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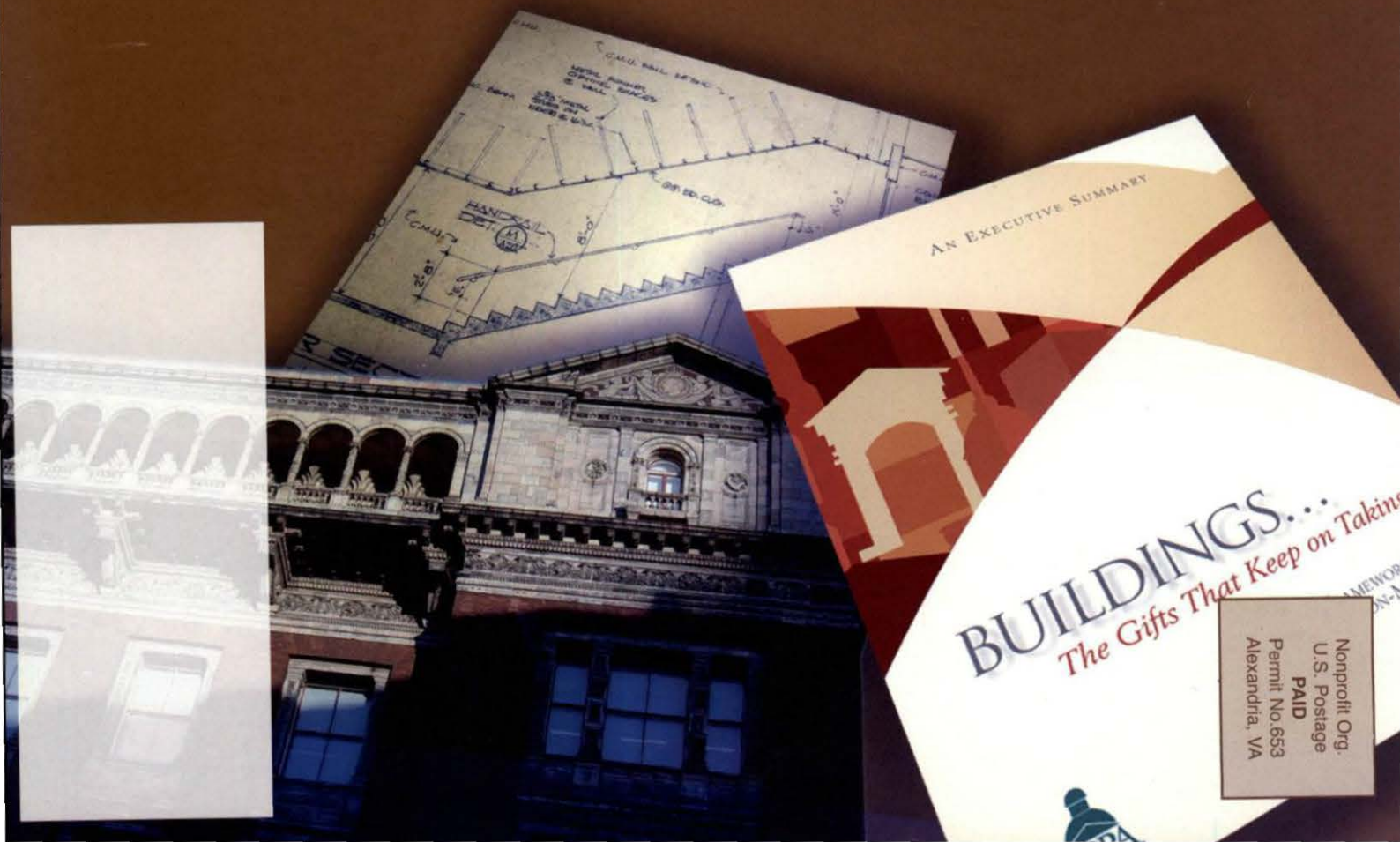
NUMBER 2

# Facilities Manager

THE OFFICIAL PUBLICATION OF APPA

## BUILDINGS...

*The Gifts That Keep on Taking*



AN EXECUTIVE SUMMARY

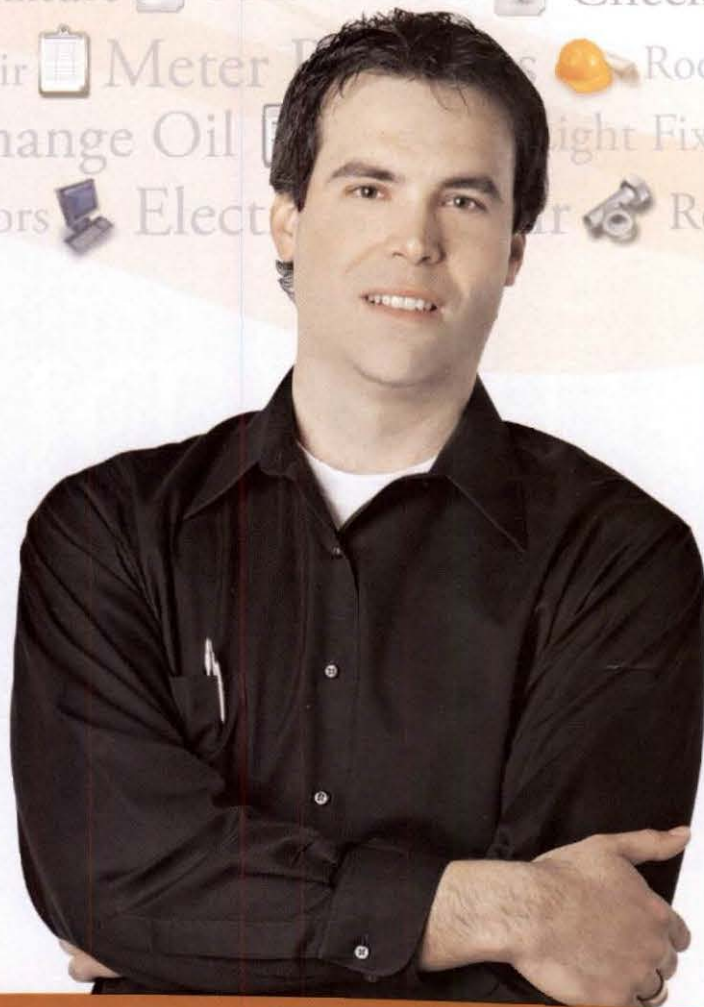
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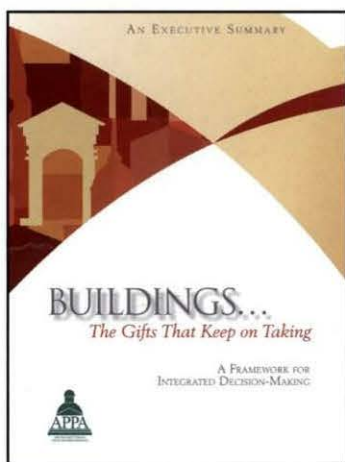
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## THIS ISSUE:

# BUILDINGS... THE GIFTS THAT KEEP ON TAKING

**CFaR** | Center for  
Facilities Research

## FEATURE ARTICLES

### 18 Buildings: The Gifts That Keep on Taking

by Rodney Rose

### 26 A Common Vocabulary for an Asset Investment Strategy

by Douglas K. Christensen, Rodney Rose, and Terry W. Ruprecht

### 32 Facility Asset Management Doctrine *A Strategy for Making Better Decisions at Lower Risk and Costs*

by James J. Dempsey, P.E., USCG

### 44 Thought Leaders Series Explores Top Ten Critical Facilities Issues

*Excerpts from the Executive Summary*



# Facilities Manager

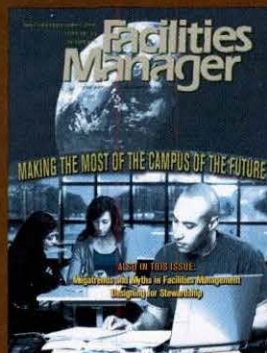
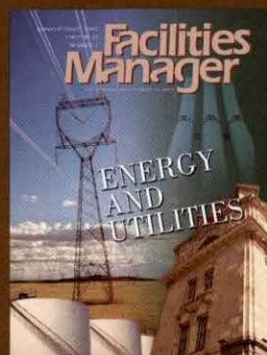
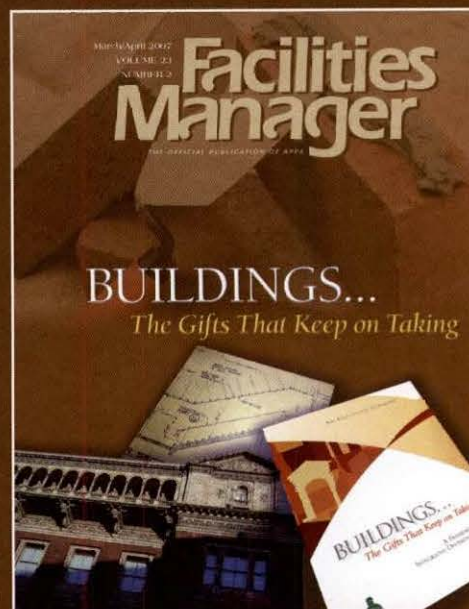
THE OFFICIAL PUBLICATION OF APPA

Volume 23 Number 2

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## COLUMNS

<b>From the Editor</b> .....	4
<b>APPA News</b> .....	6
by Kisha D. DeSandies	
<b>Executive Summary</b> .....	10
APPA's Revitalization	
by E. Lander Medlin	
<b>Membership Matters</b> .....	12
What is Your Appraisal of Performance Appraisal?	
by Glenn Smith	
<b>Knowledge Builders</b> .....	14
Are You Sitting on the Fence?	
by Maggie Kinnaman	
<b>Facility Asset Management</b> .....	39
Advanced Degrees in Facilities Management	
by Matt Adams, P.E.	
<b>The Bookshelf</b> .....	45
Book Review Editor: Theodore J. Weidner, Ph.D., P.E., AIA	
Reviewed in this issue:	
• <i>Emergency Management, Concepts and Strategies for Effective Programs</i>	
• <i>Your Leadership Legacy: Why Looking Toward the Future Will Make You a Better Leader Today</i>	
<b>New Products</b> .....	47
<b>Coming Events</b> .....	48
<b>Index of Advertisers</b> .....	48



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## From the Editor

by Steve Glazner

Shortly after the creation of APPA's Center for Facilities Research, the CFaR Advisory Council met to brainstorm topics for a major APPA-sponsored research project that would have long-lasting impact and value to campus facilities professionals and the learning environments for which they are responsible.

More than three years later, the efforts of a dedicated group of APPA researchers have come to fruition with the publication of a new book, *Buildings... The Gifts That Keep on Taking: A Framework for Integrated Decision Making*. We are pleased to share excerpts from the book in this issue of *Facilities Manager*.

The principal investigators on this CFaR project are Doug Christensen of Brigham Young University, Rod Rose of STRATUS—A Heery Company, and Terry Ruprecht of the University of Illinois at Urbana-Champaign. Rod is the primary author of the book and wrote the lead article in this issue, which serves as an executive summary of the research and of the book. All three researchers contributed to the article establishing a common vocabulary and setting the context for the further discussion that you'll find in the book.

But these three didn't do it alone. The research was conducted and many contributions were offered by a varied group of skilled professionals representing the Association of University Architects, the Society for College and University Planning, the U.S. federal government, and university facilities.

Many thanks to the following steering committee members:

**Brenda Albright**, Higher education consultant

**David Cain**, Carter & Burgess, Inc.

**Jack Dempsey**, U.S. Coast Guard

**Trudy Heinecke**, University of California System

**Steve Kraal**, University of Texas at Austin

**Jill Morelli**, University of Washington

**Rich Schneider**, National Park Service

**Lynda Stanley**, National Academies of Science

**Ted Weidner**, University of Nebraska-Lincoln

Jack Dempsey of the Coast Guard has created an impressive body of work related to the concepts of mission dependency (discussed in the *Buildings* book) and how you might identify, assess, and justify your facilities based on their critical importance to the mission of your organization. His article in this issue on a facility asset management doctrine expands on this work and ties in nicely with the companion features from the book.

*Buildings... The Gifts That Keep on Taking* will soon be on sale at APPA's bookstore:

[www.appa.org/applications/publications](http://www.appa.org/applications/publications).

### Coming

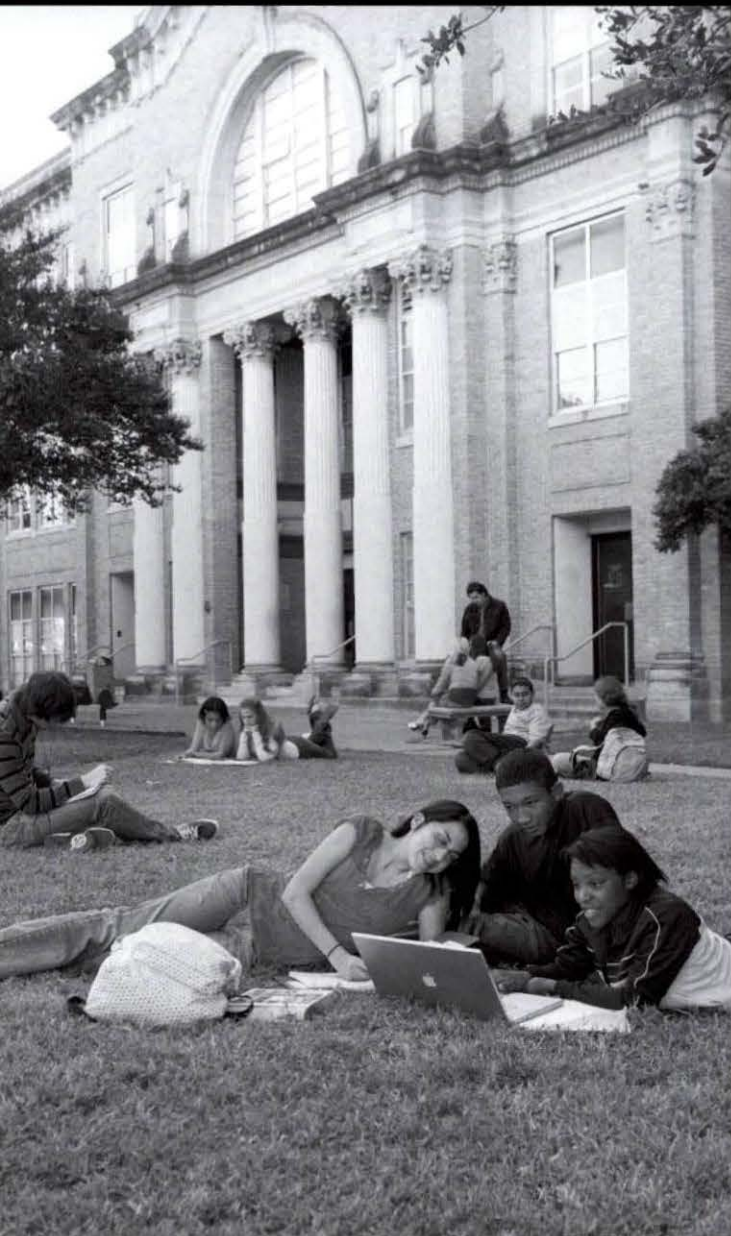
IN THE MAY/JUNE  
ISSUE OF FACILITIES MANAGER:

- Preview of APPA 2007: Back to the Future
- Focus on Campus Auxiliary Facilities
- 2007 Election Results





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by Kisha D. DeSandies

## 2007 Candidates for APPA Office

The Nominating Committee selected the following slate of officers for the 2007 elections:

### President-Elect

Harvey D. Chace, University of New Mexico

William M. Elvey, Virginia Polytechnic Institute & State University

Vice President for Professional Affairs Committee/Chair of Awards & Recognition Committee

Kevin B. Folsom, Dallas

Theological Seminary

Daniel R. Johnson, California State University/Monterey Bay

Secretary-Treasurer

Nancy K. Hurt, Colorado State University

Arthur B. Jones, Black Hills State University

Only the primary Institutional and Affiliate representatives may vote, with only one vote per institution.

**Congratulations to the nominees!**

## Reserve Your Prime Exhibit Space at APPA 2007

Business partners and other potential exhibitors are invited to participate in APPA 2007: Back to the Future, July 15-17, 2007 in Baltimore, Maryland. Reach out to the top decision makers and key influencers shaping today's educational facilities field. Prime booths are disappearing quickly—don't miss out so reserve your spot today. Contact Maxine Mauldin at maxine@appa.org for assistance with your reservation.

## Sign up for the Spring Academy & Toolkit

Register for the Leadership Academy April 15-19, 2007 at the San Jose Fairmont Hotel in San Jose, California. This is your opportunity to explore and discover your leadership potential. You will also increase your awareness of the key issues and gain skills to identify effective solutions.

There is a special offering of the Supervisor's Toolkit also April 15-19, 2007 in San Jose, California. The Toolkit is a structured, open-ended, and pragmatic approach designed to help supervisors realize both personal and professional growth.

To register for either program, call 703-684-1446 or visit [www.appa.org/education](http://www.appa.org/education) for more information.

## Smart and Sustainable Campuses Conference

The second Smart and Sustainable Campuses Conference will be April 18-19, 2007 at the University of Maryland College Park. APPA is a partner in hosting the two-day symposium, which will focus on smart growth and sustainable practices that serve the economy, the community, and the environment. Conference partners include: NACUBO, U.S. EPA, AASHE, CSHEMA, C2E2, SCUP, and the University of Maryland College Park. Register at <http://www.nacubo.org/x8593.xml>.

## Final Report Shows Facility Conditions Affect Student Recruitment and Retention

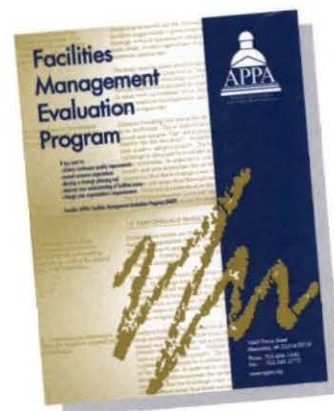
In the most comprehensive study to date, authors David A. Cain and Gary L. Reynolds collected data from more than 16,000 college students from 46 institutions in the U.S. and Canada. They found a distinct, impor-

tant relationship between student satisfaction, choice of institution, and the condition of facilities. This study updates a study done in the 1980s by the Carnegie Foundation for the Advancement of Teaching. You can order the report online at [www.appa.org/applications/publications](http://www.appa.org/applications/publications).

## Have you considered an FMEP?

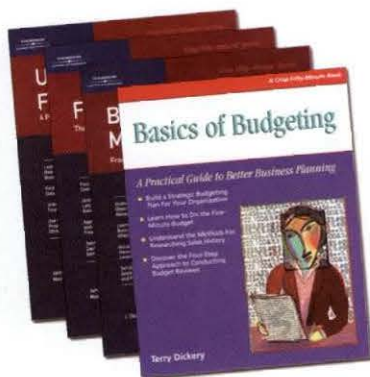
The effect of enhanced facilities impacts the retention and recruitment of students. But do you know how your facilities program measures up? If you want to:

- achieve continuous quality improvement
- exceed customer expectations
- develop a strategic planning tool
- improve your understanding of facilities issues
- change your organization's responsiveness



Consider APPA's Facilities Management Evaluation Program (FMEP). The program provides institutions with a customized evaluation conducted by a team of institutional peers across a comprehensive set of criteria. Evaluations are in progress. For more information, contact Holly Judd at 703-684-1446 ext. 234 or [holly@appa.org](mailto:holly@appa.org).





## Financial Book Package at APPA's Bookstore

Need to bolster your professional financial abilities? The APPA Bookstore is offering a financial book package to help hone your skills.

Books can be purchased in a package for a discount or ordered individually.

The package includes:

- Basics of Budgeting
- Basics of Inventory Management

- Financial Analysis
- Understanding Financial Statements

## Two Campus Housing Resources Available

The APPA Bookstore has the following books available for purchase:

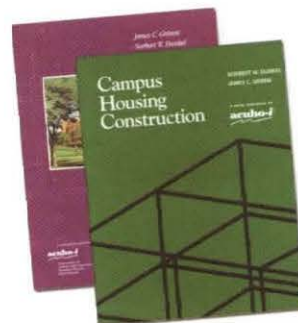
*Campus Housing Construction*, by Norbert W. Dunkel

An examination of all the stages of constructing new campus housing from initial concept to closing documents. New products, techniques, and processes are highlighted.

*Campus Housing Construction and Renovation: An Analysis of Cost and Design*, by James C. Grimm and Norbert W. Dunkel

A compilation of design and cost data on 42 projects received from 37 insti-

tutions in the U.S. and Canada. The data were collected from 1998-1999. The projects are presented on two categories: renovations and residence hall construction.



## Higher Education Institutions Graded on Sustainability

The Sustainable Endowments Institute recently released its College Sustainability Report Card, giving high grades to colleges and universities

*Continued on page 9*

# Buried under an avalanche of energy data?



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By removing the paper,  
we've reduced  
the chances for mold.





Continued from page 7

on their environmental efforts. However, many of those same institutions received much lower grades in categories that measure green investment decisions and willingness to share information about how they use their endowment money.

The College Sustainability Report Card graded 100 leading schools based on 26 indicators, from green building initiatives to endowment investment policies, and used an A to F letter grading system to evaluate performance.

The full report, including individual school profiles, is available at [www.endowmentinstitute.org/sustainability](http://www.endowmentinstitute.org/sustainability).



### New Graduate Degree in Global Social and Sustainable Enterprise

Colorado State University is enrolling students for its new 18-month master of science in business administration degree in Global Social and Sustainable Enterprise set to begin in August. This program will teach students to use entrepreneurial, sustainable approaches to address great global challenges of poverty, environmental degradation, and poor health. The curriculum requires summer field work in partnership with international companies, non-governmental organizations and microfinance organizations. Students will take traditional master's level courses in marketing, finance, leadership, and entrepreneurship, but all courses have been designed with deeper coverage of cross-cultural issues, nonprofit perspectives, and environmental and social policy implications. For more information, visit [www.biz.colostate.edu/ms/gsse](http://www.biz.colostate.edu/ms/gsse).

### Department of Energy Partners with Universities for Nuclear Energy Research

The U.S. Department of Energy (DOE) will award \$5.7 million to nine universities for research grants under the Nuclear Energy Research Initiative (NERI).

The grants are designed to strengthen and focus DOE's research for the Generation IV Nuclear Energy Systems Initiative and the Nuclear Hydrogen Initiative.

Selected universities will contribute to the development of advanced nuclear technologies through a variety of projects. Each project's lead university will contribute an additional 20 percent cost share, totaling \$7.4 million.

Generation IV Nuclear Energy Initiative recipients include: North Carolina State University and University of Illinois-Urbana. Nuclear Hydrogen Initiative recipients are: University of California- Los Angeles and University of Wisconsin-Madison.

### Sustainable Living Roadshow Seeks Campus Hosts

The Sustainable Living Roadshow is a caravan of educators and entertainers who give renewable eco-festivals at college campuses throughout the United States. This fall, the Roadshow is partnering with the Solar Living Institute (the producers of SolFest) to travel cross-country from California to Florida and organizers are seeking campus hosts. The Roadshow includes a fleet of experiential learning villages, featuring workshops, speakers, and entertainment which demonstrate practical solutions to social and environmental issues created by our modern industrial and centralized society. If your campus is interested in hosting the Roadshow, visit [www.sustainablelivingroadshow.org](http://www.sustainablelivingroadshow.org). 

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\*See limited warranty for details.



# Executive Summary

## APPA's Revitalization

by E. Lander Medlin

Since 1914, APPA's mission has been to share industry information among educational facilities professionals by building a network that supports educational excellence with quality leadership and professional management. To achieve this, we offer an array of educational and professional development programs, research opportunities, publications, and recognition of institutional excellence and individual achievement—all tailored to meet the needs and expectations of educational institutions.

This foundation remains the bedrock upon which we rely. Indeed, the knowledge and experience of our members—nearly 5,000 educational facilities professionals worldwide—provides an unparalleled network of facilities management knowledge. The typical facilities professional comes from a wide range of career tracks and related professions. The diverse background of the APPA membership is a strength that has benefited the organization and has insured a continuous flow of new ideas and expertise.

However, our world is changing dramatically, at a phenomenally rapid pace. There are external changes occurring that will be important factors for our association and the profession to address, such as:

- People of more diverse backgrounds are coming into the profession, not just engineers and architects.
- Facilities professionals are more mobile, expecting to make several job moves to accelerate promotion during their careers. Resume-building material is a high priority.

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

- There is a labor shortage of qualified facilities professionals. More people will need to be prepared for leadership roles with more opportunities for advancement.
- More than 30 percent of APPA's senior, institutional members—and industry leaders—will retire within the next five to seven years.
- The Generation X (Gen X) professionals prefer short-term engagement with their association in the form of projects, tasks,

mid-level facilities managers at institutions of varying size and scope.

- The competition for members' time, attention, and available professional development resources.
- The need for increased focus in a highly competitive market.

As we consider these factors, the challenge presented is this: Will we be able to connect with the next generation of facilities professionals and



transportable skills, and resume material.

- The Gen X and following Millennial generations of professionals will join associations that specifically deliver professional services they need to advance in their career.
- An “on-demand” mentality exists that will affect the content and delivery of APPA's educational products and informational material.

There are also several internal factors to consider, such as:

- The revitalization of APPA's value proposition.
- The challenge to appeal to a diverse market of both senior and

continue to be the association of choice in our field? Can we change fast enough to do so?

Throughout our 93-year history, APPA has shown its willingness to adapt, reshape, and transform itself to anticipate the changing landscape of educational institutions and the corresponding impact on the educational facilities profession. This ability has been especially significant as the world has moved from an industrial to information age.

As the education environment is rapidly and dramatically changing, so too is the association world. Therefore, we must shift our focus to the future—a model of effectiveness over



efficiency, a solid brand identity, and clarity of communication that solidifies our position as the association of choice in educational facilities management. APPA's approach to these challenges and opportunities will be critical.

To ensure APPA's strategic direction, programs, and services are effectively targeted to address these challenges and our members changing needs, APPA conducted quantitative and qualitative research surveys of our members from 2004 to 2006. Our goals were to assess the perceptions of institutional members regarding APPA and its value to senior facilities officers and mid-level managers. We also wanted to gauge the perceptions and value of our key educational offerings. Our extensive survey research findings indicated several high-priority areas to focus on:

- Targeted educational programs
- Increasing importance of facilities
- Certification/credentialing
- Incentives to get people involved and keep them involved
- Use of expertise in state and federal regulations
- Synergy with the regions

Implementation and execution of our 7 Key Strategies (see sidebar) over the next three to five years will be critical to APPA's future as the association of choice for educational facilities professionals. If effectively executed, APPA will be the voice on strategic institutional issues for the profession.

To be effective in our mission, we must face our competitive challenges head on and focus our efforts accordingly. In fact, most of our competition exists right inside our own organization and institutions. Organizationally we must ensure synergy with our regions and state and local chapters. APPA needs to use the tremendous delivery system of the regions and state and local chapters more effectively. APPA also needs to continue to focus its resources on research and

content-rich production and development. Finally, APPA must increase the awareness of the facilities profession with senior institutional officers. Indeed, this will keep us focused on fostering the strategic collaborative relationships and partnerships that are so necessary to the educational

...we must shift our focus to the future—a model of effectiveness over efficiency, a solid brand identity, and clarity of communication that solidifies our position the association of choice in educational facilities management.

facilities professionals' visibility and credibility.

Institutionally, we need to ensure resources are focused on both the senior and mid-level career professional. The delivery of programming must respect the time and resource availability of our members.

Ultimately, APPA's overriding, overarching purpose is to transform its members into more highly effective facilities professionals and leaders utilizing as its foundation of solid research, information and knowledge, and emphasizing the importance of standards and best practices for the industry. The result is a revitalized image and delivery system. This revitalization will position APPA as an organization that elevates facilities professionals into influential leaders in education. And, of critical importance, this work must translate into and create a consistent, fully aligned member experience.

Although our work has only begun, our focus is clear, our direction is set, and our engagement is critical. The time is now. 🏛️

# 7 APPA'S Key Strategies

will enhance and support our revitalization efforts.

1. Develop and execute a "brand" initiative.
2. Develop and implement an enhanced website to become the "go to" resource for facilities questions.
3. Expand research to build credibility and visibility by senior institutional officers.
4. Engage in symbiotic and collaborative partnerships.
5. Engage young facilities professionals.
6. Provide targeted cutting-edge educational programs.
7. Establish credible and valued credentialing programs for individuals and institutions.



# Membership Matters

## What is Your Appraisal of Performance Appraisal?

by Glenn Smith

**T**ake a moment to reflect on your organization's performance evaluation process. How formal is it? Does it involve standard written forms and a grading element? Is it done once a year or more often? Are pay raises linked to it? Does it require the signatures of the appraiser and the appraisee? Does a copy go into a personnel file? Has human resources assumed the role of the process police, sending out regular reminders to ensure the process is completed?

For most organizations, the answer is "yes" to the majority of these questions. In reviewing resources from the top experts in performance appraisals, I found that:

- More than 90 percent of performance appraisal systems are unsuccessful. The people involved at all levels of the process dislike it, question its value, and often avoid it. Most organizations go through continuous cycles of "reengineering" their performance appraisal processes, but generally only produce minor variations on the same theme.
- The traditional performance appraisal system represents a long-standing ritual that is more concerned with activity than results. We find ourselves more concerned with filling out all the forms on time than trying to measure the impact the process has on the overall performance of the organization.
- Most organizations are unclear as to exactly what they hope their performance appraisal system will



accomplish and often expect it to serve multiple, contradictory purposes.

- When linked to pay, performance appraisals do little to further motivate those few who receive the highest pay raises, but become strong demotivators, at least temporarily, for the majority receiving smaller raises. Pay-for-performance systems often teach employees how to "work the system" rather than "improve the system."
- Judging people is an inherently subjective process, inevitably influenced by the biases of the judge. The process grades individuals against one another, which undermines effective teamwork. One person's performance cannot be evaluated in a vacuum, independent of other co-workers and the influences of the total system.

We cannot simply look for a simple, painless way to tolerate or short-cut the performance appraisal process. As Tom Coens and Mary Jenkins note in their book *Abolishing Performance Appraisals: Why They Backfire and What To Do Instead*, we need to sincerely evaluate the helpful and harmful effects of the organization's

appraisal process and fix it by "transforming your work culture and people systems to garner greater commitment and alignment with your organizational vision, values, and goals."

Transforming your work culture is the topic of a CFaR research project I conducted in 2003. I discovered healthy work cultures—the cultures of highly successful organizations—consistently worked hard at aligning what they espoused in terms of vision, values, and principles with their actions as defined by processes, practices, and procedures.

I helped write the 2004 guide *Principles of the Bryn Mawr College Workplace*, which states that Bryn Mawr "sustains a culture that models integrity, which embraces individuality and independence of mind, while fostering a sense of belonging to the whole." That very first critical principle of *integrity*—walking the talk—has proven to be quite challenging. One of the primary areas where we found our actions misaligned with our workplace principles document was our historically-based, frequently tweaked,

**Glenn Smith is the director of facilities services at Bryn Mawr College in Pennsylvania. He can be reached at [gsmith@brynmawr.edu](mailto:gsmith@brynmawr.edu).**



## Recommended Books on Performance Appraisals

- **A Critical Look At Performance Management Systems: Why Don't They Work?** by Robert Bacal
- **Stewardship: Choosing Service Over Self-Interest** by Peter Block
- **First, Break All The Rules: What The World's Greatest Managers Do Differently** by Marcus Buckingham and Curt Coffman
- **Abolishing Performance Appraisals: Why They Backfire and What To Do Instead** by Tom Coens and Mary Jenkins
- **Out Of The Crisis** by W. Edwards Deming
- **Coaching: Evoking Excellence In Others** by James Flaherty
- **Performance Appraisals Don't Work** by Susan M. Heathfield
- **Punished by Rewards** by Alfie Kohn
- **Catalytic Coaching: The End Of The Performance Review** by Garold L. Markle
- **The Human Side of Enterprise** by Douglas McGregor
- **Don't Redesign Your Company's Performance Appraisal System: Scrap It!** by Fred Nichols
- **The Leader's Handbook: A Guide to Inspiring Your People and Managing the Daily Workflow** by Peter Scholtes

traditional approach to performance appraisal.

Shortly after my participating in writing the Bryn Mawr workplace guide, I was on an action team tasked with revamping another performance appraisal system at the college. However, this time the team started by asking: Why do we have a performance appraisal system? And, how and to whom does it add value? Our efforts to answer these questions shifted our thinking from performance appraisal to a broader concept of performance management.

In the end, our team resolved that the most effective approaches to performance management embraced three characteristics:

- A continuous, timely, frequent, two-way communication process
- A process focused on the future rather than on the past
- A process where employees direct and monitor their own work—where they are primarily responsible for their own growth and performance

To generate this culture change, Bryn Mawr has completely eliminated its traditional performance appraisal process and is adopting Gary Markle's program of catalytic coaching. Markle defines catalytic coaching as:

"... a comprehensive, integrated performance management system built on a paradigm of development. Its purpose is to enable individuals to improve their pro-

duction capabilities and rise to their potential, ultimately causing organizations to generate better business results. It features clearly defined infrastructure, methodology and skill sets. It assigns responsibility for career development to employees and establishes the boss as developmental coach."

Bryn Mawr is courageously implementing this bold and new performance management process this year. Our hope is to successfully bring out the best in people by setting them up to succeed through the creation of a work environment where employees regularly tap their potential and make contributions of value to the organization.

So I ask you again—What is your appraisal of performance appraisal? If your process does not get high ratings, then a culture adjustment may be in order. 🏢

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## Are You Sitting on the Fence?

by Maggie Kinnaman

**W**e recently completed the APPA Facilities Performance Indicators (FPI) survey cycle for fiscal year 2005-06. Only about 200 educational institutions participated in the Facilities Core Data Survey, of the nearly 1,300 eligible respondents. While this is a reasonable level of participation, we urge more of you to participate this year. Full data reporting is vital for us to advance our effectiveness on campus.

The FPI report includes the comprehensive findings of the annual Facilities Core Data Survey, which collects costs, staffing, and building and space data from colleges, universities, K-12 schools and districts, and other educational facilities. This is essential data that allows us to provide a complete overview of how facilities and infrastructure are strategic enablers to the business of education.

APPA's data collection effort is important because it helps members increase their *competence* and *credibility* and puts them in touch with *collaborative* relationships. These three Cs constitute the desired outcomes of APPA's vision, "Becoming a Global Partner in Learning." Our role as educational facilities professionals is most effectively performed when we are able to educate, create partnerships, and influence capital asset decisions within our respective environments.

*Maggie Kinnaman is the director of business administration, division of facilities management, at University of Maryland, Baltimore, and a past APPA president. She can be reached at [mkinnaman@af.umaryland.edu](mailto:mkinnaman@af.umaryland.edu).*

### APPA's Data Collection History

APPA's Web-based FPI reports have been designed to provide you with a wealth of information readily available at your fingertips. The survey has been refined over many years and today is the synthesis of two surveys: the Strategic Assessment Model (SAM) and the Comparative Costs and Staffing (CCAS) Survey. The Balanced Scorecard format is the framework of our new Web reports and Dashboard and the performance indicators derived from your data input are a synthesis of data collected in both the SAM and CCAS surveys.

SAM continues to be an essential tool that can be used to achieve organizational excellence through continuous improvement. The facilities professional can utilize the model for self-improvement, peer comparison, or benchmarking by assessing an organization's financial performance, effectiveness of its primary processes, readiness of its employees to embrace the challenges of the future, and ability to delight its customers.

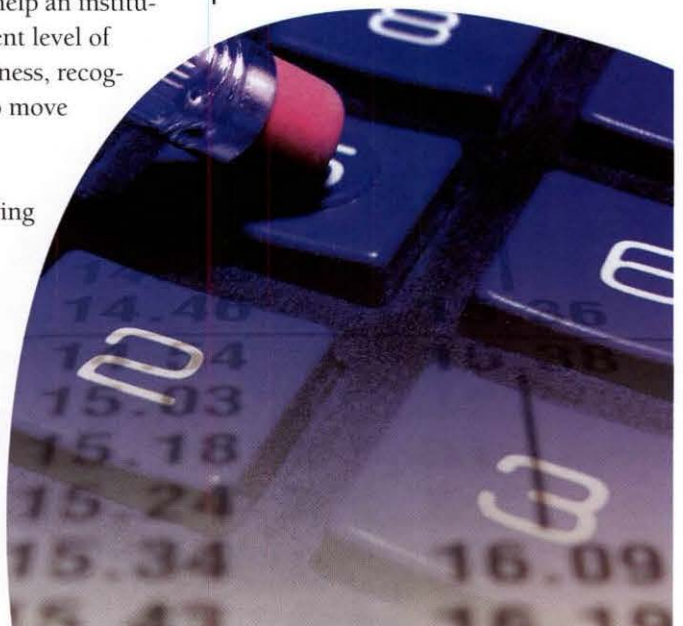
The model can also help an institution determine its current level of organizational effectiveness, recognize what is required to move to the next level, and develop strategies and action plans for improving in each of the four perspectives of the Balanced Scorecard. The four perspectives are:

- Financial
- Internal Process
- Customer
- Innovation and Learning

SAM provides facilities managers with a

tool that helps to get the attention of and bridge the communication gap that often exists between the facility manager and our campus decision makers. The model helps to tell the facilities story in the language of business by collecting data in such a way that an institution can see at a glance how their facilities performance fares with the performance of others within the profession. Data allows us to speak in the language of our campus decision makers.

The current FPI survey, Web reports, and Dashboard indicators have made the description of SAM above a reality for us all. The structure has been created, and now we need more participation in the annual survey by our colleges, universities, and schools and school districts. Consider participating in the survey; access to the data set without participation does not give you a key to the participant names, which allows you to benchmark against specific peer institutions. Likewise a non-participant does not have access to dashboards for self-improvement.





The significance of the data is enhanced when you do a granular search by Carnegie classification, region, or building age. However, the most important reason for your participation is if you are buying the data set as a non-participant you are not able to talk to your customers or business officers about where you sit within the range. And if you do know where you sit, then we need you to participate, so your data can help us tell the complete facilities story.

### Engaging Your Customer

Effective customer service is all about data collection and the ability to use that data to tell your story. You need to fully understand how you are currently operating and how your performance compares to performance of your peers. Unless you know your baseline performance you are not able to establish improvement goals, cannot communicate with the customer,



**The trick to effective data collection is in identifying the data points that are important indicators of success versus the ones that are easiest to capture.**

and cannot tell your story to campus decision makers.

### What to Measure

The trick to effective data collection is in identifying the data points that are important indicators of success versus the ones that are easiest to capture. A typical facilities management group needs to monitor a number of performance indicators. Many

folks have embraced the Balanced Scorecard model in determining organizational excellence and fully understand that data collection in one area does not adequately tell the story. One must collect financial data, internal process data, employee satisfaction data, and customer data to get a full picture on how you are doing. Of these four categories, only one is specifically related to the customer. However, your focus on the other three perspectives provides the necessary content for sound customer discussions.

For example, do your clients value timely completion of their requested work orders and, if so, what is their definition of timely? What you need is a strategy for data collection that helps facilitate your ongoing discussions with your clients about how you are doing in the areas that they have indicated are important to them.



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You must also find ways to measure how you are doing on your stewardship role. This is an area that is core to the mission of any facilities department and is often invisible to the customer. These areas include such work as your preventive maintenance effort, capital renewal and deferred maintenance, overall capital needs, etc. Capturing data related to your stewardship role and sharing this with your key customer groups is just as important as sharing the data related to client requested work orders. Facilities departments must constantly balance their stewardship role and their ability to respond to client requested work orders. This is an important message to share with customers as your ability to respond to their requests is impacted by your workload on the stewardship side of the equation.

Effective customer service is all about data collection and the ability to use that data to tell your story. You need to fully understand how you are currently operating and how your performance compares to performance of your peers.

### Success Defined

Participation in the annual APPA data collection initiative will result in a better understanding of your operation, an understanding of where your opportunities for improvement lie, a way to better educate your customers, a way to better influence your campus decision-makers, and a forum for continuous improvement and organizational excellence.

Start now by reviewing the Web-based survey document and

definitions. Think about your mission and vision, and which of the data points are important to your institution's mission and vision. Identify those performance indicators that are important and determine the source of those numbers. Incorporate the collection of these data points on a cyclical basis, and when August rolls around you will be ready to participate. It is time to get off the fence and commit to the Facilities Core Data Survey. 

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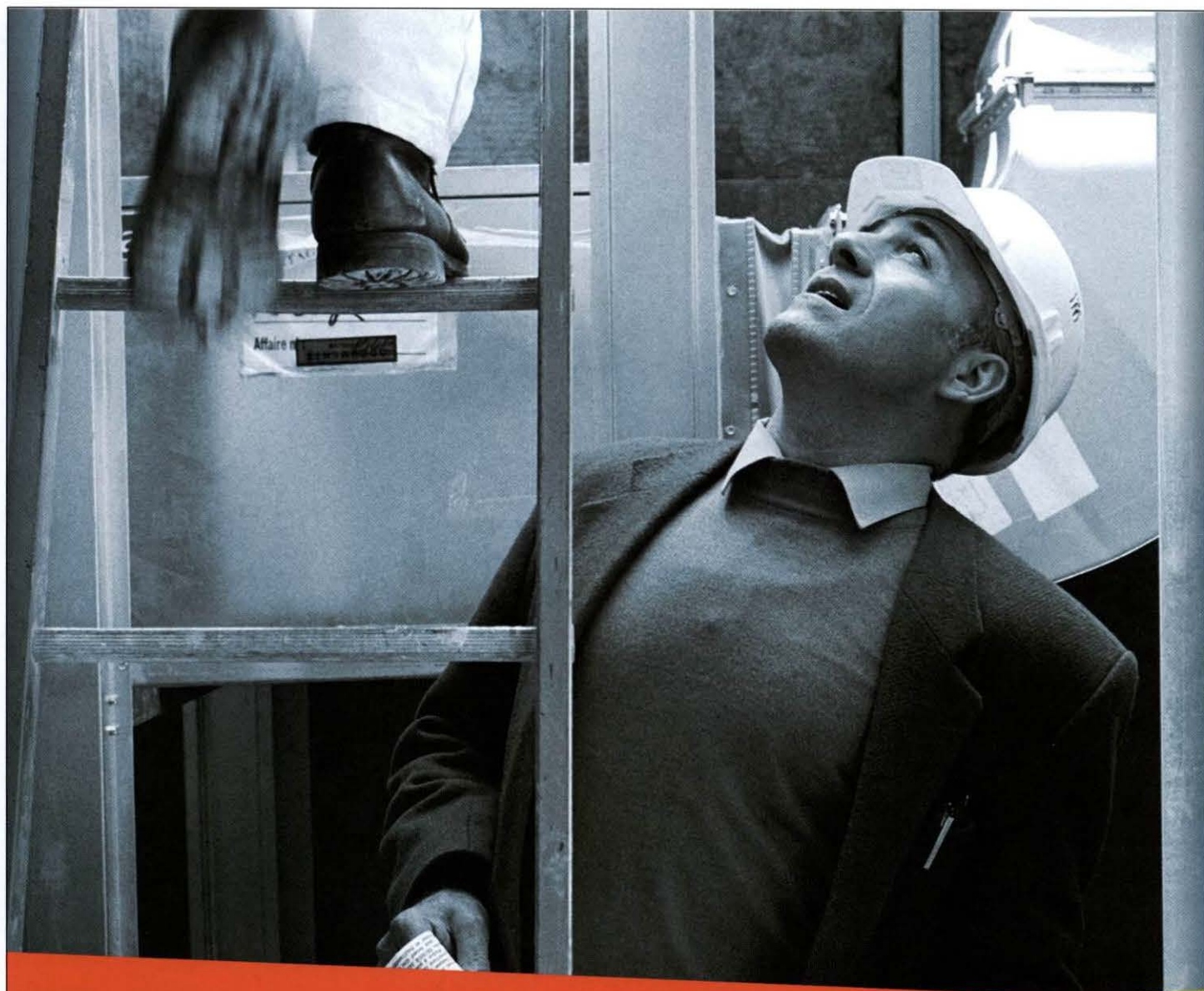
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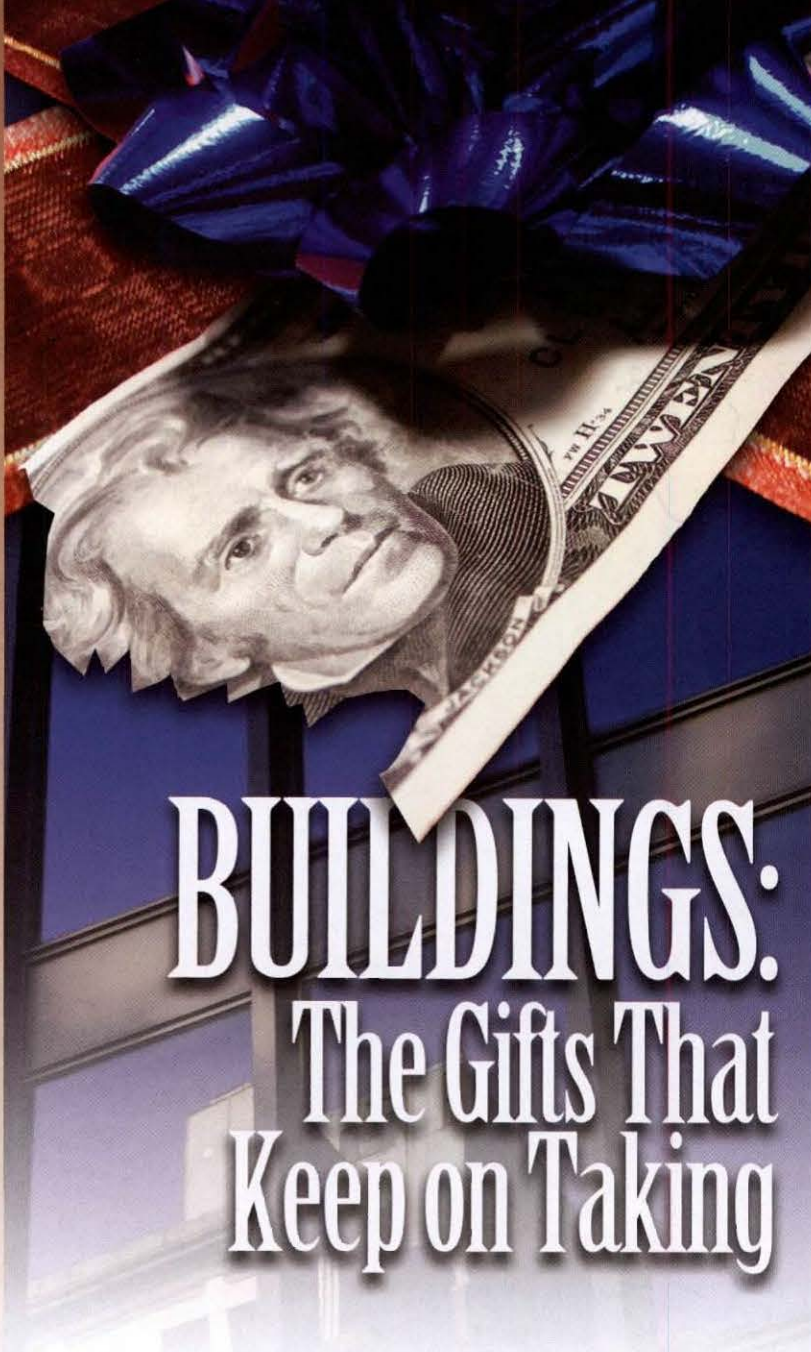
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A philanthropist agrees to provide \$15 million toward the cost of a new \$50-million building for a public university's law school. The institution must still raise the balance and cover the costs of ongoing maintenance, operations, and capital renewal—and hope to get some commitment of state funds.

At another university, students vote in favor of increasing fees by \$10 per semester to raise the funds needed for a new, state-of-the-art \$35-million recreation center. The facility will have two Olympic-sized indoor pools; Jacuzzis; a climbing wall; a fitness center; a running track; basketball and racquetball courts; rooms for video games and meetings; and a small café. However, the students who voted for the increase will not have to pay the additional fees they approved, because they will have graduated long before the facility is to be completed. The additional fees will be added to the tuition of future generations of students. The institution and its student government association will also assume the ongoing responsibility for the costs of operations and maintenance of the recreation center.

**Rod Rose is a strategic consultant with STRATUS—A Heery Company, based in Los Angeles, California. He is also a co-principal investigator and author of Buildings...The Gifts That Keep on Taking: A Framework for Integrated Decision Making, recently published by APPA as part of the Center for Facilities Research. He can be reached at [rrose@stratus-heery.com](mailto:rrose@stratus-heery.com).**



# BUILDINGS: The Gifts That Keep on Taking

by Rodney Rose

These examples represent business as usual for higher education institutions. With some exceptions—such as revenue-generating facilities like residence halls or parking structures that are often built with debt-financing structures that require a reserve for major maintenance over the term of a loan—colleges and universities struggle to provide adequate funds for these costs. Moreover, these expenses can easily exceed three times the cost of initial design and construction of the facility.

Higher education institutions spend about \$20 billion annually on facilities operations including the cost required for maintenance, energy, and utilities—and between \$15 billion and \$18 billion annually for the construction of new facilities and/or the renovation of existing buildings. College and university campuses provide more than five billion square feet of floor space in 240,000 buildings, which

have a current replacement value (CRV) that is estimated at more than \$700 billion, excluding utilities infrastructure, roads, and landscaping. In addition, there is a backlog in deferred maintenance estimated at more than \$36 billion, or 5 percent of CRV. [These numbers are extrapolated from a 1995 APPA/ NACUBO/Sallie Mae study.]

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For most colleges and universities, facilities are not only places that house programs and services. The physical campus is a large part of the fundamental nature of the institution, embedded in the image it presents to faculty, students, and graduates, as well as the local community where the campus is located. Yet, decision makers at all levels of the institution—chief executive officers, Boards of Trustees or Regents, legislators, and facility asset managers—are increasingly concerned about their inability to control both the initial and long-term costs of facilities. These concerns are exacerbated by inadequate funding for maintenance, deterioration of the basic infrastructure of the facilities, and the increasing demands of technology. Much of the problem is driven by an increase in the number of older buildings and the significant costs of capital renewal—the need to replace major components of a facility based on the life cycle of buildings and their subsystems.

These are not new issues. Examples of construction projects that exceed their budgets by millions, or even hundreds of millions, of dollars abound in major public works projects and in a significant number of projects within higher education institutions. The backlog of deferred maintenance continues to increase in spite of decades of books, articles, and unpublished reports from a variety of institutions and government agencies that cite, in substantial detail, the costs and impacts of failing to apply the resources needed to repair and replace buildings and their basic infrastructure. At the same time, new construction continues, driven by increasing demand and growth; new programs and services; advanced technologies; and the need for economic, cultural, and social development. These drivers of construction apply to every aspect of society, in most communities, and in every part of the world.

APPA's new book, *Buildings... The Gifts That Keep on Taking: A Framework for Integrated Decision Making*, is, in large part, a report of the findings of a three-year project sponsored by APPA's Center for Facilities Research (CFaR). The purpose of the research was to examine executive-level decision making regarding facilities. What are the most basic questions that policy makers ask before investing in facilities? What factors influence those decisions? To what extent do these decisions rely on metrics or facilities planning and management models? What can facilities directors and professionals do to help policy makers make better decisions about what and when to build or renovate and how to acquire and spend resources on facilities?

Over the course of the research, performed between 2003 and 2006, the research team conducted interviews and meetings with senior executives of higher education institutions, including institutional business officers, presidents, chancellors, and department heads, and with facilities professionals, including directors, architects, engineers, planners, and private firms that specialize in all aspects of the design, planning, and management of facilities. These representatives exhibited

a clear and broad consensus on the most important issues that decision makers must address:

- the need to gain more control of initial and long-term costs
- the need to improve the predictability of desired outcomes
- a rational basis for determining priorities
- cost-effective and more adaptable facilities
- improved use and functionality of space
- improved accountability to the institution's trustees and regents as well as legislators and the public at large
- the importance of attracting support and resources for facilities, including those needed for new construction, renovation, maintenance, and renewal.

The common thread among all of the issues and concerns raised during research for the book is that facilities decisions must be cast in light of their value as an investment. The discussion of facilities is primarily focused on costs, especially initial costs. And the lengthy and complex process of planning, designing, and building facilities—which can take many years for complex projects—results in unforeseen changes and frustration along with the anticipation of finally getting something new built.

Facilities portfolio managers and institutional decision makers require a comprehensive asset investment strategy—a set of integrated decisions that take into account the need and priority for construction and renovation, the total costs of ownership, and the impacts of alternative investment choices on the institution's basic mission and objectives.

However, integrated decision making is not the norm in most institutional and governmental environments. More typically, basic funding for operations and capital budgets is distinct and usually separate, as are decisions regarding organizational responsibility and staffing.

In colleges and universities, many facilities are custom-designed or built to suit specialized uses, which are determined by current users or stakeholders who may or may not have a perspective on long-term future needs—a circumstance that tends to minimize rather than optimize long-term flexibility in the use and function of spaces.

Design and construction costs are considered one-time capital investment costs and typically require funds from sources that are separate from those that fund operating budgets. Maintenance and operations of facilities are usually financed from the same sources of general funds that support ongoing institutional operations—such as faculty salaries, departmental operating expenses, and libraries—and do not include the costs of capital renewal, major repairs, and replacement of systems. Costs related to ongoing space management, facilities planning, or other planning activities are usually considered institutional overhead and unrelated to the costs of maintaining and operating facilities.

The decisions to determine needs, priorities, and the extent of the investment required for facilities and major equipment are not unique to college and university campuses. The same



decision-making criteria are applicable to all organizations responsible for significant facilities portfolios, including federal and state agencies, school districts, and many corporations as well.

For this research, the intent of CFaR was to collect and consolidate what are generally believed to be best practices for facilities planning and management—including common terms, definitions, and metrics—and to translate them into a manageable, readily understood, and easily articulated set of factors to be taken into account when making decisions about investing in facilities. These factors were reviewed and tested with representatives of higher education

institutions and government agencies—senior staff, executive and financial officers, members of governing boards, and facilities directors and managers—to determine if they provide an effective and useful decision-making framework for evaluating facilities investment alternatives that can support their institution's mission and help achieve its long-term goals.

However, it is not the intent of this research—or the book—to develop or define a new “universal model” that could be used for the oversight of any institution or facilities portfolio. Rather, APPA hopes that the findings and recommendations offered here will raise the profile or visibility of

these methodologies so that more institutions or agencies will seek out these best practices and use them in their respective organizations to improve the decision-making process involved in investing in their facilities.

### The Strategic Investment Pyramid

What elements are critical for a clear and effective asset investment strategy for facilities management? A sound strategy takes into account critical factors or decision tools that will help institutional executives and facilities professionals work together in an effort to establish and maintain an organizational, financial, and cultural environment in which integrated decision-making about facilities is the norm and an environment of stewardship is the goal.

To start with, all decision makers should consider some basic strategic questions before initiating any investment in an institution's facilities. The new book provides a list of 50 basic policy questions that are most commonly asked by those involved in the decision-making process related to entire capital programs and specific capital projects. When taken as a whole, the items in the list can be boiled down to only four questions—the questions that are the most critical to address as part of any asset investment strategy:

- Why should we invest?
- What can we afford?
- Where and when should we invest?
- How much should we invest?



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Together, these basic questions form the foundation elements of a Strategic Investment Pyramid—a conceptual framework that supports and enhances integrated decision making regarding any investment in facilities. (Illustrated on page 22.) “Integrated” means a process that takes into consideration the operational, programmatic, long- and short-term influences, and impacts of each prospective investment.

### Methodology for Determining Strategic Priorities

Experience suggests that priorities for facilities expenditures are either determined by executive judgment or delegated to facilities professionals based on whatever criteria govern the resources they control. For example, strategic facilities investment—like major new construction or renovation or leasing off-campus space—are often driven by subjective criteria, such as a new funding opportunity or gift, a department’s need to accommodate new teaching or research programs, or unmet needs that have reached a state of urgency. Sorting out these priorities usually involves high-level discussions among deans, department heads, provosts, business officers, and presidents.

On the other hand, an institution’s administrators usually leave it to facilities professionals to deal with the usually long list of improvements that need to be made to facilities—replacing electrical, mechanical, or plumbing systems; improving the landscape in front of a building; or installing a new air conditioning system, for example—and to set priorities based on management oversight and inspection activities that are part of facilities managers’ responsibilities. In both cases, administrators are faced with an annual wish list that is put in some kind of priority order and is always much longer than the available resources can accommodate.

Yet, some universities and federal agencies have developed relatively simple—but more objective—decision tools for determining priorities for facilities. These tools are not used to replace the judgment of agency or institutional leaders but to complement it. Each of these methods directly aligns facility priorities with the institution’s mission or programmatic criticality. The uses of indexes such as the U.S. Coast Guard’s Mission Dependency Index (MDI), the U.S. Department of the Interior’s Asset Priority Index (API), and Brigham Young University’s systems-based priority approach are detailed in chapter 4 of the new book.

Objective priority-setting methods used in concert with the judgment of executives who have a wide perspective on institutional goals and objectives will result in better decisions about the priority of investments in facilities.

### Integrated Decision Making

The top of the Strategic Investment Pyramid represents the coming together of all the critical layers of information into an integrated investment strategy. Such a strategy might involve multiple scenarios or plans, such as plans for ongoing maintenance and operations, capital renewal, new construction, or reallocation and reutilization of existing space. Of course,

Facilities portfolio managers and institutional decision makers require a comprehensive asset investment strategy—a set of integrated decisions that take into account the need and priority for construction and renovation, the total costs of ownership, and the impacts of alternative investment choices on the institution’s basic mission and objectives.

these plans must be reviewed periodically and aligned with the strategic or business plan for the entire institution. Nevertheless, the strategy should always focus on the expected return on the investment in facilities and should be stated in terms of measurable business or institutional outcomes. It is the expected achievement of those outcomes that will enhance the attraction of resources and support for both programs and facilities.

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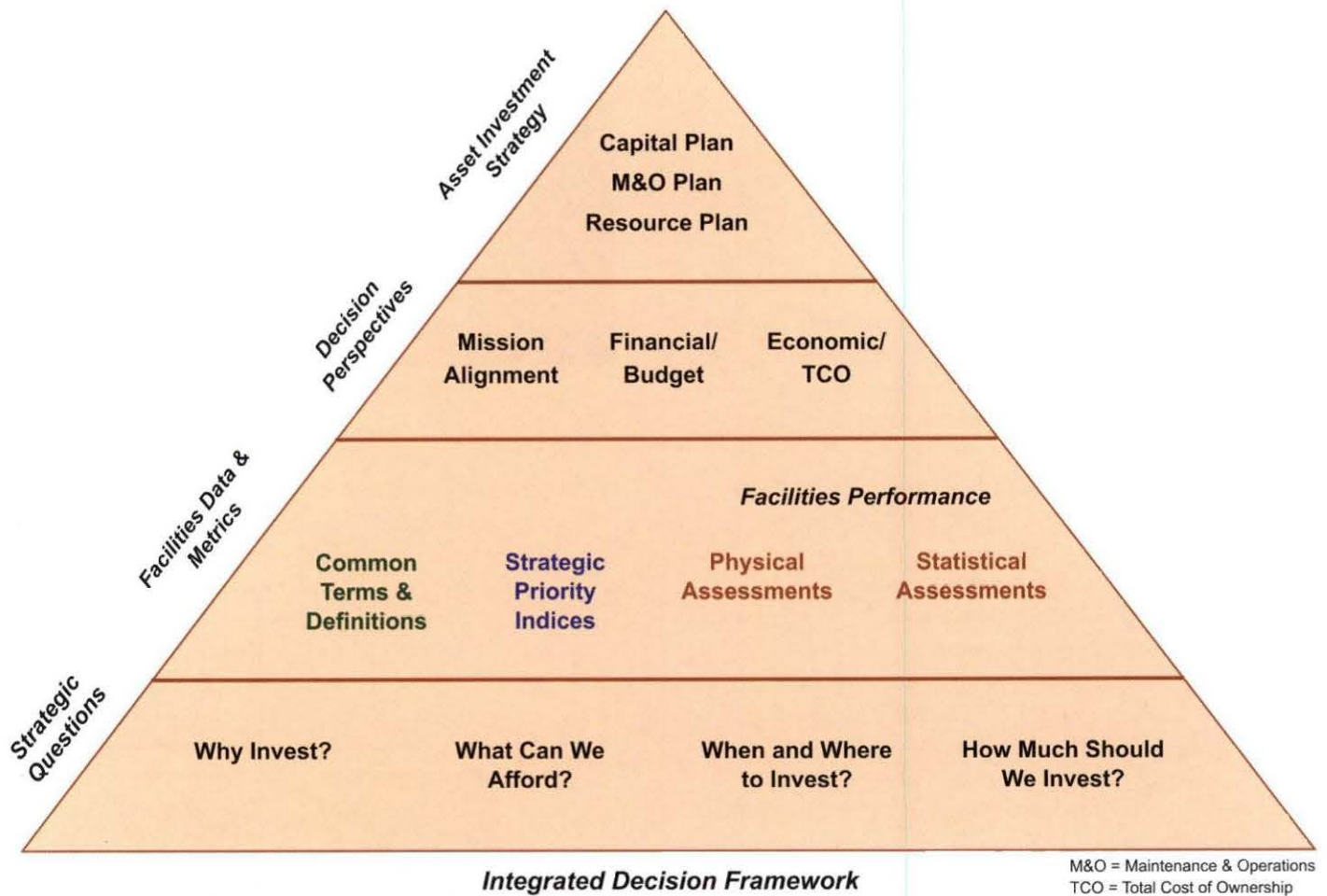
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## Strategic Investment Pyramid



Effective use of the Strategic Investment Pyramid has a number of significant benefits. It focuses on the investment value of facilities and promotes integrated planning and budgeting, providing an excellent tool for making the business case for alternative solutions to facility needs—including the alternative to decide that no project will be undertaken. Using the pyramid approach allows the data and analytical requirements to be easily collected and readily organized into typical accounting and financial structures and also promotes the application of reasonable standards and benchmarks across multiple institutions, within a given institution, and for specific buildings, including infrastructure elements.

### Recommendations for an Asset Investment Strategy

The research conducted by CFaR identified a number of key recommendations or initiatives that institutional leaders and organizations can implement to support the development of an asset investment strategy and to maintain a culture of stewardship:

1. Institutions should establish a reserve account for maintenance and capital renewal as part of the initial agreement to build and/or finance a facility.
2. Cost-effective approaches that are more common in the private sector should be encouraged within both higher education and government agency environments. In addition, standards should be developed to reduce the need for customized design and frequent remodeling of spaces. These measures can help mitigate the impact of changes in program focus and technology developments over time.
3. New construction should be evaluated in light of existing capital renewal needs, requirements for ongoing maintenance and operations, and alternatives for reallocation or renovation of space.
4. Facility condition assessments should include a methodology for determining priorities for buildings and systems that can be related to program or mission goals.
5. To enhance and support decision processes related to facilities, wherever possible, institutions should explore and use the excellent facilities models that private firms and consultants, government agencies, and many higher education institutions have developed to predict and manage capital renewal and deferred



Obviously, most institutions find it difficult to turn down a generous offer to fund a new building. Donors nearly always want to maximize the amount of space built, expecting the recipient college or university to find the means to operate and maintain the programs that will occupy the building and to finance its maintenance and capital renewal requirements.


maintenance needs. Most of these models are as adaptable to small private colleges as they are to large public universities.

6. Facilities planning, management, and/or investment strategies should always be linked to the institution's mission and goals. These links should be articulated clearly in an institutional strategic plan.

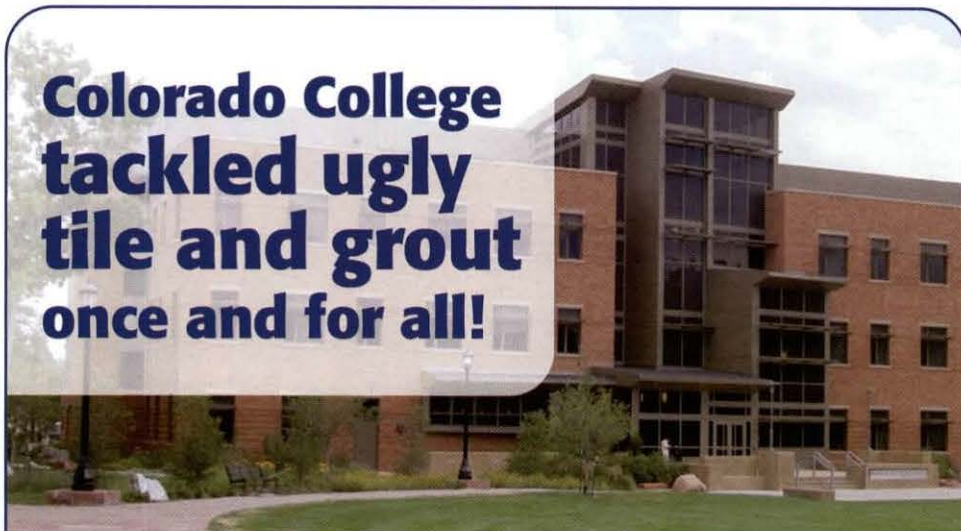
Obviously, most institutions find it difficult to turn down a generous offer to fund a new building. Donors nearly always want to maximize the amount of space built, expecting the recipient college or university to find the means to operate and maintain the programs that will occupy the building and to finance its maintenance and capital renewal requirements. But because those costs *far exceed* initial design and construction costs, it is imperative to hold frank discussions about the implications of the *total cost of ownership* before initiating a major capital investment.

This situation poses a challenge not only for higher education institutions but also for cities, school districts, religious and nonprofit organizations, and even some government agencies, which are frequently faced with the same dilemma: the desire to take advantage of a gift, a public bond referendum, or a new federal program that would provide a facility that could not otherwise be built. But the big "catch" is the need to commit to the long-term operating costs, which are, more often than not, the most difficult costs to provide and the costs that endure over time.

The establishment of an asset investment strategy for a facilities portfolio will

provide a significant benefit to decision makers, particularly if that strategy is reviewed and updated regularly. Such a strategy can create a firm foundation for those whose job it is to plan and maintain facilities as well as for the consultants, architects, engineers, and contractors in the industry who design and construct the buildings. And—perhaps most importantly—an asset investment strategy will lay a solid basis for decision making for those boards, legislatures, trustees, and others who must be convinced to locate and maintain the resources that are needed to support the facilities portfolio over time. 

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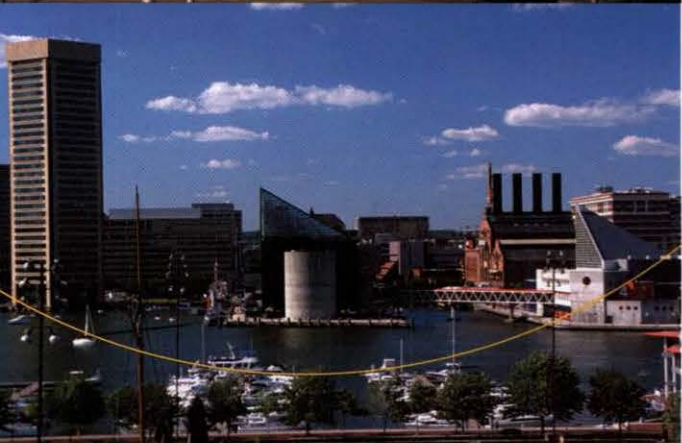
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Senator Glenn's career has been one of taking risks in order to make an impact on the future. He will draw upon his extraordinary life experiences to illuminate educational facilities professionals with the values and leadership needed to take the educational facilities management field to the next level.

Currently, Mr. Glenn heads the John Glenn Institute for Public Service and Public Policy at The Ohio State University. He is also chairman of the National Commission on Service Learning, which focuses on integrating service to others with classroom instruction in grades K-12. He served as a democratic U.S. senator from Ohio for 24 years.

Baltimore, MD

### Preliminary Schedule

#### Sunday, July 15

##### *Focus on Energy Strategies*

- Opening Breakfast
- Opening Keynote
- Ribbon Cutting for Hall of Resources
- Hall of Resources & Lunch
- General Session
- Panel Discussions
- Breakout Sessions
- Awards Reception

#### Monday, July 16

##### *Focus on Work Force Demographics*

- Hall of Resources Breakfast
- General Session
- Panel Discussions
- Hall of Resources & Lunch
- Breakout Sessions
- Regional Business Meetings
- Awards Banquet

#### Tuesday, July 17

##### *Focus on Emerging Technologies & Professional Development*

- Hall of Resources & Closing Breakfast
- General Session
- Panel Sessions
- Breakout Sessions
- Lunch
- Breakout Sessions
- Closing Keynote

### APPA Fun Run/Walk • July 16, 2007

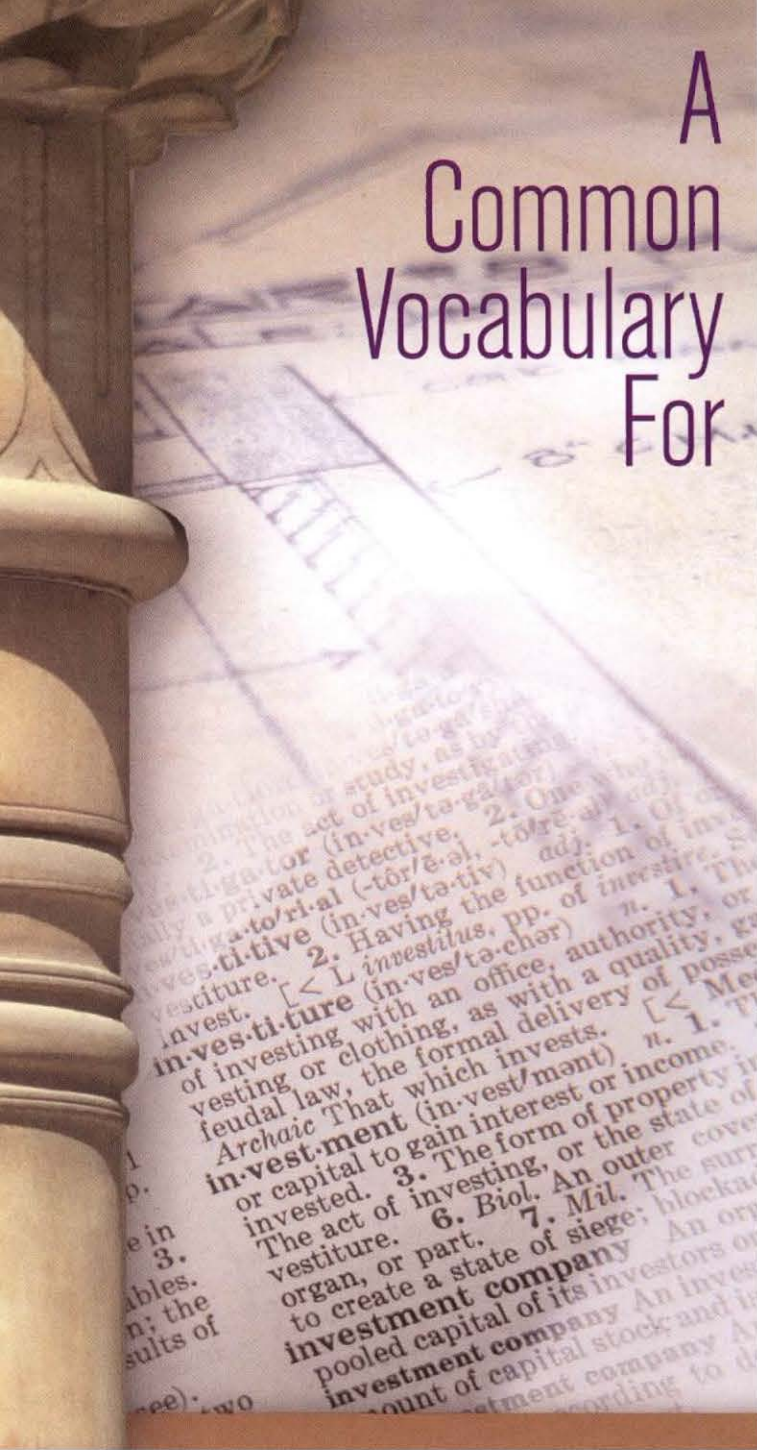
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## A Common Vocabulary For

# Asset Investment Strategy

by Douglas K. Christensen,  
Rodney Rose, and Terry W. Ruprecht

Understanding the meaning of common terms and translating these terms into factors that apply to facilities investment decisions is fundamental to any asset investment strategy. Understanding the definitions of these terms is especially important when determining how to use an analysis of the total cost of ownership.

As in most specialized industries or professions, the vocabulary and jargon of the facilities management profession and the design and construction industry are often confusing—if not somewhat mysterious—to the layperson. Comprehension of the use of common terminology and applied metrics allows for sound decision making on investing in facilities.

The relatively straightforward term “square feet” provides an excellent example of the need to ensure that the terminology used is clearly understood. The term “gross square feet” (GSF) refers to the total amount of space in a given building—the space that lies between the exterior walls—whereas “assignable square feet” (ASF) usually refers to only the amount of space that a given function or program can effectively use, which may or may not exclude certain lobbies, corridors, utility rooms, and so forth.

In the commercial world, “assignable space” means nothing. Owners of commercial property prefer the term “rentable square feet,” because tenants of an office building, for example, are required to rent an entire floor, which, when designed for a specific use or function, might yield more assignable square feet or fewer. The important metrics for commercial tenants are the amount of space they have to rent and the terms of the lease. Elevators, chiller plants, and ground-floor lobby areas are part of the building’s gross square footage and are not specifically charged to tenants, although they end up paying for a portion of this space in their rental package.

In colleges and universities, where space standards or guidelines are applicable—and this is particularly true for public institutions—such standards are usually based on as-

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signable square feet. Thus, a standard for faculty offices might be 120 ASF, which represents the wall-to-wall dimensions of an average office. But architects can't design only in terms of ASF; they need to include interior corridors or circulation space, rest rooms, utility space, and so forth—all of which is counted in the gross square footage. The ratio of ASF to GSF is called the "net-to-gross ratio," a measure of building efficiency. The higher the efficiency factor, the more assignable square footage a given building has.

The problem for facility directors then is to help financial officers understand the implications of building a facility that is more or less efficient. These impacts are especially important for determining the costs of utilities, energy, and maintenance; and, of course the capacity of the building to accommodate more or less program space.

The issue of common definitions becomes much more complicated when owners try to evaluate the cost estimates for a given building or major renovation project. Contractors provide estimates based only on actual construction costs because that's their responsibility, and it is their construction budget that is a key basis for their contract with an owner. Architects' budgets, on the other hand, need to include estimates of "soft costs," which usually consist of their fees, engineering and environmental studies, and general conditions. And the inclusion of those items is the basis for the architect's fee agreement with a building owner. However, owners have their own set of costs, which architects or contractors usually are not aware of. Such costs, for example, might include project management, planning to determine needs and program criteria that the architect must take into account, the costs of moving into the building, financing, and the costs of equipment or technology that is not included in the "hard costs" of the construction budget.

Thus, owners need to look at costs in at least three ways, because they have to pay for the total cost of building, which includes hard construction costs; the soft costs estimated by the architect; and the owners' own costs, which are most often regarded as overhead. Often, institutions do not account for these costs separately and do not attribute them to a given project. The architect and contractors don't have to worry about the owner's costs, but they certainly care about the hard and soft costs that they estimated. Because owners usually sign

As in most specialized industries or professions, the vocabulary and jargon of the facilities management profession and the design and construction industry are often confusing—if not somewhat mysterious—to the layperson.

separate contracts for architecture and construction—not to mention many for other subspecialties—owners are often faced with a multitude of cost estimates, different contracts, and, of course, different expectations, depending on who is doing what.

Even if all the above costs are considered within some accounting structure, they still only represent the building's initial costs, which represent only about one-third of the costs of owning the building. Excluding the costs of land—which colleges and universities almost never count—the additional two-thirds of ownership costs has to include the need for ongoing maintenance and operations and capital renewal required because of the predictable life cycle of the major systems and subsystems of any building.

Therefore, a critical element of any financial perspective is the development of a simple method for understanding common cost categories, which must be universally accepted and consistently applied.

Life-Cycle Cost Category Comparison					
Example – Using Annualized Life-Cycle Costs					
Costs	National Averages		Actual Averages		Total Cost Impact
	\$ GSF/ Yr	% CRV/ Yr	\$ GSF/ Yr	% CRV/ Yr	
Birth & Burial Costs					
Cost A: Planning & Design	\$0.30	0.20%	\$0.26	0.17%	31.7%
Cost B: Financing	\$0.13	0.09%	\$0.23	0.15%	
Cost C: Construction, Installation, Acquisition	\$3.00	2.00%	\$3.67	2.45%	
Cost J: Decommissioning, Demolition, Disposal	\$0.80	0.53%	\$0.56	0.37%	
Maintenance & Operations Costs					
Cost D: Operations	\$1.50	1.00%	\$2.22	1.48%	48.3%
Cost E: Maintenance	\$2.50	1.67%	\$3.12	2.08%	
Cost F: Utilities	\$1.50	1.00%	\$1.86	1.24%	
Recapitalization Costs					
Cost G: Improvements	\$1.20	0.80%	\$0.67	0.45%	20.0%
Cost H: Programmatic Upgrades	\$1.00	0.67%	\$1.34	0.89%	
Cost I: Replacements and Renewal	\$0.80	0.53%	\$0.97	0.65%	
Totals	\$12.73	8.49%	\$14.90	9.93%	100.0%



**The cost categories described below are organized into three groups considered to be one-time, annual, and periodic costs. These groups are subdivided into ten components (A–J). In addition to these broad categories, many of the categories have been further separated into subcomponents (i–iv) in order to demonstrate how they relate to the major categories.**

**1. Birth and Burial:** These are *one-time* costs associated with the funding, planning, design, and construction or installation of a fixed asset as well as the removal of that asset from the organization's capital inventory. Components A–C are associated with the beginning of an asset's life, and component J identifies costs associated with the end of its useful life.

**A. Planning and Design:** These costs include the activities necessary for the development and analysis of feasible solutions to organizational needs through the provision of facility solutions.

- i. Planning is the process of defining the scope or statement of work based on an organization or owner's expectations for new or adjustments to an existing facility's performance, quality, cost, and schedule. Alternative design solutions can be considered during this phase. For example, planning includes analysis and feasibility (go/no-go) studies as well as internal tests regarding the alignment of a particular solution with the organization's strategic goals.
- ii. The design phase begins once the statement of work and preferred design approach has been developed. This phase consists of schematic designs, design development, and contract documents, which provide a detailed solution from which equipment procurement and construction bids can be solicited.

*Examples:*

- Schematic designs include the initial layout for a project and incorporate all project or program elements, including those that are adjacent to other program elements in an initial solution.
- Design development encompasses the investigation of constructability and other details of the initial solution.
- Contract documents refer to the detailed graphic and verbal information required to reach an agreement with a contractor who will implement the design.

**B. Financing:** These costs are associated with the use of the actual funds required for the capital investment. Examples include the cost of interest to pay for revenue bonds, develop-

ment fees, and penalties or fees incurred as a result of accessing a source of funding. Opportunity cost calculations may be included if they are applied in a manner that is consistent with the other financial decision-making processes that the institution employs.

**C. Construction, Installation, and Acquisition:** These costs are related to procurement, erection, installation, assembly, or fabrication activities required to create a new facility or structure or to alter or add to an existing facility or structure and its support areas.

**J. Decommissioning, Demolition, and Disposal:** These costs involve the removal of a building or fixed asset from the organization's inventory. In general demolition and disposal physically remove the asset; decommissioning takes the asset out of service but allows it to remain in place. More specific definitions are as follows;

- i. Decommissioning: The facility is removed from service, and no occupancy is permitted. Costs are associated with activities that require minimal facility support, such as draining water lines.
- ii. Demolition: The facility is destroyed and the ground plane is cleared for a subsequent use. Costs are related to tearing down the facility, removing the debris, and making the site safe.
- iii. Disposal: The facility is removed from the campus site and the site made ready for some other purpose. This action is most commonly undertaken with small assets, such as residential buildings that are sold and removed for further use at another location.

**2. Maintenance and Operations:** These are the *annual* costs required to support the functionality of a building or fixed asset on a daily or annual basis. The costs are focused on those actions or requirements that are predictable and are based on the normal wear and tear and use of the facility.

**D. Operations:** These are costs for all the activities associated with the routine, day-to-day use, support, and operation (not maintenance) of a building or physical asset.



*Examples:*

- i. Transportation of material, mail delivery, setups for special events, and moving services;
- ii. Exterior and interior services, which include operations such as custodial care, security, landscaping, groundskeeping, refuse collection, recycling, pest control, and snow removal.

E. **Maintenance:** These costs are required for activities that are funded through the annual budget cycle with the objective of continuing or achieving either the originally anticipated life of a fixed asset or an established suitable level of service. Maintenance can be further divided into key elements; two examples of these are provided below.

- i. **Proactive maintenance:** Preventive or predictive measures, such as, checking and replacing belts and lubricating rotating equipment, checking and adjusting the alignment of linkages, inspecting roofs for ponding and other precursors to leaks (failures), re-lamping light fixtures, inspecting electrical equipment for high temperatures, and periodically inspecting structural improvements and painting that occurs on regular schedule—every seven years, for example.

- ii. **Reactive maintenance:** Examples of such steps include replacing equipment following a failure that affects the operation of a building operation, repairing or fixing a system failure such as a roof leak, and responding to complaints from building occupants about such problems as thermostat failures or calibration problems.

F. **Utilities:** These costs are associated with the actual consumption of utility services by the asset. Breaking these costs into essential elements as identified below, as appropriate for each institution, provides valuable operational data. Some organizations may include the communications (telephone and information technology) infrastructure in this component.

- i. Electricity
- ii. Steam
- iii. Domestic water/wastewater

iv. Chilled water

v. Information technology and telephone services

vi. Other fuels (oil, natural gas, coal, wood, biomass, and so forth)

**3. Recapitalization:** These are *periodic* costs associated with the reinvestment of funds in a building or fixed asset. These projects are typically larger in size than annual maintenance work is, and they often involve replacing or renewing a building's major subsystems or areas.

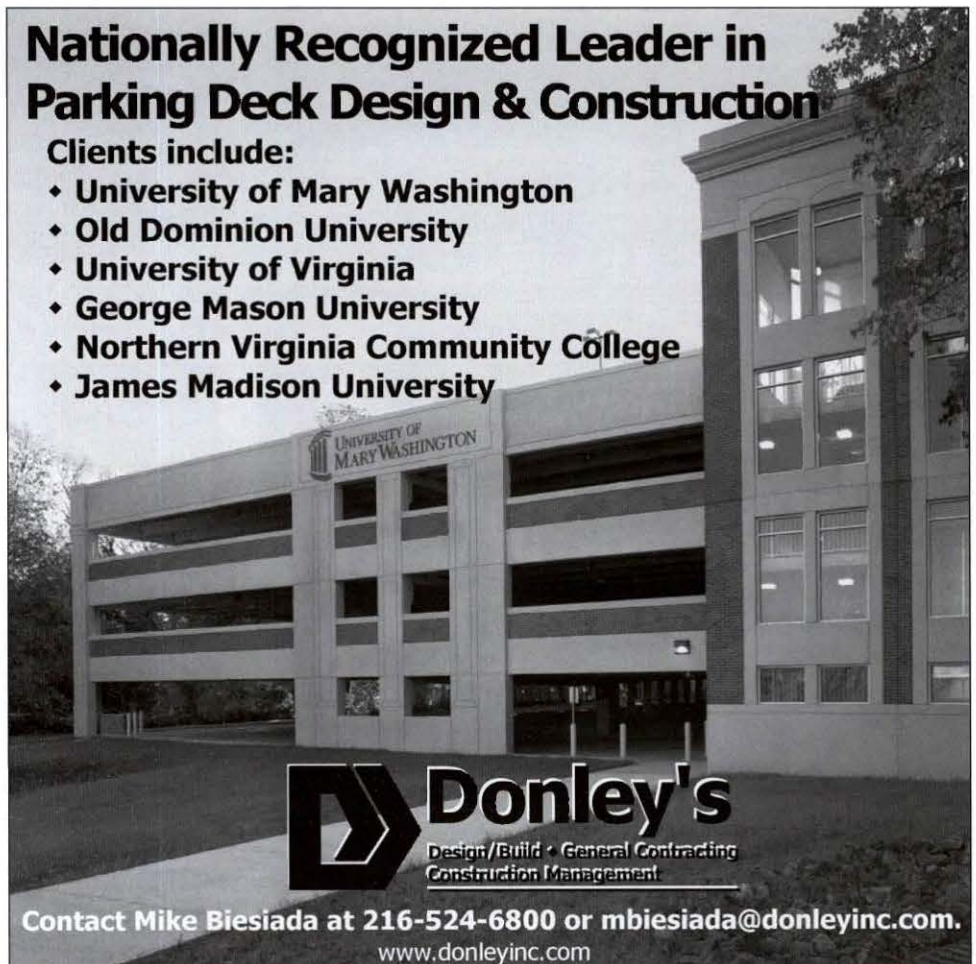
G. **Improvements:** These are costs for changes or additions to an asset that are not required from a facility or life cycle perspective that increase the value of the asset. Examples of the need for such modifications include the following:

- i. **Code compliance:** Installation of equipment or a system that did not pre-exist, such as the addition of a new fire sprinkler system;
- ii. **Appearance:** Installation of a carpet on an existing floor to provide a more acceptable appearance or for acoustical purposes;

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- iii. Addition: Installation of a building security system that was not previously installed or installation of an electronic keying system.

**H. Programmatic Upgrades:** These costs are associated with measures that increase the value of the asset as a result of changes or modifications to the space or subsystems in a building that are required because of changes in the function or use of the facility. Examples include:

- i. Installing laboratory equipment, such as fume hoods;
- ii. Upgrading classroom technology capability requiring additional infrastructure for information technology and media;
- iii. Reconfiguring internal space to accommodate new requirements.

**I. Replacement and Renewal:** These costs are related to the known future cyclic repair and replacement requirements based on the recognized life cycle of building components. These efforts ensure that the overall facility reaches its planned useful life. This category also includes projects that, as a result of the renewal of components or systems, require


taking additional measures in order to comply with current codes or safety regulations or to address obsolescence.

Examples of such measures include:

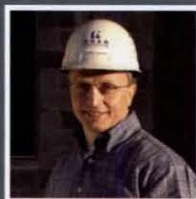
- i. Replacement tasks: A building's fire alarm system has a life cycle of 10 years and the building may have a design life of 50 years. Over the design life of the building, the fire alarm system is predicted to be replaced four times. When a replacement fire alarm system is installed, it must incorporate the technology that is available at the time of the installation, which may not be the same technology that was available when the former system was installed. Replacement tasks also include the replacement of obsolete equipment or systems.
- ii. Renewal tasks: This effort includes periodic work of a substantial nature on a component in an attempt to restore operating characteristics that make the component run like new—for re-tubing a chiller halfway through its useful life, because without the renewal effort the chiller will operate poorly, if at all.
- iii. Retrofitting tasks: This work is similar to renewal efforts and has the primary effect of adding economic

life or value to the asset. An example is a modifying a boiler that ran on coal to one that operates on natural gas.

The advantage of having a logical, structured organization built on these common terms and definitions is that institutional decision makers and facilities managers can create and maintain a valuable base of knowledge that will be helpful in achieving predictable outcomes for any decision that is related to facilities.

Whether or not the above definitions are incorporated into institutional accounting structures, organizations that establish and consistently employ industry-based definitions will generally be in a better position to develop and leverage asset investment strategies in order to achieve their broad spectrum of program objectives. 

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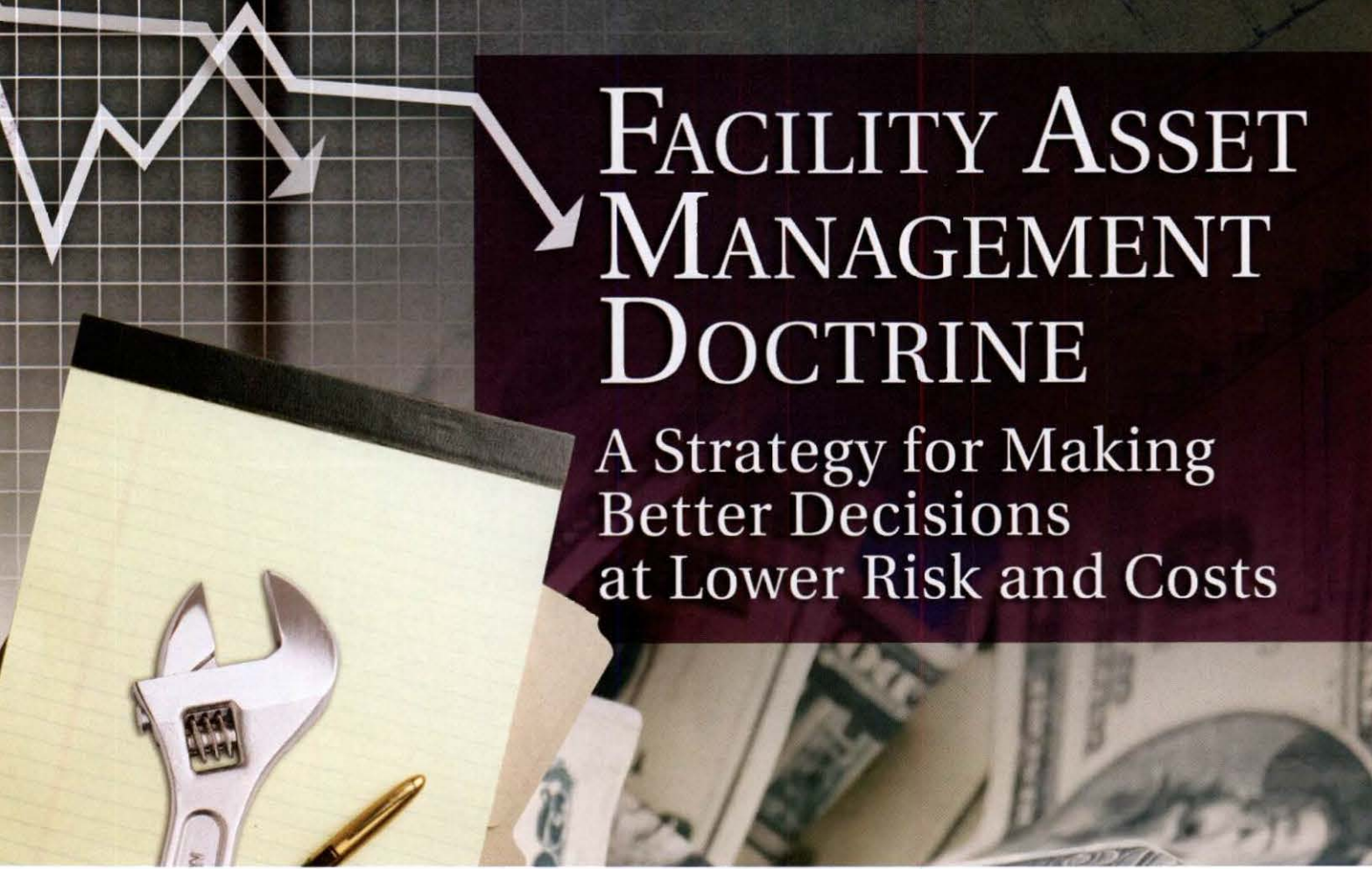
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# FACILITY ASSET MANAGEMENT DOCTRINE

## A Strategy for Making Better Decisions at Lower Risk and Costs

by James J. Dempsey, P.E., USCG

**F**acilities typically represent a major, if not the largest, component of an organization's book value. As such, they consume a significant and inescapable portion of the organization's cash flow. Facility asset management (FAM) is a field of management that umbrellas all decisions related to facility investments to include acquisition, construction, operations, maintenance, renewal, and disposal. Where traditional facilities management seeks to ensure the proper working order of a facility portfolio, FAM further incorporates economics; financial, capital, and resource management; and the direct application of many decision and information management practices.

*Jack Dempsey is executive officer for the U.S. Coast Guard's Civil Engineering Unit, Oakland, California; he can be reached at [james.j.dempsey@uscg.mil](mailto:james.j.dempsey@uscg.mil). He is a member of the Steering Committee for the APPA-CFaR project, Buildings...The Gifts That Keep on Taking: A Framework for Integrated Decision Making. This is his first article for Facilities Manager and is excerpted from a paper presented last October to a Federal Facilities Council forum called Engineering, Construction, and Facilities Asset Management: A Cultural Revolution.*

The objective of the FAM doctrine is to better achieve the organization's desired mission outcomes by lowering risks and costs associated with facility ownership.

The decision-making strategy presented here is based on extensive observations and lessons learned from the U.S. Coast Guard's Shore Facility Capital Asset Management initiative.<sup>1</sup> The views presented here are those of the author's and not necessarily those of the Coast Guard or any other entity. The organizing principle behind all FAM decision-making is the organization's desired mission outcomes. In order to employ this doctrine, the following prerequisites must be observed:

- Organizational missions and strategic goals and objectives must be clearly stated and documented.
- The facility inventory must be well defined and accurate.
- Mission outcomes and facilities must be linked using metrics or other quantitative or qualitative methods.
- Facility performance and needs must be logically defined in discrete, auditable terms.

### Important Facility Asset Management Perspectives

There are three important perspectives to FAM decision-making: facility-mission alignment, facility performance, and financial performance. The first two articulate the organization's mission and facility needs respectively. The third,



financial performance, provides a well-established structure to evaluate competing priorities in a resource-constrained environment. In coordination, these perspectives focus decision-making and methodically evaluate all risks in order to maximize facility performance and achieve desired organizational mission outcomes.

### Facility-Mission Alignment

The facility-mission alignment perspective focuses on the relationship facilities have to achieving the organization's desired mission outcomes. These outcomes can be defined in many different ways (e.g., profit making, capital accumulation, providing products or services to include education and learning and even the Coast Guard's life saving and national security missions).

The mission dependency index (MDI), used by the U.S. Coast Guard, contains concepts that go beyond use by the Coast Guard or the military in general. The MDI is a tactical metric that instead of determining the relative importance of individual missions, is used to determine a facility's readiness to perform multiple missions in support of the operational needs of individual units, such as the Coast Guard's ability to receive a call and get a search and rescue boat underway. The MDI accomplishes this by applying the operational risk management terminology of probability and severity to facilities in terms of interruptability, relocateability, and replaceability. The mission dependency index is obtained from interviews conducted once for each unit every two to three years.

Mission Intra-Dependency Score					
MD <sub>w</sub>		Q1: Interruptability			
		Immediate (24/7)	Brief (min/hrs)	Short (<7days)	Prolonged (>7days)
Q2: Relocateability	Impossible	4.0	3.6	3.2	2.8
	Extremely Difficult	3.4	3.0	2.6	2.2
	Difficult	2.8	2.4	2.0	1.6
	Possible	2.2	1.8	1.4	1.0
MD <sub>w</sub> = Mission Dependency Within a Command's AoR					

One series of MDI questions determines the interruptability and relocateability of each critical "functional entity" to determine its relative importance to mission execution considering facility intra-dependencies within the unit's sphere of control. Answers to these questions are input into the matrix shown. Similar questions are used to calculate mission inter-dependencies between mission-enabling units to specifically include those that provide command and control, communications, and logistical support. Products from both intra- and inter-dependency questions along with the number of inter-dependencies between units are used to calculate the MDI for each facility at each unit. The Coast Guard has already

completed MDI acquisitions of all operational buildings and is prepared to use this metric in support of FAM decision-making.

An overlaying index, the mission-alignment index (MAI), is then calculated as a function of both the relative mission importance index and the mission dependency index to be assigned to each facility. This combination reduces decision-making risks through diversification by using both a strategic and tactical perspective to link mission importance scores to facilities. This strategy leverages two core cultural Coast Guard strengths. First, strategic direction is efficiently and uniformly applied across the entire organization by using the relative mission importance index. Second, tactical authority is delegated to local operational commanders who have greater operational awareness of their facilities by equal weight given to the mission dependency index.

### Facility Performance

The facility performance perspective focuses on how well a facility is performing its intended purpose in a way generally meant to be independent of the facility's relationship to mission. In brief, facility performance can be separated into three criteria: condition, utilization, and functionality. Each criteria is a product of different data sources and methodologies, and similar to the mission-alignment metric, decision-making risks are reduced by including independent sources of information.

The first criteria, *condition*, is a broad and complex field. There are a number of competing methods to quantify condition ranging from general service life prediction estimates to scientifically defined degradation models. In one method, the sum of "deduct" values is used to calculate a Condition Index (CI), which is typically reported on the scale of 100-0 where 100 is a distress-free system.

This methodology is fundamentally different and vastly superior to a facility condition index (FCI), which is simply calculated as the sum of maintenance project costs divided by the present replacement value of the system, building or portfolio being evaluated.<sup>2</sup> The Achilles heel to the FCI is in the definitions used for the numerator and denominator. Where CI uses very explicit, auditable definitions, FCI definitions are known to vary widely or are inconsistently used across the industry or even at individual locations. This introduces great uncertainty when using FCI in support of decision-making such as funding allocation and project prioritization.

The second facility performance criteria is *utilization*. In pure terms, utilization is independent of condition. Although, there is a commonly observed association between low utilization and poor condition, this is often the result of some third cause and not as a direct cause of the other. Utilization can apply to all types of facilities, but is most often used in space utilization. For many facility users, space utilization criteria will suffice. The calculation of a space utilization

*Continued on page 35*



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index is simply a summary comparison between demand and supply.

Space demands or needs can be defined in two ways; the occupant can determine them or they can be established by policy. Having the occupant determine space needs works well when the occupant also directly pays for the space used, creating a self-governing behavior. However, this is not the case for many large and/or public organizations. Most decision-makers making space consumption decisions in these organizations do so without knowledge of the impact these decisions will have on the organization in terms of mission/operational tradeoffs or facility total ownership costs.

This is generally an organizational complexity issue, and in order to adequately address it, many organizations use space utilization guidelines or standards for common space types. When employed, these standards can be used to calculate a space utilization index as the quotient of space used divided by space authorized.

Measuring utilization achieves a number of valuable outcomes in addition to producing a simple metric that can be used for relative comparisons. Valuable outcomes include the equitable distribution of resources and funding, identifying excess space for divestiture, and identifying space needs to avoid or mitigate functional and/or operational impacts—all of which contribute to lowering facility total ownership costs.

The last major criteria used to measure facility performance is *functionality*. One way to view functionality is to consider it covering anything that is not condition or utilization. In more specific terms, functionality rolls up all objectives and criteria used to determine if a facility can acceptably fulfill its needed purpose. This is also a broad area and includes not only functional performance from a mission perspective, but also functional performance from a legal, regulatory, and stewardship perspective as well.

Traditional decision-making forms grossly undervalue this area and by doing so organizations may absorb large and avoidable risks. The simple approach to defining a useable functionality index is to establish a value tree of criteria determined to be important to mission outcomes. This should include compliance with life safety and other building codes. Additionally, required or value-contributing operational parameters should be included such as

Generic FAM Pro Proma	Funding Source			
	Year 1	Year 2	Year 3	Year 4
<b>Location 1</b>				
Facility A	Project ###		Project ###	
	Project ###			Project ###
Facility B			Project ###	
			Project ###	
Facility C		Project ###		
			Project ###	

minimum functional criteria related to a research laboratory, a product manufacturing center, or an equipment maintenance facility.

Other notable categories include occupant safety (liability mitigation), productivity, environmental stewardship objectives, energy conservation goals, and public image. In all cases, the qualification and if possible the quantification of categories is best when documented and reinforced by policy, asset configuration profiles, and/or standard operating procedures. If done this way, it is possible to weight the different criteria by using the analytic hierarchy process (AHP) to

## Pick the Low Hanging Fruit

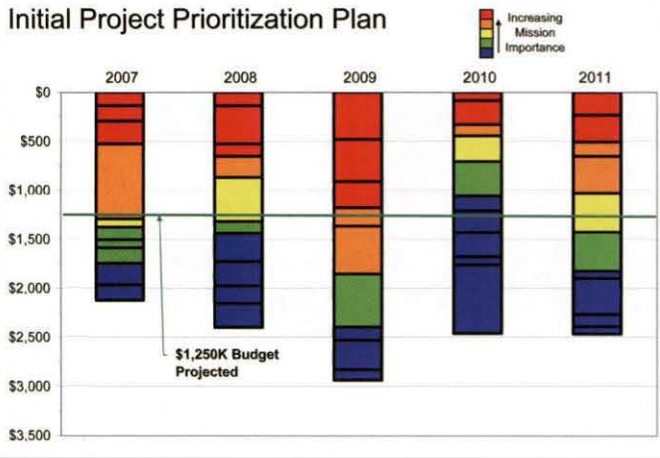
- Typical Cleaning Cost: Over \$2.00 per Square Foot
- Typical Setup Cost: \$0.005 - \$0.02 per Square Foot
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### Initial Project Prioritization Plan



calculate a global functionality index. Given the explicit definitions of each criteria, gaps between actual and desired values can be the sole basis for a facility deficiency that will compete for funding just like condition and utilization deficiencies.

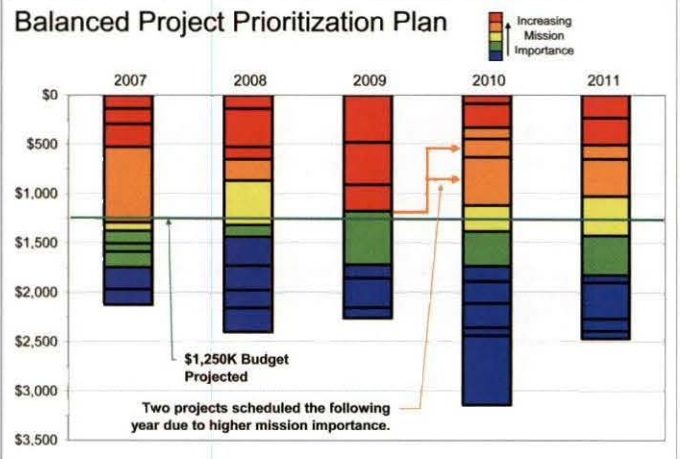
### Financial Performance

The last perspective, financial performance, coordinates the first two and complements the discussion with financial data. This respects the reality that all FAM decision-making exists in a resource-constrained environment. The field of financial

analysis provides a wealth of capable tools and constructs that can be adapted to organize the complexities of FAM decision-making. Essentially the breakpoint for all FAM decision-making is what investment can or should be made and when. Where critical and non-critical projects are generally obvious, the real battle for funding and resources is in the broad middle ground.

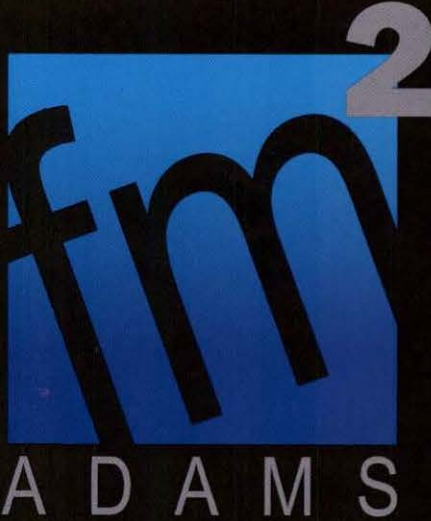
Financial performance is easily organized with financial statements and *pro formas*. This is not to say that all FAM decision-making objectives can be monetized, they cannot. What is meant is that established financial decision-making

### Balanced Project Prioritization Plan



strategies can provide a logical and familiar construct to evaluate quantitative and qualitative objectives. In the end, FAM decision-making results in go or no-go decisions related to the expenditure of funding and resources. A business case *pro forma* helps make tactical funding and resource objectives clear within a certain investment period, e.g., a fiscal year. This concept is demonstrated in the summarizing graphics shown above where projects are scheduled in the optimal year of execution, and are scored, sorted and color-coded using the mission-alignment index. In this example, the sum value of the projects is represented by the vertical bar size and the go/no-go decision can be simplified to a block and stacking activity, e.g., projects above the funding line are to be executed in the given fiscal year.

This example demonstrates how mission objectives are used to drive decision-making as opposed to simple facility needs. This is clear in the second graphic where two projects from 2009 are deferred to the next year displacing



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lower ranking projects and thus increasing the total 'return on mission' for the proposed facility investment strategy. In reality, this example oversimplifies FAM decision-making, but it does introduce a core principle as to how risk management is employed. The principle is that mission objectives must dominate the prioritization process yet be defined by relevant, executable facility acquisition, construction, maintenance, renewal, and/or disposal objectives.

### Enabling Decision-Making Practices and Conclusion

The facility asset management doctrine and the proposed strategy for integrated decision-making are dependent on many things—organizational core competencies, business strategies, the effective application of decision theory, and disciplined use of structured, performance-based decision-making. Of these, the greatest opportunity for aggressive leaps forward is through the use of enabling decision-making practices. Foremost of these is the use of an action-oriented activity-based costing (ABC) system.

An action-oriented ABC system would greatly improve the clarity and creditability of decision-making and performance monitoring. The definition of the ABC system employed should uniquely define and organize both tactical FAM work products (i.e., planning, design, construction, maintenance, and operations, etc.) as well as the root cause for FAM work (i.e., maintenance, alternation, improvement, code compliance, and disposal). This combination not only enables the evaluation of how, but also of why and thus the ability to answer mission-facility value proposition questions.

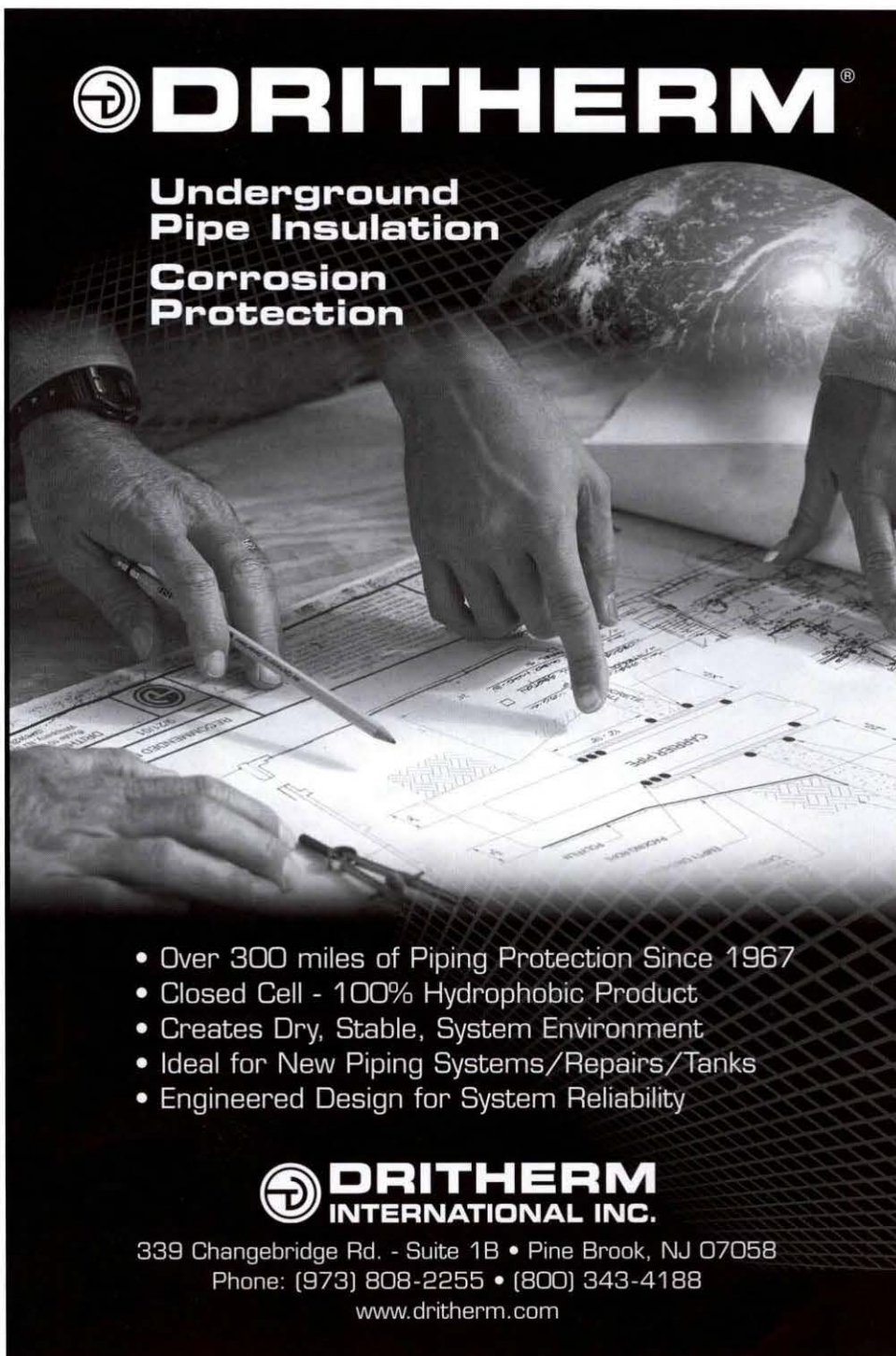
Lastly, the ultimate criteria for any successful FAM decision-making strategy is that it can consistently achieve the organization's desired mission outcomes by effectively identifying facility deficiencies; quantifying, prioritizing, and approving deficiency solutions in a dynamic yet resource constrained environment; executing the solution; and validating the deficiency's correction with auditable data and a predictable response in facility and mission performance. Essentially, FAM decision-making proactively mitigates risks and lowers costs of facility ownership in order to

better utilize facility assets and best achieve desired organizational mission outcomes. 

### References

<sup>1</sup>The U.S. Coast Guard's Shore Facilities Capital Asset Management (S-F-CAM) initiative was formally commissioned by Admiral Allen as the Coast Guard's Chief of Resources in 1996 and 1997.

<sup>2</sup>Applied Management Engineering and Sean C. Rush. *Managing the Facilities Portfolio*, National Association of College and University Business Officers (NACUBO), 1991.



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# Facility Asset Management

## Advanced Degrees in Facilities Management

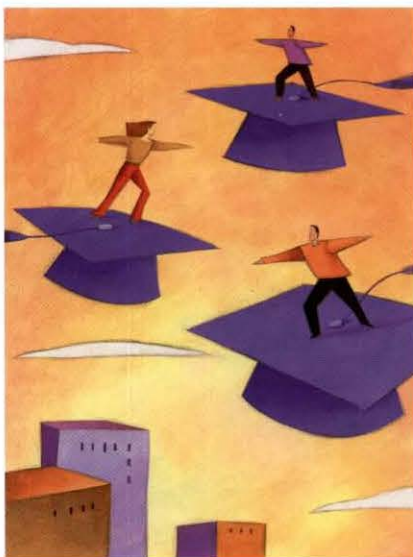
by Matt Adams, P.E.

The options for education in our industry—specifically advanced education—have progressed in lockstep. I was encouraged by the availability of undergraduate and graduate programs directly related to facilities management six years ago (*Facilities Manager*, March/April 2001) and as the field continues to become more sophisticated, I see an exciting evolution of program offerings.

One person who knows a great deal about advanced degrees in facilities management is Victoria Hardy, CFM, CFMJ, academic department head in the Department of Design and Facilities at Wentworth Institute of Technology in Boston, Massachusetts. She has seen graduate studies in our field expand and move in many positive directions. Hardy sees facilities management as a “collaborative art form,” meaning various skill sets combined to provide a variety of services for a spectrum of customers.

It is ironic that all of our comprehensive research institutions now extol the virtues of interdisciplinary programs for graduate studies and research, while we, as educational facilities managers, have been practitioners of this approach for decades. Each of the universities that offer either undergraduate (like Wentworth or Brigham Young University) or graduate facilities management programs has interdisciplinary components. At Wentworth, facilities management curriculum is influenced by space planning and interior design. Hardy’s specialty is theatre management.

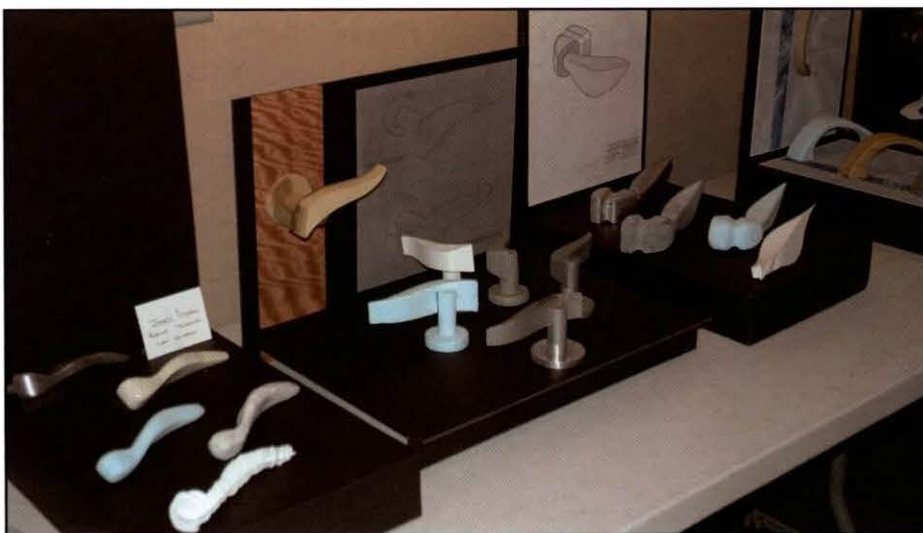
**Matt Adams is president of FM<sup>2</sup>, Atlanta, Georgia. He can be reached at [matt@adamsfm2.com](mailto:matt@adamsfm2.com).**



One of the premier graduate programs in the country is through the School of Design and Environmental Analysis at Cornell University Graduate School. This is a truly interdisciplinary program with its own

tive to the facilities management curriculum. This includes graduate studies and research. Graduate programs at Cornell fall under the Department of Human Environment Relations. Each class starts in the fall and enrolls eight to ten students.

Offered in parallel are applied research in human environment relations, facility planning and management, human factors, and ergonomics. Sims—professor of two of these courses and principal researcher for the International Work-space Studies Program—explains that disciplines crossover in Cornell’s program, resulting in a graduate degree that is more strategic and management-oriented than others. Graduates from this program go on to work for companies such as Toyota and Goldman Sachs. There is no doctoral program at this time.



**Inventive entries from a recent door handle competition in the Department of Design & Facilities at Wentworth Institute of Technology.**

unique influences. Bill Sims, former department chair, has seen a steady increase in interest. In the past, the program focused on the office environment. The new chair, Frank Becker, brought a healthcare perspec-

Georgia Institute of Technology offers master and doctoral programs in facilities management as part of its Building Construction Program. Master degrees are offered in Integrated Facility and Property Management,





©2004 Georgia Tech, Nicole Capello

Georgia Tech Professor Chuck Eastman and two Ph.D. students are developing software to make building information models.

Though the real leaders in advanced degrees for facilities management are arguably in Europe, Asia, and Australia, the United States is improving and expanding its existing facilities management programs, especially on the graduate level.

Integrated Project Delivery Systems, and Resident Construction and Development. Unlike Cornell, Georgia Tech's programs are offered as night classes for professional students and online via the school's distance learning vehicle, which allows professionals to study for advanced studies, while they continue to work full-time.

Georgia Tech's curriculum is formulated around portfolio management practices. Many of the incoming students come from the General Services Administration, the U.S. military, private property management companies, and REITS (real estate investment trusts). Offering both thesis and non-thesis options for a master's degree, core courses include:

- professional trends in facility management
- maintenance management of built assets
- safety and environmental issues
- facility planning
- project management and benchmarking
- real estate asset and income property management
- facilities management financial analysis

Georgia Tech also offers internships, including one at Macy's. Tech has one of the only pure doctoral programs in facilities management. The graduates of Tech's programs often return to their current employers. Some become adjunct professors, which is a huge asset,

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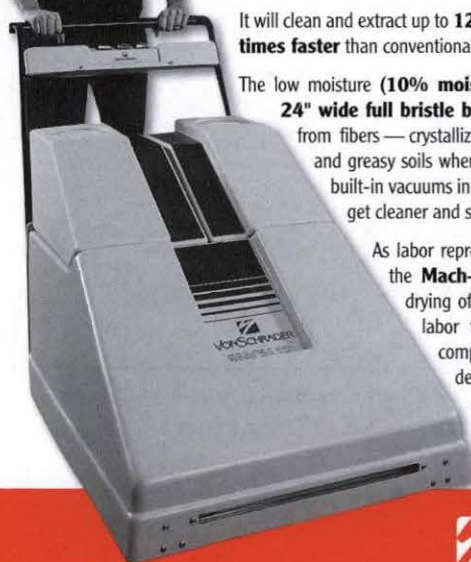
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as there is a high demand for faculty in facilities management programs.

Massachusetts Maritime Academy has been a long-time leader in facilities management education and understands what potential students are seeking. The academy offers master degree programs in an executive education format. Crossover curriculum from the traditional coursework of a maritime academy is a proven path for successful facilities managers. I know of a dozen or more senior facility administrators within APPA who have followed a maritime career path to get into our industry.

The Mass Maritime program is competitive, with only 24 students enrolled last fall. With more than 47 university physical plant departments in the Boston area alone, there is a "natural market" for prospective students. Graduates from this program go to all areas of our field and work in places like Gillette, John Hancock,

Pearson Education, and banking institutions.

Though the real leaders in advanced degrees for facilities management are arguably in Europe, Asia, and Australia, the United States is improving and expanding its existing facilities management programs, especially on the graduate level. I was excited to learn that Rochester Institute of Technology is starting a new master's

program this spring, and I know there are more programs in development. As we continue on this track, our peers will gain a deeper and broader background to provide innovative solutions in facilities management. 

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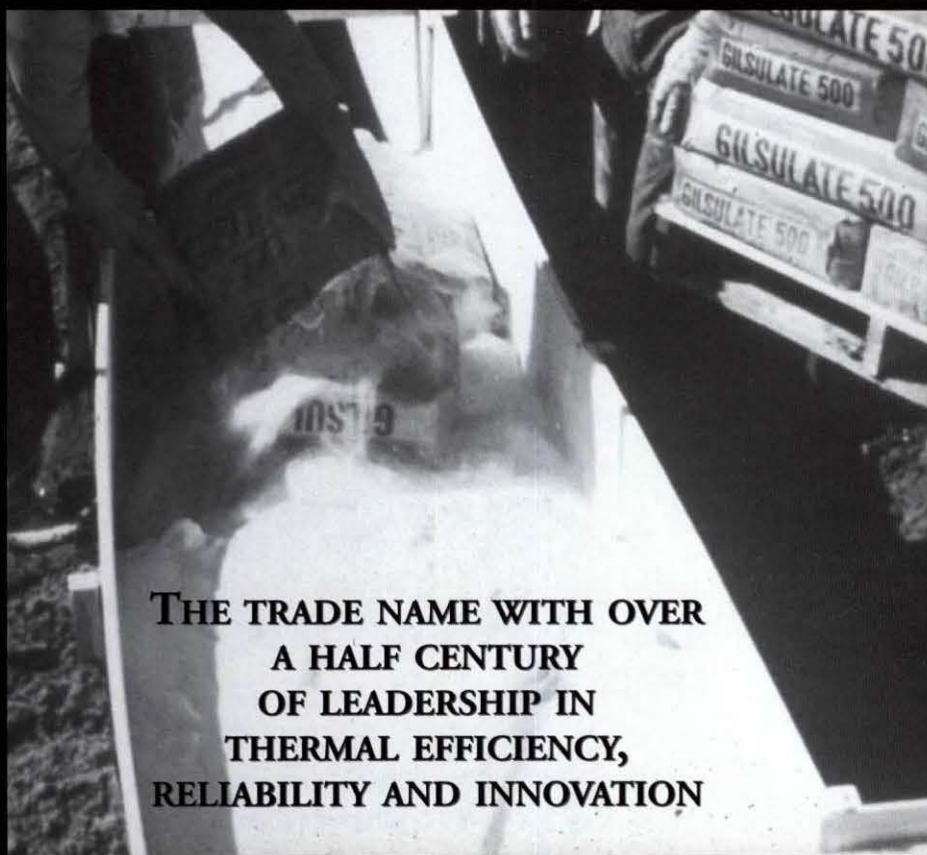


Later this year, APPA will be offering the first of two credentials for educational facilities professionals. The Educational Facilities Professional (EFP) program gives up-and-coming facilities professionals the opportunity to be recognized - with an EFP credential - for their achievement and experience in our field.



More information on EFP qualifications and the process will be available soon. To stay informed, visit [www.appa.org](http://www.appa.org) or contact Suzanne Healy, [suzanne@appa.org](mailto:suzanne@appa.org) to be added to our special EFP email distribution list.

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# Institute

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### January 2007 Graduates

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Richard L. Barbour, *University of Virginia*  
Mona L. Bernard, *The George Washington University*  
Eugene Berrio, Jr., *Tufts University*  
James M. Bolton, *Philadelphia University*  
Elizabeth B. Bowling, *University of Virginia*  
Mark Boyette, *Baldwin Wallace College*  
Carl Brandenburg, *Colorado College*  
Michael Brown, *Cornell University*  
Paul Carlson, *East Carolina University*  
Charles Conant, *Smith College*  
Richard Connell, *Iowa School for the Deaf*  
Frank Connelly, *Thiel College*  
Patrick Conners, *University of Texas/Austin*  
David Crane, *University of Minnesota*  
Mary A. Cranfill, *Wake Forest University*  
Ates Dagli, *University of Virginia*  
Scott Damschen, *Pima College*  
Kathleen DeFlorrio, *Middlesex School*  
Leo Deon, *University of Maine/Farmington*  
Stephanie DeStefano, *American University*  
Gregory M. Detmer, *University of Michigan/Ann Arbor*  
Cathleen Dierna, *University of Rochester*  
Michael Draughn, *Wake Forest University*  
Daniel G. Durham, *Medical College of Georgia*  
Martha Ellis, *University of Texas*  
Bernie W. Farrell, *Bentley College*  
Mary Ferguson, *Stanford University*  
Anthony Fisher, *University of West Florida*  
Janine B. Fontana, *Central College*  
Harvey Gamble, *University of Rochester*  
Stephen A. Gazzola, *University of Guelph*  
Eddie Gonzalez, *Florida International University*  
Mark Goska, *University of Alabama/Birmingham*  
Joe Grice, *University of Alabama/Birmingham*  
Steven Hansen, *Arizona State University*  
Mike Hawley, *Furman University*  
Dennis Hayes, *University of Northern Iowa*  
David M. Heckman, *University of Delaware*  
Dean Henson, *University of Illinois*  
Larry Holland, *Bowling Green State University*  
Harry Hughes, *Towson University*  
John A. Humlicek, *University of Illinois/  
Urbana-Champaign*  
Randall A. Johnson, *Campbell University*  
Rick Johnson, *Virginia Tech*  
Paul Johnson, *California State University/Long Beach*  
Bill Kerbusch, *Baldwin Wallace College*  
Phillip Kimbrough, *Emory University*



January 2007 Institute for Facilities Management graduates.

The Institute for Facilities Management and the Supervisor's Toolkit had record attendance January 21-25, 2007 in Orlando, Florida.

More than 500 facilities professionals from as far as Cairo, Egypt participated in the week-long career development programs which focused on APPA's core areas: general administration; operations and maintenance; energy and utilities; planning; design and construction; and supervisor training. The Toolkit had 47 participants, while the Institute welcomed 75 new attendees.

Dedicated faculty and trainers enable APPA to provide high-quality professional training. Special thanks goes to: Mary Vosevich, dean of general administration; Jay Klingel, dean of operations & maintenance; Cheryl Gomez, dean of energy & utilities; Don Guckert, dean of planning, design & construction, Michelle Frederick, Toolkit master trainer; and Nancy Yeroshefsky, Toolkit master trainer.



# Wrap-Up



*Supervisor's Toolkit Class of January 2007.*

Participants were also able to take time to tour the city of Orlando, visiting area institutions, viewing the capital project within the host hotel, and enjoying the various Walt Disney theme parks.

The week concluded with a celebration to mark the completion of a full week of hard work and networking.

For more information about APPA's professional development programs, visit our website at:

**[www.appa.org/education](http://www.appa.org/education)**

## **Winter 2007 Graduates cont.**

Bruce A. Lanham, *Stephen F. Austin State University*  
Siotame F. Lauaki, *Brigham Young University/Hawaii*  
Barbara Leach, *The George Washington University*  
Rosemarie Leland, *University of Vermont*  
Paul Lozo, *University of Richmond*  
James Martin, *Eastfield College*  
Billy John Mathis, *University of Florida*  
Richard D. Maupin, *University of Virginia*  
Barry Mazik, *Ohio State University*  
Ronald N. McClintic, *Michigan State University*  
Richard McCormick, *University of North Texas*  
Mike McGahan, *Wentworth Institute of Technology*  
John Milbourne, *Florida Tech*  
Jack Myrick, *Johns Hopkins University*  
Gary Nellesen, *Mt. San Antonio College*  
Kenrick Nobbee, *The University of West Indies/Trinidad*  
Keith North, *NCNM*  
Kip R. Oveson, *Ridgewater College*  
Anne Phillips, *Michigan State University*  
Chris Pickard, *University of Guelph*  
Kenneth Plumley, *University of Florida*  
Ronald Ponto, *Linfield College*  
Burt Prokop, *Smith College*  
Harry Ratka, *Cleveland State University*  
John R. Reed, *Brigham Young University/Idaho*  
Wayne W. Reeves, *East Carolina University*  
Paula Reno, *University of New Mexico*  
Carl Riden, *Champlain College*  
Dale A. Rivett, *Kansas State University*  
Frank Roberts, *Dartmouth College*  
Vanessa Rodriguez, *Old Dominion University*  
Loren T. Rucinski, *Union College*  
Michael Ruland, *University of Houston/Victoria*  
Peggy Schalk, *University of Montana/Missoula*  
John Schuler, *University of New Mexico*  
David Sherwood, *Western Washington University*  
Scott Skrinar, *Humber College Inst Tech Adv Learning*  
Ian Smith, *Emma Willard School*  
Donald Smith, *University of Florida*  
Marty Spurgeon, *Columbia College*  
Jim Sutherland, *University of Missouri/Columbia*  
Ryan F. Swanson, *University of Nebraska/Kearney*  
Steve Taylor, *Montgomery College*  
David D. Thompson, Jr., *Piedmont Virginia Community College*  
William Throop, *University of Texas/Austin*  
James Tomlin, *University of Virginia*  
Ron Ulvog, *University of Wisconsin/Whitewater*  
Ken Walvoord, *University of Nebraska/Lincoln*  
Aaron J. Wand, *Tarleton State University*  
Richard Wickboldt, *University of Michigan*  
David Wildes, *Manatee Community College*  
Murray A. Zook, *University of Saskatchewan*



# Thought Leaders Series Explores Top Ten Critical Facilities Issues

## *Excerpts from the Executive Summary*

The recently released Thought Leaders report, *University Facilities Respond to the Changing Landscape of Higher Education*, has been very popular with educational facilities managers.

This report stems from APPA's first annual Thought Leaders Summit on the changing landscape of higher education. A group of 20 educational leaders identified seven trends affecting higher education's future and related these trends to the top 10 issues affecting facilities professionals.

Published by APPA's Center for Facilities Research (CFaR), the summit report details the Thought Leaders' insight and vision on the future of higher education in regard to the stewardship of campus buildings and infrastructures. Download the report free at [www.appa.org](http://www.appa.org).

### *Trends outlined in the report include:*

- financial constraints
- competition
- changing demographics
- demand for innovation and tradition
- changing stakeholder expectations
- accountability
- resistance to change

### *The top ten critical facilities issues identified are:*

1. resource scarcity and affordability
2. performance measures and accountability
3. customer service
4. information technology
5. developing the lab and classroom of the future
6. facility reinvestment and total cost of ownership

7. workforce management and demographics
8. sustainability
9. energy and environmental resource management
10. safety, security, and business continuity

APPA intends to host annual Thought Leaders Summits over the next several years to provide the industry with greater depth on these trends and issues. The second Thought Leaders Summit will be April 23-25 in Fort Worth, Texas. A select group of university presidents, provosts, trustees, and senior facilities officers at state universities, private research institutions, community colleges and small seminaries will be invited to participate.

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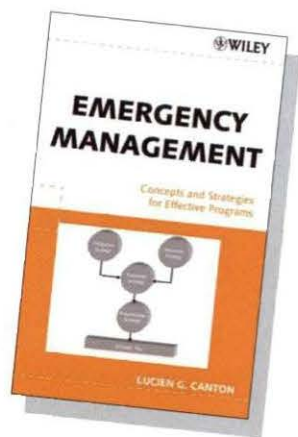
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# The Bookshelf

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

This column addresses emergencies and leadership. In response to concerns about a flu pandemic, my campus is reviewing its business continuity plans. The leader of that effort, Fred Gardy, provides the review of a book on emergency management. I look at yet another book on leadership. These are two key areas that prove the mettle of facility officers.



**Emergency Management, Concepts and Strategies for Effective Programs**, by Lucien G. Canton, Wiley, New York, 2006, 349 pages, hardcover, \$79.95.

**What is your** emergency strategy in the event of a minor, localized departmental incident; a major emergency that disrupts portions of your campus community; or a disaster

*Ted Weidner is assistant vice chancellor of facilities management & planning, University of Nebraska-Lincoln and president of Facility Asset Consulting. He can be reached at [tweidner@unlnotes.unl.edu](mailto:tweidner@unlnotes.unl.edu). Fred Gardy is the assistant chief of police operations, University Police, University of Nebraska-Lincoln. He can be reached at [fgardy2@unl.edu](mailto:fgardy2@unl.edu).*



The author... argues for a multidisciplinary approach to emergency management, which is essential for success at universities and colleges.

involving the entire campus and surrounding community? Every college and university should have sound procedures to protect life, secure critical infrastructure and facilities, and re-establish normal campus life and activities.

*Emergency Management: Concepts and Strategies for Effective Programs* provides a macro view to emergency management and can serve as an excellent resource for university and college staff to develop an emergency management program on campus or evaluate an existing program.

The author, Lucien G. Canton, argues for a multidisciplinary approach to emergency management, which is essential for success at universities and colleges. Emphasis is placed on the importance of the emergency manager as a program manager—a coordinator—not a tactician. Canton, an independent emergency management consultant and former director of emergency services for the City of San Francisco, draws from scholarly

references and real-world practices to present emergency management as a macro-level endeavor.

The book opens with a historical overview of the evolution of emergency management, including the effects of terrorism and Hurricane Katrina on current practices. Canton argues that the National Incident Management System (NIMS) is a major step forward for emergency management. However, he warns that the single-minded focus on terrorism undermines the ability to adopt an all-hazards response to emergency management.

The text can be particularly useful for creating an operational framework solution for individual schools and departmental emergencies. Canton urges that successful emergency plans are those in which the groundwork is laid before an incident occurs. He recommends an inclusive and collaborative approach to building emergency management programs. He also outlines approaches for developing a program that would be collectively and effectively performed by faculty and staff. Each chapter explores an important program component, including:

- The emergency manager's role
- How to establish an effective, integrated program
- Assessing risk
- Planning techniques and methods
- Managing crisis
- Case studies

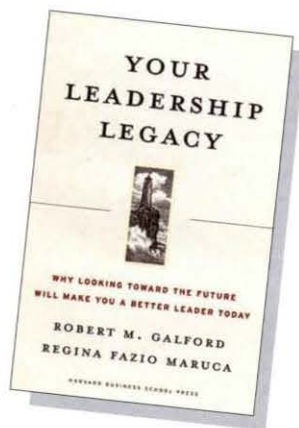
Canton notes that a disaster is a direct result of vulnerability. Readers learn how various components of emergency management—assessing, planning, coordinating, and managing—along with creativity and flexibility interrelate to reduce vulnerability.



The book also provides an interesting distinction between emergencies and disasters. Citing the research of Dr. E. L. Quarantelli, a social scientist, Canton identifies five qualitative differences between emergencies and disasters. He then provides definitions that establish a hierarchy for distinguishing emergencies, disasters, and catastrophes. These differences are important for college and university staff to understand as they delineate what we can and cannot handle on our own.

\*\*\*

**Your Leadership Legacy: Why Looking Toward the Future Will Make You a Better Leader Today,** by Robert M. Galford and Regina Fazio Maruca, Harvard Business School Press, Boston, 2006. 186 pages, hardcover, \$26.95.



There are a lot of books about leadership, and APPA is a resource for many of the classics. This book might make that list. Your Leadership Legacy is a relatively easy read and provides scenarios, and suggestions for establishing an individual leadership development plan and creating a legacy.

As I read this book I reflected on my leadership roles in several organiza-


tions and institutions. Some resulted in a legacy of which I am proud, but I can recall one that I would rather forget despite having tried to have a positive effect on the organization.

As the authors suggest, opportunities to leave a legacy sometimes require a good fit between the leader and the organization.

Having a "leader" title does not make one a leader. Being a leader can be easy when those being led want to go where the leader is taking them. Change agents must be leaders regardless of the magnitude or direction of the change. However, the book does not go into detail about change agents as leaders other than giving examples of good and "less-good" leaders. However, the concepts presented are clear, informative, and allow for reflection.

This book can help a good person in a leadership position to define his or her own leadership preferences...

The authors present six types of "natural" leadership styles and ways these styles successfully fit into organizations. The styles are not exclusive or the final word. They can be blended, and leaders may adapt to one style or another depending on the situation. The examples assist in demonstrating the styles of leadership and opportunities for success in the organization. The book is laid out in a way that allows readers to skim or skip examples and focus on the key concepts.

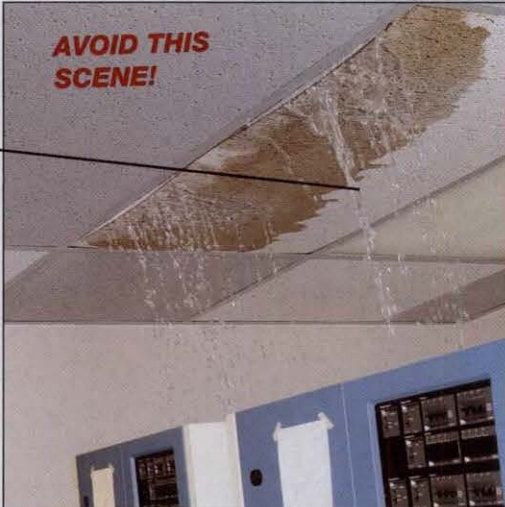
This book can help a person in a leadership position define his or her own preferences, identify opportunities to lead well, offer sound advice when difficulties arise. I found the book instructive and supportive and plan to reread portions in the future. This is not a how-to book but more a review of ways to "walk the talk." 

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# 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.

**KMC Controls** introduces the STE-6000 series of room temperature sensors. Two new model numbers STE-6015 and STE-6016 were added to complete the comprehensive series. These STE-6000 series sensors are available in a variety of temperature and humidity configurations. Whether you need an LCD display of current conditions or an inconspicuous room sensor, these sensors provide accuracy in a compact design. This series of economical room temperature sensors are specifically designed to complement KMC digital controllers but can be used within other building automation systems. Go to [www.kmccontrols.com](http://www.kmccontrols.com) for more information.



**Friedrich Air Conditioning Company** has announced the availability of a new line of ZoneAir® portable air conditioners, which can be used for spot and supplemental cooling. The ZoneAir portable air conditioner is available in both 9000 and 12000 BTU/h capacities. Both models are bucketless with washable filters, auto-swing louvers, and full display electronic controls with remote. The P-09 9000 Btu/h model features a fresh air vent and dual hoses. The P-12 12,000 Btu/h model uses a single exhaust hose. Both models plug into a standard 115-volt outlet and come with 72 inch hoses. For details call 210-353-8728.



**Sedia Systems, Inc.** designs, manufactures, and imports seating solutions for the higher education and contract markets. The company's broad assortment of fixed lecture room and multi-purpose seating delivers balanced educational environments by integrating the demanding requirements of today's curricula with cutting edge, contemporary design. For more information visit [www.sediasystems.com](http://www.sediasystems.com).




**Cooper Bussmann's** drive fuse is designed specifically to protect power electronic controllers such as drives and temperature control equipment and devices such as SCRs, diodes, and solid state relays. The package includes a high-speed fuse and a UL Class J fuse to meet NEC® branch circuit



requirements critical for protecting power electronics equipment. It utilizes the standardized dimension of a Class J fuse to use in readily available clips, holders, and switches. Visit [www.cooperbussmann.com](http://www.cooperbussmann.com) for details.

**TAC's Andover Continuum™** Wireless Solution—based on the BACnet® open standard—provides lower installation, wiring, and life-cycle costs and solves wiring challenges, which significantly reduces the labor required for connectivity. Based on a mesh networking topology, TAC's wireless solution is self-configuring and self-healing. This makes it simple to install, maintain, and expand the network. A maintenance tool lets users setup and manage the network from their desktop. TAC's wireless solution enables colleges and universities to place controls where they are needed to produce significant performance and energy-efficiency improvements, without disrupting people or breaking through walls—especially in hard-to-wire areas or challenging structures. For more information call 866-822-4636.



**Intellibot Robotics LLC** introduces the revolutionary IV 800 robotic vacuum for commercial floor care. The IV 800 is specifically designed for large carpeted or hard surface hallways in schools, hospitals, convention centers, offices, and other facilities that get heavy traffic and must frequently be cleaned to a high standard. Using proven navigation and sonar sensor technology found in the company's IS 800 robotic floor scrubber, the IV 800 robotic vacuum provides similar efficiencies, working for long periods with minimal human intervention. Like all Intellibot cleaning robots, the IV 800 reduces labor costs by up to 85 percent while increasing quality and consistency. With onboard computers, highly refined software, and ultrasonic sonar sensors, the IV 800 maps areas to be cleaned and programs the optimum cleaning pattern. The vacuum requires only about 25 minutes of operator attention per 8-hour shift—allowing the operator to do other, higher value cleaning tasks. Call 866-427-1991 for more information. 





# Coming Events

## Coming Events

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

## APPA Events - 2007

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

**April 15-19—Supervisor's Toolkit: Nuts and Bolts of Facilities Supervision.** San Jose, CA.

**April 18-19—Smart and Sustainable Campuses Conference.** College Park, MD. Register at: [www.nacubo.org/x8593.xml](http://www.nacubo.org/x8593.xml).

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

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

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

## Other Events - 2007

**April 2-4—2007 AUDE Conference.** Association of University Directors of Estates. Bath, UK. Contact: [j.eyles@bath.ac.uk](mailto:j.eyles@bath.ac.uk).

**April 16-17—Lean Management Models for Capital Projects & Facilities Management.** St. Petersburg, FL. Visit: [www.tradelineinc.com/conferences](http://www.tradelineinc.com/conferences).

**April 23-24—Fire Safety, Law Enforcement, and Emergency Medical Services.** Columbus, OH. Contact: [www.campusfiresafety.com](http://www.campusfiresafety.com).

**May 7-8—Research Buildings 2007.** San Diego, CA. Visit: [www.tradelineinc.com/conferences](http://www.tradelineinc.com/conferences).

**May 9-11—COAA Spring Owners Leadership Conference.** Construction Owners Association of America. New Orleans, LA. Visit: [www.coaa.org](http://www.coaa.org).

**June 11-12—Science Buildings Canada 2007.** Ottawa, ON. Visit: [www.tradelineinc.com/conferences](http://www.tradelineinc.com/conferences).

**July 7-11—SCUP-42—Shaping the Academic Landscape: Integrated Solutions.** Chicago, IL. Visit: [www.scup.org](http://www.scup.org).

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

**Sep 3-7—22nd European Photovoltaic Solar Energy Conference & Expo.** Fiera Milano, Milan, Italy. Visit: [www.photovoltaic-conference.com](http://www.photovoltaic-conference.com).

**Sep 20—Stars of Energy Efficiency Awards Dinner: Alliance to Save Energy.** Washington, DC. Visit: [www.ase.org/dinner](http://www.ase.org/dinner).

**Sep 25-28—AUD Annual Conference.** University of Louisville. Louisville, KY. Contact: [majohn01@louisville.edu](mailto:majohn01@louisville.edu).

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

## Index of Advertisers

Adams FM <sup>2</sup> ( <a href="http://www.adamsfm2.com">www.adamsfm2.com</a> )	36
APPA 2007	24-25
APPA EFP	41
APPA Institute/Toolkit Wrap-up	42-43
Bartlett Tree Expert Company ( <a href="http://www.bartlett.com">www.bartlett.com</a> )	44
Barton Malow Company ( <a href="http://www.bartonmalow.com">www.bartonmalow.com</a> )	16
BRIC Partnership, LLC	13
Carrier Rental Systems ( <a href="http://www.hvacportablesystems.com">www.hvacportablesystems.com</a> )	20
Donley ( <a href="http://www.donleyinc.com">www.donleyinc.com</a> )	29
Dorlen Products Inc. ( <a href="http://www.wateralert.com">www.wateralert.com</a> )	46
DriTherm International ( <a href="http://www.dritherm.com">www.dritherm.com</a> )	37
EnergyCAP Software ( <a href="http://www.energycap.com">www.energycap.com</a> )	7
FAMIS Software, Inc. ( <a href="http://www.famis.com">www.famis.com</a> )	Cover 4
The Friday Group ( <a href="http://www.thefridaygroup.com">www.thefridaygroup.com</a> )	21
Georgia-Pacific Corporation ( <a href="http://www.gp.com">www.gp.com</a> )	8-9

Gilsulate International, Inc. ( <a href="http://www.gilsulate.com">www.gilsulate.com</a> )	41
Hoar Construction ( <a href="http://www.hoarpm.com">www.hoarpm.com</a> )	30
Informed LLC ( <a href="http://www.contraction.com">www.contraction.com</a> )	35
Lerch Bates Inc. ( <a href="http://www.lerchbates.com">www.lerchbates.com</a> )	5
McCourt Manufacturing ( <a href="http://www.mccourtmg.com">www.mccourtmg.com</a> )	38
SaniGlaze International, LLC ( <a href="http://www.saniglaze.com">www.saniglaze.com</a> )	23
SchoolDude.com ( <a href="http://www.schooldude.com">www.schooldude.com</a> )	Cover 3
Sodexo USA ( <a href="http://www.sodexoUSA.com">www.sodexoUSA.com</a> )	17
SolarOne Solutions ( <a href="http://www.solaronelight.com">www.solaronelight.com</a> )	31
TAC/Tour Andover Controls ( <a href="http://www.tac.com">www.tac.com</a> )	3
Tennant Company ( <a href="http://www.tennantco.com">www.tennantco.com</a> )	34
Tero Consulting Ltd ( <a href="http://www.tero.com">www.tero.com</a> )	15
TMA Systems ( <a href="http://www.tmasystems.com">www.tmasystems.com</a> )	Cover 2
Von Schrader Company ( <a href="http://www.vonschrader.com">www.vonschrader.com</a> )	40



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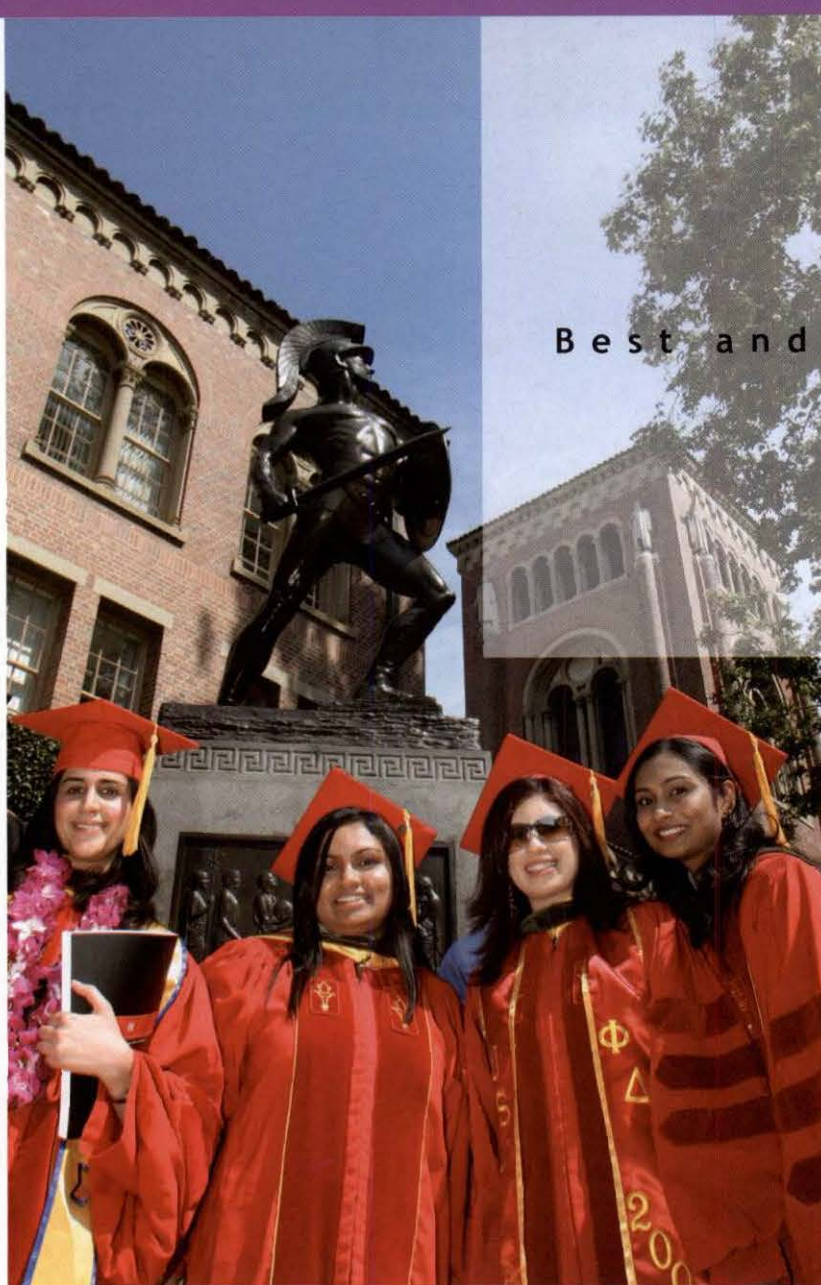
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