Institutes in the future will include a one-day Facilitator Skills Enhancement Course (Train the Trainer) session. This will enable Institute attendees to enroll in the supervisor's toolkit course, for which they will remain on site for one additional day to learn facilitation and presentation skills. Facilities departments may then lease the program, which will include all handouts, workbooks, films, and instructor's guide to conduct the training at their campus.

Solutions for Success

In July 2001, a task force selected by Lander Medlin, APPA's executive vice president, met in Montreal, Quebec, Canada, to discuss different approaches to developing a training program for front-line supervisors. Included in the group were facilities directors, front-line supervisors, training managers, and human resources personnel. Each person in the group had

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training experience with facilities and a vital interest in front-line supervision training.

After establishing immediate and long-term goals and objectives, the task force agreed to meet on a regular basis until a front-line supervisor training program had been completed and was ready for production. To say this task was easy would be misleading. Many individuals brought ideas to the table and all were discussed, analyzed, committed to print, and finalized into an easy-to-use presentation format.

The task force members worked many hours on writing and developing this program in addition to the daily responsibilities each had with his or her position at home. Development meetings to write, review, and create material were usually four days in length, not including travel. Their hard work and dedication are much appreciated, and I congratulate them for the professional approach taken to accomplish this task. The program would not exist without the support given by each educational institution represented on the task force. (See sidebar below for the full list of task force members.)

Supervisor's Toolkit: Nuts and Bolts of Facilities Supervision, has eight modules of varying length. The training package includes: a leader's guide, participant workbooks, nametags, wall charts, films, and video clips. The program is presented in PowerPoint and will be available to lease on a CD-ROM.

The modules are:

- **Module 1:** Supervision, What Is It?
- **Module 2:** It's More Than Administration
- **Module 3:** Communication, Let's Talk!
- **Module 4:** If It Weren't for the People (relationships with others)
- **Module 5:** Motivation and Performance
- **Module 6:** Customer Service Triangle
- **Module 7:** Supervisors as Leaders
- **Module 8:** Synthesis - Teams and Tools (putting it together and making it work)

Ideas into Action

The program is designed for a full week (36-40 hours) of training. Members may send a potential trainer to APPA's Facilitator Skills Enhancement Course for certification, lease the program, and run it in-house. The training is also available through leasing the program and utilizing one of the task force members to conduct the training. This will allow for some flexibility in scheduling the training. The program can be presented for a full week, or conducted on a flexible sched-

ule over two or more weeks if conducted in-house. Two or more member institutions could join together to lease the program and conduct the training.

Field Tests

Field tests were held in April 2003 to validate the training material. Front-line supervisors from three APPA regions were invited to attend a full week of training, which was conducted by members of the task force. Class size was limited to 25 participants, the recommended size for all classes. Programs were held at Howard University in Washington, D.C., Reed College in Portland, Oregon, and the University of Central Florida in Orlando, Florida. The field tests provided validation of the training material with front-line supervisors. The evaluation and feedback from those participants enabled the committee to make necessary changes to meet the needs as identified by front-line supervisors.

The task force has reviewed the feedback from the field tests and are making the necessary changes to the program as indicated by the evaluations. The program will be available for preview in the APPA booth at the Educational Facilities Leadership Forum in Nashville, Tennessee on July 27-29, 2003. 🏰

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A Go / No-Go

ON CERTIFICATION FOR APPA

by Michael Besspiata III

For several years there has been a continual question raised within APPA: "Why doesn't APPA provide a means for people to become certified in the field of educational facilities management?" The question would surface from attendees of the Institute for Facilities Management and at APPA Board meetings for discussion, but no meaningful resolution was ever obtained.

In May 2002, APPA's Executive Committee heard a presentation by Knapp & Associates, a consulting firm specializing in the conception, planning, development, implementation, and revitalization of professional credentialing programs. The presentation gave the APPA Board some direction on what steps should be taken in the formal process of determining if "certification" is a viable option for APPA.

The APPA Board recommended that the Professional Affairs Committee enlist the services of Knapp & Associates to conduct a needs assessment survey pertaining to the development of a professional certification program for education facilities

professionals. APPA would then make a "go/no-go" decision based on the information from this survey.

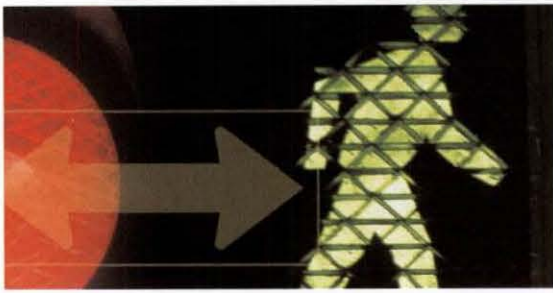
The APPA Board and staff were interested in evaluating the feasibility of creating a professional certification program with the following specific goals:

- Gauge level of interest in certification among potential candidates
- Identify perceived benefits of, or concerns regarding, certification
- Collect information on certification fees, eligibility requirements, and examination content

The Professional Affairs Committee met in July 2002 and voted to proceed with the survey, and the APPA Board voted to approve the funding for the survey with results due back to APPA in time for the December 2002 Executive Committee meeting.

A 20-item survey was administered, via two separate mailings, to a total of 4,472 recipients, including APPA Institutional representatives (1,192), Associate members (2,477), and education program participants (these are non-APPA members who have attended APPA-sponsored events) (803). The survey was accompanied by a letter from the Vice President for Professional Affairs highlighting the purpose and importance of the survey. Also included in the mailing was a fact sheet explaining the purpose of certification, proposed program features, and distinctions between the proposed program and existing credentials and academic de-

Mike Besspiata is director of facilities management at Georgetown College, Georgetown, Kentucky, and APPA's Vice President for Professional Affairs. Until May 31, he can be reached at michael_besspiata@georgetowncollege.edu. Thereafter, he can be reached at michael3carol@yahoo.com as he follows his longtime dream of living in Arizona.



grees. Recipients were asked to return the completed survey to Knapp & Associates as our independent researcher.

The initial mailing, conducted via U.S. mail, yielded a return rate of 13 percent. In an effort to bolster the return rate, APPA decided to repeat the mailing, via e-mail, to the same survey sample group. The deadline was extended to allow time for compilation of results and executive summary in time for a presentation at the APPA February 2003 Board meeting. After the second mailing the return rate rose to 16 percent (27% of Institutional representatives, 11% of Associate members, and 14% of education program participants). Public institutions were represented in 59 percent of respondents, and private institutions represented in 41 percent. Seventy-three percent of the respondents have worked in facilities management for more than 11 years, and 97 percent of respondents are APPA members.

Based on the survey results, the following conclusions and recommendations are listed from the report's executive summary:

- Typically, the level of interest data obtained from certification surveys tends to be somewhat inflated. That is, the percentage of respondents who would actually follow-through with the certification process may well be less than the 77 percent figure who said they would become certified. Also, not all those who responded favorably may be eligible for the program.
- Only 26 percent of the respondents indicated they "definitely" would become certified, and this figure may be subject to some inflation as well. This group is typically the most reliable with respect to following through with certification, yet only a minority of the respondents fell in this category.
- Overall, the write-in comments tended to be relatively neutral compared to similar surveys. For the most part, the comments were not overly positive or overly negative. One exception was the education program subgroup, which appeared to be somewhat more enthusiastic about the concept of certification. Thus, while there did not appear to be strong opposition to the concept of certification, neither was there a ringing endorsement of the idea.
- In looking at the profession as a whole and the environment in which education facilities professionals work, there does not appear to be a strongly compelling or urgent need for professional certification at this time. For example, many educational facilities professionals already have widely respected credentials in engineering and architecture, and they believe these credentials to be

sufficient for working in the field. The lack of a compelling need for the credential would likely reduce participation in the program.

- The development of a full-scale professional certification program is a complex endeavor requiring significant staff, volunteer, and financial resources. If APPA wishes to continue to explore the development of a full-scale professional certification program, we recommend the preparation of a business plan, which would include a competitive analysis, positioning and marketing strategies, an outline of the resources required, and five-year revenue and expense projections. The business plan would provide a comprehensive picture of what would be required to develop the certification program and would assist APPA in making the final go/no-go decision with respect to whether to proceed with program development.
- APPA might also consider developing a curriculum-based certificate, instead of a full-scale professional certification program. This process would involve adding an assessment component to APPA's Institute for Facilities Management. This assessment would serve to verify that participants have mastered the content presented in the courses. Furthermore, the added rigor would enhance the credibility of the credential and distinguish it from a certificate of attendance.
- As suggested by the survey respondents, APPA could explore the feasibility of developing strategic partnerships with other organizations (e.g., NACUBO, BOMI) for the purpose of sponsoring either a full-scale professional certification program or curriculum-based certificate.
- Lastly, before proceeding with any form of credentialing program, we recommend that organizations carefully consider whether their resources would be better spent on other endeavors. In APPA's case, these other endeavors might include promoting the profession and raising its visibility with key stakeholders, such as university administrators; enhancing access to the Institute through the introduction of online programming; or defining the body of knowledge for the profession and restructuring professional development offerings around this body of knowledge.

Following a presentation of the entire report at APPA's February 2003 Board of Directors meeting, a recommendation was made and passed by the Board that "APPA will not move forward on its own at this time for certification." This recommendation means that APPA will not endeavor to create a certification process of its own at this time but will look toward partnering with someone in the future. The guideline set at the beginning of the survey process was go/no-go and based on the recommendations from the consultant; thus, a certification program provided by APPA is a "no-go" at this time.

For more information or to review a copy of the full certification report, please contact Francine Moore, APPA's director of marketing & outreach, at 703-684-1446 ext. 238 or francine@appa.org. 🏠

When the Going Gets Tough...

by James E. Christenson

"We can't wait for the storm to blow over; we've got to learn to work in the rain."

—Pete Silas, CEO
Phillips Petroleum

For decades, facilities leaders have seen budgets reduced, staffs cut, and travel curtailed. We periodically hear that state revenues won't meet expectations, that the economy has gone south, or that the endowments are withering. As a result of these latest calamities, we are told, funding of support functions must take a disproportionate hit to preserve essential programs. At the same time, construction projects proceed with barely a second look, adding to the facilities management workload two years hence.

The scene is all too familiar. This year, though, it seems worse than most people remember. Double-digit percentage reductions in allocations are now common. For example, Wisconsin's governor is cutting the state's contribution to the University of Wisconsin system by \$250 million from its present insufficient level. Some independent institutions are losing significant enrollment numbers. A few facilities managers talk of resigning, giving up in the face of the seemingly impossible task of supporting the institution's mission with a fraction of the former resources. We have come to the point where "today is the tomorrow we worried about yesterday."

Jim Christenson is an APPA member emeritus and can be reached at jchriste@jackelec.com.



Faced with this grim reality, what should facilities leaders do? Deserting the sinking ship is tempting, but that deprives the institution of its best leader in this critical support area. A famous naval officer once stated the obvious, "We cannot change the wind, but we can surely adjust the sails."

Insanity has been defined as repeatedly doing the same thing but expecting better results. Similarly, operating a facilities department the way it has always been operated in the face of steadily decreasing resources is patently unwise. To some, the appropriate way to stave off such insanity might be to discard some of the "nice to have" elements of enlightened facilities management.

I am here to suggest instead that you take a second look at some of the elements that you may not have even tried. In what follows I'll identify, as samples of reminders of good management practices, 16 of the 67 criteria listed in APPA's revised Facilities Management Evaluation Program

(FMEP). My hope is that, in considering these criteria, facilities leaders will see that it is even more important in times of scarce resources to practice the best management principles in earnest.

Selected FMEP Criteria

- *Facilities management leaders spend time on a regular basis with their customers.*
- *Customer feedback is used to drive process and effectiveness improvements.*

Facilities management has many facets. One of these is being a spokesperson and steward for the facilities themselves. Another is providing services to customers. Money is limited. Staffing is limited. We need to provide, as well as we can, those services that are most important to the customer. Personal contact with the customer is the best way to know what those services are.

- *Facilities management leaders spend time on a regular basis with their front-line staff.*

There is great potential for low morale in tough economic times. There are sometimes mistaken ideas among front-line staff as to what actions make sense in such times. But, most importantly, front-line staff members often have ideas that can result in the same services at lower cost or better services at the same cost. Especially now, they need to feel that their leaders are doing the right thing.

- *Senior leaders establish and reinforce an environment where shared values support self-direction, innovation, and decentralized decision making.*

Much is implied in this statement. But one result of broadly shared values is less hierarchy. Managers and



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Similarly, operating a facilities department the way it has always been operated in the face of steadily decreasing resources is patently unwise.

supervisors usually cost more money per person than custodians and tradespeople. If there is an environment of shared values, empowerment, and informed decision making at the core of the organization, many of the supervisory and managerial positions can be eliminated as vacancies occur. This is not theory. It has worked in real life to the point where the managerial span of support has been nearly doubled, with better results in organizational performance.

- A strategic plan exists that includes the goals and objectives of the department.
- Organizational goals and key performance measures are well displayed, effectively communicated, and understood by all employees.

Now, more than ever, we need to have our sights on where we want to go and we need to know how well we are doing in getting there. We can't afford detours or slacking. If everyone has a clear picture of the goals, there is much greater chance of success.

- Timelines that permit effective monitoring of the strategic plan are specified and maintained.
- Performance indicators are tracked and used to drive action within the organization.
- Facilities management leaders routinely assess the strengths and weaknesses of the organization and target areas for improvement.
- Benchmarking results, comparisons, and performance indicators are

used to improve work processes, to discover the best levels of performance that have been achieved by the organization, and to identify the reasons for these performance peaks.

Strategic plans and goals are a waste of time if progress toward the objectives isn't measured. But even measurement isn't enough. Measured levels and trends in key performance indicators need to be analyzed, sometimes benchmarked, and used to adjust the strategic plan and goals or to take other action.

- Training programs provide for new employee orientation and technical skills enhancement for all staff.
- Career development is fostered through additional training, involvement in job-related and professional organizations, and opportunities to advance within the department.

Self-direction, decision making, understanding goals, and dealing with the variety of technology in the facilities inventory all require targeted training. If the ranks of management are diminished by leaving positions vacant, retraining may be required for those who remain. It is tempting to skimp on training during financial crunches. Instead, be sure it is appropriately focused and that it is done well.

- An effective preventive maintenance (PM) program is in place to provide regular inspection and servicing of facilities equipment to assure maximum service life, reliability, and operation.

As APPA member Mike Besspiata has consistently preached, "If you think maintenance is expensive, try neglect." In the realm of facilities stewardship, preventive and predictive maintenance are the most important investments. Failure to perform preventive work often means catastrophic costs later.

- Design guidelines that incorporate such elements as energy

consumption, operating costs, maintainability, sustainability, accessibility, and safety have been prepared, updated, and are utilized.

Since construction is continuing despite economic hard times, act effectively to make sure that what is constructed will operate efficiently when it comes online. The temptation will be to cut capital costs by installing cheap, inefficient building systems and components. The trends in energy and labor costs are not downward. Buildings should be built to optimize life-cycle costs.

- *Staff members are highly motivated and productive, taking pride in the accomplishment of their duties.*

This is where your organization stands or falls. It all depends on people. In times of resource shortages, it is even more important to create and maintain a work environment that encourages people to be self-motivated and to do their best.

- *Work performance and attendance tracking measures are in place, are understood by staff members, and are used by supervisors to assess performance.*

People need to know how they measure up against goals and standards. On the negative side, in hard times it is especially important to help those who cannot be productive and self-motivated to find other employment that better suits them. As numbers shrink every person remaining must contribute 100 percent.

You will find many more suggestions for greater organizational effectiveness at <http://www.appa.org/FMEP/evaluation.html>. The APPA site displays the text of the most recent prior FMEP criteria. While some words have recently been changed, the essence of most of the criteria remains the same. You may have no interest in requesting an APPA evaluation at this time, but the criteria



reminds you of what good facilities management looks like. Anyone can preside over an excellent organization when resources are plentiful. But when the going gets tough, it takes wise leadership and enlightened management to maintain an effective facilities operation. 🏢

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Asset Management Challenges and Opportunities

by Jim Whittaker, P.E.

Luck, it is said, favors the prepared. When it comes to justifying and obtaining needed funds for capital renewal and deferred maintenance (CRDM) budgets, how lucky have we been as facility managers? The next time you think about preparing your capital renewal budget, think of Clint Eastwood in *Dirty Harry* and ask yourself: do you feel lucky? This column is for those who prefer to rely on preparation rather than luck alone.

In the January/February 2003 issue of *Facilities Manager*, Jay Oschrein introduced the concept of focusing on "facilities reinvestment" instead of deferred maintenance. He provided some excellent arguments regarding modifying simple terminology to present your needs in a forward looking context. Previous articles by Matt Adams have also provided thoughtful insight in developing communication skills and a shared language between facility managers and business officers. All of this advice was provided with the hope of selling senior managers and financial officers on the importance of funding proper facility maintenance.

I would like to expand on these previously introduced concepts and provide some additional asset management program recommendations to help you, and your institution, achieve its mission. First, some additional challenges must be brought to



light before we can rewrite them as opportunities.

Managing a university's assets and providing for capital renewal has never been more challenging than it is in today's changing times. The unpredictable nature of the United States and global economies presents new challenges and budget crises for institutions. In today's uncertain and rapidly changing environment, time becomes your enemy. Time erodes the benefits originally anticipated in certain capital decisions due to changes in the parameters or technology that formed the basis for the decision. Facility managers and business officers must have the ability to review reliable, objective, and flexible data to implement sound facilities reinvestment decisions.

Second, it seems that everyone on campus has vastly differing opinions on how capital funds should be utilized, often subjugating capital renewal budget proposals to the never-ending stalemate, or to the cycle of continuous deferral. Political pressures, pet projects, and ill-conceived perceptions of future trends all play a role in forming an array of

opinions. To develop a defensible capital renewal plan, it must be based on rational, justifiable, repeatable, and objective analyses that can be understood by decision makers.

Ah, yes . . . this is where those communication skills come into play. You need to convince the decision makers that your proposal will allow you to get the most out of the available funds, reduce the cost of ownership by increasing the useful life of the facilities, and maximize the return on investment.

Historically, asset management programs have been viewed as overhead costs or expenses, much the same way deferred maintenance is viewed as an expense and spending on new facilities and technologies is an investment. This has led to neglect and misappropriation of funds. To minimize the costs, simple depreciation methods over the useful life of an asset have typically been used. The condition of the asset was not considered or measured, and maintenance/repairs costs were not tracked or reported. There could be no measure of return on investment to determine if the public's money and assets were being managed wisely.

To ensure governments' responsible management of taxpayers' money and their assets, the Government Accounting Standards Board (GASB) has recently revised its guidelines regarding accounting for infrastructure-related assets. The new GASB-34 standards require public agencies (including public schools) to account for all costs associated with not only design and construction, but maintenance and operation of the assets as well. The new guidelines are the first step in promoting a rational asset

Jim Whittaker is vice president of Facility Engineering Associates, Fairfax, Virginia. He can be reached at whittaker@feapc.com. This is his first article for *Facilities Manager*.

To develop a defensible capital renewal plan, it must be based on rational, justifiable, repeatable, and objective analyses that can be understood by decision makers.

management approach for facilities investments.

This is how you can turn the previously mentioned challenges into opportunities. Institutions should follow this rational approach and implement some level of an asset management program. The necessary activities should include:

- Conducting an asset inventory
- Performing periodic condition assessments
- Determination of desired levels of maintenance and associated costs
- Reporting requirements (three previous condition assessments and five-year estimated and actual maintenance costs)

- Documentation of the program effectiveness based on established metrics
- Use of an asset management tool (program) to organize and provide easy access to data, rank condition ratings, prioritize expenditures, and measure progress

In the simplest of terms, rational asset management programs require: knowing what you have; knowing its condition; prioritizing on the basis of real need; allocating available funds based on that prioritization; executing the projects; and measuring the performance. By implementing this rational approach you will create the right opportunities to obtain the following objectives:

- Improve the efficiency and provide proactive capital budget planning
- Reduce repair, replacement and maintenance costs over time
- Increase energy efficiency and decrease utility costs
- Extend the useful service life of the assets
- Reduce the annual cost of ownership and increase asset value

- Quantify the increased return on investment for maintenance dollars

An effective and rational asset management program begins with an asset inventory and condition assessment. The data collection methods for the condition assessment must be as objective and repeatable as possible and include long-term capital renewal needs, not just deferred maintenance. Some type of computerized asset management system should be used to convert the data to usable decision support information. The output should be in the form of condition-based ratings that evaluate life-cycle costs and prioritize the projects based on the objective ranking (Figure 1).

Armed with defensible data and presenting it in the form of objective financial recommendations that can be measured may give you the edge you have been looking for. And who knows, you may just get a little luckier in your next budget defense. 🏰

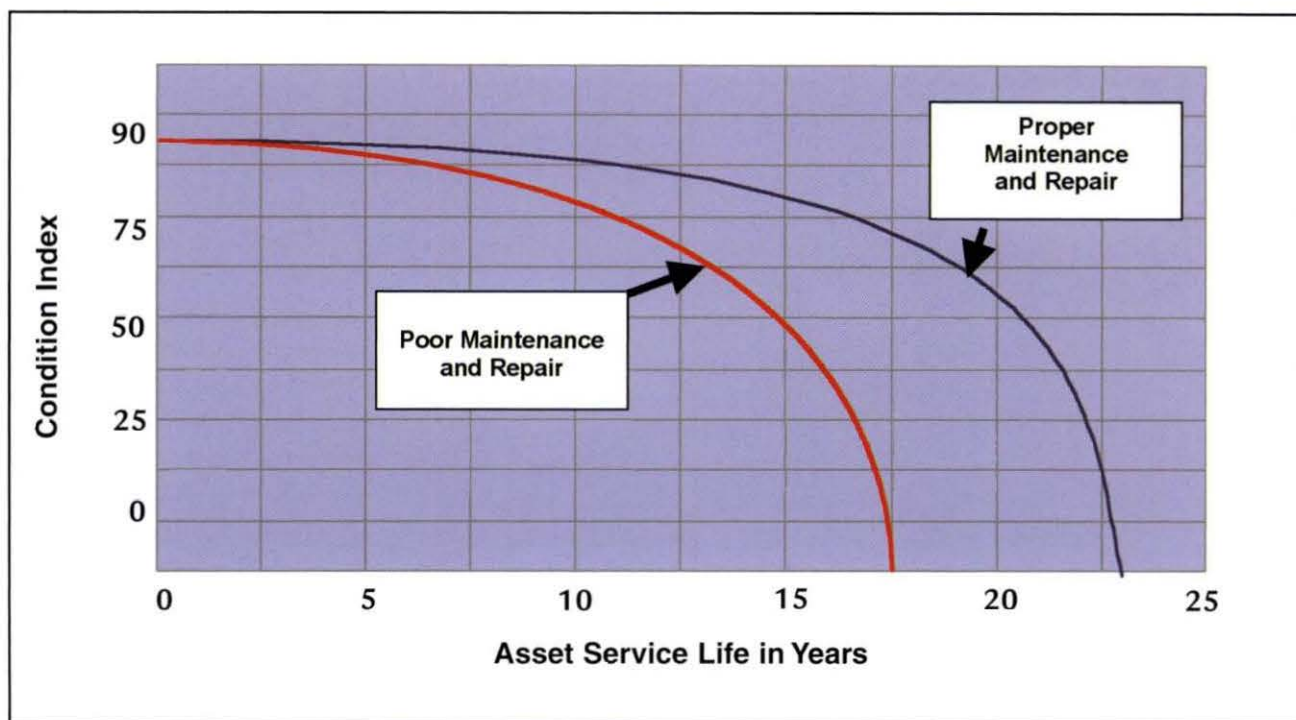


Figure 1. Condition Assessment and Asset Inventory

The Bookshelf

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

I try to coordinate book reviews with the editorial theme of the current issue of the magazine; sometimes I succeed and sometimes I don't. While it may not be easily evident for this issue, I think with the upcoming Educational Facilities Leadership Forum and with the perspectives that will be discussed in this issue, the reviews will mesh well. If not, just look back a couple of issues and reread the major articles after checking these books out.

Quick Selection Guide to Chemical Protective Clothing, 4th Edition, by Krister Forsberg and S. Z. Mansdorf, New York: Wiley, 2002. 147 pages, softbound. (www.wiley.com).

About the time this book

arrived the U.S. government announced an increase in the terrorist threat level and suggested having plastic sheeting and duct tape available. I used the guide to determine that plastic sheeting and duct tape would not stop VX gas, so I didn't bother to run out to Home Depot. So much for my home use of the book; now for its institutional uses.

This guide is informative and convenient. It follows a logical sequence in describing how materials are tested, how they work and are effective in protecting the user, and how durable, as well as effective, they are over time



and with use. There is also a 12-point listing of selection factors which recognize that the user of protective devices might also be allergic to the protective materials. The guide then describes the different types of chemicals that one must be protected from, such as toxics, corrosives, carcinogens,

This isn't really the sort of book that should appear on the director's shelf; rather it belongs out in the field or in the appropriate shop where it will be used.

and irritants. There is even a description of chemical warfare agents.

Following the text, one can look up the chemical by name (those long difficult to pronounce names that organic chemists created) or synonym (CFC 114 is really 1,1-Dichlorotetrafluoroethane), get the Class # of the chemical, the CAS # (Chemical Abstract Service Number), the Risk Code (toxic, corrosive, etc.), and other notes. Then one uses the Class # to quickly find the chemical in a table of 16 different protective materials with

color-coded evaluations. Additional information and definitions are provided in the last sections of the book for those who need help. Addresses (physical and website) are provided for the major manufacturers that will help your procurement office protect your employees.

This isn't really the sort of book that should appear on the director's shelf; rather it belongs out in the field or in the appropriate shop where it will be used. It is a good, no nonsense reference, exactly where you want or need no nonsense. If you have employees working with hazardous materials, from cutting fluids to Malathion, you will find a listing for the material here and information on how to better protect them.

Manual for Intelligent Energy Services, by Shirley J. Hansen, Lilburn, Georgia: Fairmont Press, 2002. 299 pages, hardbound. (www.fairmontpress.com).

I like books that tell it like it is, the sooner the better. With that in mind, I will tell you right away that I like this book. It opens with frank words that we often tell each other—"we're our own worst enemy when it comes to budget cutting time because we almost always keep the facilities operating with less money." This includes the utility area, and, as a result our supervisors think we always have too much money. The solution for facility officers should focus on people skills and leadership; the technical details can come later. This book is well organized and delivers the home run message.

Ted Weidner is president of Facility Asset Consulting, Amherst, Massachusetts. He can be reached at tweidner@charter.net.

Poor communication about energy, either between maintenance employees and facility administration or between the energy manager and users/occupants, will result in increased energy consumption.

Where is the business officer coming from when it comes to utility expenditures? It probably has nothing to do with the advantages of VAV over constant volume ventilation but a lot more to do with complaints about temperature from the faculty senate or the office secretary. Even the terminology—efficiency vs. conservation—has implications which may drag down a solution because it harkens back to failed “solutions” from the 1970s.

The author, and other contributors, regularly emphasize that it really doesn't matter what physical things are done to save or manage energy. It ultimately depends on how energy-consuming equipment is operated and managed. Poor maintenance will automatically result in increased energy consumption. Poor communication about energy, either between maintenance employees and facility administration or between the energy manager and users/occupants, will result in increased energy consumption. Poor administrative structures will result in increased energy consumption; a lot of non-ideal practices contribute to increased energy consumption (or cost).

That discouraging prognosis is resolved with recommendations found in *Intelligent Energy Services*. Information about an ESCO's perspective when entering an agreement with a facility owner is invaluable. It helps one prepare for the all-important negotiations. The same is said for understanding utility rate structures.

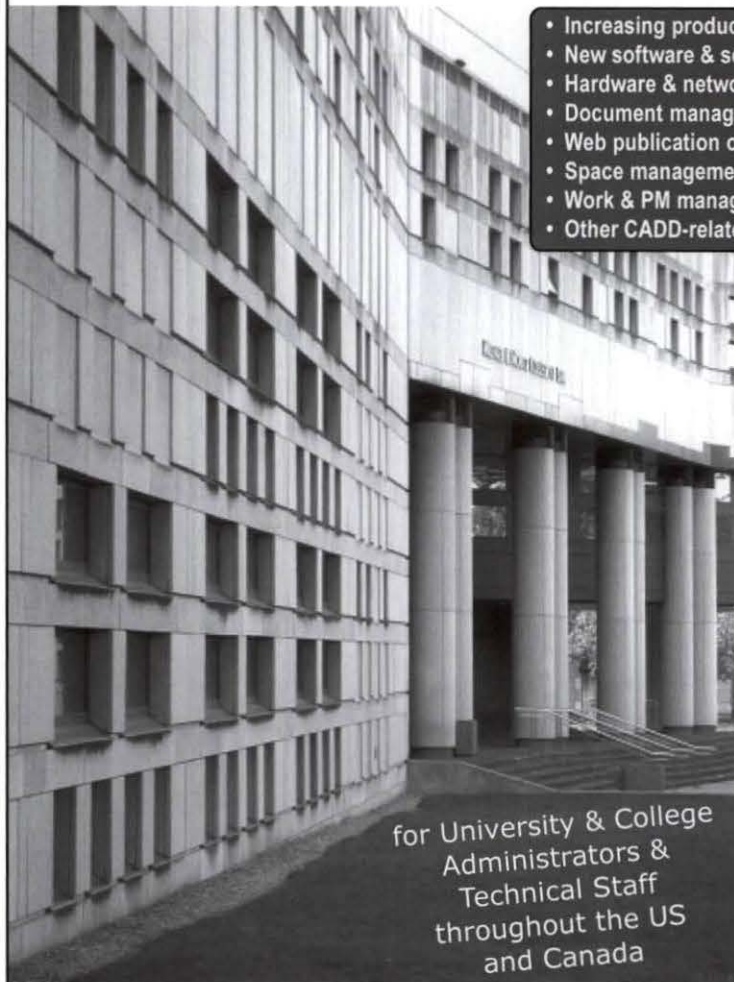
In general, the book is right on. It is timeless and it is essential for every



facility officer. If you are considering an energy efficiency project, getting ready to negotiate with an energy provider, preparing next year's energy budget, or about to make budget reductions in the O&M area, read this book. I used the concepts to support several arguments I was making even before finishing the book; you'll be able to also. 📖

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Nashville, July 27-29

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www.appa.org/education



Spouse/Guest Information

First Name _____
Last Name _____

Optional Items

(The meal options listed below are available for those who are not registered as a Spouse/Guest.)

Saturday, July 26

Campus Tour - Tennessee State University
\$15.00 X ____ = \$ ____

Sunday, July 27

Welcome Breakfast
\$15.00 X ____ = \$ ____
Exhibit Hall Lunch
\$30.00 X ____ = \$ ____

Monday, July 28

Town Meeting Breakfast
\$15.00 X ____ = \$ ____
Exhibit Hall Lunch
\$30.00 X ____ = \$ ____

Tuesday, July 29

Awards Breakfast
\$15.00 X ____ = \$ ____
Exhibit Hall Lunch
\$30.00 X ____ = \$ ____
Banquet
\$50.00 X ____ = \$ ____
Banquet (Children Under 12)
\$25.00 X ____ = \$ ____

Payment Information

Total Cost \$ _____

Payment Method:

Check (Enclosed) # _____
PO # _____
Charge

☐ Visa ☐ MasterCard
☐ American Express

Credit Card Number _____

Exp. Date _____

Name On Card _____

To register, **fax** this completed form to 703-549-2772 or **visit** www.appa.org/education to register.

Questions? Please contact Deirdre Bourke, Education Meetings & Exhibits Manager, 703-684-1446, ext. 228.

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.net.

OSI Sealants Inc.

introduces Pro-Series SF 400 Low VOC Sub Floor & Construction Adhesive. The new adhesive has a technologically advanced formula providing superior adhesion while also meeting the stringent VOC standards. Designed specifically to reduce nail popping and eliminate squeaky floors, the new formula combines high performance and long-lasting quality with low environmental impact. The Pro-Series SF 400 Low VOC Sub Floor & Construction Adhesive can be used in all weather conditions. For more details, call OSI Sealants Inc. at 888-445-0208.



Wegner Corp.'s innovative, flexible flipFORMS easily transform into three different risers or staging shapes. Available in black and grey, flipFORMS have proven popular for a variety of applications that includes music and drama classrooms along with theatrical, music, or multi-purpose environments. Built to withstand rugged use, flipFORMS are constructed with molded, high-strength polyethylene. Each unit features recessed wheels and hand-holds for easy mobility. For more information, call Wegner Corp. at 800-326-8373.



Shake-Away, creator of humane, revolutionary, granulated animal pest-control products, now offers Shake Away Small Critters. The first-ever 100 percent organic granule-based deterrent that takes advantage of small animals' fear of predators. Effective against squirrels, rabbits, skunks, gophers, possums, prairie dogs, chipmunks, groundhogs, and porcupines, Shake Away Small Critters granules are made from the scent of those animals' natural predator—the fox. Once invading critters get a whiff of danger, they leave the area; scientific studies have proven it. For complete details, call Shake-Away at 800-517-9207.



Anchor Audio, Inc.

announces Xtreme 6000, the first portable sound system that is flexible enough to support up to six UHF wireless microphones. The Xtreme 6000 delivers full-range music and intelligible speech from one, self-contained portable sound system that is designed for users with little or no technical knowledge. A sound system that can reach audiences of up to 5000, indoors or out, Xtreme 6000 can pump out 123 decibels of sound at full power. For further information, call Anchor Audio, Inc. at 888-444-6077.



Flo-Pac Corporation

introduces the new Swivel Scrub. The Swivel Scrub's patented head moves easily around fixtures and equipment allowing all the advantages of the original with a newly designed filament. It is perfect for corners and along baseboards. The black, industrial strength, long wearing, polyester fill scrub is water resistant and resists high temperatures, acids, alkalis, and most cleaning solutions. Swivel Scrub's uneven polyester trim gets into grout lines and uneven surfaces. For additional information, call Flo-Pac Corporation at 800-328-7575.



Sheffield Plastics Inc. presents its MARKOLON Polycarbonate Sign Products brochure. The brochure provides a concise guide of Sheffield's polycarbonate sheet products for signage. Descriptions of product qualities such as impact resistance, UV protection, abrasion resistance, and product options are included. The brochure also includes sizes and color information for each product. In addition to describing the full product line, the brochure also provides practical information that will help and guide you in selecting signage material. For greater detail, call Sheffield Plastics Inc. at 800-254-1707. 📖



Coming Events

APPA Events

For more information on APPA seminars and programs, visit our website's interactive calendar of events at www.appa.org/education.

Jun 8-12—Professional Leadership Academy.

Rancho Mirage, CA.

Jul 27-29—Educational Facilities Leadership Forum.

Nashville, TN.

Sep 14-18—Institute for Facilities Management.

Indian Wells, CA.

APPA Regional Meetings

Sep 17-20—RMA Regional Meeting.

Sedona, AZ. Contact Polly Pinney 480-965-6106, or polly.pinney@asu.edu.

Sep 27-Oct 1—MAPPA Regional Meeting.

St. Louis, MO. Contact Robert Washburn 618-650-8560 or rwashbu@siue.edu.

Sep 27-Oct 1—PCAPPA Regional Meeting.

Portland, OR. Contact Townsend Angell 503-777-7763 or townsend.angell@reed.edu.

Sep 27-Oct 3—ERAPPA Regional Meeting.

Philadelphia, PA. Contact Fred Long 215-951-1315 or long@lasalle.edu.

Sep 28-Oct 1—AAPPA Regional Meeting.

Adelaide, Australia. Contact Brian Phillips 61-08-8302-1648 or brian.phillips@unisa.edu.au.

Oct 10-14—CAPPA Regional Meeting.

Corpus Christi, TX. Contact Ron Smith, 361-825-2422 or ronsmith@falcon.tamucc.edu.

Oct 11-14—SRAPPA Regional Meeting.

Morgantown, WV. Contact Joe Fisher, 304-292-7202 or jfishel6@wvu.edu.

Other Events

May 29-31—Green Design:

Ideas to Inspire Environmentally Responsible Facilities Construction. Boulder, CO. Contact Tamia Jordan 434-245-8425 or visit www.nacas.org.

Jun 5-7—Technology 2003.

San Diego, CA. Contact San Diego State University 618-594-6000.

Jun 11—Blood-borne Pathogens.

Audio Conference—10:00-11:00 a.m. Central. Contact lanalde@uthscsa.edu or call 800-982-8868.

Jun 22-24—IDEA 94th Annual Conference.

Philadelphia, PA. Contact www.districtenergy.org or 508-366-9339 for more information.

Jul 9—Latex Update! Allergy or Not?

Audio Conference—10:00-11:00 a.m. Central. Contact lanalde@uthscsa.edu or call 800-982-8868.

Jul 16-18—Designing Better Schools with Technology.

Madison, WI. Call 1-800-462-0876 or e-mail custserv@epd.engr.wisc.edu.

Jul 21-27—NCSL 2003 Annual Meeting.

San Francisco, CA. Call 303-830-2200.

Jul 27-31—ACUTA Annual Conference.

Hollywood, FL. Visit www.acuta.org for more information.

Aug 5-8—National Collegiate CADD Conference.

University of Maryland, College Park, MD. Contact Charles Bowler 301-405-0008, cbowler@wam.umd.edu or visit www.nccconf.org.

Aug 11-13—Diagnosing Indoor Air Quality Problems.

Madison, WI. Call 1-800-462-0876 or e-mail custserv@epd.engr.wisc.edu.

Aug 13—Fighting Absenteeism.

Audio Conference—10:00-11:00 a.m. Central. Contact lanalde@uthscsa.edu or call 800-982-8868.

Sep 10—TB & HIV Information for Custodial Workers.

Audio Conference—10:00-11:00 a.m. Central. Contact lanalde@uthscsa.edu or call 800-982-8868.

Sep 13-19—National Association of Elevator Contractors 54th Annual Convention & Exposition.

Orlando, FL. Contact NAEC 770-760-9660, www.naec.org.

Sep 21-24—ICMA Annual Conference.

Charlotte, NC. Contact ICMA 202-289-4262, www.icma.org.

Oct 8-12—Custodial Management Association of Texas.

Austin, TX. Contact Ken Lewis 979-845-3615 or e-mail klewis@ppfs4.tamu.edu.

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