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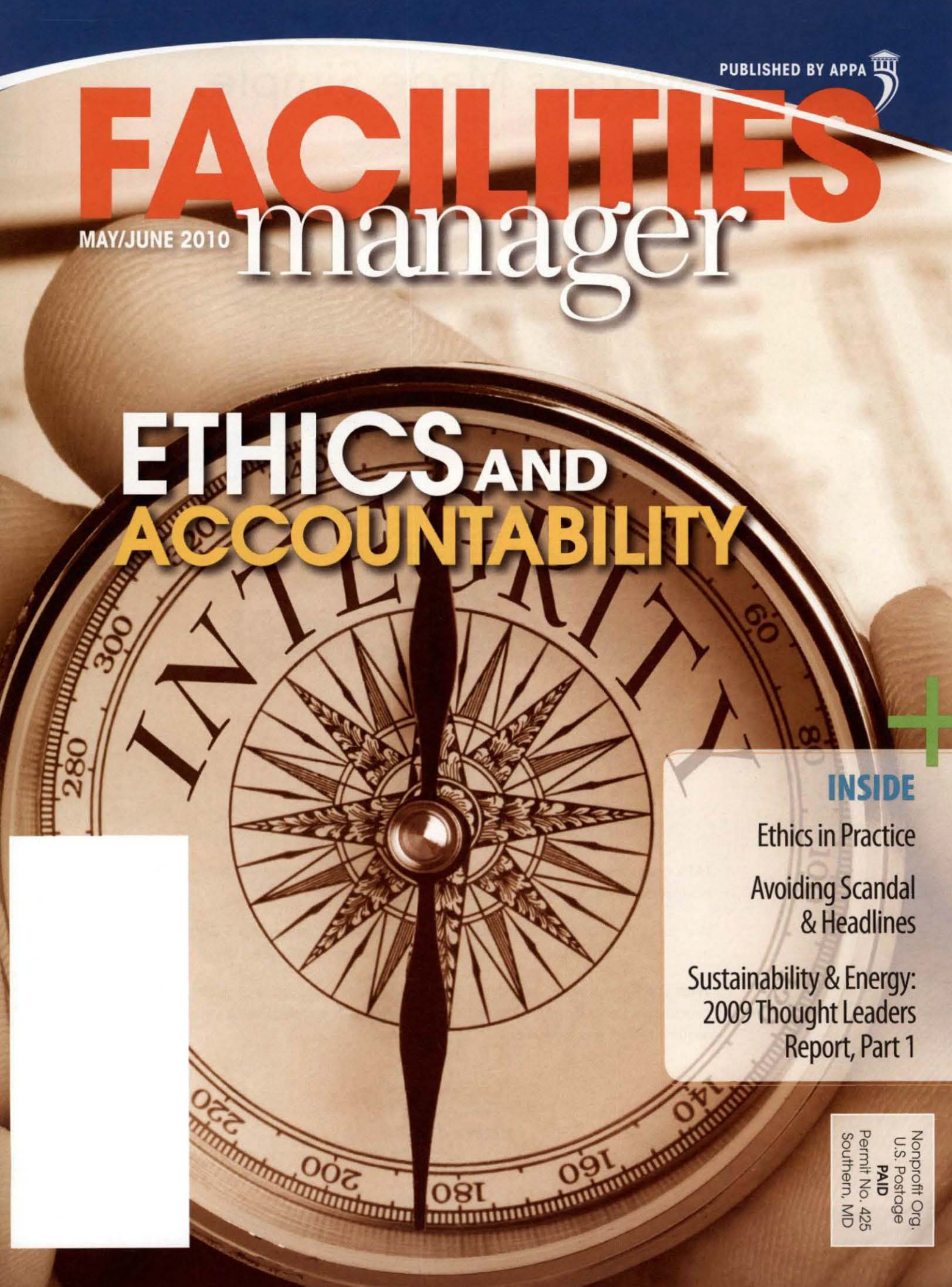
FACILITIES manager

MAY/JUNE 2010

ETHICS AND ACCOUNTABILITY



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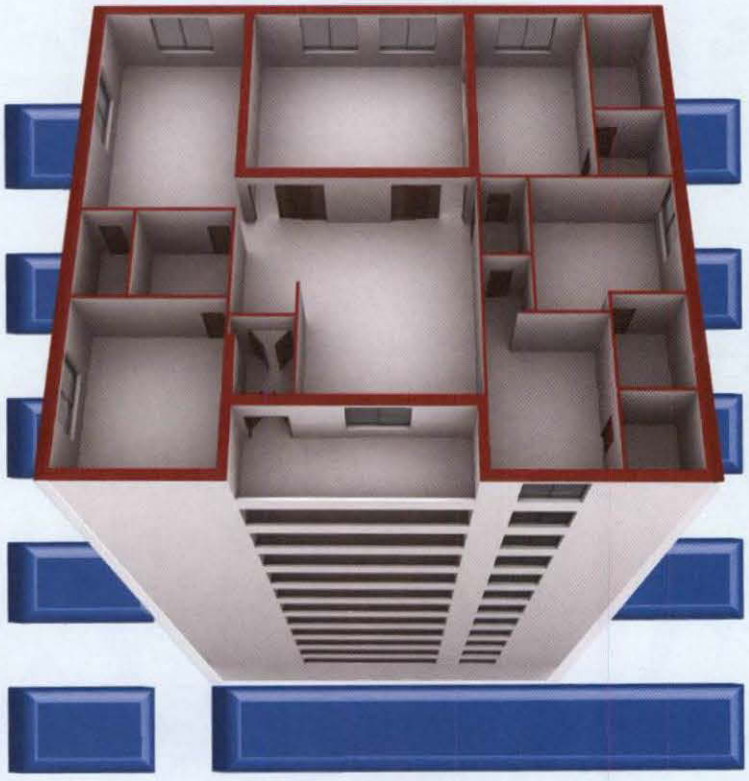

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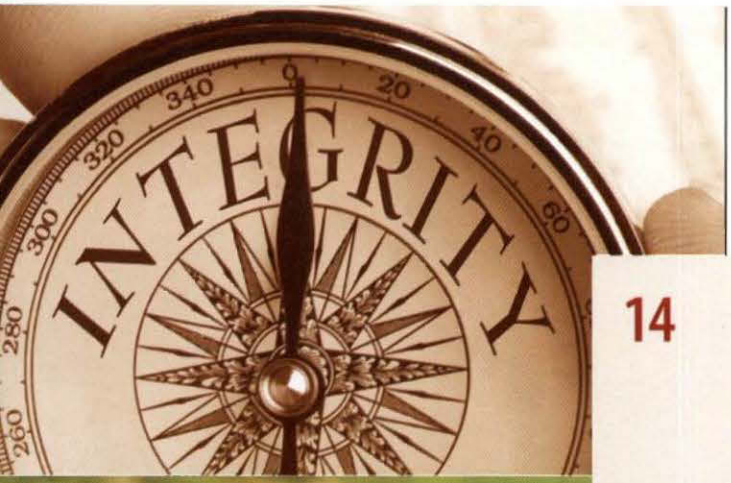
features

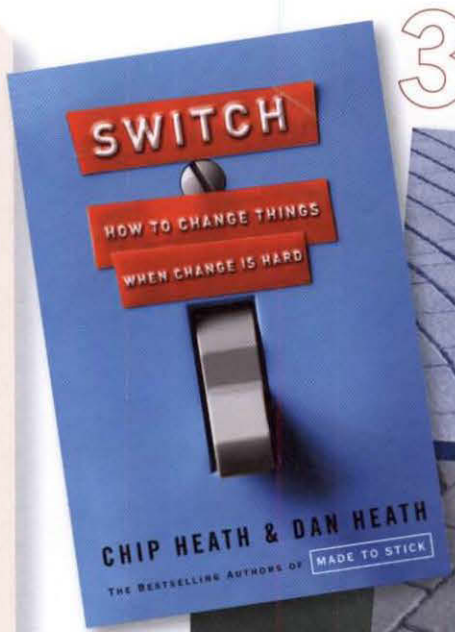
MAY/JUNE 2010
VOLUME 26 • Number 3



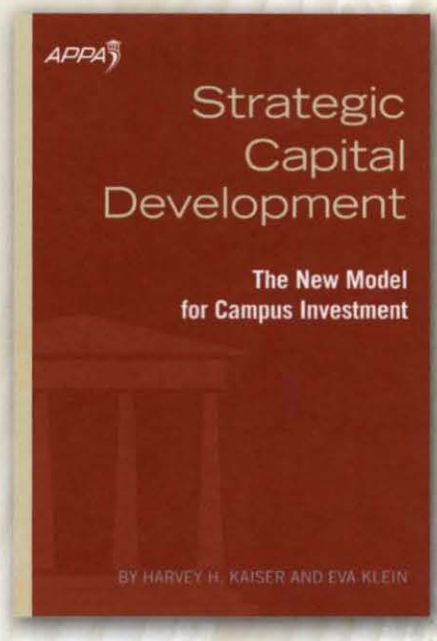
ETHICS AND ACCOUNTABILITY

columns

MAY/JUNE 2010
VOLUME 26 • Number 3



Strategic Capital Development:
The New Model for Campus Investment
By Harvey H. Kaiser and Eva Klein



Member price: $70
Non Member price: $82
ISBN 1-890956-55-4
Published April 2010

Harvey H. Kaiser

Eva Klein

APPA's newest book, Strategic Capital Development: The New Model for Campus Investment, presents a bold approach for planning capital investments from a strategic and long-range perspective. The authors combine their extensive higher education experience, and their specific work of the last decade to improve capital planning and decision-making, to make a case for a new model in which they seek to balance idealism with pragmatism. They define stewardship principles necessary to create and sustain a physical plant that is responsive to institutional strategies and functions; remains attractive to faculty and students; and optimizes available resources.

The book is organized into three parts:

Part 1—provides a summary of how capital planning and funding practices in higher education have evolved from the late 1940s to the present—including case studies of relatively more effective planning models.

Part 2—makes the authors' case for why change is needed, based on examination of environment/context factors, and articulates six key principles for 21st century facilities stewardship—the foundation for the model.

Part 3—provides the proposed model, based on the observations and conclusions in Parts 1 and 2. Following the model overview, Part 3 provides practical, hands-on, how-to details of methodologies and data requirements, along with illustrations of many of these elements.

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When discussing the topic of ethics and gifts from business partners and other interested parties, a former journalism professor told us that "if you can't eat it, drink it, or smoke it in one sitting, then don't take it!"

If ethics in the workplace were truly that easy to manage, we'd see far fewer scandals and headlines related to poor decisions and bad judgment, on up to pure greed and out-and-out thievery in so many levels of our professional world. The demands and expectations are many, and the world is much more complex.

The areas of gray increase, however, especially as the lines blur between in-house and contract crews; conflicting federal, state, and institutional purchasing guidelines; increased role of suppliers and manufacturers in the spec-writing or decision-making process; and sometimes close friendships between staff and business partners.

In this issue we tackle the subject of ethics and accountability. APPA's Executive Vice President Lander Medlin provides a valuable introduction in clear-cut terms on the ethics in the workplace. She teaches the topic at the twice-yearly Institute for Facilities Management, and her chapter on Managing Ethically will be published later this year in the APPA Body of Knowledge (BOK). This is a must-read feature.

Darcy Loy, of Illinois State University, discusses the sometimes uncomfortable topic of accountability and describes ways in which the individual, the department, and the institution can identify their roles and responsibilities and meet the expectations toward a common goal.

We also include a case study from New Mexico State University that describes some past practices and processes that were detrimental to the institution, and how the university has addressed the issues and improved upon its accountability to their stakeholders.

Finally, we are happy to include in this issue Part 1 of the 2009 Thought Leaders report, which focuses on environmental sustainability and energy efficiency. It is a more specialized topic than we have done in the Thought Leaders Series, but its critical issues couldn't be more current. Part 2 will appear in the July/August issue, and you can download a complimentary copy of the full report by visiting *www.appa.org/tools/measures/tls.cfm*. Many thanks to Haley & Aldrich for primary sponsorship of the 2009 Thought Leaders Symposium, with additional assistance from Delta Controls.

We look forward to seeing you at the APPA 2010 conference, July 14-16 in Boston.

Coming in July/August 2010

- Introducing Two New APPA Fellows
- Whole Building Design Objectives for Campus Safety & Security
- Things to Think About When Preparing to Retire
- Rightsizing HVAC Systems to Reduce Capital Costs & Save Energy
- 2009 Thought Leaders Report, Part 2

FACILITIES manager

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About APPA

APPA promotes leadership in educational facilities for professionals seeking to build their careers, transform their institutions, and elevate the value and recognition of facilities in education. APPA provides members the opportunity to explore trends, issues, and best practices in educational facilities through research, publications, professional development, and credentialing. Formerly the Association of Physical Plant Administrators, APPA is the association of choice for 5,200 educational facilities professionals at more than 1,500 learning institutions throughout the United States, Canada, and abroad. For more information, visit us at *www.appa.org*.

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facilities digest

APPA IS PLEASED TO PRESENT THE NEW OFFICERS FOR THE 2010-11 ADMINISTRATIVE YEAR:

PRESIDENT-ELECT:
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Middle Tennessee State University

VICE PRESIDENT FOR INFORMATION AND RESEARCH:
Randolph Hare
Washington & Lee University

VICE PRESIDENT FOR PROFESSIONAL DEVELOPMENT:
Glenn R. Smith
Bryn Mawr College

The successful candidates will take office at the APPA 2010 conference in Boston this July.

Many thanks to the Tally Committee for counting and verifying the votes:
Al Stearns, chair
Don Hedrick
Mike League

PROFESSIONAL DEVELOPMENT OPPORTUNITIES

Get Credit for Your Hard Work!

In today's increasingly complex and highly-specialized economy, credentials are everything. Sure, you know you've got the skills to do the job, but how do you convince your employer? For you the career-minded professional, certification is often the answer.

APPA's Educational Facilities Professional Credential (EFP) and the Certified Educational Facilities Professional (CEFP) Program establishes a standard for professional practice in the field of education facilities management. Through this process, individuals may be identified and recognized for their professional competence in facilities management, especially in those areas unique to the academic environment.

Visit us today so you can see just how both credentialing and certification will help assure your educational institution of the caliber of your facilities professionals.

Here What the Certification Means to Your Colleagues!

"Obtaining the CEFP certification has been a great way to demonstrate expertise in facilities management for me personally. The certification has also brought credit to the NC State Facilities Division, by demonstrating the caliber of professional within the organization. It has enhanced the relationship building process with numerous academic and administrative partners across campus and improved our overall ability to be stewards of the campus physical assets. The EFP and CEFP are great programs and an excellent way to demonstrate professional competency in the area of educational facilities management."

Allen Boyette, North Carolina State University, Director, Building Maintenance & Operations, CEFP

"APPAs EFP program has provided me with the knowledge and tools to perform and succeed in the university setting. Providing a well-rounded program has allowed me to understand the many facets involved with projects, leading to logical and informed decisions. Completing the APPA program and earning my EFP has provided me the confidence and knowledge I need to succeed."

Shaun Farrell, University of Virginia, Senior GIS Analyst, Utilities Department, EFP

REGISTER FOR APPA 2010

Join your facilities colleagues for the annual industry event presented by APPA that you can't afford to miss. Visit us today at *www.appa.org/training/APPA2010* for the latest on speakers, programming offerings, and check out the business partners are supporting us this year!

Remember July 14-16 Boston, Massachusetts – The Seaport Hotel – register today and book your travel early. For questions and inquiries, contact the Professional Development team at *education@appa.org*.

2010 APPA AWARD RECIPIENTS ANNOUNCED

MERITORIOUS SERVICE AWARD

Kevin Folsom
Director of Facilities & Plant Operations
Dallas Theological Seminary

Mary Vosevich
Director, Physical Plant Dept.
University of New Mexico

Norman Young
Executive Director, Facilities
University of Hartford

PACESETTER AWARD

Ben Elisondo
Director of Operations
Skirball Cultural Center

Daniel Gearan
Project Engineer
University of Southern Maine

Kristie Kowall
Director of Administrative Services
Illinois State University

Viron Lynch
Systems Support Manager
Weber State University

Juan Ontiveros
Executive Director
Utilities & Energy Management

Matthew M. Taylor
Director of Physical Facilities
University of North Florida

EFFECTIVE AND INNOVATIVE PRACTICES AWARD

Purdue University
"Building Services Sustainability Program"

University of Iowa
"University of Iowa Energy Hawks"

UNC Charlotte
"Take It or Leave It Tour"

University of Southern California
"Maintenance Parts and Materials Process Reengineering Case Study"

California State University, Northridge
"Student Design Team Program"

2010 FELLOWS

Maggie Kinnaman
Member Emeritus and APPA Past President

Mohammad H. Qayoumi
President, California State University, East Bay

BOK OPPORTUNITIES!

Purchase the BOK for Yourself and Your Organization's Use

Imagine having the most authoritative and up-to-date information on the practice of educational facilities right at your fingertips.... 24 hours, seven days a week.... and made available online to you and every staff member at your institution!

APPA's online Body of Knowledge provides your entire facilities organization with instant access to practical guidance, best practices and proven solutions from the educational facilities profession's most respected and recognized leaders.

APPA members can enjoy this benefit (a 12-month subscription) at the member price of $199 per institution. This one low subscription price provides online access to your entire staff.

Sponsor a BOK Chapter!

Reach the Higher Ed and K-12 Facilities Market with This Exceptional New Media Service from APPA!

University and college campuses and K-12 school systems are now subscribing to the Body of Knowledge to easily access best practices, practical guidance and proven solutions from the education facilities profession's most respected and recognized leaders.

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- Company name and logo positioned on your sponsored chapters.
- BOK subscribers notified of your sponsorship by email.
- Sponsors are listed on APPA's website with company logo.
- Sponsors are recognized in APPA's *Facilities Manager* magazine (published six times annually) and *Inside APPA* (electronic newsletter).
- E-mail notifications to BOK subscribers feature your company's logo.
- Recognition as BOK sponsor at APPA Annual Conference (APPA 2010).
- Recognition in *BOK Update*, which notifies subscribers regularly of content updates.
- Over 60 chapters are available for sponsorship.

View an online demo of the APPA Body of Knowledge at the following link: *www.appa.org/bok*

For more details and a list of available chapters for sponsorship, contact Gerry Van Treeck at *gvtgvt@earthlink.net* or 847-562-8633.

BOK
Body of Knowledge

EVENTS

APPA EVENTS – 2010

Jul 14-16 APPA 2010, *Boston, MA*
Jul 17 EFP Prep Course, *Boston, MA*
Jul 17 EFP Exam, *Boston, MA*
Jul 17 CEFP Exam, *Boston, MA*
Jul 18 EFP Examination, *Boston, MA*
Sep 12-16 Institute for Facilities Management, *Scottsdale, AZ*
Sep 17 EFP Prep Course, *Scottsdale, AZ*
Sep 17 CEFP Exam, *Scottsdale, AZ*
Sep 17 EFP Exam, *Scottsdale, AZ*
Sep 18 EFP Exam, *Scottsdale, AZ*

REGION/CHAPTER EVENTS

Sep 24-27 APPA's Supervisor's Toolkit, *Lincoln, NE*
Sep 24-27 Track 1 of APPA's Leadership Academy: Individual Effectiveness ls, *Lincoln, NE*
Sep 25-29 CAPPA Regional Meeting , *Lincoln, NE*
Sep 26-29 PCAPPA Regional Meeting, *Seattle, WA*
Oct 2-6 MAPPA Regional Meeting, *Moline, IL of the Quad Cities*
Oct 3-5 SRAPPA Regional Meeting, *Point Clear, AL*
Oct 3-6 ERAPPA Regional Conference, *Pittsburgh, PA*
Oct 16-20 APPA's Supervisor's Toolkit, *Coeur d'Alene, ID*
Oct 18-20 RMA Regional Conference, *Coeur d'Alene, ID*

OTHER EVENTS

Jun 12-15 Canadian Association of University Business Officers, *St. John's, Newfoundland and Labrador*
Jun 13-16 Creating an Efficient Energy Future: IDEA 101st Annual Conference & Trade Show, *Indianapolis, IN*
Sep 21-22 BedBug University North American Summit 2010, *Chicago, IL*
Oct 10-12 AASHE Annual Conference, *Denver, CO*

For more information or to submit your organization's event, visit *www.appa.org/applications/calendar/events.cfm.*

facilities digest

HELP IN CONVINCING YOUR BOSS TO SEND YOU TO APPA'S 2010 ANNUAL CONFERENCE

Below is a sample memo outlining some of the reasons why your boss should send you to APPA 2010, APPA's premier conference for the educational facilities professional.

Sample Memo

To: [Insert name of your boss]

From: [Insert your name]

Subject: APPA 2010 Annual Conference

The APPA Annual Conference and Expo is being held in Boston, MA July 14-16. I have reviewed the conference agenda as well as the list of exhibiting companies and feel our institution and I can benefit from attending.

The APPA conference is considered the premier educational event for facilities professionals. If given the opportunity to attend, I can accomplish a great deal that will benefit our organization.

Especially during challenging times like these, relationship building and management is key. The APPA conference is an excellent opportunity to build new and strengthen existing relationships that are critical for our organization. During the conference, I will talk with my peers to benchmark our program against theirs, and look for new ways to work more effectively and efficiently.

Having more than 70 different product and services vendors in one place at one time can reduce the time I spend in the office researching and meeting with vendors. Spending time with these vendors to discuss our specific issues could benefit us, and this is an opportunity to learn more about what services they have to offer.

As an asset to our organization, continual development and knowledge of trends and innovations are critical to my ability to perform at my best. Through my attendance, I'll be adding to the base knowledge and worth of our institution and the campus community.

The conference fee is $895 if we register by May 30th and APPA is allowing for registrations to be accepted now but bill us in our next fiscal year if we feel this would be easier.

I believe this will be a great investment for us and a good use of my time.

Thank you for your consideration. I will await your approval.

Regards,

[Insert your name]

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The Future of APPA's BOK

By Maggie Kinnaman, APPA Fellow

APPA's digital Body of Knowledge (BOK) has now been available to members for six months. It's important to share with you exciting developments that we see on the horizon for the BOK.

To date four content coordinators each assigned to one of our four core competency areas have been working with more than 90 authors to deliver to our membership 90 updated or newly researched and peer reviewed subjects that are essential information for high performing facilities managers. On behalf of APPA I would like to express my sincere thanks to the four content coordinators, the authors, and all of our peer reviewers. The current table of contents to the BOK is listed on page 12. More chapters will be added on an ongoing basis.

Additionally we're proud to announce the following sponsors of various chapters resident within the BOK.

- **Automated Logic Systems,** Central Monitoring and Control Systems
- **CAPPA,** Leadership
- **ConEdison Solutions,** Energy Management and Conservation
- **Spirotherm,** Building Mechanical Systems
- **SRAPPA,** Roadmap for Campus Environmental Sustainability
- **SSC Service Solutions,** Custodial Services
- **Tandus,** Building Interiors

I cannot say enough about the wealth of resources presented to your desktop upon subscribing to the BOK. One minimal annual fee gives an institution unlimited access to "Just in Time" resources 24/7. Think about how valuable a tool this can be for your institution. You can also give access to the BOK to other administrative and academic officers within your institution. How better to share the wealth of information and sell the importance of your profession to the rest of the campus.

BOK

Body of Knowledge

Members can access the BOK by signing in through myAPPA. From there members go to the BOK located under the myBookstore section at *http://appa.org/myAPPA.cfm*.

I CANNOT SAY ENOUGH ABOUT THE WEALTH OF RESOURCES PRESENTED TO YOUR DESKTOP UPON SUBSCRIBING TO THE BOK. ONE MINIMAL ANNUAL FEE GIVES AN INSTITUTION UNLIMITED ACCESS TO "JUST IN TIME" RESOURCES 24/7.

Click on this link and it takes you to all sections of the BOK. Once you're in the site, you can send comments to BOK Administrators to correct, update information, or to volunteer a specific case study for a particular section. Additionally members can conduct a search related to a particular topic and print a copy of a chapter in PDF format.

As a member support service, a BOK e-bulletin, *BOK Update*, is being developed. This tool will be provided to all who have subscribed to the BOK. Because the BOK is a living document, *BOK Update* will provide links to newly authored or updated material as well as announce new functionalities.

APPA's new BOK will greatly influence the direction of many of APPA's other services. For example, the online BOK replaces the longstanding four volume set of the *Facilities Management* manual. APPA Institute attendees will be referred to the online BOK. The Institute Deans are currently reviewing the BOK to ensure that Institute course offerings are consistent with and reflective of the BOK. APPA's credentialing initiative will also be drawing from the BOK.

The BOK Editorial Board is currently working on some exciting concepts that I'd like to share with you. The first is a protocol to establish an annual review of BOK chapters. The second is the ability to embed videos in each of the chapters. Chapter authors will be challenged to develop videos using YouTube that will complement the chapter content. As an example, the custodial chapter might include a video related to a specific process for buffing a floor.

Perhaps the most important discussions to be held amongst the Editorial Board will address how to utilize the

digital BOK as a framework to organize all evolving knowledge within APPA. Should all material become part of the BOK, should only peer reviewed material become part of the BOK, how can we best organize the presentation of acceptable material?

These are all challenging issues but I'm confident that we all agree on one thing. The greater we cast the net of APPA knowledge the greater will be the benefit for our members. Just envision a global search that goes out and captures APPA's BOK material, newly written books, *Facilities Manager* magazine articles, CFaR projects, etc. We have much work to do but looking over the past two years one cannot help but smile. What was envisioned has truly been delivered to our members.

I would certainly be remiss not to thank the APPA staff, particularly Anita Dosik and Steve Glazner, for all of their tireless efforts in keeping a team of close to 100 all rowing in the same direction. Without their dedication this project would have never been our reality.

So if you haven't subscribed to APPA's BOK, I suggest you jump on the bandwagon as soon as possible. I can assure you that it will be the best $199 that your organization has ever spent. *www.appa.org/bok.*

Past APPA President Maggie Kinnaman is the editor-in-chief for APPA's Body of Knowledge (BOK). She can be reached at *maggiekinnaman@comcast.net*.

WWW.APPA.ORG/BOK

PART 1 – GENERAL ADMINISTRATION AND MANAGEMENT

Content Coordinator: Jack Hug, APPA Fellow

- Building an Effective Workforce
- Change Management
- Communication
- Cost Allocation
- Financial Analysis and Control
- Information Management and Technology
- Leadership
- Modern Budgeting Issues
- Organization
- Overview of Accounting Systems
- Strategic Planning for Facilities
- Staff Development

PART 2 – OPERATIONS AND MAINTENANCE

Content Coordinator: Gary Reynolds, APPA Fellow

- Building Architectural and Structural Systems
- Building Control Systems
- Building Electrical Systems
- Building Fire Protection
- Building Interiors
- Building Mechanical Systems
- Campus Security
- Capital Renewal and Deferred Maintenance Programs
- Custodial Services
- Elevator Systems
- Emergency Preparedness and Business Continuity
- Environmental Health and Safety
- Facilities Condition Assessment
- Facilities Maintenance and Operations
- Grounds Maintenance and Operations
- Solid Waste and Recycling
- Work Management

PART 3 – ENERGY, UTILITIES, AND ENVIRONMENTAL STEWARDSHIP

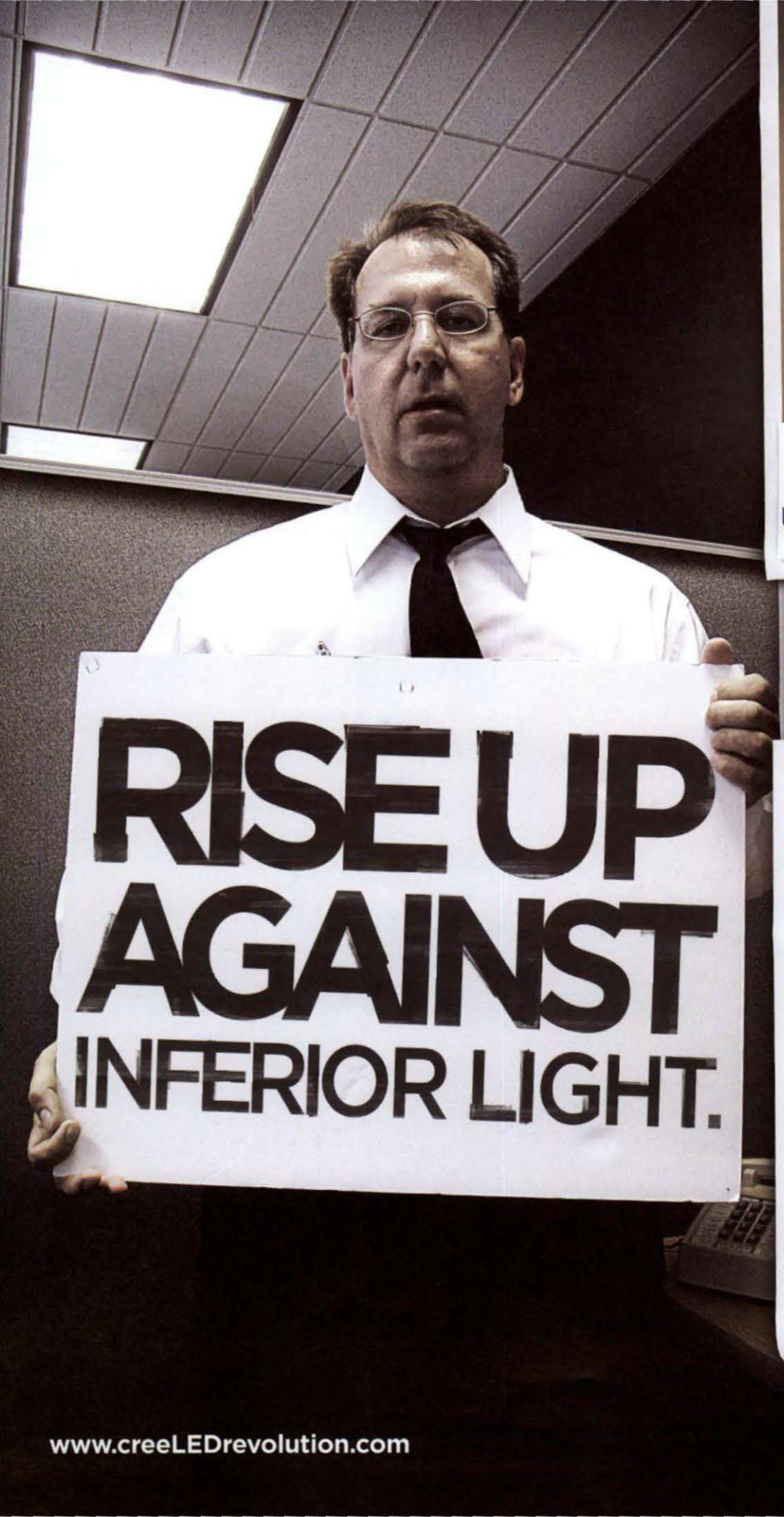
Content Coordinator: Darryl Boyce

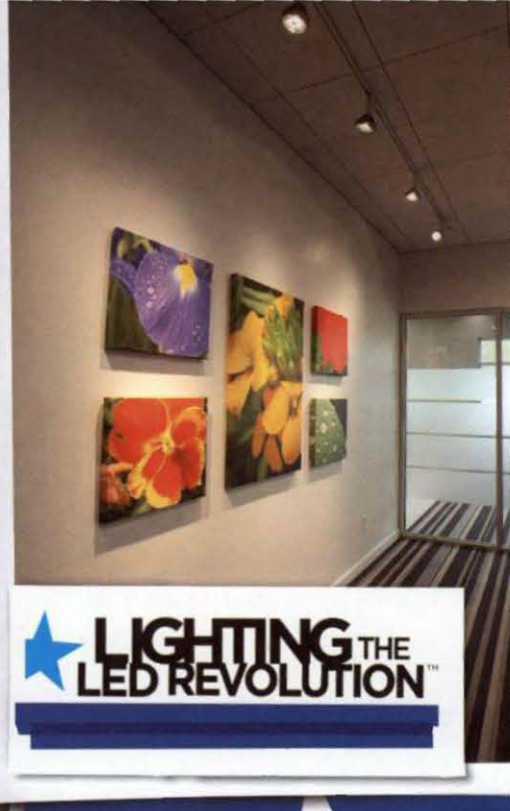
- Campus Utility Systems Master Planning
- Central Cooling Systems
- Central Heating Plants
- Central Monitoring and Control Systems
- Cogeneration
- Data and Voice Network Infrastructure
- District Heating and Cooling Distribution Systems
- Domestic and Fire Protection Water Supply and Distribution Systems
- Electrical Distribution Systems
- Energy Management and Conservation
- Energy Supply Alternatives
- Primary Fuel Management
- Regulatory Issues for Utility Plants
- Sewer and Storm Drain Systems

PART 4 – PLANNING, DESIGN, AND CONSTRUCTION

Content Coordinator: Bill Daigneau, APPA Fellow

- Building Information Modeling
- The Campus Infrastructure
- Construction Contract Administration
- Construction Contracting Procedures and Contracts
- Design Management
- Professional Services Procurement and Contracts
- Project Delivery
- Project Design and Development
- Project Financing
- Renovations and Alterations
- Real Estate
- Value Management





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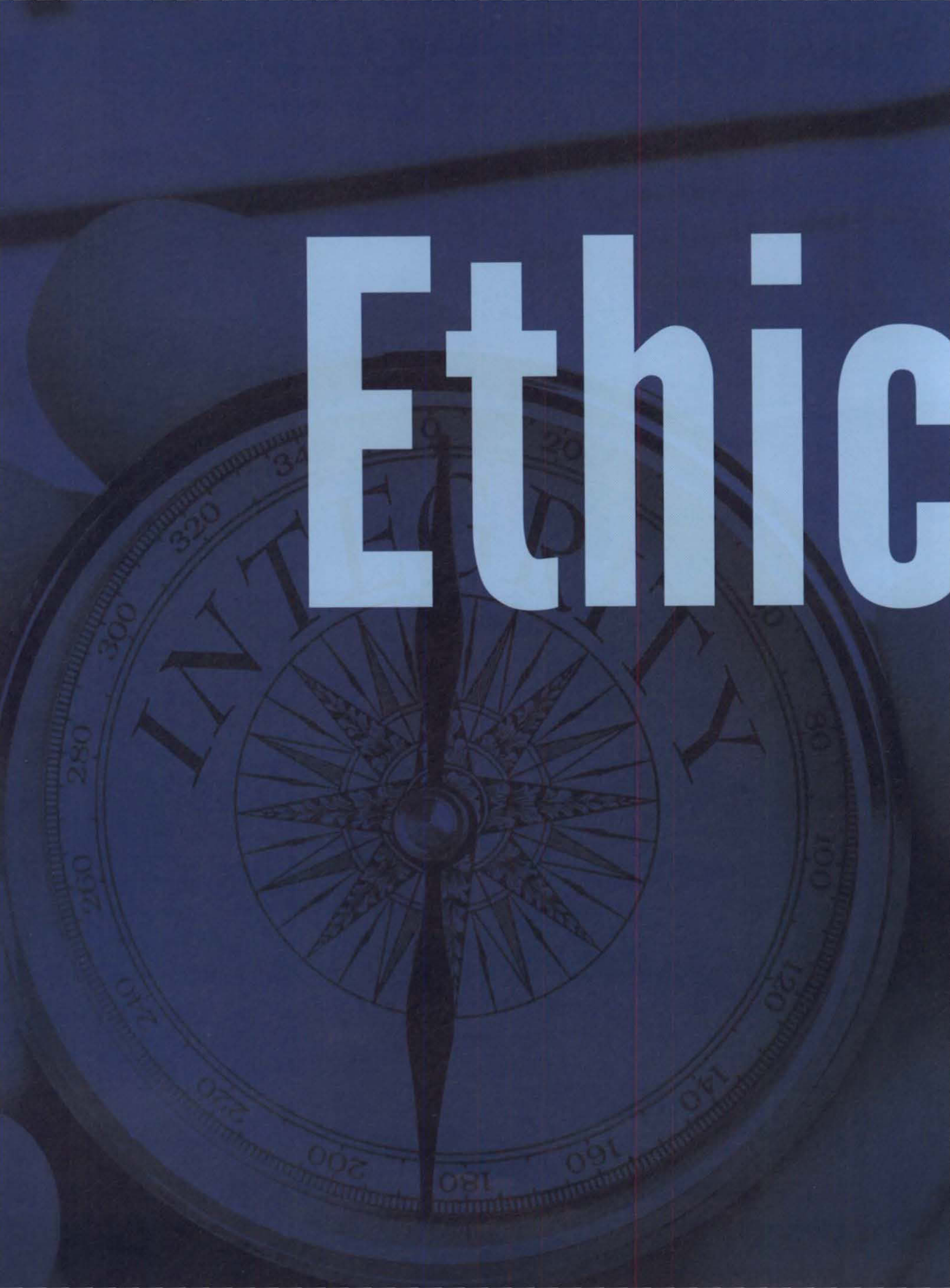
Ethic

By E. Lander Medlin

Ethics IN Practice

Ethics – we hear about it, we talk about it, daily, at least the lapses. It touches our lives regularly in both positive and negative ways. So what is ethics anyway? How do we define it? Why is it so important? What is the basis for making ethical decisions? Without the sermon, how do we approach ethical situations or moral dilemmas in both meaningful and practical ways? These questions, among many others, will be explored throughout this article and further in a chapter slated for APPA's Body of Knowledge (BOK), the digitally revised version of the popular book *Facilities Management: A Manual for Plant Administration.*

In January 2000, C. David Lisman wrote an article for *Community College Journal* stating, "At the heart of competent *citizenship* is the capability of individuals to be ethical." Hence, I would suggest that at the heart of competent *leadership* is the capability of individuals to be ethical.

Some are uncomfortable with the thought that ethics does not consist of an *absolute* set of principles. Nonetheless, we can develop and utilize a reasonable set of guidelines for ethical behavior and action in the workplace. Given the workplace as the basis for discussion of these ethical principles and practices, it should also be reasonable to adopt the perspective that our moral point-of-view should concern actions and behaviors that serve the interests of that collective or the common good. This is important as it aids in the design and implementation of a framework of guiding principles and a set of practical questions we can use in making ethical decisions and taking action accordingly.

This basis also helps us address what is in the best interest of all concerned, since that may not align with our own specific or immediate needs and desires. Further, we need to be able to work together to support the good of all. Therefore, the basic premise is concerned with the good of others (the collective in this case) and not just for oneself.

In this way, we can demonstrate that leadership is a blend of both competence (job knowledge and skill) and character (high integrity and moral responsibility). Certainly we need relevant skills and knowledge (job competence) to succeed in the workplace. Arguably, we need high integrity and a strong moral fiber (character) to succeed as well.

This leads us to the topic of ethical behavior and ethics in the workplace and its importance in developing competent and capable leaders. As ethics requires paying special heed to both oneself as well as to others. It's a matter of balance. Unfortunately, the word "ethics" means different things to different people.

For purposes of this article, ethics is defined as a set of guidelines and/or rules for the conduct of individual behavior in an organization or civil society. This ethical code of conduct (as it is normally identified) is intended to guide policies, practices, and decision-making for employees on behalf of the organization. Although easily stated, what does this really mean? Expanding on this definition, the FMI/CMAA Survey of Construction Industry Ethical Practices stated that ethics is:

- The discipline dealing with what is good and bad about moral duty and obligation
- A set of accepted moral principles and values about what ought to be
- A theory or system of moral principles governing the appropriate conduct for an individual or group
- A code of morality.

The words we actually use to define ethics have an intuitive meaning specific to each of us and around the knowledge of right and wrong – our morals. However, we need clarity and a common or shared understanding of such terms if we expect to communicate in meaningful ways on such a complicated topic. Otherwise, the subject quickly gets muddy and murky further complicating matters and the decision-making process. The terms and their definitions surrounding ethics are loaded with ambiguity, have different meanings for different people, and raise even more questions complicating matters even further.

Nevertheless, the ethical behavior of individuals and their organizations is extremely important, if not essential, for an orga-

nization's long-term integrity and to build an environment of trust. Both the individual and an organization's reputation (its brand value) is based on trust and integrity. The role of top leadership in setting the tone and modeling ethical behavior (what one does, not just what one says) is critical in making ethics part of the organizational culture, creating a trust environment, and ensuring ethical behavior is an ongoing requirement. Remember, trust is built slowly, one day at a time, but can be destroyed in a matter of moments.

Looking at the world through our individual lenses invariably has significant drawbacks. If we are not careful, we will tend toward making decisions based only on our point of view or our own perspective.

PERCEPTION – ITS LIMITATIONS

Our perception of the world around us is created from our experiences, parental upbringing, educational attainment, cultural background, our morals, and our values. This perception is formed from our paradigm(s), i.e., the mental map of how we see the world; our world view. No matter what our circumstances, our individual paradigms are limited and incomplete. We all have blind spots. Therefore, looking at the world through our individual lenses invariably has significant drawbacks. If we are not careful, we will tend toward making decisions based only on our point of view or our own perspective.

PERSPECTIVE – ITS IMPORTANCE

However, if we understand the fact that *people see what they believe*, we can quickly see the limitations of looking at the world through our own limited perspective. It is through the power of shared perspectives that we gain so much for our organizations and begin to create the real possibility of establishing open and shared channels of communication and establish opportunities for deep collaboration, which are critical elements in creating an environment of trust. We are less apt to dismiss or judge/misjudge others' perspectives if we are open to our differences and the perspectives they foster and engender. By doing so, we are able to look at problems and issues through a variety of different lenses.

PRINCIPLES – A FOUNDATIONAL FRAMEWORK

When considering ethical issues or dilemmas, it is important to establish a consistent and predictable framework of foundational principles. And, it is equally important to recognize there is a difference between values and principles. Values represent social norms, are personal, emotional, subjective, and arguable. Whereas principles represent natural laws, are impersonal, factual, objective, and self-evident. Therefore, principles stand the test of time and govern behavior with a resultant set of consequences whether we agree or disagree. This distinction may seem minor, but is critically important to ensure the organization and the collective it represents is focused on and working from a set of unarguable and objective foundational principles as their guide. Hopefully one's personal values align with these overarching principles. And, although one might argue about the specific details surrounding each of the principles, in the main they are indeed self-evident.

From much of the literature on this subject, six foundational principles emerge and form the basis of this framework. They are:

- *Trustworthiness, Honesty, and Personal Integrity* – the most important, first and foremost, of all the principles; without it, all the others fall apart.
- *Responsibility for Self* – where character is built from the inside-out, day-in and day-out; and where substance trumps symbolism every time.
- *Freedom of Thought and Choice* – where questions are encouraged and openness in decision-making is valued.
- *Being Equitable, Just, and/or Fair* – which is critically important that individuals in the organization feel they are treated in a *just* manner and will receive fair treatment whether they agree with the decision(s) or not.
- *Respect and Caring for Others* – where compassion and mercy reign in establishing sincere and genuine understanding which inspires trust and fosters openness.
- *Respect for Human Rights and Dignity* – where one hopes that universal law will outweigh outdated, societal norms and humility is ever-present.

PRACTICAL QUESTIONS – A TOOL FOR DECISION-MAKING

Ten questions have been formulated from the myriad questions found in the literature on this subject. These types of questions can and should be used regularly to address any given ethical issue or dilemma that arises in the organization. They are:

1. ***What is the dilemma, issue, or problem?*** Although the question sounds too basic, it is extremely important to define the problem accurately and assemble all the facts immediately at hand. This way you know what you don't know and, therefore, what you need to further examine. In addition, this effort helps to understand the context and history associated with the specific problem at hand.
2. ***Is it legal? Will I be violating either civil law or organization policy?*** This question forces you to research the

actual legalities of the case and ensures you understand your own organization's policies. And, if you find your organization's policy is in some way unethical, you should seek to have it changed or modified.

3. ***How would you define the problem if you stood on the other side of the fence?*** Put yourself in the other parties' shoes. Doing so can enlighten your thinking and will illuminate others' perspectives.
4. ***What are the conflicting values and principles apparent in this situation?*** It is important to determine where personal values and organizational principles come into conflict. Identifying the conflicts help to smoke out the ethics of any situation. This effort sets the stage for identifying options and their consequences.

The engagement of all affected parties is often overlooked but critical to ensure there are little, if any, limitations of knowledge in your response or action.

5. ***What are the alternative courses of action/options?*** Forcing yourself and others to explore more than one alternative course of action helps open up the possibilities and ensures that all perspectives have been gathered for consideration.
6. ***What are the consequences, risks, and implications of each option?*** Answering this question helps your further distinguish the most responsible course of action versus just taking the most expedient choice. It also highlights or discloses how others might be harmed by any particular course of action.
7. ***Can you discuss the problem with the affected parties before you make your decision?*** The engagement of all affected parties is often overlooked but critical to ensure there are little, if any, limitations of knowledge in your response or action. Unfortunately, the pressure of time and the potential discomfort associated with this type of engagement all too often holds people back from having such a critical set of conversations as part of the fact-finding process.
8. ***Is it balanced? Is it fair to all concerned in the short term as well as the long term?*** When it comes to balance, it is important to ensure consistency and predictability so there is no confusion about the rules of the game. In addition, it has been said that time alters circumstances. You will want to make sure that you have assessed the situation and its circumstances such that your response/action will indeed stand the test of time.
9. ***How will the decision make you feel about yourself? Could you disclose, without qualms, your decision or action to your boss, other employees, the newspaper, your family?*** This is clearly the litmus test for any action you plan to take. There is a standard question that deserves repeating here: "Would you want your decision to appear on the front page of the *New York Times*?" This type of disclosure (or its real possibility) should give you cause

for pause and ensure that your character and the reputation/brand of the organization is preserved.

10. ***What is your decision?*** In any case, we have to come to a final conclusion and render a response/action. It is important to ascertain not only what your decision is in the end but how it will be communicated.

PROCESSES – STRATEGIES FOR INCREASING AWARENESS & IMPROVING THE ETHICAL CLIMATE

Ultimately, it is important to put policies into practice and establish a process(s) to ensure broad knowledge of what is acceptable and unacceptable behavior and increase awareness of what constitutes ethics/ethical behavior in your organization. By implementing various strategies and publicizing them widely, you will be able to illuminate your policies and practices and further demonstrate commitment as an organization to ethical behavior and the creation of an ethical environment steeped in trust. Some strategies to consider are:

- Open up varying channels of communication on the topic
- Establish a hotline and/or website dedicated to or exclusively for this topic
- Discuss regularly at managers/staff meetings
- Establish these foundation principles and practical questions as a basis for handling ethical situations and conflicts
- Develop a code of conduct for your organization
- Conduct educational training sessions with all employees
- Establish an ethics officer or ombudsperson
- Establish an Ethics Advisory Committee

As you can readily see, a great deal of work is involved in establishing ethics as an explicit and implicit part of the organizational culture. And, don't underestimate the value of the organization's leadership serving as role models and guides and daily reminders of the importance of ethical behavior. Ultimately, it's not really about compliance or adherence to rules and legalities. It's about the character of your leadership, your perceived fairness, and ultimately the reputation you and your team build/earn over time.

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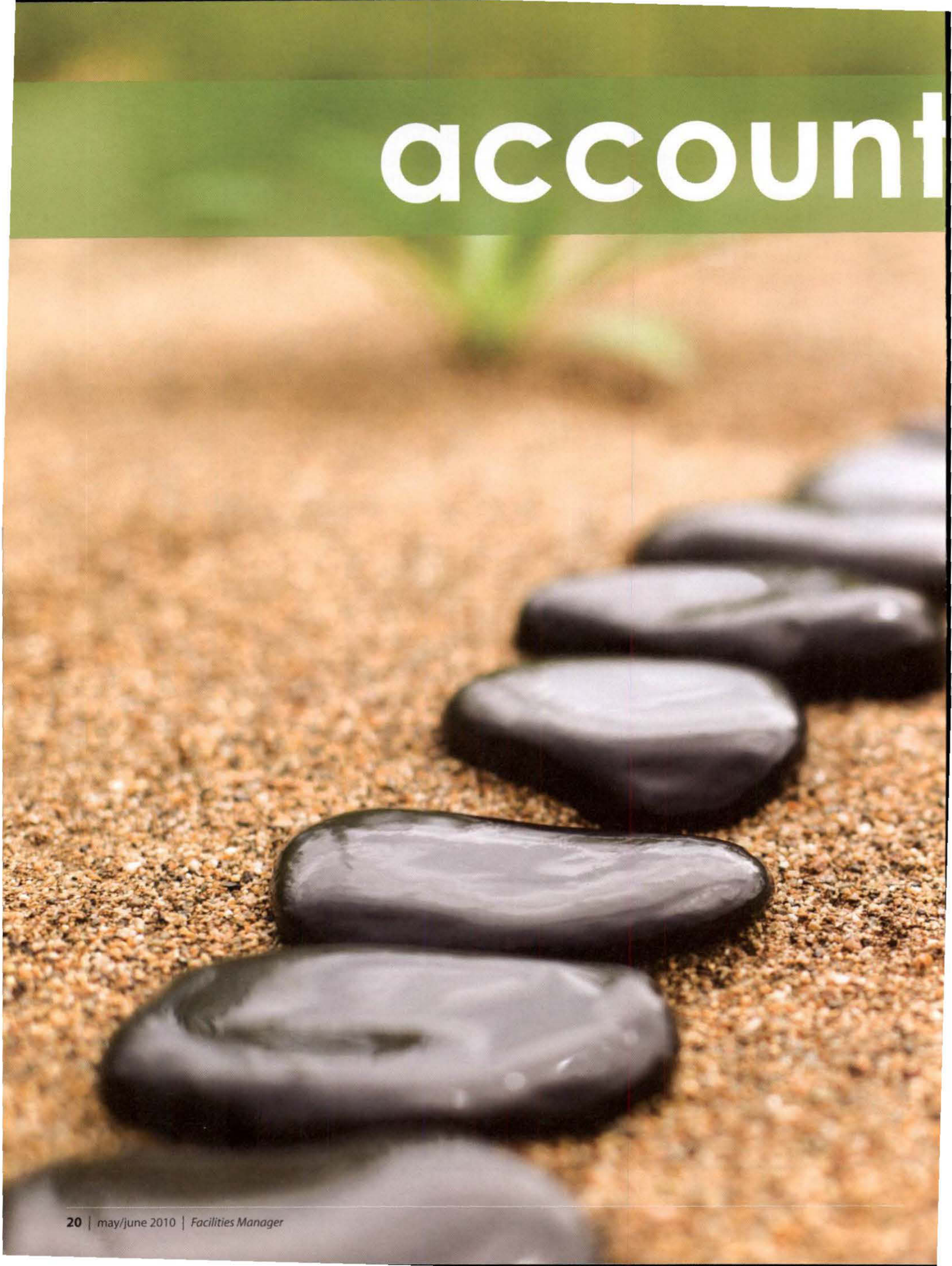
account



ability:

stepping stones to success

By Darcy Loy

Lack of accountability is a leading topic in today's workforce. It costs corporate America billions of dollars each year and has financial impact on our educational institutions as well. From employee theft to poor production of product and inefficiency, it is a serious problem. As facilities leaders we need to take ownership and strive to implement accountability in all levels of our organizations. Granted it looms as a daunting task, but with precise planning and implementation it has the potential to be successful.

As leaders the answers lie within us and we have the power to choose the right path for our units. We need to be able to establish a definition of accountability as well as a mission and goals for our units. We then pave the path for success. With orientation, persistence, trust, commitment and constant communication, we can achieve accountability.

The dictionary defines accountability as "the responsibility to someone or for some activity." Accountability is also viewed as responsible and professional behavior—being able to count on what is promised and what is expected. However, if you walked into a room of 20 people and asked them what the definition of accountability was, you would get 20 or more different answers. Each of us has our own perception of what the word means, and that is where the challenge lies.

When accountability within our units fails, we miss deadlines and produce a poor product. We have to redo the task as the result of poor planning or inefficiency. This is inexcusable especially in these difficult economic times when we are struggling daily to be cost effective. Not only do we lose revenue where projects are concerned, but students may not choose our institutions. Lack of team accountability is evident when our buildings aren't clean, an incorrect lock has been installed, or the aesthetic appearance of our grounds looks unkempt. Today competition with other educational institutions finds us having to vie for students more vigorously than ever before. We cannot afford to have them choose another institution because we have failed to be accountable for our daily responsibilities.

Developing an Effective Performance Evaluation:

- Clarify the job role, description and responsibilities
- Maintain accurate records of employee performance
- Carefully design a measurement/grading system
- Adequate training for those administrating the evaluations
- Consider multiple evaluations if employee had several supervisors
- Conduct reviews frequently and on an ongoing basis
- If at all possible pay for performance

TQM Key Elements:

- Customer orientation
- Commitment and leadership of senior management
- Planning and organization
- Using quality management techniques and tools
- Education and training
- Involvement and teamwork
- Measurement and feedback
- Culture change

Components for Facilities Investment Decisions:

- Common terminology
- A basis of shared information
- Decision processes that are clearly defined and incorporative multiple decisions points
- Performance measures.
- Feedback process
- Methods for establishing accountability
- Incentives for groups and individuals

Revenue is not the sole factor to fall victim to lack of accountability. We lose qualified and highly productive employees because their leaders aren't accountable themselves. Lack of accountability in upper management lends to poor moral resulting in discouraged and unhappy employees. They will in turn seek out better companies to work for.

Although these are significant factors in higher education there is one more important- our customer. Our facility units are in the customer service business. We strive to meet the needs of our clients daily. If we are not accountable and fail in the eyes of our customer we lose *credibility*. They become disillusioned with our service and that is difficult to repair and reestablish. Stephen Covey states, "Accountability breeds response-ability." Without accountability and commitment our organization will fall short. Our ability to respond to our customers in a timely and efficient manner is diminished.

THE CHAIN

"Standards and interlocking goals are the glue that binds teams, sub-groups and sub-divisions together within the company's purpose and vision."
(Gene Kaczmarski)

To be successful accountability must be expected from all levels of an organization. In higher education it starts with the president or chancellor. It must then efficiently filter down throughout the institution. Robert Staub, founder of Staub Leadership Consults in Greensboro, refers to this as the chain of accountability. "Accountability is a chain of responsibility that is forged person-by-person, link-by-link in an unbroken cycle of effectiveness." (Staub, February 2005, p.1) As leaders we represent a significant link in that chain as do our frontline employees. For that chain to remain strong we must embrace a cohesive concept of what accountability is. A break in the "chain" is equal to a failed mission.

We exist in a world of diversity within the workplace; different ideas and perceptions, educational backgrounds and

skill sets of our employees. We have different managerial behaviors and styles as well, making defining accountability a daunting task. As leaders we must take the lead and engage our employees in discussion. We must forge "our" unit's definition of accountability. Establishment of a mission statement and vision, as well as core values for the unit is critical. This helps form a strong link within the organization. With those established an inventory of the unit must take place. We need to recognize what is working well and what issues need to be addressed. Established goals and core values can be used as benchmarks to see how well the organization is progressing. Once in place the next step is implementation of accountability within your unit.

ORIENTATION

"It's not my job, I only work here." (Anonymous)

Establishment of accountability needs to begin at the interview level. You have to hire the right person for the job, perhaps not looking so much at their skill sets but at their personality traits instead. Do they seem honest and enthusiastic? Will they be a good "fit" within your organization? Skill sets are extremely important in an employee yet they can always be taught and perfected through mentoring and training. You cannot modify the character traits of an individual. Performance levels and expectations must be communicated the day they join your team. When the employee isn't meeting expectations address the issue immediately before the issue progresses. Make sure your team is "assignment correct." Set a focus for the organization and reiterate so each employee understands their role within the unit. Review the mission statement and goals of the department on a regular basis. You might consider implementation of Total Quality Management (TQM). TQM's premise is mutual cooperation of everyone within an organization. Its principles encompass numerous key elements such as continuous improvement, customer focus, honesty and sincerity.

PERSISTENCE, COMMITMENT, AND TRUST

Once you have oriented staff to accountability expectations you must adhere to your plan as their leader. Constant reevaluation of processes, procedures, and expectations put into place is necessary. They are benchmarks to evaluate performance. Mistakes will be made. A good leader recognizes failure as a learning opportunity. As their mentor you must address the issue, but in a positive manner. Praise the "try" and refocus the individual or team to correct the problem. This lends to success in the future. Constructive criticism is a valuable tool for an employee. It addresses strong and weak points within

the individual and is a key tool for positive reinforcement and the building of confidence. Without consistent persistence of the leader employee momentum of the unit will falter and eventually come to a complete stop.

"It is easy to dodge our responsibilities, but we cannot dodge the consequences of dodging our responsibilities." (Sir Josiah Stamp)

Commitment can be viewed as the driving force behind a successful organization. Without commitment the unit will likely fail. There must be commitment to the vision and goals of the unit from all parties. If the team is to be successful and accountable each member must be responsible for their actions, words, and decisions. As mentors we monitor the team-members' commitment to accountability and we must lead by example. Staub states, "Accountability is only a word unless each of us is willing to 'own' our mistakes and actively engage in learning how to improve by listening to and acting upon corrective feedback." (Staub, March 2005, p. 1) We must be committed to our cause.

"The pure and simple truth is rarely pure and never simple." (Oscar Wilde)

Truth. Trust. They go hand in hand. Without one there cannot be the other. As facilities leaders we must be cognizant at all times of how important trust is. Trust must exist between upper management and frontline employees if we are to be successful. With trust we meet goals and are accountable for our decisions. Without it we lose buy-in and fail miserably as a whole. Our frontline needs to trust in the fact that when failure occurs their leaders will also assume responsibility, as all levels are accountable. When there are successes the whole team receives recognition for the accomplishment, not just upper management.

Employees need to trust that as leaders we recognize their value to the unit and that we will defend decisions if necessary. As employers, we need to be able to trust that our employees are going to make good and ethical decisions. Trust that they comprehend the need to be professional and courteous when representing our institutions. We need to trust that they will view the team as whole and not have personal agendas which have the potential to harm the cohesiveness of the unit. As leaders we need to trust that our team members will "give their all" in order to make the department successful.

COMMUNICATION

"The single biggest problem in communication is the illusion that it has taken place." (George Bernard Shaw)

The key factor that contributes to the success or failure of an organization is communication. Efficient communication provides cohesiveness within a department and is vital in order to enhance and sustain accountability. Leaders must effectively communicate expectations of job assignments and professional behavior as well as consequences when accountability fails in these areas. Establishing expectation agreements as well as policy and procedure manuals leaves no questions in regards to what is expected. Regular evaluations providing positive reinforcement will cultivate confidence and provide individual growth. As leaders we need to openly communicate current issues on our campus especially during these difficult economic times. In crisis situations communication is often skewed. Leaders must deliver factual and timely information so employees have peace of mind. It is pertinent that we communicate a job well done when a mission is completed. Employees appreciate recognition for their value and this bolsters moral and fosters enthusiasm. As leaders we must encourage team members to reciprocate communication, bringing problems, suggestions and new ideas to light.

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Lastly, we must effectively communicate progress and successes within the organization, as well as address failures. We need to provide regular feedback and positive input so all members of the organization are successful.

"To give real service you must add something which cannot be bought or measured with money, and that is sincerity and integrity. (Donald A. Adams)

The establishment and sustainability of accountability within an organization is essential for success and creditability. Doing the right thing day after day is hard work and takes commitment from all levels in order for it to succeed. As facilities leaders we must lead the charge.

With the input of our employees we need to establish a mutual concept of accountability within the unit. Whether it being accountability in regards to customer service or perhaps efficiency we all need to be in consensus of the mission, vision and goals of the department. Accountability provides us with credibility to the customers that we interact with on a daily basis. Whether a student, faculty member, vendor, or visitor to our institution, accountability drives effectiveness. We must constantly remind ourselves as leaders that each individual within our organization is a link within the chain of success. With accountability at all levels, we are strong and resilient and will hold fast to our vision and achieve success.

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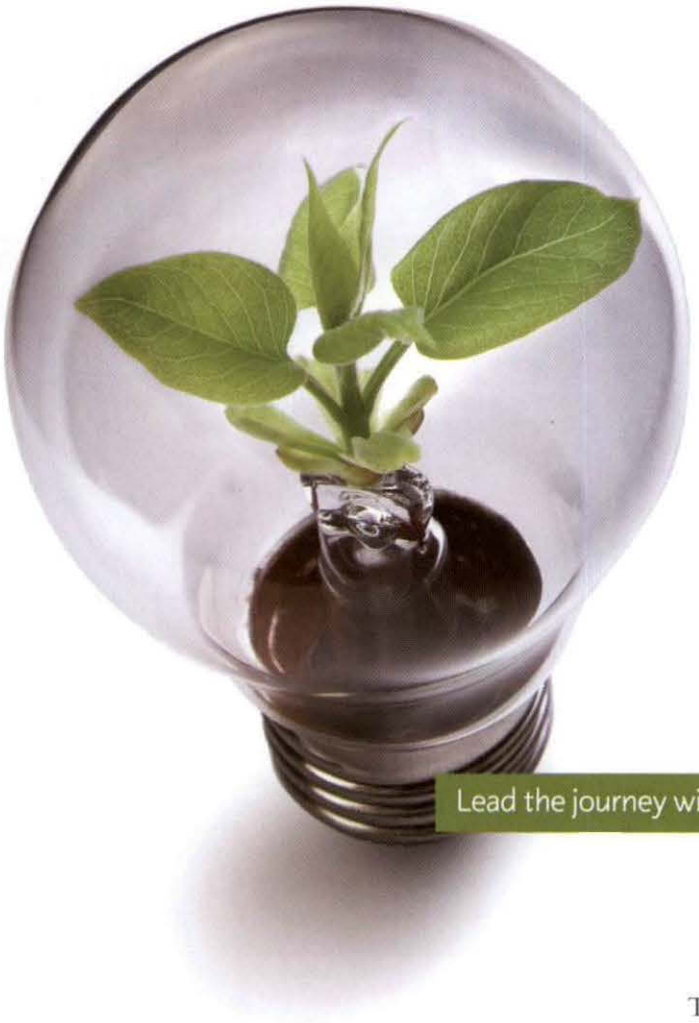

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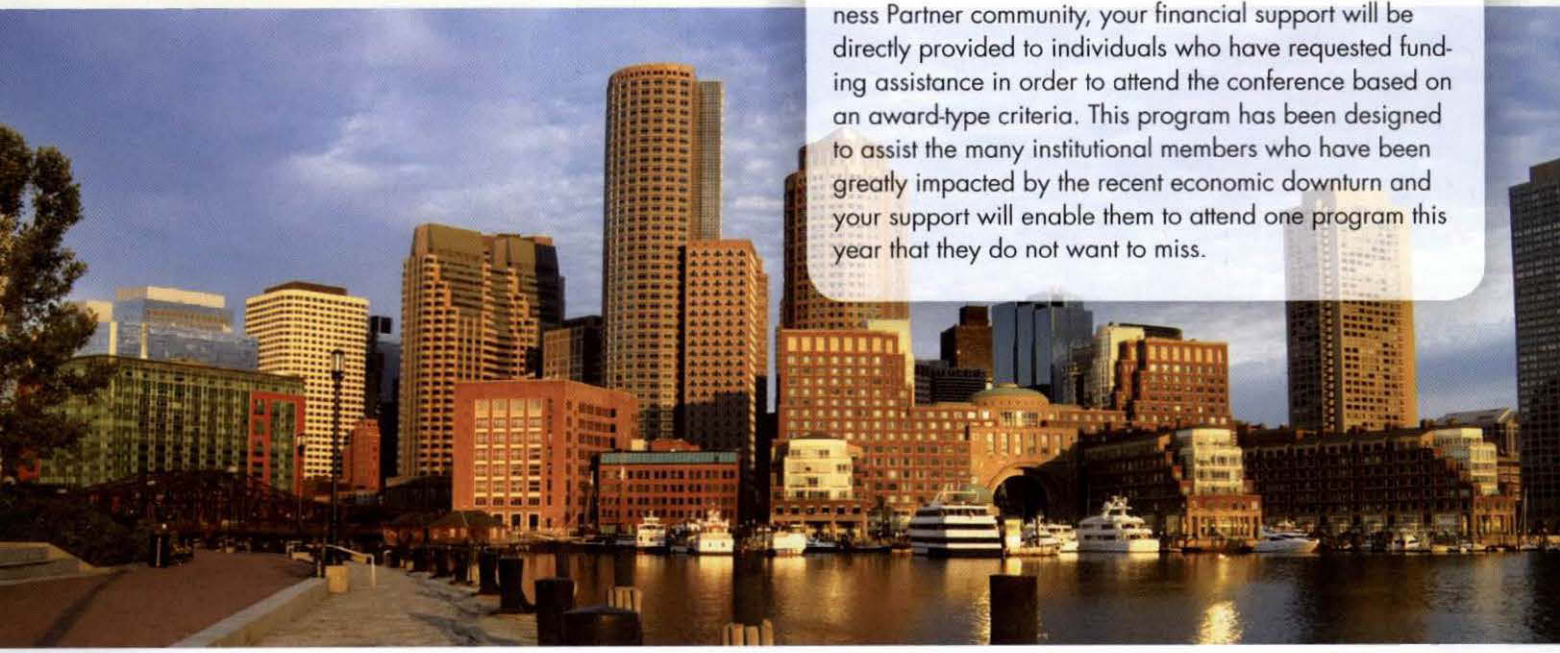


DAILY NEWS

Avoiding Scandal and Headlines with Ethics and Accountability

Senior administration at New Mexico State University (NMSU) called for a complete review of the Office of Facilities and Services (OFS) in the spring of 2007. This comprehensive undertaking ranged from organizational structure to business practices to core operating procedures, and provided an opportunity to insure the existence of sound business practices and accounting controls.

We have heard it said that locks only serve to keep the honest people out, and it can be argued that a dishonest and unethical employee will find a way to commit theft or fraud regardless of the controls that are in place. However, the implementation of best business practices and proper financial controls allow the organization to watch for the warning signs of inappropriate behavior and to quickly identify wrongdoing and establish accountability if it does occur.

In addition, ethical leadership and accountability play a significant role in eroding or eliminating that pervasive "sense of entitlement" that unfortunately seems to lurk within every organization. As the leaders of our organizations, it is our responsibility to set the tone for ethics and accountability.

By Glen Haubold and Angela Throneberry

THE NMSU APPROACH

The establishment of organizational accountability requires that the finance and facilities folks work with each other instead of against each other. Overcoming the inherent distrust between the two disciplines is challenging but necessary for success.

The effort to streamline the business practices of the facilities organization at NMSU was led by Angela Throneberry, the associate vice president for business, finance and human resources, and Glen Haubold, the assistant vice-president for facilities and services.

Angela was responsible for assuring that financial accounting and management controls were established. She has direct oversight responsibility for the Controller's Office, Auxiliary Services, Administrative Data Management, and Financial Systems Administration. She has been with NMSU for over 18 years, during which time she has served in a series of positions for Auxiliary Services, Financial Operations, and Athletics.

Glen Haubold joined NMSU in 2008 as executive director of operations and was promoted to assistant vice president shortly afterwards. Glen was previously with the University of North Texas and has over 30 years of management experience in a variety of institutions.

Multiple disciplines were blended in a marriage of finance, management, maintenance, and leadership. Throughout the process, the accountants and the engineers came to appreciate the perspective of one another while taking a holistic, organizational view that facilitated the necessary culture change.

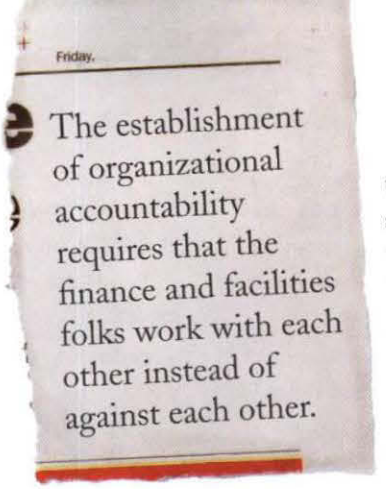
TARGETED AREAS

Procedures, financial controls and reports, and leadership are the three major components that "*set the tone*" for an effective, accountable, and ethical organization. Procedures must be formally documented instead of passed down verbally on the premise that "*we've always done it this way.*" Meaningful management reports should be developed and shared across the organization. Finally, upper management must assert leadership and challenge the status quo if the organization is to be successful.

PROCEDURES

OFS was relocated under the senior vice-president for business, finance and human resources and an organizational structure with clear functions was established. Separation of authority was spread across departmental divisions for Operations, Project Development and Engineering, and Administration.

An initial significant observation was that the department needed a formal, comprehensive procedures manual. Although their efforts were generally well-intentioned, in the absence of clear guidelines the operating personnel



tended towards their own interpretations. To ensure that everyone was aware of the changes in methodology, regular briefings were held with staff during the development of a procedures manual and as procedures were added and revised.

Using *Sawyer's Internal Auditing 5th Edition* reference, guidelines were developed to be used as the framework of the OFS Procedures Manual:

- Policies should be clearly stated in writing, systematically organized, and properly approved.
- Policies should be designed to promote the conduct of authorized activities in an effective, efficient, and economical manner and to provide a satisfactory degree of assurance that the resources of the enterprise are suitably safeguarded.
- Policies should be systematically communicated to all officials and appropriate employees of the organization.
- Policies must conform to applicable laws and regulations, and they should be consistent with objectives and general policies prescribed at higher levels.
- To reduce the possibility of fraud and error, procedures should be coordinated so that one employee's work is automatically checked by another who is independently performing separate prescribed duties. In determining the extent to which automatic internal checks should be built into the system of control, such factors as degree of risk, cost of preventive procedures, availability of personnel, operational impact, and feasibility should be considered.
- Policies and Procedures should not be overlapping, conflicting, or duplicative.
- Policies and Procedures should be periodically reviewed, revised when circumstances change, and/or improved as necessary (adapted by NMSU Office of Audit Services, Sawyers et al. 2003, 83-84).

ACCOUNTING CONTROLS AND MANAGEMENT REPORTING

With the assistance of the NMSU business and accounting staff, risk management and risk assessment processes were conducted to identify absent or weak internal controls in areas of the operation and were used to establish a priority list allowing the focus of improvement in the most critical areas.

The organizational internal controls can be classified into five interrelated components as identified by the Committee of Sponsoring Organizations of the Treadway Commission (COSO):

1. Control Environment – The overall control tone of the organization including the establishment and enforcement of policies, procedures, standards and processes by management.
2. Risk Assessment – The process used to identify, measure, evaluate, and prioritize risks that may affect an organization's ability to achieve established objectives.
3. Control Activities – The policies and procedures established to assist in accomplishing objectives and to mitigate risks.
4. Information & Communication – Provides for the identification, establishment and delivery of information and data to assist in accomplishing objectives which includes systems used to develop such information.
5. Monitoring – The process of assessing the quality and effectiveness of the established internal controls.

The organizational structure and leadership of the management team established a strong internal control foundation and provided the desired "tone at the top." To improve the information and communication component of the internal control process, a "home-grown" database system was replaced with an enterprise work order solution and that allowed for identified information to be easily captured and distributed within the department and to the rest of the campus. These visible changes demonstrated the university's commitment to accountability and ethics while opening the organization's operational doors to the rest of the campus. They also served as the framework for the development and implementation of remaining internal controls and actions.

LEADERSHIP AND ETHICS

We have more influence than we realize as the leaders of our organizations. The integrity and ethical values of management establish the boundaries of acceptable behavior for staff. If upper management takes liberties with rules, procedures, and ethics, the staff can hardly be expected to do otherwise. At NMSU OFS, we travel on "actual receipts" rather than "per diem," religiously record our time away from campus, refrain from using office printers for personal use, and pay our own way when we go to lunch with vendors. As with any organization, we periodically receive reports of improper behaviors, and not surprisingly, we have seen an increase in these because the staff knows that each one will investigated fairly and transparently. If you want to develop an ethical and accountable organization, you have to *walk the talk*.

QUESTIONS TO ASK OF YOUR FACILITIES ORGANIZATION

These questions should be asked about your organization, because gaps in any of these areas can lead to difficulties later.

Does your organization have written procedures that cover the following:

- Procurement of supplies through the warehouse and the procurement system?
- Regular inventories of small tools and shop stock?
- Procurement card, fuel card, and petty cash purchases?
- Intra- and inter-departmental use of equipment?
- Job estimation and planning?
- Operation of the Work Order System including defined administrative and security roles? A written procedure for adjustments?
- The use of cell phones and the operation of vehicles?
- Conflict of interest and outside employment?

- Are frequent, documented, training and review sessions conducted?
- Are management and supervisor reports appropriately distributed and employees properly trained on how to use the information?
- Is everyone clear about timekeeping and how travel, training, and "shop time" are calculated on work orders and billed?
- Is our organization consistent with how projects funded through state appropriations and with research grants are billed for work?
- Do our staff and customers understand what constitutes billable and non-billable work? Do we have a published schedule of services and rates?
- Are markups and shop labor rates developed in accordance with Office of Management and Budget A21 Guidelines and periodically reviewed by the appropriate central administrative unit?
- Do we have clear procedures about callouts, scheduled overtime, and overtime approvals? Is there a method in place to conduct spot checks of hours worked?
- Are there guidelines in place regarding vendor relations?

SUMMARY

There is an old cartoon about the 6 phases of a project that ends with the *search for the guilty* and *punishment of the innocent*. When financial controls are lacking, this is exactly what can happen. With adequate management reporting, metrics can be established. Good performance can be rewarded and deviations corrected before major problems develop.

Well-documented written procedures, coupled with frequent review and discussion with management, staff, and supervisors, insure that every employee understands the expectations, rules, and parameters of their environment and their employment.

While controls and procedures are necessary to the efficient operation of any business enterprise, study after study has determined that the most important component of the success of any organization is leadership. An ethical, value-based culture can be created when people trust their leadership to do the right thing.

THREE YEARS LATER

It would be a storybook ending if we could write that the NMSU Office of Facilities and Services won an APPA Award for Excellence for these accomplishments. We cannot, of course, at least not yet, and we use the word "*yet*" because we use the criteria for the award as our guide to continuous improvement. What is different in our organization today is that the engineers and the operations staff realize the need for financial controls; instead of avoiding the accountants and the auditors, they ask for their advice. In addition, the accountants have an appreciation for the challenges of the people who keep the lights on, the water flowing, and the restrooms clean, and when financial controls begin to impede the operations, the accountants and the engineers work together to find a solution that mitigates risk and builds accountability.

NOTES

1. Sawyer, Lawrence B., Mortimer A. Dittenhofer, James H. Scheiner, Anne Graham, Paul Makosz. *Sawyer's Internal Auditing, 5th Edition*. 2003. Altamonte Springs, FL: The Institute of Internal Auditors.

Angela Throneberry is the associate vice president of business, finance, and human resources at New Mexico State University in Las Cruces, NM; she may be reached at *athroneb@nmsu.edu*. Glen Haubold is the assistant vice president in the Office of Facilities and Services at NMSU and may be contacted at *ghaubold@nmsu.edu*. This is their first article for *Facilities Manager*. Glen and Angela will be presenting "The Accountant and the Engineer: Initiating Culture Change in Facilities Management" at the annual convention of the National Association of College and University Business Officers in July.

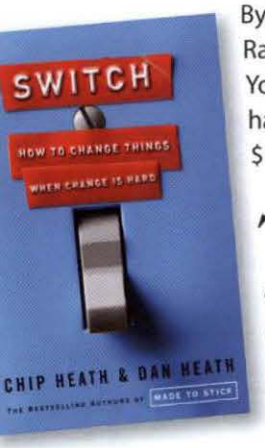
Book Review Editor: Theodore J. Wiedner, Ph.D., P.E., AIA

Change is inevitable; however

implementing a change may not be easy or quick. Both of the books reviewed this month identify reasons and ways to implement change to improve your organization. Given the difficult times we're all going through, these books should be helpful in surviving and thriving in the future.

—TW

SWITCH, HOW TO CHANGE THINGS WHEN CHANGE IS HARD



By Chip and Dan Heath, Random House, New York, 2010, 320 pages, hardcover, $26, Kindle, $11.70.

The closing speakers at APPA 2009, Chip and Dan Heath of *Made to Stick* have written another book; some attendees may have received an advance copy already. These exciting and compelling speakers have assembled examples of successful changes in *Switch*.

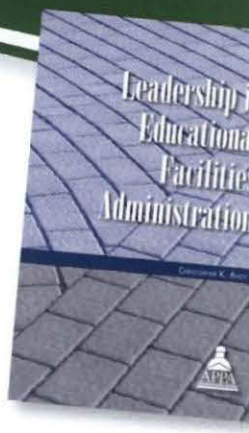
The Heath brothers have broken the requirements for accomplishing the switch by focusing on three areas: the *rider*, the *elephant*, and the *path*. The rider (of the elephant) may see what change is needed but if the elephant doesn't want to go that way there will be resistance to change. Similarly, if the current path for the elephant and rider is rough, a different path may make change easier. *Switch* is broken into three major parts for these three areas and each has three chapters that describe ways to implement change.

We're all facing difficult situations now. Budget cuts, sustainability concerns, and increasing demands on service force us to identify changes to improve our situation. While it's easy to identify the need to change, getting an organization to change is not. Chip and Dan Heath discuss the impediments but spend a great deal of time identifying solutions to change resistance with examples to provide clarity and support. There's even a higher education example!

Speaking from experience, *Switch* explains some of the social or psychological reasons why the methods used worked (or didn't work) to bring change to the organization. There are no positive examples of brute force changes; what works are creative communication devices, elimination of systemic problems, and focusing-in on what works versus what doesn't.

All in, I found this to be an enjoyable book, easy to read and informative. I've got a lot of marks in my copy so I'll be referring to it in the future.

LEADERSHIP IN EDUCATIONAL FACILITIES ADMINISTRATION



By Christopher K. Ahoy, APPA, Alexandria, VA, 2007, 234 pages, softcover, $45, APPA Member; $75, non-member.

Budget outlook is the number one topic being discussed these days. Certainly there are other issues —bench-marking, sustainability, and so on — but the issue of delivering more with less seems to be never-ending. But what does that have to do with facilities? Plenty!

Leadership in Educational Facilities opens with considerable discussion about the importance of developing employees to step up to leadership roles as the Baby Boomers, now the 'grey beards' of the organization near retirement. This isn't the only industry where the younger generation needs to step up to take the reins. While I expect every previous generation has said similar things as they near retirement the challenge may be more real because of the lack of technically focused students moving through our colleges and universities. My bias toward technically educated facility managers is real and based on personal observations of the challenges they face every day. However, I'm not so jaded that soft skills, business acumen, communication, personnel management, etc. are real and necessary. Development of these skills within the organization through effective and creative leadership are essential. Ahoy agrees with this concern.

While technical skills are needed for good facilities management, Ahoy also recognizes the importance of making sound business decisions and identifying ways to make the organization lean and effective. Large or small, an organization that has not studied its processes and risks is likely to remain 'siloed' where each person or small group handles a limited task somewhat oblivious to the needs of others in the organization. The ability to break down the organization and rebuild it following a structured process is essential to survival in our fiscal environment.

Quality does not automatically mean more spending, it could mean preservation of services with less budget or improved services with a constant budget. Quality is determined by the customer and upper management. Leadership gets the organization to deliver a quality product with limited resources; anyone can improve quality with more resources.

This is a dense book; it is packed with information about developing a better facilities management organization through lean and quality initiatives. There are references to websites and an extensive bibliography. While the book has been available for several years it deserves a look now because the times demand so much from facility officers.

Ted Weidner is assistant vice chancellor of facilities management & planning at the University of Nebraska-Lincoln; he can be reached at *tweidner2@unlnotes.unl.edu*.

The Unclear Future of the Energy Conservation Code

By David Handwork

President Howard Taft once stated, "A system in which we may have an enforced rest from legislation for two years is not bad." In an era of quickly evolving codes and legislation relating to environmental issues and building energy efficiency, a period of rest is well warranted. The speed of evolution is threatening to cost facilities for energy efficiency, when currently it generally provides an appreciable return on investment. Specifically, forces of influence outside of the ASHRAE Standard 90.1 process are pushing for a fast evolution of stringency of minimum building energy efficiency.

The ultimate goal of these entities is achieving a energy code providing net zero energy buildings (NZEB) by 2030, if not before. A more prevalent challenge and goal posed by the U.S. Department of Energy is achieving 30 percent more efficiency than 90.1-2004 by 2015. The 90.1 process has been expedited where the 2015 goal appears achievable. However, other entities are proposing alternatives to 90.1 as replacement energy standards/codes achieving at least 50 percent additional efficiency before 2015. An apparent energy code race is developing with the DOE possibly positioned to pick a winner, and it may not likely be the ASHRAE 90.1 standard.

THE CURRENT 90.1 INERTIA

ASHRAE Standard 90.1 is currently the de facto national code for building energy efficiency, cited or recognized in federal legislation, the Department of Energy publications, International Code Conference (ICC) and National Fire Protection Association (NFPA) codes. Since its inception, the application of 90.1 code has produced well documented success of improved building efficiencies.

Regardless, the 90.1 process has been criticized as moving too slowly to address the current climate change and energy independence challenges. This criticism, once from a minority view, has developed into a strong push from influential groups, with the most influential being the current U.S. Congress and presidential administration.

The current 90.1 inertia of process changes has sped up slightly with this push, but the slow rate of evolution remains a point of outside criticism. This has prompted groups such as the New Buildings Institute (NBI) in concert with the American Institute of Architects and Department of Energy, to produce an alternative energy conservation code solution.

NBI's proposal to the International Code Council (ICC) removes 90.1 as the code basis for the International

Energy Conservation Code (IECC), and adds stringency over the 90.1-2007 version. The DOE public comment on the joint proposal is an effort "to make the IECC more consistent with ASHRAE Standard 90.1"[1]. It is accurate portions of the proposed modifications are more consistent to 90.1-2007 than the current IECC version. However, it appears the primary intent of the proposal is the IECC stand on its own with minimal reference and dependence upon 90.1.

Readers should note 35 states have IECC as the statewide energy code, with most of the remaining states applying the IECC at individual municipalities. So how would this change impact facilities owners and managers? Currently, code advocacy groups, including the APPA Code Advocacy Task Force, focus efforts toward ASHRAE, not ICC. With IECC separated from the 90.1 process, evolution of the IECC could occur expeditiously under the radar, with burdensome stringency placed upon new construction and renovation projects. Since DOE is a cosponsor of the IECC proposal, it appears as a government entity they could switch support from 90.1 to IECC seamlessly.

Ironically, not all pressure on evolving 90.1 is external to ASHRAE. Standard 189.1-2009 "Standard for the Design of High-Performance Green Buildings" was released with much fanfare at the January 2010 winter conference. Unlike 90.1, 189.1 is a holistic sustainability view for building construction, not just focused on energy conservation. It is coupled with 90.1 with numerous direct references, but energy conservation is an order of magnitude more stringent, typical for a high-performance building. This coupling to 90.1 could limit the application of 189.1 as code, especially with the proposed modifications to IECC.

In contrast, the increased stringency of energy conservation mandates of 189.1 could pull forward the advancement of 90.1 stringency. Even with the numerous 90.1 references, 189.1 is drafted in code-friendly language and could evolve into a standard that like the IECC stands alone from 90.1.

This is a point of concern. Why? On March 15, 2010, the ICC announced the release and publication of the International Green Construction Code (IGCC). Since the content of the IGCC has not been reviewed, comment of the code potential reach and applicability is unknown. However, it is clear Standard 189.1 is an integral part of the IGCC, just as Standard 90.1 was integral to the IECC. The scenario of concern is national politics could position IGCC as the standard for publicly funded buildings, paving the path exclusivity of high-performance buildings in the public sector. Arguably, high-performance buildings have advantages too numerous to list here, but not discussed by high-performance building proponents are the increased first cost of construction and higher level of technical expertise required for operations and maintenance of these structures. For most public entities, these two resources are either lacking or not available.

SINCE ITS INCEPTION, THE APPLICATION OF 90.1 CODE HAS PRODUCED WELL DOCUMENTED SUCCESS OF IMPROVED BUILDING EFFICIENCIES.

A PERPETUAL FIERCE DEBATE

The pending crisis of human-caused global climate change and energy shortage may be a subject of perpetual fierce debate. Yes, we all need to diligently conserve our energy resources and minimize any environmental impact on our campuses and in our personal lives. In the last decade, there has been a significant cultural shift first worldwide, but highly evident in the U.S., of industrialized nations recognizing the need for environmental stewardship.

It is a great concern that environmental zealots are capitalizing on this cultural shift to expedite energy code stringency with little regard on the overall economic impact. We literally cannot afford a process where energy codes exceed practicality of implementation, cannot provide appreciable return on energy conservation investments, and lose regard of unavailable expertise and knowledge required to operate and maintain buildings of high complexity. Obsolescence of ASHRAE 90.1 may be embellished within this article, but the concern is real.

Even with a few radical elements, 90.1 is a proven code that has achieved increased energy efficiency of buildings. The evolution speed of 90.1 will eventually catch up with external and internal demands.

Will Net Zero Energy Buildings ever be a common reality? It's not likely within the next decade. Only time will reveal if the goal of 2030 is viable, as building owners and managers eagerly wait for this wonderful advance in building sciences. In the interim, all facilities managers should engage with energy code processes, whether it remains as 90.1 or transitions to the IECC, to ensure building energy efficiency advances in manner that provides acceptable financial return and building operability.

NOTES

1. U.S. Department of Energy website - *http://www.energycodes.gov/codedevelop/icc_0910_cycle.stm*

David Handwork is director of engineering services at Arkansas State University and a member of APPA's Code Advocacy Task Force. He can be reached at *dhandwork@astate.edu.*

Compiled by Gerry Van Treeck

Russelectric Inc.'s RTS Series Transfer Switches are UL labeled and listed for 30-cycle closing and withstand ratings based on testing per UL Standard 1008. These switches dramatically simplify selective coordination of overcurrent/short circuit devices in emergency and backup power systems for healthcare and other mission critical facilities. Capable of closing in on and withstanding 30 cycles of fault current, the RTS Series Transfer Switches have the withstand capacity to allow downstream devices to clear a fault before upstream devices. Consequently, they greatly simplify the engineering task of selective coordination mandated by the National Electrical Code for emergency and legally required standby systems. RTS Series switches are available in single and dual motor versions in ratings from 100 to 4000 amps for either open or closed-transition switching. Thirty-cycle-rated RTS Series Bypass/Isolation Switches are also available in load-break bypass and no load-break bypass versions. For more information visit Russelectric at *www.russelectric.com*.

Zistos Corporation has introduced a new version of their widely-used Portable Network Surveillance Camera (PNSC). As with the standard model, the Pan/Tilt/Zoom (PTZ) model is a battery-operated, self-contained wireless network camera in a rugged case. The PTZ features the addition of being remote-controlled allowing the operator to pan 360°, tilt from -45° to +200° with a 10X optical zoom. The PNSC-PTZ includes an internal rechargeable battery, a telescoping pole, two adjustable tilt/swivel brackets, and a remote-controlled infrared illuminated day/night camera. For additional details about Zistos Corporation visit *www.zistos.com*.

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APPA
LEADERSHIP IN EDUCATIONAL FACILITIES

The Economy's Influence on Environmental Sustainability and Energy

Including the Top Ten Facilities Issues

APPA THOUGHT LEADERS SERIES 2009

Part 1

Published by:

APPA
LEADERSHIP IN EDUCATIONAL FACILITIES

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Primary author Elizabeth Lunday is a business writer based in Fort Worth, Texas.

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The Economy's Influence on Environmental Sustainability and Energy

Including the Top Ten Facilities Issues

SECTION I: Executive Summary

Since 2006, the APPA Thought Leaders Series has brought together experts in higher education for two days of discussion about the challenges facing colleges and universities in North America. The major difference between the 2009 event and those of years past was a sense of urgency. Discussions had an added level of intensity, particularly over the implications of the economic recession and the growing demand for **environmental sustainability and energy efficiency** on campus.

Energy and the environment were the focal points for the 2009 Thought Leaders Symposium, and the result is this whitepaper, which considers the major challenges posed by environmental sustainability to higher education institutions. Like all sectors of the economy, higher education is affected by issues such as fluctuating energy prices. However, many in higher education believe colleges and universities have a unique obligation to leadership in environmental action. Thought Leaders symposium participants believe that higher education can play a major role in making the entire economy more sustainable by pioneering critical research, testing new technologies and strategies on campuses, and educating the next generation of scientists, businesspeople, politicians, and citizens.

During the symposium, participants heard from experts on different aspects of energy use and environmental sustainability. They also broke into working groups to identify specific challenges to implementing sustainability and energy management strategies on campus. The economic situation was never forgotten—for each major issue, teams evaluated the implications of the global recession. In the end, the following major points were established—points that became the outline of Section II of this paper:

Environmental Sustainability

- Challenges to sustainability at colleges and universities:
  - Short-term decisions that are made without considering **long-term goals.**
  - The lack of a **business case for sustainability.**
  - A **budget model** at colleges and universities that hampers comprehensive thinking.
  - A **culture** that hasn't embraced sustainability.
- Impact of the global recession on sustainability efforts:
  - **Short-term thinking** that hampers long-term investment.
  - Using the economic situation as **an excuse not to act.**
- Strategies higher education can use to respond:
  - Rely on leaders to **drive change** on their campuses.
  - Increase **communication** among all stakeholders.
  - **Demonstrate success** with high-visibility projects.

- The role of higher education:
  - Draw on the **intellectual capital** on their campuses.
  - Educate the **next generation** of environmental leaders.

Energy Issues

- Challenges to energy action at colleges and universities:
  - Energy will become a **concern for all departments**, not just facilities.
  - **Uncertainty and volatility** in energy markets pose significant risk.

- Impact of the global recession:
  - Demand is increasing to **reduce energy costs**.
  - New energy concerns are **institution-wide**.

- Strategies higher education can use to respond:
  - Take short-term actions with **long-term vision**.
  - Develop **incentives** for increasing conservation.
  - Develop approaches that **reduce risk**.
  - **Diversify and leverage** funding sources.

- The role of higher education:
  - Conduct vital **energy research**.
  - Provide a forum for **experimenting with different energy strategies** and conservation programs.
  - Create and leverage **partnerships** with alumni, civic leaders, utility companies, and other institutions.

Section III of this report shifts the focus to a discussion of the response of facilities leaders to higher education's challenges. Thought Leaders symposium participants believe strongly that facilities departments must play a central role in green projects since the campus's built environment generates a significant percentage of an institution's carbon footprint. Furthermore, facilities leaders bring in-depth understanding of energy and building issues to the table; they can provide information, insight, and perspective to other campus leaders. Finally, facilities leaders have a unique perspective of the campus as a whole, a perspective that is invaluable in developing sustainability strategies.

Section IV focuses on the top critical issues confronting facilities leaders in 2010. While rooted in the discussion of environmental sustainability and energy issues, Thought Leaders symposium participants expanded their focus to address the top ten critical facilities issues:

1. Adjusting to the new sustainability reality.
2. Developing an institutional vision of sustainability.
3. Creating a leadership role for facilities managers in addressing sustainability.
4. Confronting economic challenges.
5. Fixing broken budget models.
6. Managing rising energy costs and energy volatility.
7. Engaging the campus to address energy challenges.
8. Managing space.
9. Prioritizing renewal needs.
10. Meeting the challenges of workforce development.

As well as discussing each of these critical facilities issues, the paper delves further by proposing several questions that facilities departments use to help understand how their organization is positioned for the future and to develop strategies for improvement.

As the Thought Leaders Series completes its fourth year, it remains clear that the need expressed at the first symposium for dialogue between educational facilities professionals and the rest of the academic community has not gone away. If anything, its importance has grown. The challenges facing educational institutions are many, and the solutions will be as varied as the institutions themselves.

And so both APPA and the participants at the Thought Leaders symposium urge you to consider the specific challenges facing your institution in light of these trends and issues. How is your campus responding to environmental challenges? Have campus leaders committed to sustainability, or do environmental efforts remain scattershot? How have recent fluctuations in energy prices affected your campus? Are you making efforts to increase energy efficiency or investing in green energy sources? How has the economic recession affected your thinking about sustainability and energy?

We look forward to your feedback as the dialogue continues.

SECTION II: Critical Concerns Facing Higher Education

Two of the most important issues facing higher education in the next decade are environmental sustainability and energy challenges. In fact, these two issues are closely related, and energy challenges are often considered a subset of sustainability. However, Thought Leaders symposium participants consider energy challenges so critical to college and university campuses that the topic is addressed separately in this report.

Participants considered these issues and asked questions about specific challenges, best strategies to prepare for the future, and how the recession is affecting higher education's approach. A final consideration was the role of higher education in setting an example for environmental awareness and energy efficiency and demonstrating the effectiveness of new approaches.

Environmental Sustainability Initiatives on College and University Campuses

Background and context of environmental sustainability initiatives. While green initiatives are underway in all sectors of the economy, higher education has become particularly focused on environmental sustainability. Efforts ranging from bike rental programs to recycling campaigns, from ecology courses to organic farms, are underway at campuses across the U.S. and Canada. Sustainability is a wide field, including efforts at reducing environmental impacts, cutting carbon dioxide emissions, promoting green jobs and technologies, reducing waste, eliminating toxins, and generally encouraging awareness of the human impact on natural systems.

Campuses have been a hub of environmental activism since the birth of the movement. Earth Day 1970 marked the start of intense interest in ecology. Environmental efforts for the next 30+ years were widespread but sporadic, but starting in the early 2000s the calls for meaningful, substantial sustainability became impossible to ignore, particularly from student and faculty activists. Higher education institutions also came to realize that sustainability mattered to potential students and donors. The American College & University Presidents Climate Commitment, launched in December 2006, became a tipping point for many institutions, and momentum has steadily grown for campus leaders to sign the pledge to make their institutions carbon neutral. By 2008, campus-wide

Data Point: Defining "sustainability"

Higher education has a special call to be green

Higher education is beginning to recognize the need to reflect the reality that humanity is affecting the environment in ways that are historically unprecedented and that are potentially devastating for both natural ecosystems and ourselves. Since colleges and universities are an integral part of the global economy and since they prepare most of the professionals who develop, manage, and teach in society's public, private, and non-governmental institutions, they are uniquely positioned to influence the direction we choose to take as a society. As major contributors to the values, health, and well-being of society, higher education has a fundamental responsibility to teach, train, and do research for sustainability...

'Sustainability' implies that the critical activities of a higher education institution are ecologically sound, socially just, and economically viable, and that they will continue to be so for future generations. A truly sustainable college or university would emphasize these concepts in its curriculum and research, preparing students to contribute as working citizens to an environmentally healthy and equitable society. The institution would function as a sustainable community, embodying responsible consumption of energy, water, and food, and supporting sustainable development in its local community and region.

— From the Association of University Leaders for a Sustainable Future

environmental sustainability initiatives had become practically mandatory for higher education. For example, as of this writing, 680 campus leaders have signed the Presidents Climate Commitment, representing one-third of the student population in the U.S. Even institutions that chose not to sign the pledge have created sustainability programs.

All this momentum hit a speed bump in late 2008 when the recession hit college and university campuses. The effect was immediate. College endowments lost an average estimated 22.5 percent of their value in the first five months of 2009, according to the *Chronicle of Higher Education*. Declining tax revenues resulted in state budget shortfalls and corresponding cuts in funding to public institutions. Reductions in state support reported around the country ranged from 5 percent to more than 15 percent, with universities in California, Hawaii, and Washington suffering cuts of at least 20 percent in 2009, according to the *Chronicle*. State and local funding of community colleges also dropped, even as enrollment at

Data Point: Making a business case for sustainability

Why uncertainty shouldn't get in the way of action

Many business leaders on college and university campuses hesitate to take decisive action on environmental and energy issues since so much is still unclear about both the problems at hand and their solutions. Part of making a business case for sustainability must involve addressing these concerns head-on and insisting that action shouldn't wait for certainty.

1. **We don't know how long it may take.** This is not a short-term problem with a near-term solution. It goes beyond the tenure of many who will be charged today with beginning the process to reduce the campus carbon footprint. However, clear progress can be made in the short-term, and even if the end-game is many years ahead, action needs to begin now.

2. **We don't know the perfect way to proceed.** There is neither a straight path to carbon neutrality nor a one-size-fits-all-institutions solution. Specific approaches will vary based on an institution's size and mission, its geographic location, and numerous other factors. What is known is that the best strategies will employ multiple long-term and short-term tactics simultaneously to bring about as dramatic a reduction in greenhouse gas emissions as possible.

3. **We don't know what new solutions will emerge.** As one example, while the idea of carbon capture and sequestration is being explored for its potential for safely storing emissions rather than releasing them into the atmosphere, those market technologies and processes are only beginning to be understood. Other helpful breakthroughs are likely to occur but it would be naïve to assume that a magic bullet will emerge to save the day. We must act now on the basis of current knowledge,while remaining ready to shift our approach as opportunities arise.

4. **We don't know how much it will cost.** Most likely, it will cost a lot, but inaction could prove far more expensive. By all indications, climate protection legislative and regulatory requirements for reducing carbon emissions are forthcoming and are certain to factor into the cost of future business operations. Some states already have legislation on the books aimed at compliance with carbon limits, or are introducing their own forms of cap-and-trade systems or carbon taxes that provide incentives to reduce greenhouse gas emissions. Similar actions are expected to follow at the national level. Fines for emissions and the cost of purchasing offsets are expected to rise precipitously as a shared standard emerges for how to value carbon. Institutions that show leadership in getting ahead of the climate change issue now will be well positioned to pay far less in the future.

— ***Excerpted from* The Educational Facilities Professional's Practical Guide to Reducing the Campus Carbon Footprint, *published by APPA, written by Karla Hignite, 2009.***

these institutions soared. While economists say the recession is coming to an end, its effects continue on campuses, with no end in sight. Both public and private institutions face budget shortfalls going into 2010, and many have resorted to hiring freezes, eliminating staff and adjunct positions, collapsing course offerings, deferring maintenance, halting new construction programs, and raising tuition and fees.

Challenges to sustainability. Participants at the Thought Leaders symposium agree that higher education faces an unprecedented challenge of implementing major sustainability efforts during a time of economic hardship. While deeply concerned about the impact of the recession, they nevertheless express a sense of urgency regarding environmental issues, an imperative to make major strides in sustainability. A consensus arose that sustainability must remain a priority no matter how difficult it will be to achieve. As a society—and as the education institutions of that society—we cannot wait to make meaningful changes to save our environment.

However, substantial roadblocks stand in the way. One of the major issues relating to sustainability for higher education is a **disconnect between short-term decisions and long-term goals**. Particularly in this time of budget belt-tightening, Thought Leaders participants believe college and university leaders can make logical decisions for the immediate situation but in the long run discourage sustainability. For example, while deep into a building project, institutions are faced with choices about materials and systems that have lasting impacts on energy costs and efficiency; a short-term decision to save money on an air-conditioning or heating system can have significant long-term costs in terms of energy expenses. Short-term decisions to eliminate staff and cut pilot programs can also reverberate for many years into the future; it can take years to regain expertise lost when employees leave or regain the momentum lost when sustainability programs are shuttered.

A second challenge identified by Thought Leaders participants is that **a business case hasn't been made for sustainability**. Higher education institutions may claim a commitment to environmental action, but when boards and presidents start poring over their budgets looking for places to cut, that commitment comes under fire. If the institution is basing its environmental decisions on a general social sense that sustainability is "the right thing to do," it's going to be easy to back away from action. Hard choices have to be made in hard times, and financial managers need to be engaged in developing the institution's business case for long-term sustainability programs.

The key to making the business case is to research and quantify the financial implications of institutional actions and compare them with various alternatives, including the choice of doing nothing at all. This means digging into the financial implications of options such as creating a smart grid for your campus or installing solar panels to produce energy. A comprehensive proposal to business leaders for such projects would include details of both upfront and annual costs along with tangible and intangible benefits and detriments. Fortunately, resources are available to make this process easier; for example, APPA, NACUBO, and SCUP published *The Business Case for Renewable Energy: A Guide for Colleges and Universities,* which walks institutions through the process of gathering the information needed for a detailed proposal about renewable energy projects. The book provides guidance on various technologies, ownership options, relationships with utilities, and financing strategies—everything you need to make a bullet-proof case for a sustainability project.

A final challenge is posed by the **broken budget model** of colleges and universities. Higher education institutions rely on a bewildering array of funds, each with its own strings attached. Annual operating funds, capital funds, recapitalization funds, revolving funds, federal grants and contracts, state bond proceeds, foundation grants—each is a separate pot of money that operates independently from the rest. This disparate system has a significant impact on university sustainability, as it interferes with the comprehensive, long-term view that is necessary for campus-wide environmental action.

The consequences are particularly severe in the context of higher education facilities, since the total cost of ownership of any building isn't realized on one budget. In other words, the funds to construct a building come from different sources than the funds to operate and maintain the building, leading to a mistaken notion that the "cost" of a building is only its upfront construction. In fact, the *total cost* of building ownership includes lifetime costs of a structure, from design through maintenance through renovations through

Data Point: The greening of college sports

Athletics remain largely untouched by sustainability projects

While sustainability efforts seem to be reaching every corner of most college and university campuses, certain areas still are off-limits: football stadiums, swimming pools, tennis courts, and basketball arenas. Higher education sports programs have largely remained unaffected by sustainability efforts and seem likely to remain that way into the near future.

A survey of 97 NCAA Division I-A athletics programs found that only 10 percent have developed a strategic plan for sustainability, according to the 2009 Collegiate Athletic Department Sustainability Survey, conducted by AASHE. While nearly three-quarters of respondents said the emphasis on environmental programs was growing, athletic program leaders were more worried about the bottom line—many said they were concerned about the return on investment of sustainability programs.

This is despite the fact that athletic programs are some of the biggest energy users on campus. In a study of energy use at different buildings on the Pomona College campus, three of the top four energy users per square foot were sports facilities, two swimming pools, and a tennis complex. The environmental impact of other athletics activities such as team and fan travel wasn't even measured.

Shifting the mindset of teams of coaches to make sustainability a priority will likely be one of the biggest hurdles in greening the college campus, but student and fan efforts may lead the way. At the University of Florida, for example, the TailGator Green Team made up of student volunteers spread out across the campus on football game days collecting recyclable trash. In 2008, more than 25,700 pounds of cans and bottles were diverted from landfills.

demolition. When buildings are designed with total cost of ownership in mind, they are constructed to be more energy efficient, easily maintainable, and generally sustainable. Higher education needs to develop budget approaches that are less fragmented and more comprehensive—approaches that actually encourage a big-picture view of the campus, its facilities, and their life cycle.

Finally, a fundamental challenge for institutions regarding sustainability is the culture of higher education. **The entire culture needs to change to incorporate sustainability.** As long as sustainability is marginal—a pilot program, a student-run initiative, a niche academic field—it will be subject to cuts. For sustainability to really have an effect, it must shape institution-wide thinking. Sustainability needs to be framework for evaluating processes, crafting policies, and making decisions. Only then will the hard decisions get made, decisions that will change the institution, overturn long-held conventions, and reshape higher education. Further, only with widespread cultural change will sustainability gain the momentum it needs to succeed. Sustainability isn't something that can be "fixed"—these issues won't be resolved in three or four years. It will take decades of sustained effort to make college and university campuses carbon neutral.

Impact of the global recession. The other significant challenge to sustainability in higher education is, of course, the economic recession. With their endowments shrinking before their eyes and state legislatures axing their support, colleges and universities have had to cut everything in sight—including campus sustainability programs. A May 2009 survey by the Campus Consortium for Environmental Excellence (C2E2) found that 80 percent of college and university environmental, health, and safety departments faced budget cuts for the next fiscal year.

Short-term thinking is hampering long-term investment. Institutions can't hire new staff with new skills; they can't invest in training or educational programs; they can't undertake long-term projects with uncertain outcomes. Furthermore, when every budget is at risk, the instinct is to protect your turf. This forces silo thinking, in which every department and division turns inward and jealously guards its ground. This attitude is antithetical to sustainability, which requires a big-picture

understanding of issues across the campus, the region, and the world. Sustainability programs only work with the traditional walls are broken down and groups work together toward a common goal. In this fraught recessionary environment, that sort of cooperation becomes increasingly hard to achieve.

Further, Thought Leaders participants fear that the **economy can become an excuse not to act**. Institutions fall back on what they know during tough times—they resist the unknown. It would be all too easy for a cash-strapped campus to wash its hands of sustainability, perhaps promising to revisit the problem when times get better. Symposium participants agree that maintaining momentum on sustainability will be one of the greatest challenges of this recession.

Impact on different types of institutions. Clearly, different types of higher education institutions will face a variety of sustainability challenges. Large research universities face the greatest obstacles to sustainability as a result of their large campuses and resource-intensive research programs—the environmental impact of a history or modern languages program is a fraction of that of an electrical engineering or biochemistry program. Most also face the challenge of reduced state funding. On the other hand, large campuses can have greater economies of scale, which can produce greater payoffs for sustainability investments. Most have centralized systems for air and water, so improvements can be made in one place to impact the entire campus. Research institutions can also bring their expertise to bear on the problem and the institution can become a proving ground for new technologies and approaches.

At the other end of the spectrum, community colleges also confront significant challenges to sustainability because they run such a tight ship and have little wiggle room to implement new initiatives. There is some indication that two-year colleges are overrepresented among signatories of the Presidents Climate Commitment, and many have failed to meet the schedule for fulfilling certain obligations of the pledge, according to an analysis by *The Chronicle of Higher Education*. "Most [delinquent institutions] are small colleges or two-year institutions, both with presumably fewer resources to throw at sustainability efforts. Colleges that may have had ambitions for sustainability programs a year or two ago might now be reorienting their priorities in the economic downturn," noted the *Chronicle*.

Further, these campuses are currently so overwhelmed with students that it's hard for sustainability to get priority on their agenda—they're too busy trying to fit

Data Point: The recession and community colleges

Associate-granting institutions burn the midnight oil

U.S. community colleges got a one-two punch from the recession: slashed budgets and booming enrollment. Directors of community colleges in half of U.S. states reported in the fall of 2009 that they expected midyear reductions in state appropriations, according to the National Council of State Directors of Community Colleges. At the same time, enrollment is off the charts—between 2007 and 2008, community college enrollment jumped from 3.1 million to 3.4 million, and the record-setting enrollments on many campuses in the fall of 2009 point to even greater growth in the 2009-10 academic year. Some colleges in California, for example, have reported increases of 35 percent.

Community colleges have had to scramble to meet the surge in demand. They've put makeshift parking lots in tennis courts, rented office space for classes, and generally crammed the schedule as full as it can go. In fact, so high was demand at Boston-area Bunker Hill Community College that it took night class to a whole new level—two courses were added that run from 11:45 p.m. to 2:30 a.m. Students study introductory psychology and essay writing in the dead of night fueled by coffee and cookies; Wick Sloane, the instructor for the writing course, pumps himself up with pushups before class starts.

Other colleges are also embracing the trend, saying not only do the late-night classes relieve the burden on overcrowded classrooms, they also appeal to shift workers. Illinois Central College, for example, offers Night Owl classes including Introduction to Jazz and Medical Ethics, and Clackamas Community College in Oregon provides graveyard welding classes that run between 10:00 p.m. to 2:00 a.m.

students into classes. Fortunately, the environmental footprint of these institutions is generally smaller than that of residential and research campuses, so they don't have as far to go. The only area in which community colleges generally have a disadvantage is in transportation, since their students commute. Data collected by the ACUPCC shows that 50 percent of community college gross greenhouse gas emissions comes from commuting, compared to 11 percent for baccalaureate colleges and universities.

Private colleges and universities have the most flexibility to implement sustainability programs, although lately budget shortfalls have limited their options. Since operating budgets are driven by enrollment, if enrollment is down, it will be hard for the institution to move ahead with sustainability programs. Nevertheless, a smaller organization makes it easier to assemble teams across disciplines to achieve consensus about sustainability priorities.

Strategies higher education can use to respond. Thought Leaders participants set out several strategies that colleges and universities can use to respond to the challenges of sustainability.

First, **leaders need to drive change**. Without engaged, committed leadership, sustainability efforts will falter. That leadership shouldn't be limited to a campus sustainability officer but should come out of different divisions and departments. Dynamic leaders can come from almost any discipline—what matters is that they can move the campus toward its goals. In addition, this

Data Point: Conservation communication

Oberlin College shows students how much energy they're using

In a recent experiment at Oberlin College, round, glowing lights were installed on the walls of a residence hall. The orbs were tied to the energy metering system for the building and changed colors in real-time based on energy use in the building. Bright red meant high consumption, yellow meant average, and green indicated below-average usage. Just being aware of the energy output of the dorm motivated residents to cut back on power—energy consumption dropped by more than 50 percent.

Data Point: Developing new sustainability metrics for higher education

Allowing campuses to measure what they want to manage

Researchers at Yale University looked at the challenge of measuring sustainability on college and university campuses, focusing their attention on the challenge of coming up with metrics that were realistic, useful, and effective in guiding decision making. They noted that many sustainability goals outline by institutions are either arbitrary or are "long-term ideals that offer no information on the path to achieve them."

The team proposed a process that would break goals into short, medium, and long terms to accommodate the timeframes required to achieve significant change. They also proposed methods to set goals based on multiple sources of information:

Timeframe	Process by which metric target is established
Institutional (up to 12-20 years)	Multiple stakeholder consensus given present-day circumstances
Generational (mid-term, up to 50 years)	Scientifically based "green" scenarios, if available, and in-house projections of historical trends into future
Visionary (up to 100 years)	Theoretically ideal target

Efforts such as these will help institutions develop the tools they need to evaluate and manage sustainability.

leadership needs to be long-term, able to sustain momentum over the long haul. Too often, Thought Leaders participants believe, campus leadership is short-term, driven by immediate goals. A new chancellor or president wants to make his or her mark on the campus, achieve a few limited, high-profile goals, and move on to the next campus. Sustainability requires a greater commitment over a longer time.

Second, sustainability requires **communication among all stakeholders**, particularly as sustainability choices become more difficult and the cost and effort required become greater. Communication is critical to break down barriers between departments and discipline, between town and gown, even between competing institutions. Successful institutions reach out to anyone and everyone who can help the campus achieve its goals. That might mean coordinating space requirements between different departments, partnering with local utilities, or creating research programs with a competing university. In addition, communication is essential to changing the culture of the institution so that the entire campus is focused on the same goals. It is not enough to communicate happy goals about saving the planet, nor is overwhelming stakeholders with data and statistics a useful approach. The most effective communications is straightforward and action-based. For example, a program could inform individuals about how much water they are using (or waste they are generating, or energy they are consuming) and then provide concrete steps on how to reduce that figure.

Finally, higher education institutions need to **demonstrate success**. Making the business case for sustainability comes down to having figures that prove that sustainability is not only for the greater good but also a smart economic decision for the institution. Campuses need to engage in constant measurement and assessment of their progress. Rigorously documented pilot programs give the institution the data it needs to convince skeptics that sustainability gains can be made without breaking the bank. To get the right data, institutions may need to develop new metrics that better illustrate the problem and point toward a solution. Thought Leaders participants argue that current metrics fail to meet the needs of the new sustainability challenge. By carefully evaluating the institution's goals, campuses can determine what they need to measure and put the right metrics in place.

The role of higher education. Despite the challenges inherent in the greening of the university, higher education has a unique role to play in sustainability. Even with all its limitations, higher education can do things no other sector of our economy can do. Colleges and universities have an **unmatched resource in the intellectual capital on their campuses**. Across the U.S. and Canada, students and faculty members are turning their minds to the myriad problems besetting our environment. Every day, they make steps toward a more sustainable future. Certainly the private sector conducts research, as does the government, but their efforts pale in comparison to the fundamental investigations underway at colleges and universities. In fact, if higher education didn't do this research, no one else would. Without higher education's contribution, our society will lack the crucial information it needs to solve global problems.

Higher education shapes the next generation of environmental leaders. The problems of the environment won't be solved in the next five or ten years—it will take future generations to undo the harm of previous generations. Those future generations will be trained and educated in today's colleges and universities. Higher education is taking on the challenge of training a new generation of students who have the skills to confront issues of water, air, and energy.

A 2008 survey by the Council of Environmental Deans and Directors, operating under the University Affiliate Program of the National Council for Science and the Environment, identified 1,182 environmental degrees available from 652 U.S. colleges and universities; on average, 33,000 undergraduate and 9,000 graduate students every year are enrolled in these programs. In addition, higher education is also promoting environmental awareness among the general student population, so even students in fields other than environmental studies leave the university with a basic understanding of conservation and sustainability. All signatories of the ACUPCC are required to "make climate neutrality and sustainability a part of the curriculum and other educational experience for all students," and colleges and universities are increasingly making sustainability courses part of their core curriculum for all students. The end result will be a generation of citizens with an in-depth understanding of sustainability issues and the skills to create a green future.

Data Point: Renewable energy credits and carbon offsets

Critics charge greenwashing; advocates argue for green investing

One option for colleges and universities seeking to reduce their carbon footprint is to buy renewable-energy credits, or RECs. Institutions pay a premium to buy green energy from sources such as wind or solar power; the credits are intended to cover the additional cost of green-energy production and encourage providers to invest in renewable projects. These credits were invented because it's impossible to direct energy from any particular source—such as a wind farm—to any particular user; once it hits the grid, energy is energy. RECs allow institutions to claim they are using energy from renewable sources without actually building those sources themselves.

However, RECs remain controversial, with many critics claiming they don't actually reduce greenhouse gas emissions. It's often unclear, for example, if the RECs actually pay for a renewable energy project that wouldn't have been built anyway. Further, critics claim campuses would be better off reducing consumption than buying more energy.

Even more controversial than RECs, however, are offsets. Offsets involve sequestering or conserving carbon dioxide in an amount equal to that emitted by the campus. For example, a campus might invest in a tree-planting project or invest in program to replace incandescent lightbulbs with compact fluorescent bulbs in the community. Many critics have mocked offsets as simply a way to spend yourself green and perpetuate complacency. Others have claimed that offset credits are difficult to calculate, since projects such as tree farms take decades to capture carbon, and can be counted multiple times in multiple ways.

Nevertheless, many campuses have made both RECs and offsets critical parts of their energy plans. Experts recommend, however, that institutions make careful study of any REC or offset proposal before investing. As interest has grown in these approaches, information has become available to help institutions make smart decisions, such as the ACUPCC's Voluntary Carbon Offset Protocol, which offers guidelines on selecting carbon offsets that will actually help the environment, not just relieve some guilt or enhance an institution's image.

Campus Energy Issues

Background and context of energy challenges. For the history of most colleges and universities, energy was cheap and plentiful—barely a consideration for higher education. All that changed in the 1970s, when the OPEC oil embargo resulted in skyrocketing petroleum prices. Suddenly, lines formed at gas stations across North America, energy conservation was all over the news, and Congress poured funding into research and development on alternative fuels. But then gas prices went down and all the fears went away. The difference can clearly be seen just in terms of energy research funding—after a peak in the late 1970s, energy industry spending on research and development fell by almost three-quarters, while Department of Energy funding dropped from an average $7 billion annually (adjusted for inflation to 2008 dollars) to $3 billion annually during the next 30 years, according to the Congressional Research Service. Meanwhile, higher education institutions invested in buildings built on the assumption that energy costs would remain low.

The picture started to change in the late 1990s and early 2000s as global warming became a major concern. With the news full of images of melting glaciers and average world temperatures on the rise, attention focused on the impact of carbon dioxide emissions on the climate. Investment in alternative energy sources such as wind, solar, and geothermal power became seen as a means for reducing reliance on burning fossil fuels and adding carbon dioxide to the environment. The ACUPCC draws on this train of thought by asking campuses to pledge to become "carbon-neutral," with no net contribution of carbon to the environment.

However, in the business offices and facilities departments of colleges and universities, attention shifted back to energy costs when oil prices shot up again. From 1985 to September 2003, the inflation-

adjusted price of a barrel of crude oil generally remained under $25/barrel. In 2003, the price rose above $30; it reached $60 by August 2005 and peaked at nearly $150 in July 2008. Energy was no longer cheap nor plentiful. Green energy sources became appealing in an entirely different way because they provided an alternative to oil and natural gas. Conservation became a high priority when energy bills reached unexpected heights. The recession both helped and hurt the energy situation. On the one hand, the recession actually marked the end of the energy cost spikes. When consumers cut back on travel and demand for products dropped, reducing global shipping, worldwide oil demand fell and triggered price reductions. On the other hand, the recession coming hard on the heels of the energy crisis brought home the message that energy uncertainty was not a temporary blip but a new normal.

Data Point: Submetering for labs and research facilities

Calculating the energy load of the most demanding buildings

College and university laboratories generate a constant stream of energy, energy that lab users are rarely aware of. Submetering for labs could help the students, faculty, and staff working in labs better understand their energy use so they could manage it better.

The International Institute for Sustainable Laboratories, with support from the U.S. Department of Energy and the Environmental Protection Agency, recently worked with industry professionals, technology providers, lab managers, and organizations including the International Society for Pharmaceutical Engineering and Lawrence Berkeley National Laboratory, to explore technologies and best practices for lab submetering. The team developed strategies for capturing data, organizing and presenting that information, automating processes, and promoting changes in operations and maintenance. Projects such as this should help institutions find better way to assess and manage energy even in the most challenging of environments.

Challenges to energy action. Thought Leaders participants agree that energy issues will remain a priority for colleges and universities for many years to come. One resulting challenge is that **energy will become a concern for all departments, not just facilities**. In an era of cheap energy, most university programs didn't worry about their energy use. That hands-off attitude won't be possible in this new era. Individual programs and departments will need to be aware of their energy consumption and made to take an active part in improving efficiency. Already, some campuses have begun metering individual buildings and even individual floors and labs. This is going to be a major adjustment for faculty and staff who could always ignore energy use in the past.

Another concern will be energy price fluctuations. **Energy uncertainty and volatility pose significant risk to institutions.** For most of the 20th century, higher education institutions could predict with relative certainty from year to year how much they would have to pay for energy. That certainty has faded in the 21st century—and uncertainty creates risk. As a result, higher education institutions will start looking for any way possible to manage that risk. Campus leaders will need to aggressively pursue energy conservation, as a way to reduce energy demand. They need to broaden their energy portfolio to include green energy sources so that instead of relying on one method of energy production they can spread the risk across a variety of sources.

Some institutions choose to contract with utility providers for green energy, committing to buy power from wind farms, for example; others are investing in renewable energy power production themselves. For example, Vermont's Middlebury College invested in a wood-chip and oil-fired cogeneration plant that should allow the institution to cut its fuel oil use in half while reducing carbon emissions by 12,500 tons annually. Other colleges and universities are installing solar panel arrays and wind farms; Colorado State University, for example, is working on a project to create a massive wind farm that would provide more energy than the campus itself needs. Finally, institutions need to think creatively about strategies to hedge against spikes in energy costs when they come.

Data Point: Locking in energy prices

Are fixed energy contracts the solution to energy cost volatility?

Several colleges and universities have tried to reduce their exposure to energy volatility by locking in energy rates with utility companies. For example, Loyola University of Maryland contracts to purchase between 70 and 80 percent of its energy at a fixed rate to eliminate uncertainty, buying the rest on a floating basis. Concordia University in Austin, Texas made a ten-year commitment with Austin Energy's GreenChoice Program, locking in rates of 2.85 cents per kilowatt hour.

For Concordia, it was a great deal—the institution can make plans for the immediate future knowing exactly what it will pay for energy. While the university paid more at the beginning for its power, over time the cost of conventional energy such as natural gas has risen above what it is paying for primarily wind power.

However, the strategy has risks. Loyola, for example, purchased about a quarter of its energy in July 2008, when the price of oil reached its peak. Now the institution is stuck with that price even though rates have gone down. At the end of the day, fixed energy contracts are a gamble, and even experts find it extremely difficult to predict movements in the market. Nevertheless, some campus leaders look to long-term predictions that energy prices will only go up in the future and make the commitment to fixed-price contracts. Ultimately, institutions will have to weigh the risk of misreading the market against the risk of energy volatility.

Impact of the global recession. As the recession continues to affect college and university budgets, and any line item that can be cut, is cut, **pressure is increasing to reduce energy costs.** Conservation is a challenge on both the micro and macro level. First, many small, individual decisions add to up to create a university's total energy output. Leaving a light on, keeping a fan going, adjusting the thermostat by a few degrees: by themselves, they require little electricity, but altogether they pack a big punch. Measuring that output on a more discrete level becomes critical—people need to know how much energy they are using. Equally critical is the process of communicating how energy use can be reduced so that individuals feel they are having an impact. At the same time, major conservation achievements can be made through major facilities projects. The impact of efforts such as converting lights to energy-efficient fixtures, installing new insulation in old buildings, or upgrading to efficient HVAC equipment can be significant—and often have an excellent return on investment—but nevertheless require major upfront investment. Finding room in the budget for those kinds of investments in the midst of a recession is a challenge.

A second major challenge of the recession in terms of energy is that it puts pressure on **a wide range of institutional processes and operations.** Athletics, housing, food service—all need to be reassessed to determine how much energy they are using and new strategies need to be put in place to cut that energy use. Processes such as budgeting and space management also need to be analyzed so that the institution understands their energy effects. Fundamentally, the need is for the same kind of shift in culture as discussed in the sustainability section—for an overall change in attitude that looks at every aspect of the campus for opportunities to reduce energy use. Colleges and

Data Point: Higher education and energy

By the numbers

- 240,000 buildings
- 5 billion square feet of floor space
- $15 billion to $18 billion in new construction and renovation each year
- $20 billion annually for facilities maintenance, operations, and utilities
- On a typical campus, 70 to 90 percent of direct greenhouse gas emissions are due to buildings.
- Higher education accounts for about 5 percent of U.S. commercial building sector greenhouse gas emissions.

universities that have adopted this attitude have identified significant opportunities for improvement; for example, in a study of one building on the Penn State campus, the Mueller Lab Building, researchers found ways to reduce emissions by one-third, cut 1.8 million kilowatts per hour of energy consumption, and save more than $45,000 a year.

Impact on different types of institutions. Energy issues pose the greatest challenge for large research and comprehensive institutions. These campuses have a wide variety of buildings on large campuses; they operate 24 hours a day, seven days a week. Both laboratories and athletic facilities place huge demands on the electrical grid, as do dormitories. Dorms have recently become the focus of energy conservation efforts on many campuses; programs are underway to install energy-efficient lighting, create recycling programs, and use submetering to give feedback to students. Research institutions also have the largest electrical, water, and HVAC systems, many decades old, and renovations to those systems require significant investment. On the other hand, improvements to these centralized systems can have a major impact across the entire campus.

Private and liberal arts institutions generally consume less energy than research institutions, although they still face the challenge of controlling energy costs in residence halls. One advantage for these colleges and universities is that they have a relatively uniform energy profile. That is, their programs change little from year to year, so their energy uses don't fluctuate significantly. This helps reduce risk from energy volatility.

According to self-reporting through the ACUPCC, community colleges have the largest average gross carbon dioxide emissions per 1,000 square feet: 29.02 metric tons in comparison to the 15.16 metric tons from baccalaureate colleges and 21.3 from doctorate-granting institutions. However, nearly 50 percent of these emissions come from commuting, compared to 11 percent from baccalaureate colleges and 13 percent from doctorate-granting institutions. A major challenge, then, for community colleges will be helping students and faculty find more energy-efficient ways to get to and from campus. It's extremely difficult, however, for commuting to become a major priority for these institutions in the face of swelling student demand and rising costs.

Strategies higher education can use to respond. Despite all of these challenges, participants at the Thought Leaders symposium identify several strategies that higher education leaders can employ.

First, institutions need to **take short-term actions with long-term vision**. In this time of recession, it's not possible to undertake every large-scale efficiency program the institution has in mind. In fact, even in good times, colleges and universities found it hard to budget for projects such as new cogeneration facilities or complete energy retrofits of aging buildings. (Thought Leaders participants note that if deferred maintenance was a problem when the economy was thriving, how would institutions find the means to fix it now?) The solution is to take the small steps that are possible in today's budget while keeping an eye on the big picture. That means the institution needs to develop long-term plans and come up with major goals, but it doesn't have to undertake all those goals at once. Simple strategies can have measurable gains that give the institution a sense of accomplishment and pave the way toward larger projects down the line.

Second, **higher education needs to develop incentives for increasing conservation**. Generally people want to be more energy efficient, and if they are given the right information and tools they will move toward conservation on their own. However, at some point all of the low-hanging fruit—all of the easy, painless steps—will have been taken, and it will get much harder to make further progress in conservation. This process is already playing out at some institutions; in the first year of Yale University's new conservation program, students cut energy use in residence halls by 10 percent, a significant achievement. The next year, however, energy consumption stayed about the same—students had done all the easy things to become more efficient, and the next steps, that would cut energy use by another 5 or 10 percent, would require uncomfortable sacrifices such as using fewer electronic devices or lowering the heat in their dorm rooms.

Certainly one response to this situation is enforcement; institutions can put energy policies into place that mandate lower energy use and crack down on violators. This has its place, but it can backfire and often ends up annoying and alienating those who would otherwise be supporters. Making conservation decisions for people also has its place; for example, a college or

Data Point: Top five steps to shrink the campus carbon footprint

Tips on achieving the most significant results from the NWF

The National Wildlife Federation has been working with students and faculty on greening the campus for decades. Based on their experience, they propose the following five steps to success:

1. **Convert to zero-carbon or lower-carbon energy sources** (2 to 70 percent savings). Switching to wind, solar, or geothermal energy can result in the greatest cuts to carbon dioxide emissions.
2. **Update efficiency of HVAC** (2 to 30 percent savings). Target the biggest users of energy first, like labs, swimming pools, and older dorms.
3. **Scale back heating, cooling, and lighting demand** (2 to 20 percent savings). Changing thermostat settings requires no upfront investment and can have a major payoff.
4. **Reduce plug loads** (2 to 20 percent). Electronics steadily drain energy from the grid. The best strategy combines behavioral and technological changes.
5. **Make wise campus planning decisions.** Comprehensive, campus-wide planning leads directly to improved stewardship of resources.

university might install low-flow shower heads and toilets in residence halls—although even this strategy can have unintended negative consequences, as when dorm residents in Yale protested loud and long when they disliked their new water-efficient showers, eventually forcing the university to raise the water pressure. However, Thought Leaders participants agree that the most successful energy conservation programs will provide incentives to improve efficiency. These incentives could operate on many levels, from entire divisions and departments down to individual students and faculty members.

Next, **institutions need to develop approaches that reduce risk.** Energy risk is a complex topic, and so are some of the strategies to manage it. Institutions can enter into agreements designed to hedge against risk such as swaps, caps, option pricing, and collars. Universities would be wise to seek out skilled, experienced experts to explore these financial mechanisms. However, these are not the only steps colleges and universities can take to limit their risk. Investment in alternative energy provides a hedge against fossil fuel prices, while actually generating power gives institutions control over their energy production.

Finally, **colleges and universities should diversify and leverage funding sources.** Creative thinking has led institutions to develop a wide range of funding mechanisms for energy management programs. Some create revolving loan funds for efficiency projects, others borrow against their endowments, and still others seek out grants from private, state, and federal sources. Student fees are becoming an increasingly powerful way of funding energy improvements; at several institutions,

Data Point: Achieving net-zero buildings on campus

Higher education association partners with the DOE

The U.S. Department of Energy (DOE) launched a major initiative in 2008 to advance the development and adoption of net-zero energy commercial buildings—buildings that would have a net-zero effect on the power grid by generating as much energy as they consume. Significant research will be required to meet the goal of marketable net-zero buildings by 2025, including research on challenges and solutions appropriate for different market sectors. DOE is therefore partnering with industry groups to develop sector-specific strategies.

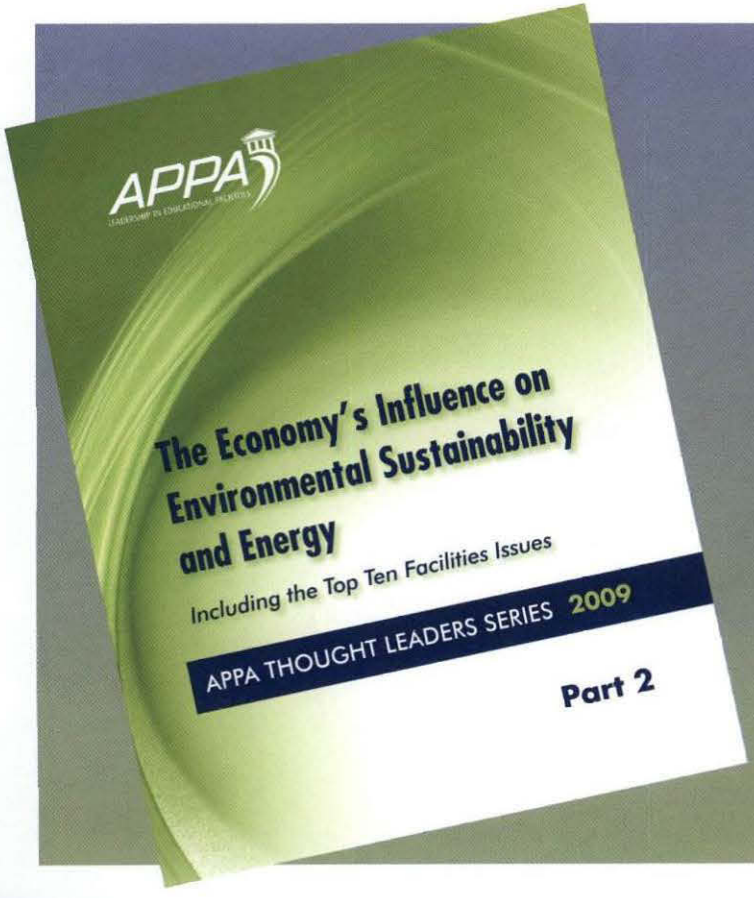
The newly formed Higher Education Energy Alliance (HEEA) is DOE's partner for higher education and will lead the effort to develop net-zero buildings for colleges and universities. Along with other higher education associations, APPA will work to harness advanced technologies emerging from DOE and its national laboratories, create an information-sharing network to promote effective strategies, help shape future energy research, and serve as a unified industry voice on energy issues in higher education.

students have voted to increase fees to fund projects ranging from LEED-certified buildings to investment in wind farms.

The role of higher education. No matter how great the energy challenges confronting them, colleges and universities have a unique obligation to respond. Higher education plays numerous important roles in our society: educator, leader, innovator, creator. All of these roles will need to be applied to the challenges of global warming and energy uncertainty.

One specific area in which colleges and universities can play a part is in **energy research**. Fortunately, funding for such research seems to be on the rise; more than $327 million of the Obama administration stimulus funding went into research on projects including smart grid technology and integrated climate research. However, funding would have to jump even more to come close to the equivalent of late 1970s levels, a tough proposition for a down economy. More than likely, colleges and universities will have to continue patching together a wide range of funding sources for their energy research. Experts agree that no matter how it is funded, colleges and universities will be the source of the most innovative new energy technologies.

Colleges and universities can also provide a **forum for experimenting with different energy strategies and conservation programs** as well as for field tests for energy research. Where better to put new ideas into action than in the institutions where those ideas were developed? Higher education needs to embrace experimentation even in the face of risk and try out new ways to generate electricity, manage water, and control air. Colleges and universities also need to reach out into the community and **create and leverage partnerships** with alumni, civic leaders, utility companies, and other institutions. Institutions have enormous storehouses of intellectual capital to draw upon outside of the university's walls; it's time to tap that capital to come up with creative energy solutions.



Look for Part 2 of this series in the July/August 2010 issue of *Facilities Manager* magazine.

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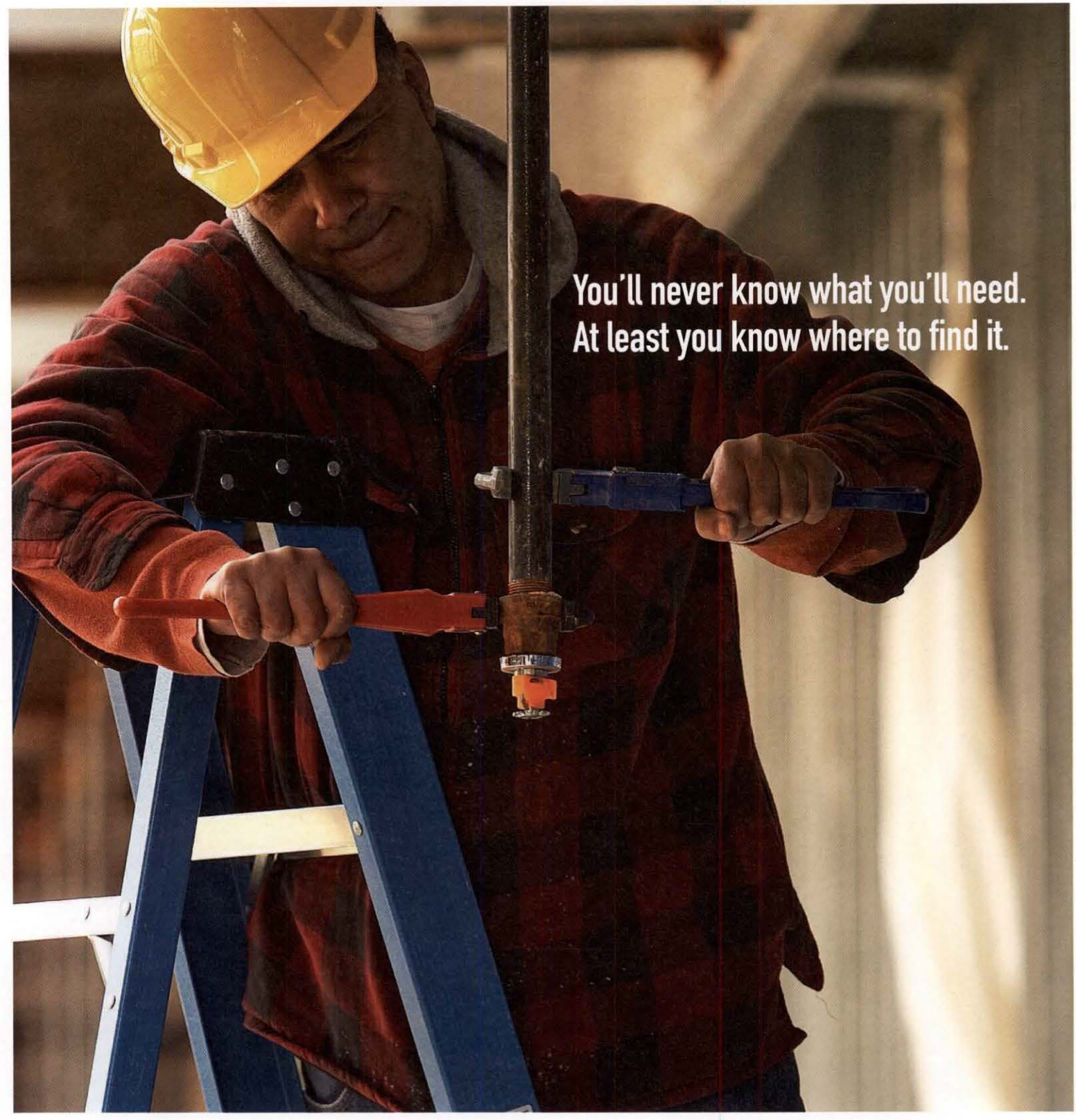

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