

September/October 2005

VOLUME 21

NUMBER 5

# Facilities Manager

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

## Smooth Management and Strong Commitment:

A Profile of  
President Jack Colby



Nonprofit Org.  
U.S. Postage  
PAID  
Permit No. 653  
Alexandria, VA





# Tulane University

*performs seamlessly with TMA solutions  
in a wireless environment. . .*



Run your facility maintenance department efficiently and effectively with a CMMS that fits your every need.

Whether you use one of TMA's desktop solutions, TMA eXpress, TMA WorkGroup, TMA Enterprise, or the most powerful web-based solution available for facilities maintenance — WebTMA, you are assured that you're on the leading edge of facility maintenance and asset management.

#### Benefits

- Rapid Implementation
- Improve Staff Productivity
- Lower IT Support
- Effective Asset Management
- Reduce Total Cost of Ownership

#### Functionality

- Work Order & PM Management
- Computer Aided Facilities Management
- Key Performance Indicators
- Handheld Paperless Solutions
- Plus Much More...

**TMA is the solution for you...**

**TMA offers both Desktop & Web-based Maintenance Management Software Solutions**

 **TMA SYSTEMS**



## COVER STORY:

### SMOOTH MANAGEMENT AND STRONG COMMITMENT:

#### A PROFILE OF PRESIDENT JACK COLBY

SEE PAGE 36

by Ruth E. Thaler-Carter

## 44 Preventing IT Security Breaches

by Alan Dessoff

## 48 2005 Effective & Innovative Practices Award Winners Honored

University of British Columbia ..... 49

by Brigid MacAulay

University of Hartford ..... 50

by John Michalewicz

University of Iowa ..... 54

by P. Ferman Milster and Jeri Ripley King

University of Miami ..... 56

by Leonard Nash

University of Victoria ..... 59

by Sarah Webb

---

## 17 2005 Orlando Forum Highlights

Photos by Rhonda Hole

## 71 APFA Honors the 2005 Strategic Business Partners



# Facilities Manager

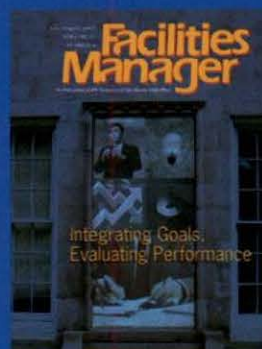
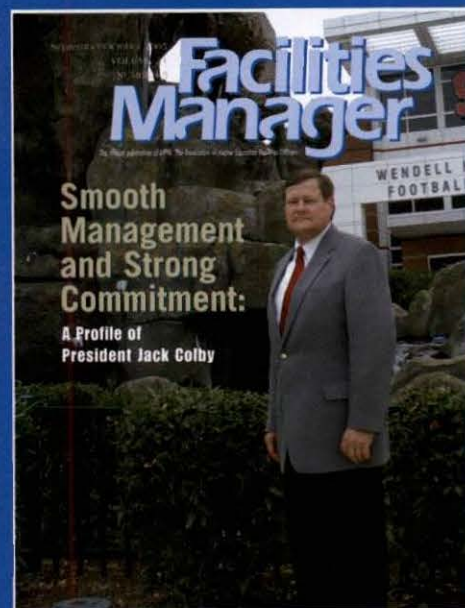
The official publication of APFA: The Association of Higher Education Facilities Officers

Volume 21 Number 5

September/October 2005

## COLUMNS

<b>From the Editor</b> .....	4
<b>APPA News</b> .....	6
<i>by Betsy Colgan</i>	
<b>Executive Summary</b> .....	10
Looking Ahead Together: Preparing for The Campus of the Future <i>by E. Lander Medlin, James E. Morley Jr., and Jolene Knapp</i>	
<b>Code Talkers</b> .....	12
National Electric Code Update—Arc Fault Circuit Interrupters <i>by Michael A. Anthony, P.E.</i>	
<b>Membership Matters</b> .....	14
Effective & Innovative Practices That Can Work for You <i>by Alan S. Bigger</i>	
<b>Facility Asset Management</b> .....	62
Asset Management Performance Measures <i>by James P. Whittaker, P.E.</i>	
<b>The Bookshelf</b> .....	65
Book Review Editor: Theodore J. Weidner, Ph.D., P.E., AIA Reviewed in this issue:	
<ul style="list-style-type: none"><li>• <i>Professional Communications: A Handbook for Civil Engineers</i></li><li>• <i>The Lead Dog Has the Best View: Leading Your Project Team to Success</i></li></ul>	
<b>New Products</b> .....	68
<b>Coming Events</b> .....	70
<b>Index of Advertisers</b> .....	73



See an  
article  
you'd  
like to  
share?

Reprints are available  
for all articles in  
**Facilities Manager.**

Contact: Julie Ecker  
[julie@appa.org](mailto:julie@appa.org)



The image features a black mortarboard cap with a tassel, resting on a stack of three books. A rolled diploma tied with a blue ribbon lies horizontally across the books. The entire arrangement sits on a rough, textured stone pedestal. The background is a light, neutral color with faint, thin lines.

# SIEMENS

Siemens Building Technologies

## Capitalize on our solutions for success.

Today's students have high expectations of convenience and comfort: gothic architecture may still be cool, but not gothic infrastructure! From laboratories to large lecture halls, our integrated facility solutions provide the needed versatility for supporting effective space utilization, while optimizing energy and operating efficiency. We have the extensive experience and resources necessary to help you provide superior environments for learning...and help you maintain a competitive advantage in recruiting and retaining a vibrant campus community. Leading universities and colleges are achieving greater success (and staying cool) by capitalizing on our solutions.

Siemens Building Technologies, Inc.  
[www.sbt.siemens.com](http://www.sbt.siemens.com)



# Facilities Manager

**PRESIDENT:** Jack K. Colby,  
North Carolina State University

**EXECUTIVE VICE PRESIDENT:**  
E. Lander Medlin, Alexandria, Virginia

**EDITOR:** Steve Glazner

**ASSISTANT EDITOR:** Betsy Colgan

**SUBSCRIPTIONS:** Cotrenia Aytch

**CREATIVE DIRECTION:**

Creative Media Group

**PRINTING:** Corporate Press, Inc.

**EDITORIAL OFFICE:**

703-684-1446 ext. 236

**FAX:** 703-549-2772

**E-MAIL:** [steve@appa.org](mailto:steve@appa.org)

[cotrenia@appa.org](mailto:cotrenia@appa.org)

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

**ADVERTISING:**

Gerry Van Treeck

Achieve Communications

3221 Prestwick Lane

Northbrook, Illinois 60062

Phone: 847-562-8633

Fax: 847-562-8634

E-mail: [gvtgvt@earthlink.net](mailto:gvtgvt@earthlink.net)

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

Of APPA's annual membership dues, \$53 pays for the subscription to **Facilities Manager**. Additional annual subscriptions cost \$66 for APPA members, \$120 for non-members. For information on rates and deadlines for display advertising, telephone 847-562-8633 or 703-684-1446 ext. 238.

Copyright ©2005 by APPA: The Association of Higher Education Facilities Officers. Contents may not be reprinted or reproduced in any form without written permission. The opinions expressed are those of the authors and do not necessarily reflect the views of APPA. Editorial mention of companies or products is for informational purposes only and should not be construed as an endorsement, actual or implied, by the Association.

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

**Published by APPA:**  
The Association of Higher  
Education Facilities Officers  
1643 Prince Street  
Alexandria, VA 22314-2818

Global Partner in Learning

## From the Editor

by Steve Glazner

According to our recently completed readership survey, the typical reader of *Facilities Manager* is male (90.9%), 45 to 54 years old (47.8%), well educated (77.5% are college graduates, and 48.6% have master's or doctorate degrees, or other post-graduate work), and have been involved in facilities management for more than 15 years (62.1%, of which 39.9% have worked in facilities management more than 20 years).

These are just some of the findings of the final report to APPA by an independent research firm commissioned to assess the value of *Facilities Manager* to our members and other readers.

The researchers took a stratified sampling of our member/reader types, for a total of 1,000 hard copy surveys sent out by regular mail. The response rate was 32 percent, down from nearly 39 percent from the 2002 readership survey. Congratulations to the following readers who participated in the survey and whose names were drawn to win these special prizes: **Jim Kelley**, Auraria Higher Education Center (Apple iPod); **Larry Muse**, Missouri Western State College (Palm Pilot); and **Mike Cuneo**, California State University, Fresno (FranklinCovey Organizer).

More than four out of ten readers (42.7%) have director titles, while another 10 percent have titles such as vice president, assistant or associate vice chancellor or vice president, or executive director. The other 47 percent of our readers are managers, associate or assistant directors, supervisors, and specialists in various areas.

More than eight of ten (83.4%) survey respondents have read through *Facilities Manager* at least three of the last four issues. The average time

spent reading a typical issue of the magazine was 31 minutes. More than 84 percent saved the issue when finished reading it (40.5%), placed it in a library or waiting room (21%), or passed it along to a campus associate (22.7%). Nine out of ten readers found that the technical level of *Facilities Manager* is appropriate and not too basic or advanced.

According to the readership survey report, the top five departments you read most regularly are: APPA News (70%); New Products (65.8%); Facility Asset Management (59.3%); Executive Summary (45.3%); and Coming Events (44.8%). More than 34 percent regularly read our newest column, Code Talkers.

Regarding our coverage of featured topics, more than half of our readers would like to see more coverage of effective and innovative practices (52%); new technologies (50.6%); capital renewal/deferred maintenance (49.9%); and maintenance and operations (47.3%).

Finally, we had asked readers to rate *Facilities Manager* in comparison to other regularly read industry and association publications. We were pleased to see that 86.6 percent of you ranked *Facilities Manager* as the best or one of the top three professional publications. This is an increase of more than 10 points from the 2002 survey.

We thank all of you for your continued support of APPA and of *Facilities Manager*, and we look forward to serving you further as your association, and publication, of choice.





**GREAT SOLUTIONS**

**This ancient code has been cracked.  
Now it's time to solve your MRO supply chain puzzle.**

**Don't blame plant operations for wasting millions of dollars.** Without SDI's MRO "Rosetta Stone," supply-chain management is one bear of a puzzle. MRO encompasses hundreds of work orders, thousands of supplies, millions of SKUs, complicated staff juggling...and a mystifying parts inventory. MRO inefficiency robs your school's treasury every day. And, there are hundreds of ways your costs can skyrocket.

At SDI, our integrated supply experts provide the technology and support you need to bring total MRO costs down. We streamline every link in the supply chain to control procurement, optimize inventory, and improve productivity. You can finally do more with your budget. You're armed with the information you need to make smart purchase decisions and rein in runaway supply costs. Above all, you improve student satisfaction.

It's a great solution to a complex puzzle. Call 215-633-1954 or visit [sdi.com](http://sdi.com).

**SDI**  
The Power of Integrated Supply<sup>SM</sup>



by Betsy Colgan

## In Memoriam

APPA Emeritus Member Gordon Hellman passed away on May 25, 2005, in Hancock, Michigan. Gordon received a BS and MS in Mechanical Engineering from Michigan Technological University. He taught thermodynamics, heat transfer, and power plant operations in the Mechanical Engineering department and later became MTU's first physical plant director. He held that position for 19 years, retiring as Professor Emeritus in Mechanical Engineering. He was active in his community, church, Boy Scouts, MTU, the Michigan Association of Physical Plant Administrators, and APPA. Gordon's wife Gertrude preceded him in death April 19 2005; he is survived by four children.

### Supervisor's Toolkit at ISSA

Join trainers Carol Trexler and Wally Glasscock as APPA presents Supervisor's Toolkit: Nuts and Bolts of Facilities Supervision at the ISSA/IN-

#### Supervisor's Toolkit

Nuts and Bolts of Facilities Supervision

TERCLEAN Tradeshow October 17-21 in Las Vegas. Sessions begin Monday morning, October 17 and continue through Friday morning, October 21, with Thursday and Friday afternoons free to attend the ISSA Tradeshow.

For more information of the Supervisor's Toolkit program or to register for the Las Vegas training, visit [www.appa.org/education](http://www.appa.org/education).

### Gomez Named Chair of IDEA



Cheryl Gomez, director of energy and utilities at the University of Virginia in Charlottesville, Virginia, assumed the role of chair of the Inter-

national District Energy Association (IDEA) for 2005-06 during the organization's annual conference. Gomez is an 11-year member of IDEA and is the only woman serving as director of utilities at a major U.S. college or university.

A registered professional engineer, Gomez joined the University of Virginia in 1987 as manager of heating, ventilation, and air-conditioning projects and rose to director of energy and utilities in 1994. Under her tenure as director, the utilities department at the university has won 11 state, regional, and national awards for its energy management program.

Gomez is a member of APPA in which she serves as dean of the energy and utilities curriculum for APPA's Institute for Facilities Management.

### Qayoumi—2005 Distinguished Business Officer

Mohammed Qayoumi, Ph.D., received the 2005 Distinguished Business Officer Award, presented at NACUBO's 2005 annual meeting in Baltimore. This award, NACUBO's highest honor, recognizes outstanding overall achievement in

the field of higher education business and financial management.

Qayoumi, vice president for administration and chief financial officer at California State University, Northridge, has almost 30 years of industrial and higher education experience. He has published more than 85 articles, eight books, and several chapters in various books as well as making presentations in many conferences across the U.S. and internationally in the areas of quality, energy, and financial management.

Dr. Qayoumi is a longtime APPA



Cheryl Gomez, Mo Qayoumi, Najia Karim, and E. Lander Medlin

member and past dean of energy and utilities for APPA's Institute for Facilities Management.

### 2006 APPA Awards

Each year APPA recognizes outstanding individuals and institutions for their contributions to the education facilities profession. Award categories include the Pacesetter, Meritorious, and Fellow awards for individual recognition and the Award for Excellence and Effective & Innovative Practices awards for institutional recognition. The first step in

*Continued on page 8*



# FORGET RED STATES VS. BLUE STATES.



## TODAY THERE ARE 50 GOLD STATES.

Today, from New York to California, from Maine to Florida, **DensGlass Gold®** exterior sheathing is America's number one choice for commercial builders—by a landslide. That's because it



outperforms any other sheathing on the market in resisting moisture and mold. In fact, it's so weather resistant, we warrant that it will not decay, deteriorate or delaminate for six months of exposure to the elements.

So build on the kind of confidence that only a product with nearly 20 years of proven on-the-job performance can provide. Build with **DensGlass Gold**—one of the few things people from all 50 states are united on.



 **G-P Gypsum**  
a Georgia-Pacific company

To find out more, go to [www.gpgypsum.com](http://www.gpgypsum.com). Technical information: 1-800-225-6119. Literature requests: 1-800-BUILD GP.



Continued from page 6


applying for an award is to contact your regional representative. All award submissions are due by February 15, 2006, midnight Greenwich Mean Time. To receive an application and award guidelines, visit [www.appa.org/recognition](http://www.appa.org/recognition).

### How Long Can You Stand to Sit?

According to a recent survey by WorkRiter Ergonomics, today's office workers are suffering an epidemic of aches and pains. Five hundred office workers responded to the survey with some of the findings reported below:

- 89 percent reported feeling muscle tension or fatigue at least occasionally at the end of their workdays
- 57 percent would prefer to spend at least part of their office time standing
- 92 percent would prefer a desk or workstation that allowed them to make minor adjustments in height
- 82 percent would prefer a surface for typing or keyboarding that would allow them to work at a slight angle

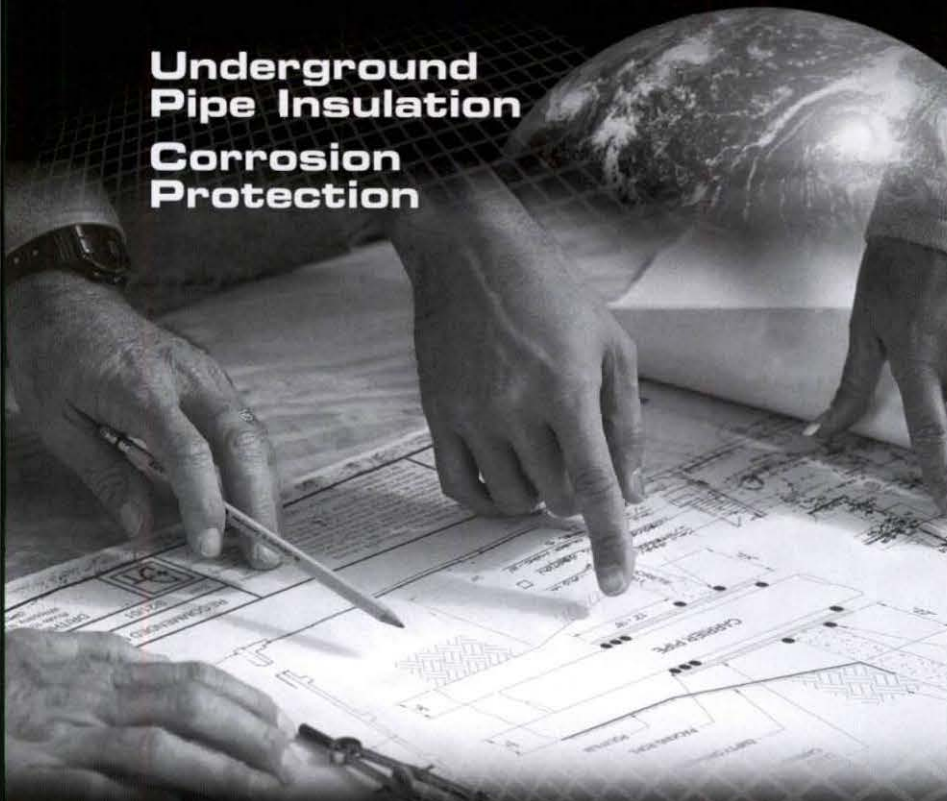
Productivity of workers would increase also as nearly two-thirds of respondents reported the need to leave their desks and stretch their legs at least five times daily. With each break lasting approximately ten minutes, nearly an hour of potential work time is lost per employee each day.

For the complete results of this survey, visit [www.workriteergo.com](http://www.workriteergo.com). 

## DRITHERM®

Protecting America's Pipes

### Underground Pipe Insulation Corrosion Protection

- 
- Over 300 miles of Piping Protection Since 1967
  - Closed Cell - 100% Hydrophobic Product
  - Creates Dry, Stable, System Environment
  - Ideal for New Piping Systems/Repairs/Tanks
  - Engineered Design for System Reliability



339 Changebridge Rd. - Suite 1B • Pine Brook, NJ 07058  
Phone: (973) 808-2255 • (800) 343-4188  
[www.DriTherm.com](http://www.DriTherm.com)

### Plan to attend

The Campus of the Future,  
A Meeting of the Minds,  
July 8-11, 2006 in Honolulu,  
Hawai'i, where three leading  
higher education manage-  
ment associations—APPA,  
NACUBO, and SCUP—are  
collaborating on an event  
that will provide something  
for everyone in the field. Visit  
[www.campusofthefuture.org](http://www.campusofthefuture.org)  
for more information on this  
exciting meeting.



**Choose the simplest, most-reliable,  
high-value riding scrubber available.**



The new Speed Scrub™ Rider delivers the reliability, performance and value of the Speed Scrub walk-behind – and much more:

**Quiet operation** – with a 67 dBa the Speed Scrub Rider has a 75% lower sound level than leading comparable scrubbers.

**Simple controls** – easy-to-learn controls decrease training time, increase cleaning time.

**Safe scrubbing** – just-scrubbed floors are immediately dry, residue-free, and safe for traffic with FaST.™

**The new Speed Scrub Rider: A heritage of quality, a guarantee of value.**



*The Safe Scrubbing Alternative®*

### **The Nobles Difference**

See the Speed Scrub Rider in action, and experience the Nobles difference. For a demonstration or additional information, call **800.533.8033**.



# Executive Summary

## Looking Ahead Together: Preparing for The Campus of the Future

by E. Lander Medlin, James E. Morley Jr., and Jolene Knapp

For some time now, as leaders of our respective associations, we have considered the possibilities of collaboration in serving our members. We work together virtually every day on campus and then head off in different directions in July to attend our respective annual conferences. So we wondered, why not bring everyone together at one joint conference?

The partnership has many advantages. At the most basic level, it's an opportunity to combine our strengths to build an incredibly rich program that reaches across all campus administrative functions. The power of bringing three key elements of campus administration—finance, planning, and facilities—in one conference holds vast possibilities for considering the challenges of the

**APPA, NACUBO, and SCUP will host *The Campus of the Future: A Meeting of the Minds*, a joint conference July 8–11, 2006, in Honolulu, Hawaii. In this open letter, the authors discuss the objectives of the conference and the partnership. Lander Medlin is executive vice president of APPA, Alexandria, Virginia, and can be reached at [lander@appa.org](mailto:lander@appa.org). Jay Morley is president and chief executive officer of the National Association of College and University Business Officers, Washington, D.C., and can be reached at [james.morley@nacubo.org](mailto:james.morley@nacubo.org). Jolene Knapp is executive director of the Society for College and University Planning, Ann Arbor, Michigan, and can be reached at [jolene.knapp@scup.org](mailto:jolene.knapp@scup.org).**



### THE CAMPUS OF THE FUTURE

#### A MEETING OF THE MINDS

Honolulu, Hawaii • July 8-11, 2006

future. Working together, we mobilize greater resources to ultimately improve our collective ability to respond to such challenges.

The idea of collaborating among higher education associations isn't a new one. In fact, the Council of Higher Education Management Associations was organized with that purpose in mind. **The Campus of the Future: A Meeting of the Minds** aims to show this collaboration to a broader community. In doing so, we can bring unique value, not only to our three respective memberships, but to the larger college and university community to include international participation as well.

#### Find Out What the Future Holds

The 2006 conference will provide an opportunity for individuals and teams to come together as a campus administration community and experience fresh ideas and perspectives in a stimulating environment. The confluence of economic, political, technological, and competitive forces demands a collaborative approach to

campus administration now and in the future. In fact, success will depend on a shared ownership across campus in meeting challenges.

There is much speculation about the face and shape of higher education in the future, from the extreme of a total virtual delivery system to a traditional brick-and-mortar community. Will we shape the future through active collaboration in the higher education community, or will we just wait to be transformed by various external forces?

The program will offer insights, informed predictions, expert analysis, and proposed direction. A futures panel will kick off the program with an interactive overview of the key trends and issues driving society and higher education. With this background in mind, conference attendees will work together to uncover specific strategies to help institutions successfully plan and navigate the future.

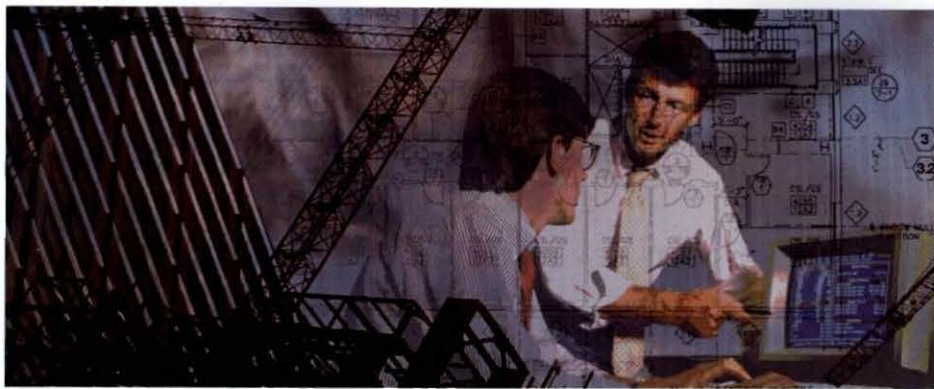
We chose the title *The Campus of the Future: A Meeting of the Minds* because we are all involved in planning for the future. How will we and



your institutions respond to the unforeseen or unimagined? The program committee has developed an extraordinary range of topics. For example, more than 150 concurrent sessions will cover a wide range of critical issues from strategic thinking and integrated planning to operations and financial management.

Whether you're attending as part of a team from your campus, as an individual who wears many hats at your institution, or as a corporate partner, you'll have a broader, richer educational experience. In addition to the outstanding content of the program, the Campus Expo will allow attendees to interact with a large collection of corporate partners in a hall designed to re-create a campus setting.

This joint conference will offer a program tailor-made to respond both intellectually and creatively to the key challenges on the horizon. Our mis-



sion: an unprecedented connection among campus administration to collectively address current and future pressing strategic issues in higher education and to promote an enhanced understanding of and appreciation for all respective professional roles.

Please join us for what is certain to be a stimulating conference. The learning and experiences will have a lasting impact and provide resources for attendees for years to come. 🏛️

**The joint conference will be held July 8-11, 2006 in Honolulu, Hawai'i. For program information and updates, visit [www.campusofthefuture.org](http://www.campusofthefuture.org).**



## Energy Solutions Guaranteed Energy Savings

*"The actual savings we realized during the construction period were greater than Tour Andover Controls had estimated. My impression is that this project has been approached as a team effort by my staff and their staff. The working relationships have been excellent."*

— Raymond E. McFarlane  
Director, Physical Plant and Facilities Planning  
University of North Texas

866-TAC-INFO • [www.tac.com](http://www.tac.com)

- Guaranteed Savings Programs
- Utility Analysis
- Energy Efficiency Upgrades
- Improved Comfort through HVAC Upgrades
- Deferred Maintenance Solutions
- Ongoing Project Support

**t.a.c.**  
TourAndoverControls

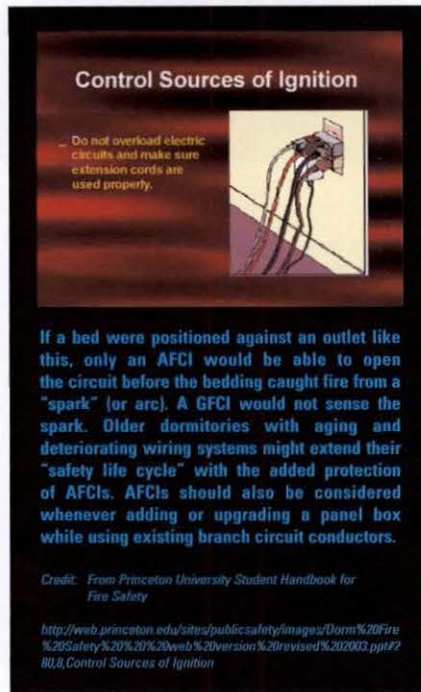


## National Electric Code Update—Arc Fault Circuit Interrupters

by Michael A. Anthony, P.E.

The competing requirements of safety and economy have manifested themselves again in a relatively new NEC requirement for arc fault circuit interrupters (AFCIs). These are a new type of protection device that detects hazards in frayed extension cords, for example, before a fire begins. The operating principle has been used in the protection of areas near fallen utility lines for many years but was scaled down and presented to the technical committees of the National Electric Code. AFCI in dwelling unit bedrooms became mandatory in Section 210-12 on January 1, 2002. I know that facility managers look forward to changes in the NEC as much as we all look forward to changes in the tax code.

The requirement for the application of AFCIs in the bedrooms of all dwelling units presents our industry with application decisions with respect to dormitory design. It makes sense that NEC code writers selected bedrooms as the first application point for AFCI; bedrooms are, after all, where most people spend one-third of their lives. Sleep-deprived students, making up a week's worth of lost sleep, can be rendered unable to respond to fire alarms or even a cold steady flow of water from a sprinkler head. The ratio of the bedroom space to the total area of living space is relatively large as compared to the ratio of



the number of bedroom circuits to the total number of circuits. Thus, you get the most protection for the cost.

The crux of the application problem for higher education lies in how the NEC defines "dwelling unit." Article 100 of the NEC defines a dwelling unit as an occupancy with permanent cooking facilities. Arguably, any dormitory room that does not have permanent cooking facilities is not required to have AFCIs. Knowledgeable facility executives know, however, that dormitory rooms are filled with surprises. The safest thing to do is make arc fault circuit interrupters mandatory in all dormitory sleeping quarters whether or not there is a defined kitchenette in the dormitory. For all practical

purposes, any space within a dormitory room can turn into a kitchenette with a refrigerator, a hot plate, a coffee-maker, a popcorn popper, and a microwave.

Arc fault circuit protection is not cheap; at least not yet. While the cost of a standard circuit breaker may be \$10 or less, the cost of arc fault protection is about five times this amount—depending upon the market and the manufacturer. Economies of scale are rapidly bringing the per unit cost down. The larger cost impact of AFCIs has to do with the implications it has for:

- The electrical design of the power system within the dormitory room
- Maintenance and operation cost to reset AFCI circuit breakers after they have opened.

Unlike ground fault circuit interrupters (GFCIs), arc fault protection

Annually, over 40,000 fires are attributed to home electrical wiring. These fires result in over 350 deaths and over 1,400 injuries each year.

—Ault, Singh, and Smith, "1996 Residential Fire Loss Estimates", October 1998, Product Safety Commission, Directorate for Epidemiology and Health Sciences.



Electrical fires are one of the leading causes of fires in student housing. Some universities have language in their dormitory room usage agreements that prohibit (or limit the wattages of) particular types of appliances such as halogen lamps.

Credit: Boston University

Michael A. Anthony, P.E., is senior electrical engineer with Architectural and Engineering Services, University of Michigan, Ann Arbor, Michigan, and is APPA's representative on the National Electric Code. He can be reached at [maanthon@umich.edu](mailto:maanthon@umich.edu).



	Activation threshold	Activation Point	Cost per unit	Remarks
<b>Standard Circuit Breaker or Outlet</b>	15A-20A for many hundreds of half-cycles	All areas/outlets not covered by GFCI or AFCI	\$2 per outlet	Protects wire and insulation from heat damage due to excessive current
<b>AFCI Circuit</b>	50 A for 1/2 second.	Dwelling unit bedrooms. Protection for the entire supply circuit	\$40 per circuit breaker	Available. AFCI outlets—just now entering market
<b>GFCI Outlet</b>	6 milliamperes or more (mA)	Near water; protects people. Protection for only the outlet	\$10 per outlet	Available
<b>GFI Circuit</b>	30 milliamperes or more (mA)	Near water; protects equipment. Protection for only the outlet	\$10 per circuit breaker	Available
<b>AFCI/GFI</b>	50A/30 mA as above	As above	\$50	Available
<b>AFCI/GFCI</b>	50A/6 mA or more as above	As above	\$50	Outlets only are available

**Note:** An AFCI does offer some ground fault protection. One of the more common wiring mistakes when installing an AFCI in a new or retrofit installation is a "shared neutral" condition (two black wires feeding circuits with a common white wire return). Two-pole AFCIs are available for this condition.



*Circuit breaker graphic from SQ-D*

Note the similarity in size with a conventional 15A-20A circuit breaker. The microelectronics within these devices do generate more heat than conventional breakers, however. Until the recent development of the AFCI for residential occupancies, there was no way to protect against hazards that occurred at current levels below those at which circuit breakers were designed to operate. The AFCI senses the existence of a small plasma called an arc and will open an entire circuit. An arcing hazard happens between phases and/or neutral. (Note the white, coiled wire, identifying the neutral.) An AFCI is unlike the GFCI. A GFCI, which is applied near water, senses hazards between phase/neutral or ground. The coiled wire that accompanies a GFCI unit is green. A GFCI can be tested at the outlet within a given room. An AFCI outlet, however, must be tested back at the circuit breaker panel. This difference has policy and cost implications for student housing, security, maintenance, and operations.

*Credit: Square-D*

applies to the entire branch circuit. To use housing construction funding wisely, your electrical designers should make sure that all AFCI-protected outlets are on the same circuit. In the design of new dormitories it might not be wise to try to cut costs by sharing AFCI-protected circuits between dormitory rooms. If a dormitory room has a 125 VAC smoke detector or a window air conditioner outlet in it then the circuit supplying power to these types of loads requires AFCI. If a switch located in a bedroom controls lighting outlets for outdoor luminaires, closets, or other loads not terminated in bedroom space, then AFCI protection is not required because a switch is not considered an outlet.

Your design standards workgroups should be adjusting the instructions you give to your electrical professionals. Be aware that enforcement of the requirement is not the same everywhere in the United States. The state of Vermont, for example, has taken a slightly more aggressive stance. They are requiring that AFCIs be used in all

circuits that feed residential living areas; not just bedrooms. The city of Atlanta, Georgia, now requires AFCIs for all retrofit/remodels. You should track AFCI-adoption programs with the authority having jurisdiction; typically the chief state electrical inspector or fire marshal.

Like the ground fault circuit protection that preceded it, AFCIs have experienced growing pains. They have frequently worked too well; sometimes not at all. Dimmable lighting circuits within bedrooms may trip when used with arc fault circuit interrupters. This nuisance tripping is dependent on the load wattage and the number of high wattage lamps on each AFCI. Within the past three years, one manufacturer had to recall some AFCIs and the problem was quickly resolved.

Some antagonists of the safety community assert that mandatory application of AFCIs is overzealous and too early; that the technology is still buggy. Starting from the late 1960s, it took ten years to get GFCIs to a point where they were not nui-

sance tripping all the time. Seldom does a new technology come along that is a sure bet to slowly, but surely, transform the basic power systems of residential occupancies. To paraphrase the philosopher Anatole France: I prefer the errors of enthusiasm to the indifference of wisdom. 🏠



# Membership Matters

## Effective & Innovative Practices That Can Work for You!

by Alan S. Bigger

**I**t was Memorial Day weekend 2004, the time 6:00 a.m., the day, Saturday. Three observers sat on a grassy bank overlooking the university football stadium, which at that early hour was closed, locked tighter than a drum. However, an amazing spectacle was unfolding in front of the stadium. At 6:00 a.m., people were lining up outside the stadium, people of all ages, some wide awake and some half asleep, but all in a cheerful mood. This was particularly amazing since it was cold and windy and the

veritable hallowed hall of splendor for football fans. Each adult had paid five dollars admission. It wasn't for a football game or concert, the tickets were too cheap; it wasn't to hear a famous speaker or hear a rock concert, tickets were readily available. No, it was for a student "Trash to Treasure" sale that would eventually generate over \$50,000 for charity and divert over 75 tons of material from the landfill.

What was being sold? The students of the university had consciously donated items that they no longer

needed to the local United Way. These items were sold to buyers at rock bottom prices during a giant yard sale. The hallowed stadium was Beaver Stadium, home of the Nittany Lions of Penn State University.

The reason the three observers were on the bank outside the stadium was because they had heard about the in-

novative program through APPA's Effective and Innovative Practices award program. In addition to generating money for charity, Penn State also received one of five 2004 E&I awards of \$4,000 for their superb idea. It was innovative in that it involved hundreds of volunteers who donated thousands of hours of labor to make the sale happen. It was effective in that the program generated revenues for charities, strengthened the town-to-gown relationship between the university and the local population, and diverted tons of usable items from the landfill for others to use. The concept was also portable,

and the three observers took the idea back to their university and implemented a similar program in 2005. The program was a win-win situation for all. The idea may never have been picked up by other universities and colleges if it had not been for the Effective and Innovative Practices awards program—a wonderful example of a tangible benefit to APPA member institutions and the synergistic impact of membership in APPA.

The Effective and Innovative Practices program began in 2002 with underwriting and sponsorship by Sodexo ([www.sodexhousa.com](http://www.sodexhousa.com)). The program is now in its fourth year and grants up to five \$4,000 awards each year. During the last four years, 20 awards have been made totaling \$80,000. This program would not have been possible nor could it have been so highly successful, if it were not for Sodexo's partnership with and commitment to APPA and its members. The program is thriving and becoming increasingly competitive. In 2005, 25 submissions were received with five institutions being awarded \$4,000 each! Not only are the institutions winners, we are all winners because we can learn about successful programs at other institutions by reading about them at [www.appa.org/recognition](http://www.appa.org/recognition) or in this magazine. We can then take the best of the best ideas back to our own institutions and implement them within our own environments.

What does it take to position an institution to be considered for such an award? In the *Membership Directory 2004-05* on page 14, the elements of the program are outlined as well as on the Web page. Entries are judged based on:

- Institutional benefit
- Innovation and creativity



**6:00 a.m. and people are lining up for Trash to Treasure at Penn State (2004).**

early morning mist was still in the air. The line continued to grow and grow, and by 7:00 a.m., there were well over 1,000 people lined up to get into the stadium. The line wound like a snake more than half the way around the stadium.

At 7:01 a.m., the gates opened and the line surged into the stadium, a

---

**Alan Bigger is director of Building Services at the University of Notre Dame and APPA Vice President for Professional Affairs. He can be reached at [alan.s.bigger.1@nd.edu](mailto:alan.s.bigger.1@nd.edu).**

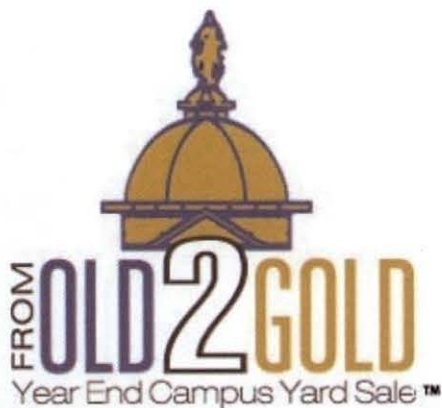


Over \$25,000 was raised from the sale of student-donated items for local charities, 54 tons of items were diverted from the landfill, and thousands of pounds of food were donated to the local food bank.

- Portability and sustainability
- Management commitment and employee involvement
- Documentation, analysis, customer input, and benchmarking

The program mentioned earlier at Penn State had all of these elements present and the proof of the pudding is in the eating. The program, and all of its elements, were portable and were adapted for use by the three observers from the University of Notre Dame. In May 2005, a program similar to Penn State's was hosted at Notre Dame Stadium, organized and supported by dozens of agencies that worked with the local United Way.

Over \$25,000 was raised from the sale of student-donated items for local charities, 54 tons of items were diverted from the landfill, and thousands of pounds of food were donated to the local food bank. Over 4,000 people attended the event including buyers and volunteers. Thanks to Penn State, the Effective and Innovative Practices awards program, and Sodexo's support of APPA's award programs, Notre Dame and the local United Way were able to conduct the first "From Old2Gold" program.



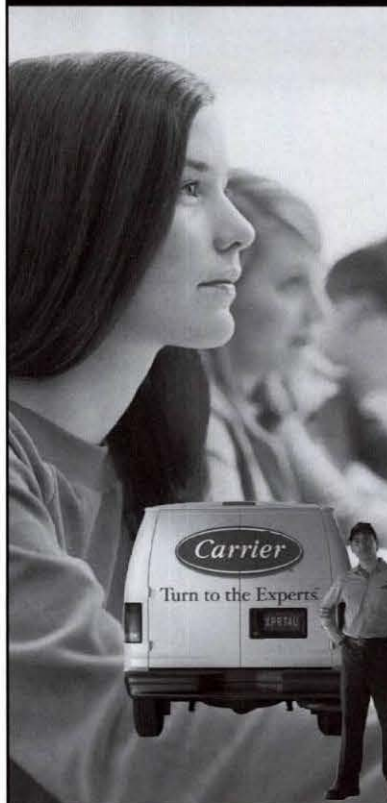
Notre Dame logo for the first "From Old2Gold" program (2005).

The benefits of membership in APPA are many, some tangible such as a cash award for an E&I program, and others less tangible, but very real, such as the synergy when APPA partners with industry leaders and when members share their expertise and ideas with other members. The synergistic impact on the member institutions, the individual members, and the business partners help forge relationships that are the jewels of the profession, yielding ideas and concepts that benefit all. Membership in APPA is a win-win investment for all.

Now it is your turn to visit [www.appa.org/recognition](http://www.appa.org/recognition) and take your wonderful ideas and share them with other APPA members by making

a submission to the Effective and Innovative Practices awards program by February 15, 2006, midnight Greenwich Mean Time. Award winners for the last three years are listed in the Membership Directory and at [www.appa.org/recognition](http://www.appa.org/recognition). Some of the past winners had titles such as "An Army of One," "T.O.P.G.U.N. Journey to Customer Excellence," "Mobile Integrated Facility Management System," and "Biomass Fuel Project." A review of these awards will assist you as you prepare a submission for your institution. We look forward to you sharing your effective and innovative practices with APPA members—thanks to you, we will all be winners! 🏆

### Student Performance.



### *We Make Sure That the Classrooms are Performing Equally as Well.*

Hundreds of educational institutions around the country trust Carrier Commercial Service, the total solutions provider, to keep their campuses running smoothly and efficiently 24/7/365.

From classrooms to cafeterias, lecture halls to laboratories, and dorm rooms to the dean's office, Carrier has extensive HVAC experience to meet all the comfort and operational demands of these unique environments.

- HVAC Maintenance & Repairs
- Turnkey Modernization Projects
- Building Control & Automation
- Equipment Overhauls & Upgrades
- Remote Access & Monitoring
- Variable Speed Drives
- Alternative Power Solutions

To learn more about our comprehensive services, log on to [www.commercialhvacservice.carrier.com](http://www.commercialhvacservice.carrier.com) or call 1.877.794.4581



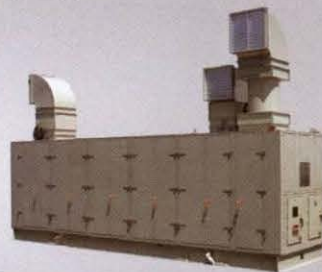


**Just because you're using energy  
doesn't mean you're doing it efficiently.**



**Now get clean, quiet gas turbine power with world-class efficiency.**

The *Mercury*™ 50 recuperated gas turbine from Solar Turbines stands in a class by itself with 38.5 percent efficiency, and emissions less than half those of other turbines in its class. Innovative Ultra-Lean-Premix combustion technology delivers an emissions profile of 5 ppm NO<sub>x</sub> and 10 ppm CO – without catalytic controls. With quiet operation and a compact footprint, this 4,600 kW powerhouse is easy to site and opens up a new range of combined heat and power (CHP) and utility applications. Best of all, it comes with the Solar Turbines reputation for reliability, proven in nearly 12,000 turbine installations worldwide. Find out how the *Mercury* 50 can improve your energy efficiency and economic performance. Call 1-619-544-5352, e-mail [mercury@solarturbines.com](mailto:mercury@solarturbines.com), or visit us online at [www.solarturbines.com](http://www.solarturbines.com).



**Mercury 50 Package**

©2005 Solar Turbines Incorporated

**GENERATING RESULTS FOR YOUR BUSINESS**

**Solar Turbines**

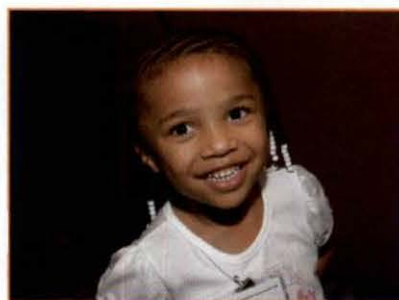
*A Caterpillar Company*



## ORLANDO FORUM HIGHLIGHTS

*Photos by Rhonda Hole*

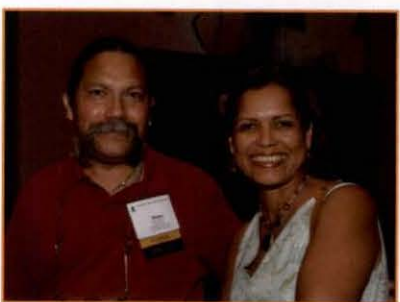
### *Candid Shots at the Forum!*





# APPA Educational Facilities Leadership Forum Highlights

## *Candid Shots at the Forum!*





# **APPA Educational Facilities Leadership Forum Highlights**

## *General Sessions Speakers*



*David Pearce Snyder*



*Brooks H. Baker III*



*Doug Erickson*



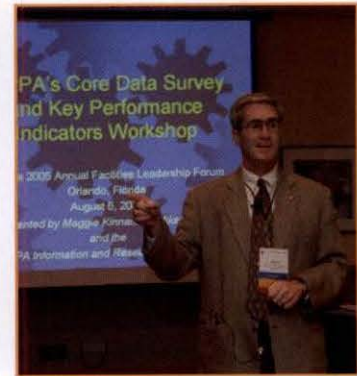
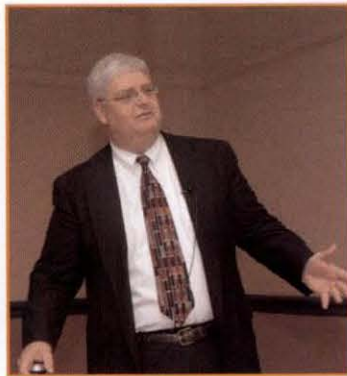
*Diana Oblinger*

*Did you hear any of these great speakers in the Forum sessions?*





## *Wonderful Sessions and Speakers!*





# APPA Educational Facilities Leadership Forum Highlights

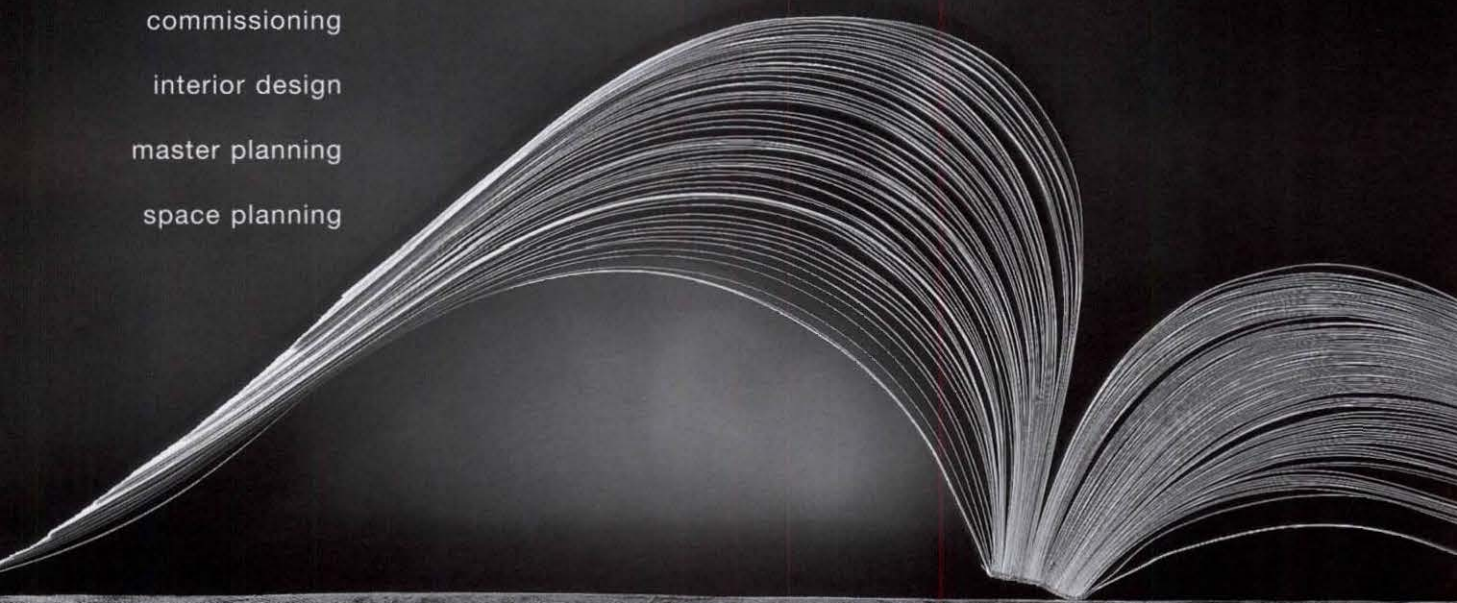
## Hall of Resources





# smart solutions for asset management

architecture/engineering  
utilities condition inspections  
facilities management  
fire and life safety systems  
central power plants  
energy management systems  
utility master planning  
commissioning  
interior design  
master planning  
space planning



For more than 65 years, Carter & Burgess has  
provided intelligent solutions to challenges  
in planning, engineering and construction  
management. Let us provide the answers to  
your educational facility needs.

**800.580.6278**

[www.c-b.com](http://www.c-b.com)

*for more information contact:*

**Scott Clark** - energy/utilities

**Eric Dillinger** - asset management

**Randy Edwards** - campus design

**George Bourassa** - commissioning

**Carter::Burgess**



# APPA Educational Facilities Leadership Forum Highlights

## Hall of Resources





# APPA Educational Facilities Leadership Forum Highlights

## The President's Award

*The President's Award is given to APPA members (both individuals and groups) who have demonstrated exceptional achievements in facilities management and who have made outstanding contributions to the association. Ed Rice presents the award to Charlie (posthumously) and Ann Jenkins and Pat Apel.*



*Charlie (posthumously) and Ann Jenkins*



*Pat Apel*

## Rex Dillow Award

*The Rex Dillow Award is presented to the author(s) of the best article published in Facilities Manager from the past six issues. This year, the award was presented to Leonard Friesenhahn of the University of Texas at Austin for his article from the September/October 2004 issue titled "The University of Texas Sewer Rehab: Using Trenchless Technologies."*



*Leonard Friesenhahn  
 of the University of Texas at Austin*



## Pacesetter Award

*The Pacesetter Award is designed to further encourage participation in APPA among those who have already made significant contributions in their regions or chapters. Below are the 2005 Pacesetter winners.*



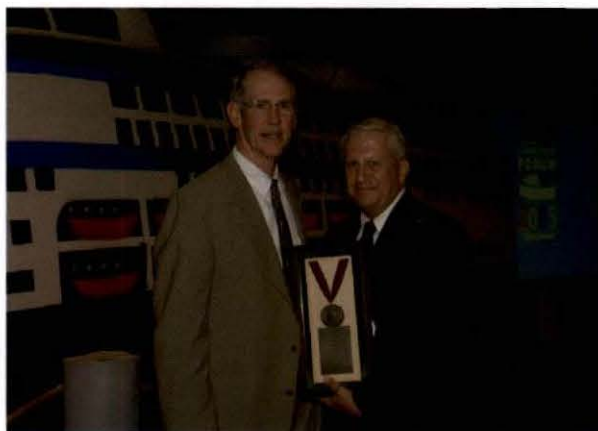
*From l-r, flanked by Alan Bigger and Ed Rice: Anita Bailey, Darrel Meyer, Fred Plant, Harvey Chace, and Jewell Winn; Absent: David Brixen*

## Meritorious Service Award

*Each year the Meritorious Service Award is presented to the individual member(s) who have made significant, life-long contributions to the profession of educational facilities management. This year's recipients are:*



*Vickie D. Younger, Kansas State University*

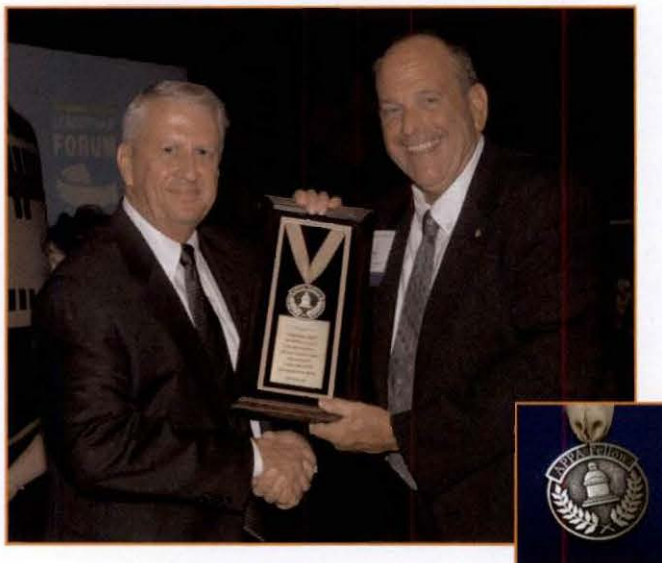


*Philip L. Cox, Cornell University*



## APPA Fellow Award

APPA's highest individual achievement award, the APPA Fellow designation brings with it both recognition of specific accomplishments to date and expectations for continuing involvement in APPA's leadership program through research and mentoring. This year's award is presented by Brooks Baker to Ed Rice.



Edward D. Rice, Kansas State University

## 2004-05 Outgoing Regional Reps



Al Stoverink, Terry Ruprecht, and John Wong

## 2005-06 APPA Board of Directors





# APPA Educational Facilities Leadership Forum Highlights

## Award for Excellence

APPA's highest institutional honor is the Award for Excellence in Facilities Management. This award recognizes those educational institutions whose facilities management organizations have demonstrated excellence in overall operations and effectiveness. The 2005 AFE award winner is the University of Florida.



University of Florida

Ed Rice, Dave Obrien, Allan Preston, Mark Ivanowski, Pam Walker, Donna Agerton, and Bob Bell

## Effective & Innovative Practices Award

The Effective & Innovative Awards recognize programs and processes that enhance service delivery, lower costs, increase productivity, improve customer service, generate revenue, or otherwise benefit the educational institution. Presenting the awards are Alan Bigger, Vice President for Professional Affairs, and Al Allen, Sodexo.

The 2005 awards go to:



University of British Columbia—"UBC  
 Campus Sustainability Office,  
 Sustainability Coordinator Program"



University of Hartford—"Resident  
 Facility Assistant"



University of Iowa—"Biomass Fuel  
 Project"



University of Miami—"How the University of Miami's Facilities Administration  
 Department Uses Customized Financial Reports to Manage Costs"



University of Victoria—  
 "Water Reuse Initiative"



# APPA Educational Facilities Leadership Forum Highlights

## Eagle Award

The Eagle Award is given to those individuals who on behalf of their company, have found additional ways to partner with APPA on projects and programs. This award is given only when merited and is awarded this year to Al Allen of Sodexho, Inc.



## Individual Rising Star Award

The Individual Rising Star Award is given to those individuals who are "up and comers" in APPA's eyes. This year the award goes to James Whittaker of Facility Engineering Associates. Accepting for Whitaker is Jim Portugal.



## APPA 2005 Business Partners

APPA's Business Partners provide products and services to the facilities management marketplace or have an interest in reaching facilities managers in the educational environment. We appreciate the support of our Business Partners and present the 2005 award recipients below.

### 2005 PLATINUM AWARD



Applied Management Engineering, Inc.



Johnson Controls, Inc.



Siemens Building Technologies



Sodexho Campus Services



# SCHLAGE CAMPUSLINK®. THE CAMPUS SECURITY LEADER IS MOVING INTO YOUR RESIDENCE HALLS.



©2004 Ingersoll-Rand

**STAND-ALONE SECURITY FOR RESIDENCE HALLS.** Schlage's new CampusLink locking system combines the beauty and dependability of our Schlage Campus Lock with proven software, giving you the most effective method of managing electronic access for rooms with high turnover. CampusLink is the latest innovation from the company that has provided security to college campuses for more than 100 years. The CampusLink system minimizes installation and maintenance time and costs, while providing a safe and secure environment for your students. Financial services in the form of loans and leasing are available.

## Schlage's new CampusLink locking system features:



### Technology

- Integrates with online and offline systems
- Open track 1 or 3 allows card to manage access
- Integrates with other campus databases
- Interfaces with leading "One Card" providers

### Performance and Reliability

- Utilizes Schlage ANSI Grade 1 lock platform
- Stand-alone electronic locking—no wires needed
- Data history of last 2,000 door events
- Unlimited number of cardholders with unique PINs

To learn more about Schlage's new CampusLink system, contact one of our 24 Security & Safety Consultant<sup>SM</sup> offices at 1-877-840-3621 or visit [irsafeschools.com](http://irsafeschools.com).

**IR Security & Safety  
Education Solutions**

An **IR** Ingersoll-Rand business

SCHLAGE • VON DUPRIN • LCN • RECOGNITION SYSTEMS • GEOFFREY



# APPA Educational Facilities Leadership Forum Highlights

## 2005 GOLD AWARD RECIPIENTS



*Maximus, Inc.*

*Absent: UNICCO*

## 2005 SILVER AWARD RECIPIENTS



*ISSA*



*Lerch Bates and Associates—  
Elevator Consulting Group*



*Marcis & Associates*



*R.S. Means*



# APPA Educational Facilities Leadership Forum Highlights

## 2005 SILVER AWARD RECIPIENTS



*SDI, Inc.*



*Sebesta Blomberg & Associates*



*Spirotherm, Inc.*



*TMA System, LLC*

*Absent: ARAMARK Facilities Services, GLHN Architects & Engineers, Inc., and GBBN Architects.*



# APPA Educational Facilities Leadership Forum Highlights

## 2005 BRONZE AWARD RECIPIENTS



*Adams Consulting Group*



*Nalco Company*

*A salute to our Strategic Business Partners—  
thanks for going that extra mile!*

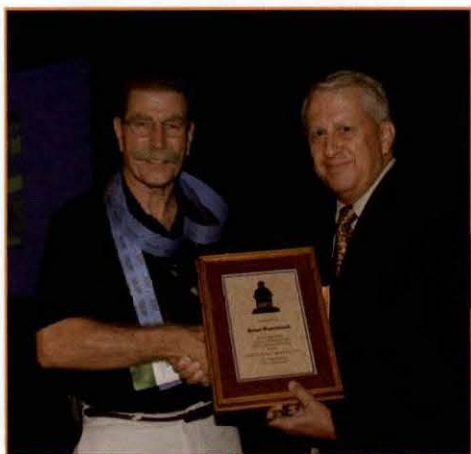




# APPA Educational Facilities Leadership Forum Highlights

## Charity

*Our charity this year was the Bithlo Christmas Neighborhood Center for Families and is the charity the University of Central Florida facilities staff. As a result of the generosity of the Forum attendees and business partners, several thousand dollars were contributed to this fund.*



**Brian Wormwood of the University of Central Florida**



**Phillip Paul and Stephen John Bigger, sons of Alan, assist with the raffle drawing.**



**A check for \$3,750 is presented to the Bithlo Christmas Neighborhood Center for Families.**

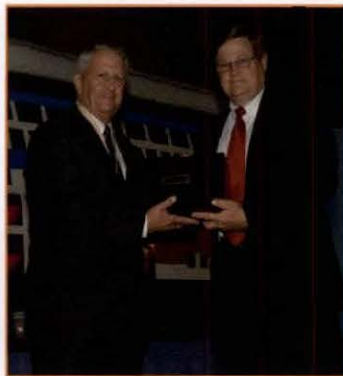


# APPA Educational Facilities Leadership Forum Highlights

## The Annual Banquet



*A nautical theme greeted the banquet guests.*



*Ed Rice passes the President's gavel to Jack Colby*

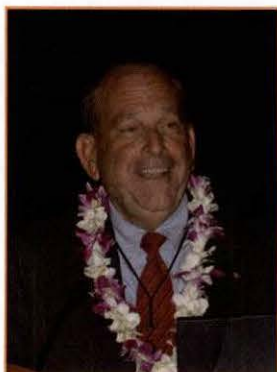


*Ed and Janet Rice*

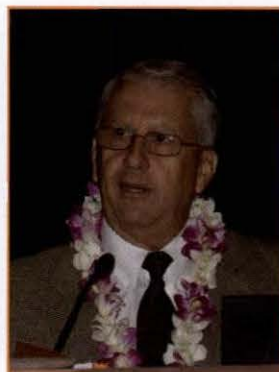
## Staff



*See you in Honolulu July 8–11, 2006!*



*Brooks*



*Ed*



*Jack*

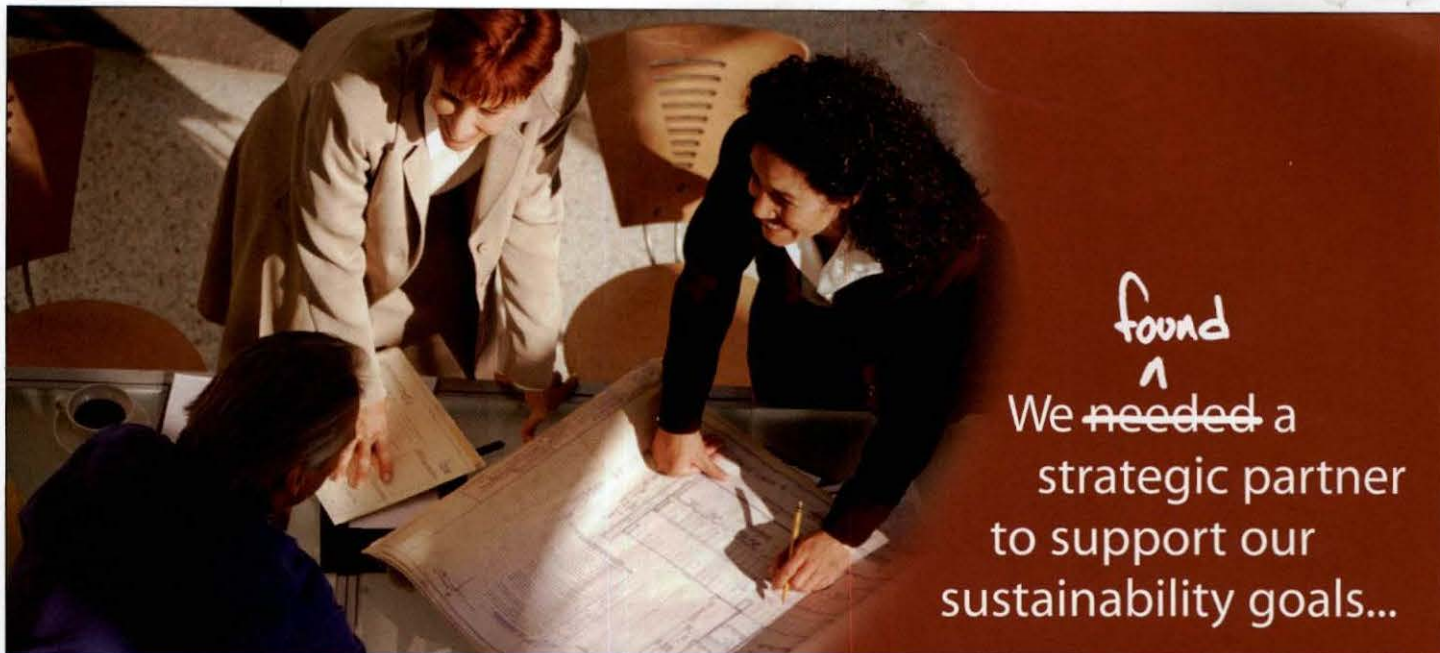


THE **CAMPUS**  
OF THE **FUTURE**

A MEETING OF  
THE MINDS

Honolulu, Hawaii • July 8–11, 2006





found  
^  
We ~~needed~~ a  
strategic partner  
to support our  
sustainability goals...

**CDM**  
listen. think. deliver.®  
[www.cdm.com](http://www.cdm.com)

consulting • engineering • construction • operations



**Carmanah**®

**Improve Pedestrian Safety with  
Carmanah's Solar Powered  
Flashing Beacons**

Carmanah's solar-powered flashing beacons do more than save you time and money—they can save lives and help increase safety for all road users.

More than 250,000 installations worldwide attest to the reliability and operational benefits of Carmanah's products:

- Fast, simple installation
- No trenching or wiring
- Maintenance free for up to 5 years
- Push-button, pre-programmed, or 24 hour activation

**Applications:**

Crosswalks • Pedestrian Areas • Warning Signs • Stop Signs

Visit: [www.roadlights.com](http://www.roadlights.com)

Call: 1-877-722-8877

Worldwide: +1 (250) 380-0052

Fax: +1 (250) 389-0040

E-mail: [info@roadlights.com](mailto:info@roadlights.com)

CHANGE THE WORLD WITH US™





# Smooth Management and Strong Commitment

## A Profile of President Jack Colby

By Ruth E. Thaler-Carter

The new president of APPA started out in industry but took to higher education facilities management with passion and pride, creating a career known for a smooth management style and service to the association.

Like many in the profession, Jack K. Colby took a somewhat indirect route into educational facilities management. He holds degrees in mechanical engineering from Virginia Tech (1974) and an MBA in finance from the Fuqua School at Duke University (1983), and is a licensed Professional Engineer in North Carolina. He started out managing industrial construction projects for Daniel International. When the construction industry

---

*Ruth Thaler-Carter is a freelance writer and editor who has provided several presidential profiles and other feature articles for Facilities Manager over the years. She is based in Rochester, New York and can be reached at [ruth@writerruth.com](mailto:ruth@writerruth.com).*



took a downturn in the 1970s, he heard that Duke University was hiring. "I had the good fortune to visit Harry Ebert, who was physical plant director at Duke at that time," Colby recalled. "His job offer was the starting point of my career in higher education facilities management. It has turned out to be a wonderful choice that I have learned to appreciate over the years."

In fact, that indirect path is a point of connection with many, if not most, APPA members. "As I talk with people who work with us and migrate toward the facilities management profession, I find that we come from variety of backgrounds—few are from a college degree program in FM," said Colby.

Colby found that higher education facilities management was a tremendously rewarding career path. That first assignment at Duke, beginning in 1975 as a mechanical utilities engineer and then as manager of engineering and utilities from 1980 to 1987, led to serving as director of physical plant at the University of North Carolina (UNC)-Greensboro from 1987 to 1999. Then in 1999, he moved to his current berth as director of facilities operations at North Carolina State University in Raleigh.

Colby first became involved with APPA in 1977 through the Southeast Regional organization. "At the encouragement of Joe Estill and Norm Bedell, I became more involved with the state chapter in North Carolina, as well as the Southeastern APPA region," he recalled. Being just a "checkbook member" was not Colby's style. "As happens to many of us, my formal involvement came through a request by SRAPPA Board members that I serve as an APPA committee member and then as a member of the SRAPPA Board."

How Colby found and became deeply involved with APPA comes back to mentoring, he said: "Facilities managers I was working with knew of and were involved in the association, and said I should go to APPA meetings. I was impressed with the types of programs and services APPA offered." And involved, supportive APPA mentors played a role as well. "When I left Duke and went to UNC-Greensboro, my boss, Davis Lumpkin, said he wanted me to go to the 1987 APPA annual meeting in New Orleans—that's the first international meeting I went to. At NC State, Charles Leffler and Kevin MacNaughton have provided tremendous support to allow me to benefit from APPA service and to grow professionally."

That was the beginning of an illustrious APPA career, in tandem with Colby's professional career on campus. An APPA member since 1978, Colby has served at the state, regional, and international levels. He acted as the state coordinator for NCAPPA for nine years, hosting three annual meetings.



"I have found that the constantly changing set of challenges on a campus provides a work environment that is invigorating and rewarding..."

Beginning in 1994, Colby served on the SRAPPA Board as vice president at large, vice president for long-range planning, and as a representative to APPA's Information Services Committee and the Grounds Standards Task Force. In 1998, he received the SRAPPA President's Award. In 1997 and 1999, he was elected as APPA's Vice President for Professional Affairs, serving as chair of the Awards and Recognition Committee and a member of the APPA Executive Committee and Board of Directors. In 2000, Colby served as APPA's representative to the NACUBO Higher Education Awards Council and was elected as APPA Secretary-Treasurer. He served as APPA's representative to the ACUHO-I/ APPA Facilities Workshop in 2002 and 2003. In 2002, he was recognized for his service to APPA with the Meritorious Service Award. He took office as APPA President in August 2005 at the Orlando Forum.

### What Keeps Him Going

For Colby, the best thing about working in facilities management—the aspect that gets him going in the morning and keeps him in the profession—is a deep, always-growing sense of "personal satisfaction that comes with leading an organization of very talented and diverse people, working together toward a common goal of creating the campus environment," he said.

Ever-new challenges and change also keep Colby feeling good about work: "I have found that the constantly changing set of challenges on a campus provides a work environment that is invigorating and rewarding. No day is the same and every day brings a new set of opportunities," he said. Nowadays, that is no exaggeration. "On the NC State campus, we are in a tremendous growth mode—we're in the midst of an \$800-million capital expansion and that creates challenges in terms of growing pains to serve a larger campus. It also creates opportunities for us, in thinking of how we should be configuring the campus to best support the academic mission; incorporate applications of technology in the living environment of our students, and for teaching and learning. Finding out how the facilities organization can participate with the academic community and student affairs to result in the absolutely best environment for students, faculty, and staff is a tremendous challenge."

The expansion also gives NC State's facilities management division some useful opportunities to modernize campus systems that otherwise might not have been in the budget. "NC State is a large, dynamic, ever-changing Research-Extensive campus with lots of high-tech activity going on, which is

*Continued on page 40*



# Revolution

Introducing FacilityMAX™





## **Evolution is inevitable... Revolution is inspired...**

### **Inspired by emerging technologies...**

FacilityMAX™ relies on pure Java technology and the latest J2EE specifications to deliver a complete Enterprise Asset Management software solution. Its ultra-lightweight design and open architecture offer true standards-based interoperability, enterprise scalability, and ease of deployment.

### **Inspired by the way you do business...**

FacilityMAX™ was developed in conjunction with an advisory council of more than 20 of North America's most influential institutions of higher education. The result is a solution that enables higher education facilities officers to more effectively manage, maintain, and extend the life-cycles of mission-critical infrastructure and physical assets.

### **Inspired by a tradition of success in higher education...**

MAXIMUS solutions help more than 1,400 educational institutions throughout North America to improve operations and streamline business processes. Today, more Carnegie Research Universities rely on facilities management software solutions from MAXIMUS than any other vendor in the market.

### **Inspired to learn more?**

Contact a MAXIMUS representative today at (800) 659-9001, or visit us on the Internet at: [assetsolutions.maximus.com](http://assetsolutions.maximus.com).

- A 100% J2EE-compliant Enterprise Asset Management software solution.

- Manage operations and maintenance, capital projects, real property, utilities, and much more.

- Maximize asset lifecycles, improve productivity, reduce operating expenses, and streamline maintenance management.

- Integrate CAD, GIS and mobile computing technologies to obtain a complete view of your enterprise.

# **FacilityMAX**





**Brooks Hall, North Carolina State University**

*Continued from page 37*

always a real challenge for facilities,” Colby said. “Thanks to the expansion, we were able to earmark \$90 million for infrastructure improvements, essentially centralizing facilities to create more reliable systems and better working conditions. The Facilities Division team also achieved major efficiencies by reconfiguring the campus and doing better space planning to bring academic units back together. We’ve reduced costs by unifying and reorganizing offices, classrooms, auditoriums, and laboratories.”

There’s a lesson in that experience for Colby’s colleagues at other campuses: Embrace change rather than fear it, because it just might bring unexpected benefits.

### **Challenging Times Ahead**

Colby sees a variety of challenges affecting the profession of facilities management. “First, the rapidly rising cost of higher education will continue to bring pressure on us to do more with less,” he predicted. “Demands on the facilities manager will increase as we are expected to find new and better ways to provide an increasing range of services. This means that all facilities managers need to keep up with current trends and practices in the industry.”

“Second, the competition to recruit and retain qualified and skilled staff, given an environment of reduced funding, will be critical to the success of the facilities organization. We are people-driven organizations, and quality, service-oriented staff will be the key to the future.”

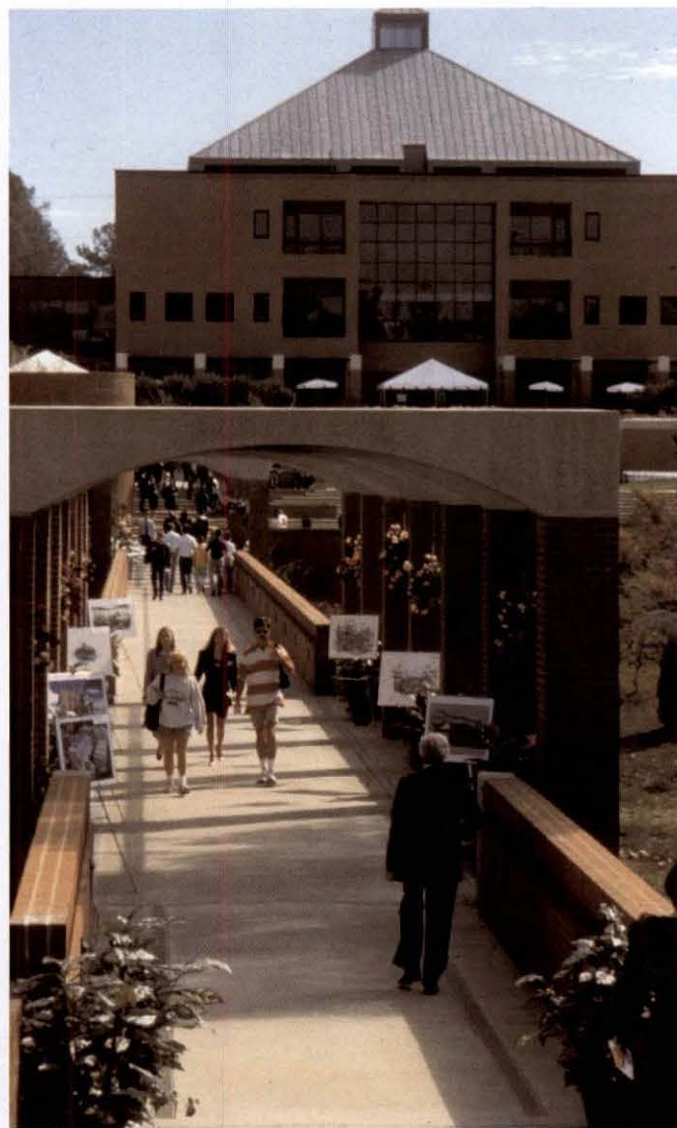
“Third, facilities professionals must have a seat at the decision-making tables at their institutions—that creates a ‘must win’ situation. The facility manager of today has to be skilled in presenting facilities issues within the framework of institutional governance. This requires that we not only have the credentials and the experience, but that we understand the role that physical assets play in the success of the educational

mission. We must be able to communicate these issues in a meaningful way to diverse groups with differing agendas.”

To Colby, professional success is a partnership between facilities and academia, and goes beyond simply providing physical amenities or ensuring that things work properly. “Technology, efficiency, access—it’s not just people in facilities saying ‘here’s what we’ll provide.’ We achieve greater success when there’s an integration of facilities professionals with academics to deliver the educational mission,” he said.

Developing and strengthening such abilities is one way that APPA membership can play a strong role in the professional success of individual facilities managers. As Colby exemplifies, APPA offers the tools and training needed to move in this vital direction.

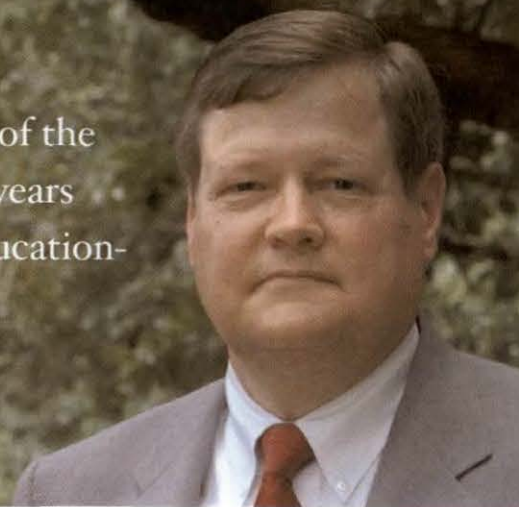
“There is no question that I have received many more benefits from my association with APPA than I have provided,” he said. “The friendships and professional network that I have developed over the years have been invaluable in providing learning opportunities, as well as the ability to benefit from



**College of Textiles**



"We have to be sure APPA is positioned to take advantage of the diversity of people now entering the field, compared to 20 years ago. The diversity of younger people coming in through educational programs now is very encouraging."



the experiences of others. APPA's outstanding educational, technical, and leadership programs have provided the basis for my advancement in the profession. It is through these programs that facilities professionals can move from the world of technical issues to the worlds of organizational behavior, leadership, stewardship, employee relations, institutional effectiveness, customer relations, and visionary thinking. These are skills that APPA programs cultivate and that will prepare the facilities managers of tomorrow."

While APPA is not Colby's only professional affiliation, it is the one that has absorbed the majority of his energy and dedication. "In the facilities management profession, there are certainly many quality organizations that provide benefits to their members," he said, "but I've always been impressed with the willingness of people in APPA to share information and network—even before networking was a buzzword—to help each other with common issues."

A certain personal warmth also characterizes APPA for Colby. "I've always felt that newcomers were very welcome at meetings—that there's a closeness and warmth."

Equally important has been APPA's ability to change with the times and reflect society. "APPA has worked to become more open and more diverse, to appreciate the fact that new people are coming into the profession, and that we need to welcome them and offer them the same opportunities," Colby said.

The personal aspect of APPA means that it is "not just an international organization, but very much a partnership with our regions and chapters," Colby added. "Again, that closeness and working relationship is something that really sets us apart. That's a very important value we deliver to members."

Colby also has been deeply impressed with the range of training and educational resources APPA offers. "That really sets us apart from other professional associations, because the bulk of our activities are educational in nature," he said.

"With other groups, the total involvement in education may only be an annual meeting. We are a standout in training and education."

With these advantages in mind, Colby does see a few challenges facing APPA. These include:

- Keeping in touch with the grassroots professional needs of our institutions and our members.
- Delivering quality educational programs on current topics, to equip our members with the tools to be successful in their jobs.
- Creating value for our members, so APPA remains their "Association of Choice."
- Maintaining and improving our status as a major force in addressing the facilities issues facing higher education.
- Developing and cultivating strong relationships with our regions and chapters to meet member needs better.

Colby sees diversity among new members as an opportunity. "We have to be sure APPA is positioned to take advantage of the diversity of people now entering the field, compared to 20 years ago. The diversity of younger people coming in through educational programs now is very encouraging," he said. "I feel we will provide a stronger program as we continue to encourage and integrate new concepts into our



*Colby in the NCSU College of Engineering*





**NC State's famed brickyard**

programs, so members can see diversity as a benefit to them back on campus."

### **The Presidential Plan**

Colby's plans as APPA President are straightforward and are grounded in his long-time belief in the inherent value of the association to its members and its profession. They include:

- To ensure continuity of current APPA initiatives such as the Center for Facilities Research, the Facilities Core Data Survey, and the grassroots membership campaigns.
- To align APPA Board and committee activities with the Strategic Plan to deliver quality education, research, and recognition.
- To review and strengthen our current strategic alliances with our partners in the facilities profession.
- To give our members information to prepare them to deal effectively with "generational differences."
- To set APPA's course for delivering credentials to new facilities professionals.

Colby plans to undertake those goals through a leadership style honed throughout many years in management positions on campus and in the APPA hierarchy. "I have to say I've learned from both sides—my job and the association," he said. In his own organization, Colby stresses delegation and providing people with the ability to make decisions at lower levels. Being able to delegate is key to building a strong organization in which every employee or member contributes and feels valued.

"Working in a volunteer organization gives you skills and helps mold your leadership style, since you work with very diverse groups of people with different agendas," Colby said. "Your role becomes one of facilitator and mediator and moderator, as well as leader. That evolution has certainly helped me as I moved up in APPA but also on campus, in terms of understanding how to work with various groups and develop a style as a facilitator, rather than being more autocratic."

### **The Personal Side**

As he begins his presidency, APPA's Jack Colby would like members to know that "I consider it to be a tremendous honor to serve the association and members at this level. I will do my best to represent the organization well and our members' interests in the best fashion."

Colby also wants to see members go beyond the basics of simply joining, and to give as much as they receive, for both their own and the organization's benefit. "I would like colleagues to know that APPA is made up of its members—its strength is its members," he said. "Being active and participating at whatever level you feel comfortable is key to the success of our profession and organization. With competing demands on people's time, we understand the difficulty in participating, but you are APPA and I hope everyone will look at that in terms of what you can do for the organization, as well as what we do for you."

Colby also wanted colleagues to know that his APPA career has not occurred in a vacuum—both employer and family have been crucial to his organizational success. "All my participation and my ability to work with APPA have been made possible by the generous sponsorship of my institutions, the encouragement of mentors, the support of a wonderful staff, and the involvement of my family," he said. All are proud of his new role in APPA and can be expected to continue providing the foundation needed for a successful presidential year. 🏠



**Brenda and Jack Colby, with Past President Phil Cox**



# Your Freedom Awaits



October 23-25, 2005 - Nashville

**BACnet**  
Conference & Expo   
*more freedom than ever*

Operating a facility without today's BACnet is like having your hands tied.

That's why you should join us October 23-25 in Nashville for the BACnet Conference & Expo. We'll untie those knots and give you

- more BACnet products.
- more BTL listings.
- more BACnet sites.
- *more freedom than ever!*

Visit the dozens of BACnet product providers who will be on hand. Explore the multi-vendor interoperability demo. Take advantage of numerous educational sessions. And network with others who share your quest for freedom.

Register  
today

[www.bacnetconference.org](http://www.bacnetconference.org)

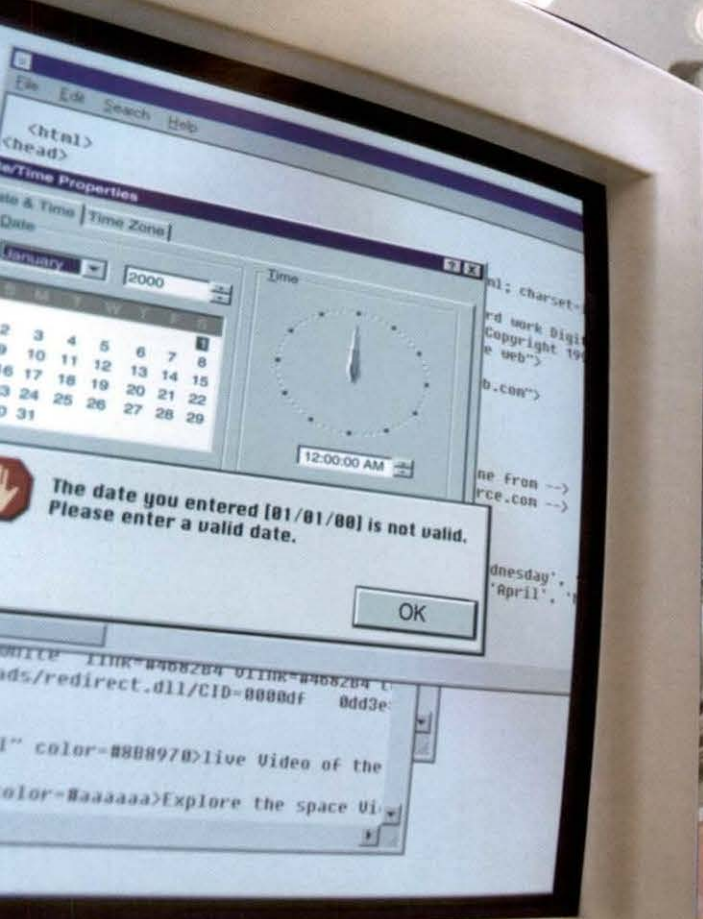
Hosted by



Endorsed by







# Preventing IT Security Breaches

By Alan Dessoiff

**S**purred by several recent information technology security breaches, colleges and universities everywhere are scrambling to prevent more potentially devastating incidents, from thefts of personal identities and intellectual property to crashes of key systems.

As higher education institutions are discovering, cybercrime threatens all computer users these days, and schools of learning are as vulnerable to it—perhaps even more at risk—than government agencies and private corporations, which also have become victims.

A security task force established in 2000 by EDUCAUSE and Internet2 is spearheading an effort that has significantly raised awareness of IT security issues in the higher education community. The task force now is trying to develop practical steps institutions can take to protect their IT assets and also detect and respond to incidents when they occur.

“Information technology is pervasive on campuses, and security incidents that undermine campus networks or criti-

cal computers can create havoc for institutions or for broader systems like the Internet,” says Jack Suess, a task force co-chair and chief information officer at the University of Maryland Baltimore County (UMBC).

But a continuing problem, he maintains, is that “the bar keeps getting raised higher and higher,” which is why the task force “can’t just declare victory and go out of business.”

Most IT security threats initially came largely from amateur computer hackers—“novices, crazies, who just wanted to make a point or demonstrate how they could do it,” says Mohammad H. Qayoumi, vice president for administration and finance and chief financial officer at California State University, Northridge. A long-time APPA member and contributor, he serves on one of several work groups the task force has established.

Now, Qayoumi and Suess say, even organized crime groups have joined hackers in threatening and often successfully attacking organizations from the U.S. Department of Defense to major credit card companies.

Security breaches have hit at least 16 U.S. colleges and universities so far this year, potentially exposing the information of more than a half-million people, according to *Computerworld*, a computer industry publication. As of last March, universities had accounted for 28 percent of the 50 security

---

*Alan Dessoiff is a freelance writer based in Bethesda, Maryland, who has written numerous articles for Facilities Manager. He can be reached at [adedit@verizon.net](mailto:adedit@verizon.net).*





**Jack Suess**

breaches recorded by the state of California since 2003, more than any other group. Financial institutions followed with 26 percent.

University of Southern California officials said over the summer that they planned to contact about 270,000 people who used the university's online application system in the past eight years, to alert them that a hacker had discovered a security flaw that could allow their files to be read.

"The hackers are more sophisticated than they used to be," Brad Noblet, director of technical services at Dartmouth College, told the *Dartmouth Alumni Magazine*. "We had cases where we patched a machine, thought we had fixed the problem, and then found later that the virus was deeper in the machine."

As the Dartmouth magazine reported, "A simple password that can be stolen by somebody guessing your dog's name is no longer sufficient to keep digital intruders at bay." The college has been forced to increase its security budget and deploy new technology, Noblet says.

Suess suggests that higher education's culture makes it a "challenge for security." One reason, he explains, is that universities are largely decentralized, with individual offices commonly operating systems on personal computers that contain confidential information like students' names, birth dates, and social security numbers. *Computerworld* cites the widespread "webification" of university business processes, with more offline data coming online and becoming potential targets for attack.

Faculty, meanwhile, value free and open exchange of ideas and sharing of information for research, but risk loss through electronic attacks of the intellectual property they create. And students expect their institutions to provide the IT environments that allow them to use the latest advances in technology, like wireless laptops, BlackBerry devices, and camera phones.

"We have students with their own computers who do what they want to do, we have faculty doing research, and we have staff working on administrative systems and record-keeping. Trying to design a security system that supports all those mixed needs is a challenge," Suess asserts.

Qayoumi says campus IT security is "specifically critical" for facilities managers. "Up to this point, many people have concentrated on security issues for major data systems and considered IT security to be the job of the campus CIO or computing center," Qayoumi says. "But they have not concentrated on the next tier of systems that universities have."

He cites Internet-based telephone systems, HVAC systems, fire alarms and building security systems, and other areas of



**Mohammad H. Qayoumi**

campus infrastructure that usually are the responsibilities of facilities managers.

"We're seeing more security concerns being raised in those areas. If somebody broke into the campus key systems, it would cause havoc, and the costs to change or replace your systems are going to be in the millions of dollars," Qayoumi declares.

At the Georgia Institute of Technology, "We identified a number of common areas of vulnerability that apply to virtually every system on campus," reports Rob Clark, director of internal auditing. He co-chairs one of the EDUCAUSE security task force work groups.

Clark cites the facilities department's work order system as an example. "Historically, it has made sense for that department to put up a computer as a server that will allow workers

**"We have students with their own computers who do what they want to do, we have faculty doing research, and we have staff working on administrative systems and record-keeping. Trying to design a security system that supports all those mixed needs is a challenge," Suess asserts.**

to log in and get their work orders and do status updates and all of that. The challenge comes when you put that machine up on the Georgia Tech network," Clark says.

The network, he says, is the target of up to 200,000 hacking attempts per day. "If the facilities department puts their server up and it is not properly configured and secured and updated with the latest security patches and is otherwise open and vulnerable, that system will be compromised. There is an absolute guarantee of that. It's just a matter of how soon; it could be minutes or hours or days, but it will be compromised because there are continual attacks against large networks like that," Clark asserts.

Suess says that in its first five years the EDUCAUSE security task force has "made a lot of progress" in raising awareness of the types of IT security issues higher ed institutions face. In 2000, when the task force was formed, fewer than 10 percent of universities represented at the initial conference had dedicated security officers on their campuses. Now, the number is probably close to 80 percent, Suess says.

EDUCAUSE and Internet2 established the task force following a number of attacks launched against major e-commerce websites like eBay and Amazon.com. When it was





**Rob Clark**

found that some of the attacks came from higher ed campuses themselves, "it became clear that higher education had not been taking computer security as seriously as it needed to," Suess says. To preempt possible crackdowns by the federal government, the higher ed community formed the task force to act on its own.

After the terrorist attacks of September 11, 2001 increased national focus on physical security, cybersecurity also "began to become a critical component" and forced the task force "to get even more serious about this problem," Suess says.

But the effort is complicated by operational needs of different college and university networks, which often directly conflict with security practices such as perimeter firewalls, port authentication, centralized configuration management, and strong authentication. Although firewalls are becoming widely used to protect critical systems on university

**"We're trying to establish the mindset, the framework, that everybody on campus shares in the responsibility to maintain secure systems..."**

networks, according to EDUCAUSE, it is difficult to reconcile their restrictiveness with the need for an open networking environment that supports research, learning, and high-speed networking.

Also, although centralized management is feasible for certain hosts on a university network, it is not suitable for most student computers and many faculty, research, and clinical systems. Higher education networks must be designed to accommodate visitors, new students arriving with computers, researchers sharing large quantities of data with members of other academic institutions, remote access to a variety of network services for individuals who are traveling or telecommuting, and mobile users moving between classrooms, libraries, and indoor and outdoor study spots on campus.

Meanwhile, as technology advances, new challenges develop. Suess cites wireless computers as a current example. "Wireless computing has taken off and become mainstream. New buildings have wireless and many campuses are retrofitting their old buildings for it." The challenge, Suess says, is "how to provide wireless access without opening your campus network to anybody who walks through the gates with a laptop."

While his institution—UMBC—is funding deployment of wireless access to campus departments, it also is requiring

## 5 Steps To IT Security

**The EDUCAUSE security task force contributed to a national strategy to secure cyberspace, developed on the order of President George W. Bush and issued in February 2003. It encourages colleges and universities to secure their cyber systems by establishing some or all of the following, as appropriate:**

- One or more information sharing and analysis centers to deal with cyber attacks and vulnerabilities.
- An on-call point-of-contact to Internet service providers and law enforcement officials in the event that a school's IT systems are discovered to be launching cyber attacks.
- Model guidelines empowering chief information officers (CIOs) to address cybersecurity.
- One or more sets of best practices for IT security.
- Model user awareness programs and materials.

**For more information, visit EDUCAUSE at [www.educause.edu/security](http://www.educause.edu/security).**

that users enter their campus user names and passwords before they can surf the Web. "At least that way, we can restrict this to people who are part of the campus," Suess says. His office also is working with residential life officers to develop a security strategy for uses of wireless by students in dormitories.

Clark suggests that a key to effective IT security on a campus is the recognition of senior management that security "is not just an IT issue, it is a management issue." At Georgia Tech, says Clark, "We're trying to establish the mindset, the framework, that everybody on campus shares in the responsibility to maintain secure systems. That includes individual users, systems administrators who establish appropriate restrictions on systems and regularly update them, and management, which has an appropriate oversight role."

"Everybody doesn't have to be a geek-speak guru," Clark says, "but everybody does need to have at least a minimum understanding of effective practices to secure their systems."

Identifying those effective practices is what the EDUCAUSE security task force is working on now, and Suess expects the body to "remain viable certainly through the remainder of this decade." 🏰





# School support




KBR provides the support you need to manage your repairs, renovation and construction projects. We use an innovative job order contracting vehicle (JOC) to help you improve your facilities through responsiveness, consistency and economy of scale.

So when you need a partner committed to your facilities, call on us.



# 2005

## Effective & Innovative Practices Award Winners Show Imagination and Practical Solutions



PPA's Effective & Innovative Practices Award continues to solicit and highlight an ever-growing

list of wonderful programs and processes that enhance service delivery, lower costs, increase productivity, improve customer service, generate revenue, or otherwise benefit the educational institution. The five 2005 award-winning entries focused on a sustainability coordinator program, a resident facility assistant program, a biomass fuel project, a customized financial reporting model, and a water reuse initiative.

Up to five E&I submissions are eligible each year for a cash award of \$4,000, which is generously sponsored by Sodexo. Entries can describe either a new program or significant restructuring of an existing program or process for success. The Professional Affairs Committee selects the winning entries based on a point system. There were 25 entries this year from 22 schools. The five successful institutions received special recognition and a check at APPA's Educational Facilities Leadership Forum in Orlando, Florida in August.

**The deadline for the 2006  
Effective & Innovative Practices  
Award is February 15, 2006, midnight Greenwich  
Mean Time.**

**For more information or to retrieve the award  
application, please visit [www.appa.org/recognition/  
effectiveandinnovativepractices.cfm](http://www.appa.org/recognition/effectiveandinnovativepractices.cfm).**





## SUSTAINABILITY

# The University of British Columbia Sustainability Coordinator Program

By Brigid MacAulay

***Brigid MacAulay is coordinator, Sustainability Programs, at the University of British Columbia, Vancouver; she can be reached at [brigid.macaulay@ubc.ca](mailto:brigid.macaulay@ubc.ca). This is her first article for Facilities Manager.***

The University of British Columbia was Canada's first university to adopt a Sustainable Development Policy, which calls for us to demonstrate the way to a sustainable future. The UBC Sustainability Office developed the Sustainability Coordinator (SC) program as a way to implement this policy. In a climate of decreasing resources for and increasing demands on university staff, the SC program represents an opportunity to achieve the dual objectives of reduction in costs along with increased staff satisfaction. We have enlisted staff and faculty to help us achieve savings in energy, materials and paper use, along with promoting alternative transportation, while making the process both fun and rewarding. With a limited time commitment of two to four hours per month, during work time, SCs provide colleagues with information about the impacts of their daily activities, help individuals identify alternative behaviors, and offer tools to make tasks easier.

Since the 1999 launch of our program, the results have been remarkable. Despite a 24 percent increase in students since our 1998-99 baseline year, UBC has reduced energy use in core and ancillary buildings by 10 percent, for a savings of \$2.5 million. The SC program alone has saved the university \$75,000 annually in electricity reductions for the past three years. UBC will also meet its Kyoto Protocol targets ahead of time by reducing CO<sub>2</sub> emissions by 15,000 metric tons each year. In addition, paper use on campus has been decreased by 31 percent. The SC program played an important role in these reductions, partnered with our office's ECOTrek infrastructure upgrade.

In addition to cost savings in energy and materials, the program also provides significant gains for the university in

terms of building community and boosting awareness of sustainability issues. Each month the Sustainability Office holds a luncheon or an educational event for our coordinators. At these functions, like-minded people from across the campus have the chance to get to know one another. With the knowledge gained from these events, SCs return to their departments and spread the word to their coworkers. Acting as "early sustainability adopters," SCs become the catalysts for positive change in the workplace. SCs feel satisfaction knowing they are working together to save the university money in addition to learning about and working toward a more sustainable society.

The Sustainability Coordinator program at UBC is the first of its kind and is unique in the context of higher education because it involves community-based social marketing techniques to implement the university's sustainability policy. Community members are often cynical about university policies, seeing them as another piece of paper that will never actually affect them or be realized. Through this program we

Despite a 24 percent increase in students since our 1998-99 baseline year, UBC has reduced energy use in core and ancillary buildings by 10 percent, for a savings of \$2.5 million.

are able to disseminate information about the policy and enliven it by communicating ways that individuals can affect change at the university through simple everyday actions. The other important factor is the two-way communication that the program achieves. We are able to disseminate as well as collect information and ideas from the community to develop initiatives that have a great chance for success and acceptance.

Community-based social marketing draws heavily on research in social psychology. This research indicates that initiatives to promote behaviour change are often most effective when they are carried out at the community level and involve direct contact with people. Our volunteers are exceptional vehicles to get the message of sustainability out to the campus community because of their enthusiasm and their unique position as active role models and communicators in the workplace. When colleagues see first-hand how easy it is, for example, to turn off lights and monitors, use reusable cups, choose responsible commuting practices, and are personally encouraged to do so, they are much more likely to change their own behavior.

While the program depends strongly on the zeal of its volunteers, it is supported and strengthened by the efforts of the Sustainability Office. We make the job of the SCs easy by providing helpful tools on our website for their use. We feature a different theme every few months, alternating between Ener-



gy, Transportation, and Materials, and provide the SCs with a Toolkit for each theme. The Toolkits feature a number of different tools and allow the SCs to select and incorporate the most appropriate one into their units' daily activities. The tools include straightforward tasks such as sending out prewritten e-mails, posting notices or reminders provided by our office, and giving incentives for staff involvement.

This project is an excellent candidate for transferability to other institutions. The core principles of information dissemination through networks of local experts are inherently adaptable to a variety of organizational settings and subject matters. The program follows the basic principles of volunteer management: needs assessment and planning, position development and design, recruitment, screening, interviewing and matching, orientation and training, support, supervision and motivation, recognition, and evaluation.

Our Sustainability Coordinators are committed to making a difference. In 2003-04, SCs carried out more than 150 initiatives from the Toolkits as well as over 60 of their own making. We also involve SCs in the program planning process. Prior to developing tools we solicit input on operational constraints in such things as using recycled paper and printing double-sided documents. The involvement of stakeholders in the development of the program has been critical to the practicality of the measures we are asking coordinators to implement.

The SC program relies on the involvement of management as well. Managers are involved in the recruitment process, send out notices, and support the SCs in their efforts. We hold an annual luncheon inviting SCs and their managers to thank them for the work that they do and to strengthen their commitment to the program.

We survey our SCs annually to get feedback on what is working well and what areas could be improved. In a recent survey, 95 percent of SCs said they found the program enriching and would recommend it to a friend, and 72 percent said their tips and strategies were well received by their colleagues. We also seek feedback at our regular meetings. Documentation and analysis of resource savings were published in the Sustainability Office's 2004-05 Annual Report, *Progress Towards a Sustainable Campus*.

To view the report, and for information on other exciting sustainability programs and initiatives at UBC, please visit [www.sustain.ubc.ca](http://www.sustain.ubc.ca). We consider the SC program to be an effective tool in our efforts to change the culture at UBC. If you'd like assistance in setting up a similar program in your institution or organization, please contact Ruth Abramson at [ruth.abramson@ubc.ca](mailto:ruth.abramson@ubc.ca). 🏠



University of  
Hartford

## Resident Facility Assistant Program

By John Michalewicz

**John Michalewicz is director of plant services at the University of Hartford, Hartford, Connecticut; he can be reached at [michalewi@hartford.edu](mailto:michalewi@hartford.edu). This is his first article for Facilities Manager.**

**T**he Resident Facility Assistant (RFA) Program was created at the University of Hartford to enhance service response to the residential community. RFAs are live-in students who work on behalf of the facilities department to address the quality of life for the residential community. It is built from a residential, community development model with each staff member assigned stewardship to their living area. An RFA is a blend of the traditional resident assistant position that builds community by advocating for students and a particular living area, coupled with the typical student maintenance assistant who serves as a light maintenance service provider.

### Institutional Benefits and Results

The main focus in the creation of the RFA program was to improve the department's overall customer service without significant additional costs. This was achieved through a conversion of the RA staff as compensation for both is identical (room and board). The staff of 15 comprises energetic, responsible student leaders who enjoy getting their hands dirty. They provide service through 1) staffing of the departmental service response area, 2) response to after-hours activity while on duty, 3) group response to facility related crises, 4) minor maintenance issues and projects, and 5) campuswide inspection/data collection programs.

RFAs know their residents and have a working knowledge of their building, its systems and its problems. For two weeks prior to the start of an academic year, they are trained on university and departmental standards, components of customer service, and safety/hazardous material handling. To complement their training as customer service representatives for the department, RFAs receive training during the year by trade staff members from carpentry shop, electrical shop, lock shop, plumbing shop, paint shop, custodial department, grounds department, and utility services. This training has enabled



RFAs also conduct routine inspections. They serve as a set of trained eyes and ears in each of the residence halls.

them to provide self-help tips and real time advice to call-in customers, as well as direct service to problems, significantly reducing response time.

Two RFAs are on duty 24 hours a day, 7 days a week and available for immediate response to campus-wide problems. This system has enabled our department to have a trained staff member on the scene of any reported problem within minutes at any time of day or any day of the week. Changing light bulbs, unclogging toilets/sinks/showers, resetting circuit breakers, water cleanups, snow removal, and minor carpentry repairs are examples of this type of service.

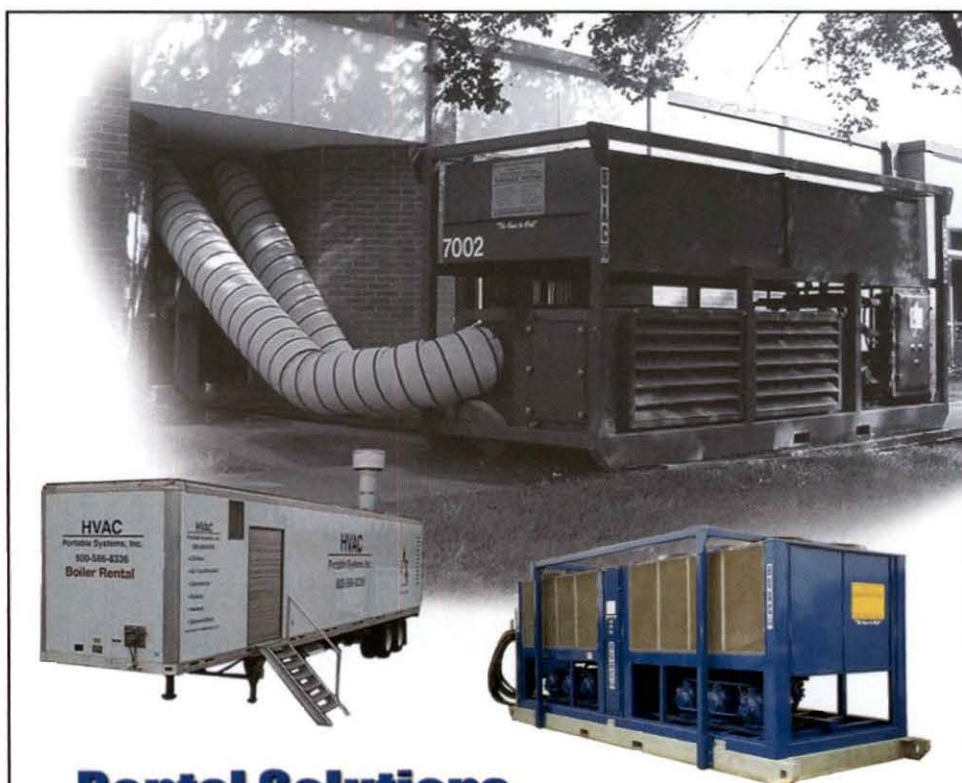
The RFA program has also created a direct connection between the facilities department and its customers. Prior to the RFA staff, problems or work needs in the residence halls were reported to facilities exclusively via residential life staff members. This often resulted in delays up to two to three days between the time a problem was reported by a customer until received by the facilities department. At that point, the problem was often misreported as it was then second-hand information. With 80 percent of all work requests centered in the residence halls, delays and communication problems severely impacted our ability to be responsive. Today, problems are reported and, in most cases, corrected the same day.

RFAs also conduct routine inspections. They serve as a set of trained eyes and ears in each of the residence halls. They complete weekly inspections of their assigned building and repair all issues within their capabilities (i.e., hallway lights bulbs) while reporting others to the appropriate trade (i.e., replace ballast). The RFAs have recently branched out to provide a similar service to the academic and administration buildings. Prior to this program, problems in these areas were only reported by customers or other de-

partment's staff members. This inspection process allows for maintenance or repair, in many cases, before residents/customers are aware the problems even existed.

### Portability

The RFA program concept is easily adaptable to any institution that currently relies on student leadership to assist with programs across campus. It is a common practice on many campuses to have RAs liaison with students to address residential problems. RFA programs simply concentrate attention on facility related issues in resident areas (or any other area



## Rental Solutions

What would be lost if a building's HVAC or Power system were to break down for a lengthy period? Tenants, revenue, or even life! These systems are such an integral part of our everyday life that even temporary shutdowns are unacceptable.

The solution - **Carrier Rental Systems.**

#### Typical Applications

- Supplemental Tower Water
- Temp. HVAC Systems
- Clean Room Humidity Control
- Construction Site Humidity and Ventilation Control
- Supplemental Heating
- Backup HVAC Systems
- Water Damage Drying
- Supplemental Steam
- Comfort Cooling
- Emergency Power

For additional information and equipment specifications, check our web site [www.hvacportablesystems.com](http://www.hvacportablesystems.com) or call 800-586-9020 today and find out why we are "The Ones to Call!"

**800-586-9020**

[www.hvacportablesystems.com](http://www.hvacportablesystems.com)



**Rental Systems**

New Name. Same Great Solutions.

A Subsidiary of Carrier Corporation. Formerly doing business as HVAC Portable Systems.



they may be assigned to). These student leaders quickly gain experience and develop relationships through daily involvement with issues similar to those faced by trade staff members. It is often easier for a student to penetrate the barriers that separate students and staff. RFAs have directly confronted other students regarding accountability for damage and poor conduct.

It is typical that RA positions hold some responsibilities for facility issues in resident areas. When these responsibilities are removed and a percentage of existing RA positions are

refocused on facility issues, RFA positions can be created without reducing staff to student ratios.

### Management Commitment

Since the program has been running, departmental management and institutional leadership have made major commitments. In this span, over \$350,000 has been reallocated to provide RFA compensation (room and board), supplies, training, and staff development activities. One new full-time position has also been created to manage all aspects of the RFA program. The student affairs staff, while initially concerned with reduction in RA positions, has supported the

concept and continues to view the RFA program as a positive service enhancement to students. The RFAs have become a part of the fabric of the department and the institution.

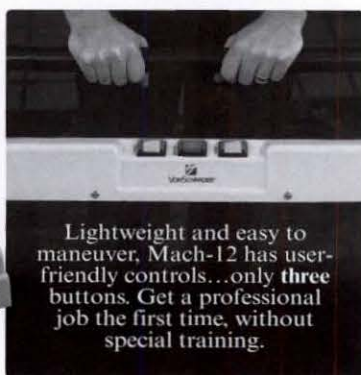
### Benchmarking

While the results of our annual survey are pending, feedback is regularly received on the work of the RFAs. Even to our surprise, complimentary feedback of the success of the program and the RFAs themselves has been received from various deans and other high-level administrators. The frequent problems which fueled the creation of RFA have disappeared. Complaints outside the facility department have also disappeared.

Service response benchmarks have also changed. For example; completion of light bulb replacements in the residence halls have gone from an average of 3 days to "within 24 hours;" emergency response for plumbing problems has gone from 90 minutes to 10 minutes; incidental damage from water overflows has been reduced by 70 percent; and graffiti vandalism in resident areas where RFAs reside has been reduced by 90 percent.

What cannot be measured is the impact of having RFAs living among other students; the incidents that no longer happen because of peer pressure, nor the impact of regular inspections by a student staff that knows what they are looking for and understands the importance of the accuracy of their work. 🏠

## ABSOLUTELY THE FASTEST DEEP-CLEANING CARPET EXTRACTION SYSTEM EVER DEVELOPED



Lightweight and easy to maneuver, Mach-12 has user-friendly controls...only **three** buttons. Get a professional job the first time, without special training.

## CHECK OUT THESE NUMBERS

*They'll Save You Time and Money!*

The Mach-12™ Low Moisture Carpet Extraction System from Von Schrader will clean and extract up to **12,000 sq. ft.** of carpet per hour, up to **eight** times faster than with conventional equipment.

The low moisture (**5-10% moisture**) cleaning solution is applied with a **24"** wide, full bristle brush, providing aggressive agitation and loosening the soil all the way to the base of the carpet. The emulsified soil is then immediately extracted with powerful built-in vacuums, all in **one** forward pass, by **one** person.

As labor represents **85-90%** of total carpet care expenditures, the **Mach-12**, with its fast, deep cleaning and fast drying of carpet (usually **one** hour or less), reduces labor time and frees up the cleaning staff to complete other tasks. Check out the **Mach-12** and compare it to other extraction systems. We're sure you'll agree, it's absolutely the fastest deep-cleaning carpet extraction system ever developed and it will help reduce your labor costs.



1600 Junction Avenue  
Racine, Wisconsin 53403  
1-800-626-6916

Visit our website: [www.vonschrader.com](http://www.vonschrader.com)



This Way  
To:

# EASY STREET

EXIT ↓

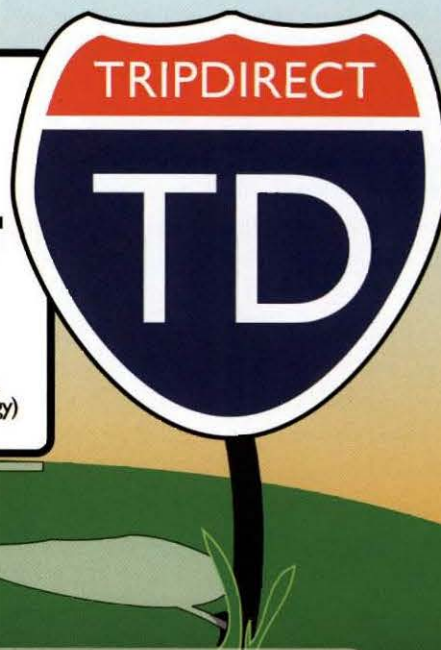
Eliminate "roadblocks" from the educational trip management process with TripDirect - SchoolDude's web-native trip planning and management system.

Introducing...



TRIP  
**DIRECT**

- Receive, route and approve trip requests online
- Manage vehicle and driver schedules
- Track trip details and related costs
- Automate communication with support resources (e.g. maintenance, food service, transportation, technology)



Managing the educational trip workflow process with TripDirect is like cruising down easy street! TripDirect helps you avoid roadblocks by automating request approval routing, driver and vehicle assignments, and communication with requesters and service providers.

Put your next road trip on cruise control with TripDirect!

Come on and take a free ride! Learn more in a free online demo: [www.schooldude.com/seminars](http://www.schooldude.com/seminars)

Online tools for managing schools.™

**Rolling, rolling, rolling...Keep those benefits rolling!**

**Increase efficiency** - streamline the request and approval processes

**Improve customer service** - automate status updates for requesters

**Reduce costs** - save \$30-60 per trip through efficiency gains

**Improve communication** - coordinate approvals and support resources



**SCHOOL  
DUDE  
.com**®

Save money. Manage operations. Look good.





## The University of Iowa Biomass Fuel Project

By P. Ferman Milster and Jeri Ripley King

*Ferman Milster is associate director of utilities and energy management at the University of Iowa, Iowa City. He can be reached at ferman-milster@uiowa.edu; this is his first article for Facilities Manager. Jeri King is assistant to the associate vice president for facilities management at the University of Iowa; she can be reached at jeri.king@uiowa.edu.*

Using biomass fuel in its circulating fluidized bed (CFB) boiler, the University of Iowa (UI) Power Plant pioneered a new green energy source that saves hundreds of thousands of dollars in fuel costs annually, and utilizes a renewable waste product.

When the Quaker Oats Company, located approximately 20 miles from the University of Iowa, approached the UI Power Plant about bioenergy, it was searching for a market for Resifil, a processed oat hull product it had produced for 80 years. The UI Power Plant was willing to test the product in its circulating fluidized bed boiler. After the test yielded intriguing, but mixed results, the UI-Quaker team decided to try using the unprocessed oat hulls. The feather-weight oat hulls required special materials handling solutions, boiler control system modifications, and new procedures to make this fuel work as a viable long-term source of energy for UI.

The successful effort by the university-industry partnership captured the attention of peer institutions across the country, garnered two awards from Iowa's governor, is applauded by sustainability advocates, and is recognized as a dramatic example of how higher education facilities management can play a key role in enhancing efforts to generate economic development.

### Institutional Benefits

The Biomass Fuel Project has been an exciting opportunity for the University of Iowa to partner with a local industry, reduce fuel costs, reduce greenhouse gas emissions, and utilize a renewable waste product as a resource for Iowa.

The institution is realizing an annual cost saving of a half-million dollars through the use of oat hulls in place of 25,000

to 35,000 tons of coal. An oat hull is the outer shell of an oat grain that remains after the soft, protein containing core has been removed by milling the grain. Adding oat hulls to the fuel mix significantly reduces the amount of regulated air pollutants.

In 2004, the projected reduction in green house gas emissions enabled the University of Iowa to join the Chicago Climate Exchange, a green house gas trading pilot program for emission sources and offset projects.

The UI Power Plant's partnership with the Quaker Oats Company helps to keep Quaker's 1200-employee production operation in Cedar Rapids competitive, while also providing a use for a renewable energy source product. Additionally, the State of Iowa recognized the university with two 2003 Iowa Environmental Excellence Awards: "Special Recognition in Air Quality" and "Special Recognition in Energy Efficiency/Renewable Energy." This biomass fuel project provides learning opportunities for the university's students and faculty.

### Innovation and Creativity

Most of the technical experience was in Europe, where bioenergy has been utilized for decades; however, specific information related to burning oat hulls in a CFB furnace was not readily accessible.

After coordinating with the Iowa Department of Natural Resources for a biomass test burn, the experiment proceeded with an initial test of Resifil. Mixed results led the team to try burning unprocessed oat hulls. Oat hulls, about the size of sunflower seeds, are very light-weight. Quaker Oats had to figure out how to load and transport the oat hulls. The Power Plant had to design, procure, and install a pneumatic injection system. Part of this system included a separate, more compatible fuel silo, and designing, procuring and installing pneumatic blowers, fuel injection nozzles, transport piping and fittings, safety interlocks, and new boiler control logic specifically designed for the biomass fuel. These modifications needed to be done in a manner that would not have a negative impact on the existing coal systems.

The test with unprocessed oat hulls proved a resounding success for the University of Iowa Power Plant, and for Quaker Oats.

### Portability and Sustainability

Learning from the success of this project, the UI Power Plant team recognized several key factors necessary for a successful biomass fuel project:

- Proximity to the source of biomass supply;
- Reasonable transportation costs from the supply;
- An adequate supply of biomass;
- A mutual desire between the supplier and the university to make this successful;
- A circulating fluidized bed boiler.



The Biomass Fuel Project has been an exciting opportunity for the University of Iowa to partner with a local industry, reduce fuel costs, reduce greenhouse gas emissions, and utilize a renewable waste product as a resource for Iowa.

### Management Commitment and Employee Involvement

From inception through testing and into full production, a team of power plant employees worked on the biomass fuel project. People selected for the team were motivated, creative, long-term employees of the plant. Each of them could be described as a "self starter." There was not a formal team charter, just a strong desire to prove the concept and drive to success. Their mission was clear: "Make biomass burning at the Power Plant a reality."

In addition, it is necessary to recognize the role that university administration must play. The leadership must be willing to try an innovative practice, willing to accept the time necessary for permitting and testing, and accepting of the initial costs for investments in materials handling systems and boiler modifications that, if successful, will be recouped in later savings.

### Documentation

After the mixed success of the first test with Resifil, testing proceeded with oat hulls. Because the preliminary emission performance results were so promising, it was decided to raise the combustion rates to 80 percent by Btu basis, or 10.5 tons per hour of biomass fuel. This biomass burn rate greatly exceeded initial projections.

During the eight-month test period, 16,077 tons of oat hulls were consumed, displacing 8,065 tons of coal. The expected consumption rate for Boiler #11 is around 35,000 tons per year, displacing 23,000 tons of coal. Besides the substantial reductions of regulated air pollutants, green house gas emissions are expected to save 55,000 tons CO<sub>2</sub> per year. The oat hulls represent over 30 percent of the solid fuel energy input to Boiler #11, and about 14 percent of the total fuel purchased for the university.

### Conclusion

The University of Iowa Power Plant has embraced the economic and environmental advantages of burning biomass fuel.

	SO <sub>2</sub> (lb/mmBtu)	NO <sub>x</sub> (lb/mmBtu)	PM (lb/hr)	CO (lb/mmBtu)	VOC (lb/hr)
Permit limit	1.0	0.40	6.69	0.30	N/A
National Average	0.83	0.40	N/A	N/A	N/A
100% Coal	0.21	0.22	2.51	0.06	0.33
50% oat hulls	0.13	0.18	1.57	0.03	0.11
80% oat hulls	.08	0.18	1.32	0.02	0.18
% Decrease	62%	18%	47%	67%	46%

From a business perspective, this project was and is an economic "win-win-win" situation. It helps the university, Quaker Oats, and the State of Iowa. Combining creative engineering and operating floor know-how, a team of experienced power plant staff partnered with an industry leader to pioneer a cutting edge, sustainable technology.

Providing an economic and reliable outlet for oat hulls helps to ensure the Quaker Oats Cedar Rapids Facility remains competitive and viable. The UI purchases oat hulls at a cost of about half that for an equivalent amount energy from coal. This represents a significant reduction in purchased energy cost for the University of Iowa. Finally, reducing greenhouse gas emissions and regulated pollutants, as a result of burning biomass, produces an environmental benefit that is greatly appreciated and lauded by the UI community. 🏢

## Bulb•Eater™ Fluorescent Lamp Recycling Made EASY.

As of January 6th, 2000, most non-residential lamps are banned from landfills nationwide. While lamp recycling is preferred by the EPA, the old-fashioned method of boxing lamps is costly and labor intensive.

Use the Air Cycle lamp crushing system to safely:

- Reduce storage space
- Minimize handling
- Cut disposal costs

Use our nationwide recycling service to pick up your lamps (crushed or intact), ballasts, batteries or computer hardware.

Stop managing your lamps the old-fashioned way and call Air Cycle today!



## AIR CYCLE

# 800-909-9709

[www.aircycle.com](http://www.aircycle.com)





## How the University of Miami's Facilities Administration Department Uses Customized Financial Reports to Manage Costs

By Leonard Nash

*Leonard Nash is a freelance writing and editing consultant based in Hollywood, Florida. He can be reached at [ldn@leonardnash.com](mailto:ldn@leonardnash.com).*

To systematically measure and manage expenses, the University of Miami's Facilities Administration Department has developed a system of clear, comprehensive, adaptable cost reports that present detailed budgetary information to facilities administrators, maintenance managers, deans, and other university officials. These spreadsheet reports provide users the knowledge they need to develop informed budgetary decisions. These reports have helped curb operations and maintenance cost increases to an average of 2.3 percent per year (not including insurance increases) over the past ten years. In light of our unique arrangement with the university's administration that allows us to reinvest cost savings, our computerized data reports encourage awareness, conservation, innovation, and constant reinvestment in our facilities.

### Institutional Benefits

When university financial officers ask, "Where is the money going?," they require prompt, specific, accurate answers. Previously, we could not summarize our 78 building accounts and 14 operating accounts into primary facilities functions such as Physical Plant, Environmental Services, and Utilities, each guided by a different manager. Motivated by our reinvestment initiative, we developed this innovative data reporting system. Our customized financial reports offer current, cumulative breakdowns of every penny we spend and receive. Computerized data allows us to produce reports, graphs, and other presentations on request.

The power and efficiency of our system has led to numerous documented efficiency measures. For example, when Residence Hall reports revealed that labor costs were increasing dramatically, our analysis determined that overtime costs for summer maintenance was largely to blame. We responded with a continuous improvement project that reduced overtime from 683 hours in 1999 to 60 hours in 2004—with

improved service levels! This overtime reduction helps save \$390,000 annually. And that's just one of many operational changes that have resulted in ongoing cost savings, documented improvements in customer satisfaction, and acclaimed reinvestments into the university's physical assets.

### Innovation and Creativity

To create meaningful financial reports, we split the buildings by manager and by the main components within each area. There are three primary zones: Academic Zones 1 and 2 include classrooms, laboratories, and administrative offices; and Zone 3 includes landscaping, exterior lighting, fountains, lakes, and other exterior features.

Four reports are generated monthly: Actual Expenditures for the Current Month, Actual Expenditures to Date, Budget to Date, and Budget Less Actual to Date. Under each heading, we present three cost categories: Utilities, Environmental Services (including housekeeping, landscaping maintenance, and waste disposal), and Physical Plant Maintenance.

Cost per square foot for each building is included so buildings can be compared with each other and benchmarked against IREM and other business entities. Using this data, maintenance managers regularly identify anomalies and investigate hidden problems such as plumbing and electrical malfunctions, thus avoiding wasted resources, hazardous conditions, and damage to facilities. Because most costs are not expended evenly throughout the fiscal year, we rely upon the seasonalized budget, which compares the monthly and cumulative percentage of the annual budget spent in a particular month to previous years. This allows us to modify discretionary spending, thereby ensuring that essential funding is available year-round.

### Portability and Sustainability

Our comprehensive reports, created with ordinary spreadsheet software, allow for ongoing sustainability and are adaptable to any facilities department, regardless of size or departmental structure. Using a common report request utility program, our finance director downloads costs from the university's general ledger. The final month of the fiscal year becomes the report for the year-end closing. The same report structure is used each cycle; therefore, beginning a new fiscal year is similar to beginning a new month. Reports must balance exactly to the institution's general ledger because they are used as the basis for year-end reports transmitted to the controller's office, the Budget office, and the Board of Trustees Master Planning and Construction Committee.

Our overhead report splits the 14 overhead accounts into direct and support expenses and overhead recovery. Expenses are divided into categories: Supplies, Equipment, Vehicle Costs, Outside Services, etc. By comparing these expenses with the overhead recovery in each account, we know whether we are staying on budget and whether overhead recovery is sufficient.

*Continued on page 58*



Are You Experiencing  
the



**UPs  
&  
DOWNs  
of**



**ELEVATOR MAINTENANCE?**

**YOU CAN TURN THINGS AROUND**

- |                          |                           |
|--------------------------|---------------------------|
| ⬆ Equipment Availability | ⬆ Overall Costs           |
| ⬆ Quality of Maintenance | ⬆ Trouble Calls           |
| ⬆ Safety                 | ⬆ User Complaints         |
| ⬆ Performance            | ⬆ Pre-Maintenance Repairs |

---

**GET INDEPENDENT ASSISTANCE**



**Lerch, Bates & Associates Inc.  
Elevator Consulting Group**

21 Offices in North America - Certified Inspectors

For Information Call: (303) 795-7956

E-mail: [busdev@lerchbates.com](mailto:busdev@lerchbates.com)

Website: [www.lerchbates.com](http://www.lerchbates.com)



Facilities officers at the University of Miami rely upon these monthly and annual reports to make operating decisions and to determine the effectiveness of mid-level managers regarding budget and asset management.

*Continued from page 56*

In 1997 we presented our reports to the SRAPPA conference. More recently, Residence Halls administrators have reviewed the reports with their counterparts within the Atlantic Coast Conference and throughout Florida.

### Management Commitment and Employee Involvement

Inspired by our mission statement, "Provide the best facilities for students, staff, and faculty; operated and maintained at the least cost per square foot," our managers use our unique reporting system to review costs within ever-tightening budgets. Having reviewed the monthly reports, our facilities managers meet with their supervisors to discuss ongoing operations and to consider new projects within realistic budget projections.

Facilities managers receive each other's zone-specific reports because shared data encourages facilities managers to communicate, cooperate, and innovate. For example, our di-

rector of environmental services reviews seasonal trash hauling expenses for each zone and works with facilities managers on cost-saving measures.

Reports are produced once the university closes its books each month and are printed and distributed immediately. Our finance director also creates summary reports for the associate vice president of facilities administration and the physical plant director—and presents them along with comprehensive, full-length spreadsheets. Reliable, insightful data in the hands of dedicated professionals remains a key factor in our ongoing success.

### Documentation, Analysis, Customer Input, and Benchmarking

Facilities officers at the University of Miami rely upon these monthly and annual reports to make operating decisions and to determine the effectiveness of mid-level managers regarding budget and asset management. Our accumulated,

comprehensive data also forms the basis for other benchmarking tools. For example, a graph that itemizes cumulative expenses reveals that our total costs (excluding insurance) have increased only 2.3 percent per year over the past ten years.


Residence Halls (with 33 building accounts) and South Campus (with 9 building accounts) use the reports to track their monthly expenses, to estimate year-end savings (which can be used for renovation projects), and to plan for the next fiscal year. The reports engender confidence that our department is maximizing the value of customer funds while maintaining buildings at levels that meet and exceed expectations.

Fifteen years into this ongoing program, we have not benchmarked our data reporting system against other colleges and universities because we know of no other learning institution pursuing such an endeavor. As cost increases continue to outpace budget increases, these reports become even more critical to our successful management and enhancement of facilities here at the University of Miami. 🏰

# **WATER ALERT®**

## **LEAK DETECTION SYSTEMS**

**AVOID DOWNTIME  
AND DAMAGE DUE TO  
WATER LEAKS AND SPILLS!**



**USED IN:**

- Main frame areas
- Server rooms
- Data centers
- Communication / telcom areas
- Air Conditioning units
- Mechanical rooms
- Unattended areas
- And more....

**CEILING AND FLOOR SYSTEMS!**

**CALL 1-800-533-6392 TODAY FOR FREE CATALOG AND PRICING  
OR VISIT OUR WEB SITE AT:**

# **WWW.WATERALERT.COM**

Systems installed in over **18,000** sites across the U.S.!!

**Dorlen Products Inc.** 6615 W. Layton Ave. Milwaukee, WI. 53220





# University of Victoria

## The University of Victoria Water Reuse Initiative

By Sarah Webb

**Sarah Webb is sustainability coordinator at the University of Victoria, Victoria, British Columbia; she can be reached at [sarahwebb@fmgt.uvic.ca](mailto:sarahwebb@fmgt.uvic.ca). This is her first article for Facilities Manager.**

The University of Victoria is one of Canada's leading universities; it provides both students and faculty with a unique learning and teaching environment and has earned a reputation for commitment to research, scholarship, and co-op education. Located on picturesque Vancouver Island, UVic is home to more than 18,000 students and 4,000 staff.

In order to protect the unique campus environment, the 2003 Campus Plan was created to guide the long-term vision for physical growth and solidify the university's commitment to environmental leadership. The Campus Plan is based on themes of low impact development, environmental stewardship, and integrated building design.

UVic was a recipient of the 2005 APPA E&I Practices Award for designing and implementing a leading-edge waste water recycling project that saves the Capital Region Water Commission over two million litres of potable water annually.

It was during the planning phases of the UVic Medical Sciences building when staff in the department of facilities management recognized an opportunity to preserve natural resources and reduce the demand on infrastructure by recycling waste water from a nearby marine research lab on campus.

Since this was the first large-scale water recycling initiative in the region, the project required a coordinated approach with broad stakeholder involvement and an emphasis on safety, efficiency, and sustainability.

In order to protect the unique campus environment, 2003 Campus Plan was created to guide the long-term vision for physical growth and solidify the university's commitment to environmental leadership.

"When we first raised the idea of recycling waste water, it was met with skepticism," says Gerald Robson, executive director of facilities management at UVic. "After two years of planning, design, and approvals, we are pleased to see the system up and running."

Approval authorities for the project included the local municipality, the regional water commission, the Ministry of Health, and the Ministry of Environment (formerly Water, Land, and Air Protection). Facilities management and its consultant, Hirschfield Williams Timmins Ltd, were able to design a system to treat the waste water coming from the outdoor aquatic unit, a research laboratory that focuses on fresh water and marine fisheries, using a combination of filters, ozone, and chlorine.

The treated water is pumped through a series of holding systems and circulated through toilets and urinals in the Med-

## Software for the INFORMED Professional

Our Cleaning Management Software calculates custodial staffing needs using nationally recognized models such as APPA's *Custodial Staffing Guidelines*<sup>1</sup> and ISSA's *358 Cleaning Times*<sup>2</sup>. It's packed with tools that help you understand and manage every aspect of your cleaning operation.

Pocket PC based inspection software is included as an integrated part of the package to help you manage and achieve whatever cleanliness level you staff for. We believe the integrated chemical usage calculation engine is the best in the business and our equipment library tools help you optimize your operations within budget constraints.

After eleven years on the market, the software is in use everywhere from small K-12 schools to the largest universities in the nation. We can help you benefit from the software quickly, through training, data migration, and space inventory collection.

Visit our website to learn about our software and obtain a no-charge copy for evaluation. If you have never experienced the power of an easy-to-use, modern workloading package, you owe it to yourself to look at CMS 2004. In a matter of hours you can see where your budget is going and how to significantly improve your cleaning operation.



<sup>1</sup>Software developed in consultation with Jack Dudley, P.E., Editor and Co-Author of the First Edition of the *Custodial Staffing Guidelines* and Co-Author of the Second Edition. Mention of APPA does not imply endorsement of the product.

<sup>2</sup>ISSA Cleaning Times used by permission of ISSA, Lincolnwood, IL., [www.issa.com](http://www.issa.com)

**INFORMED LLC**  
Telephone: 845.548.6736

**[www.contractron.com](http://www.contractron.com)**  
E-mail: [Earthmark@att.net](mailto:Earthmark@att.net)



This project conserves one of the most important natural resources: drinking water.

ical Sciences Building, requiring no potable water to be used for flushing.

For the university, involving in-house staff in the project was critical. Mechanical, electrical, and plumbing staff helped to design the system to complement the existing campus automation and emergency power systems.

"Getting staff involved from the very beginning was a part of our success," says Robson. "Our employees were keen to identify challenges and offer solutions."

Regular quality control sampling ensures the treated water meets provincial regulations for sanitary sewage discharges. And, in case of an emergency situation, automated controls have been put in place to shut off the waste water and protect city water sources.

The Water Reuse Initiative offers numerous benefits to both the university and the community. For the university, the project provided the basis for three points in the LEED Green Building Rating System for the Medical Sciences Building. The

water recycling project resulted in a 69.67 percent reduction of total water use in the building, and a 100 percent reduction of potable water demand for sewage conveyance use.

To date, hundreds of students, faculty, staff, and community members have toured Medical Sciences to learn about green buildings and low-impact design. And while the stunning architecture, innovative landscaping, and locally made materials are interesting, the water recycling system continues to be the highlight of the tour. "It isn't often when one of the biggest draws into a building is a toilet!" jokes Robson.

With no additional water entering the sanitary sewer, the initiative reduced the need to expand costly sewage infrastructure.

Tracy Corbett, director of campus planning and sustainability couldn't be more happy: "Any effort to reduce costs associated with operations and maintenance through resource conservation means more money available to pursue our core mission: academic and research excellence."

But perhaps the biggest benefactor of the Water Reuse Initiative is the environment.

This project conserves one of the most important natural resources: drinking water. Despite the seeming abundance of water, potable water can often be in short supply. Affected by drought, contamination, and pollution, sources of clean and safe drinking water in urban areas can be threatened. With anticipated popula-

**Specializing in custom built,  
"MADE TO FIT" Replacement Coils**

**Coil Calc computer selection software  
available to help with coil selection.**

**Local representatives available to assist  
with coil selection and field measurement.**



- Tube Bundles ■ Cleanable ■ High Pressure Cleanable
- Steam ■ Condenser/Heat Reclaim ■ Fluid ■ DX (Direct Expansion) ■ Drain Pans ■ Vacuum Breakers
- Thermostatic Air Vents ■ Mist Eliminators
- DeSaturation ■ M.A.R.C.

We Accept



**Commercial Products**

Tel: 800-225-4328

Fax: 662-229-4212

[www.heatcraft.com](http://www.heatcraft.com)

Email: [coils@heatcraft.com](mailto:coils@heatcraft.com)

**HEATCRAFT**  
OUTOKUMPU HEAT TRANSFER™



tion growth in the Greater Victoria region, conserving potable water is critical.

So what is the next step in the Water Reuse Initiative?

UVic has committed to expand the water recycling initiative to the engineering computer science building currently under construction. The engineering building will be the second LEED building on campus and is expected to be completed by January 2006.

Using the same technology, the university will save the city an additional 2,716,411 litres of potable water per year. In addition, the system will harness energy from the water recycling to supplement heating requirements for the building. A water-to-water heat pump in the system will save an estimated 350,000 kWh per year.

Robson notes that "the dual benefit of water and energy savings truly demonstrates a whole systems approach to green buildings."

The University of Victoria, in anticipation of future water recycling projects, has already installed dual plumbing systems into the continuing studies Building and 294-bed residence and has committed repeating the technology in all new buildings and facilities. UVic is also continuing to explore how to further use waste water on campus for other operations such as drip irrigation.

Looking back to what was a seemingly impossible project; the University of Victoria has demonstrated that creativity, cooperation and dedication can bring a concept into reality. The Water Reuse Initiative not only exemplifies innovative building design but it also conserves natural resources and acts as a teaching tool for the campus and surrounding community. 🏰

Using the same technology, the university will save the city an additional 2,716,411 litres of potable water per year. In addition, the system will harness energy from the water recycling to supplement heating requirements for the building.

## Creating the motion to turn your plans for today into a better tomorrow

Stanley Consultants has served the engineering needs of educational facilities for over 50 years.

Our rich history of client satisfaction rests on our commitment to hold our clients paramount, to listen to them, understand their needs, and exceed their expectations by providing **MORE** THAN ENGINEERING.

This commitment is delivered by our capable and dedicated members. We invite you to EXPERIENCE **TEAM STANLEY**.

- Building Systems
- Central Plant Design
- Environmental
- Infrastructure
- Commissioning
- Construction Services



### Stanley Consultants

A Stanley Group Company  
Engineering, Environmental and Construction Services - Worldwide

**800.553.9694**

[www.stanleyconsultants.com](http://www.stanleyconsultants.com)

EXCELLENT CAREER OPPORTUNITIES AVAILABLE!



# Facility Asset Management

## Asset Management Performance Measures

by James P. Whittaker, P.E.

Just about anybody reading this article is most likely familiar with APPA's Strategic Assessment Model (SAM), developed to help institutions achieve organizational excellence. I would also hazard to bet that most readers understand the balanced scorecard approach of integrating financial and non-financial performance measures to show a clear linkage between the institution's goals and strategies. The framework set by SAM and the balanced scorecard approach provide an excellent methodology to measure our overall performance as facilities managers. Yet, when we try to understand measures of performance for asset management, confusion abounds, fingers are pointed, and eyes tend to glaze over out of frustration or confusion.

Facilities missions and visions have almost universally been clearly articulated in statements such as, "To provide an environment that is safe, secure, functional, and attractive"... "to sustain the integrity and appearance of the campus environment"... "to enhance the learning environment through high-quality services and wise stewardship of its physical assets." There are even sound guiding principles, value statements, strategic goals, and tactical objectives to support the mission/vision statements. Yet, we continually stop short of truly measuring performance related to managing our institution's assets. This is critical to our credibility as facilities managers.



Why can't we effectively translate the methods of SAM and the balanced scorecard to specifically measure how effective we are at managing our assets? The problem lies not in a lack of understanding of the models; in my experience, the difficulty resides in a number of contributing factors. These factors include: a lack of focus on measuring what is needed instead of what is easy to measure, measuring too many activities and not focusing on the outcomes, the sheer number of inter-related variables that affect performance, not effectively using complex FM technologies (i.e., CMMS/CAFM, BAS, and CPS) to capture the right information, getting commitment from facilities stakeholders and staff to capture the right data, and finally overcoming the fear of consequences of measuring performance.

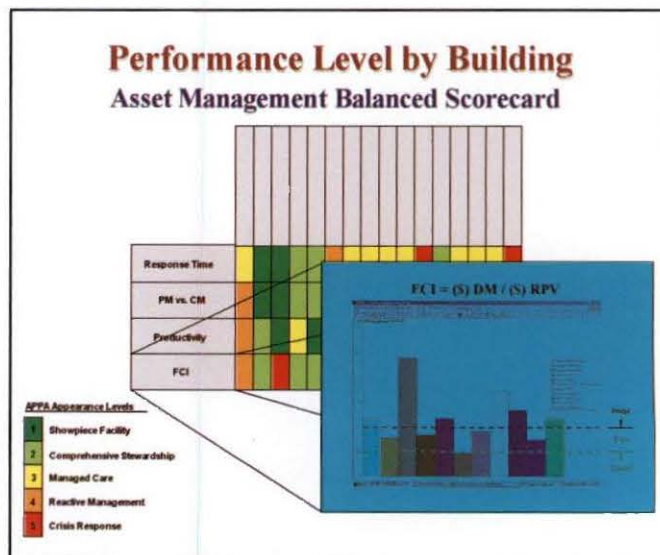
These are some fairly daunting obstacles to measuring our performance as stewards of our institution's assets. How

can we overcome these obstacles and improve our credibility by developing the right asset management key performance indicators (KPIs)?

Successful institutions have shown that the best way is to implement a systematic approach starting with the end in mind. We generally know where we want to go. Our mission and vision statements tell us that. We even have a pretty good understanding of how to get there through our tactical plans. Even SAM provides recommended performance indicators in the "SAM Matrix". But what is the pinnacle of facilities asset management?

Is the desired outcome managing our assets to meet the needs and desired level of service to our customers? Extending the service life of our facilities? Minimizing the total cost of ownership of our facilities? Or is the right answer a combination of all of these? The answer may vary from institution to institution, but the common thread is that a balanced scorecard approach can be used to best measure the outcomes of our efforts to manage facility assets.

**Jim Whittaker is president of Facility Engineering Associates P.C. He can be reached at [jim.whittaker@feapc.com](mailto:jim.whittaker@feapc.com).**





First, let's overcome those obstacles. We need to focus on what is needed, not easiest to measure, and measure the desired outcomes, not just the activities. The typical off-the-shelf CMMS/CAFM system comes with over 200 standard reports under the broad heading of asset management. While these technologies have become tremendous tools to help manage our work, provide information for decision making, and measure our performance, they need to be carefully managed. Use the balanced scorecard approach to determine what outcomes you need to measure and focus on relevant KPIs. As an example, each perspective of the balanced scorecard may include such KPIs as: **Financial**—FCI, FOI and FRI, **Processes**—PM vs. CM and system reliability, **Employee**—training and productivity, and **Customer**—response time and qualitative impressions of facilities.

We also need to understand the effect of the inter-relationships between O&M processes and capital asset management. Proper maintenance will positively impact the long-term capital requirements of a facility. We can measure our success or failure with our preventive, predictive, or reliability-centered maintenance programs until we are blue in the face. Yet, until we relate that performance to extending the service life of our assets and/or minimizing the total cost of ownership of our facilities, it is all for naught.

Too narrow a focus on KPIs can lead to games on how to capture data and report results. This is where the balanced scorecard is so valuable. We can cut back on staff to complete PM and show improvement in operating costs in the short term. This will come

at the expense of building system service life, system reliability, and customer satisfaction when the air conditioning fails in August. Similarly, continually deferring capital projects will impact the cost of operations through increased maintenance requirements and loss of energy efficiency.

This is also where it becomes difficult to get information out of a number of complex and usually stove-piped technologies. Most CMMS/CAFM systems provide information on the O&M side of the equation, but not the capital side. Facility condition analyses in combination with life cycle cost methods will generally be used to develop the capital requirements stored in some type of capital planning system.

Separate or integrated, the data in these technologies need to be combined to evaluate the total cost of ownership, including O&M and capi-

tal costs. Have you ever managed this data to determine just how maintenance has extended the life of facility assets, and what was the return on investment of that maintenance? Facilities that have can show that extending the service life of facility assets by 10 to 20 percent can yield significant cost savings.

Finally, it is imperative to determine desired level of service so you can justify resources or at least manage expectations. APPA has some great tools to identify performance measures related to level of service<sup>1</sup>. Consider linking these to your asset management KPIs. The key is to simplify the results in a clear and credible fashion for reporting your success to business officers and other senior administrators. 🏢

<sup>1</sup> APPA Maintenance Staffing Guidelines for Educational Facilities. 2002. Chapter 5 Levels of Maintenance, Figure 7 - Maintenance Level Matrix, pg. 48-49.



## GALE

Consulting Engineers

### Engineered Solutions for Roofs, Walls, Windows, and Waterproofing.

#### Our Services Include:

- Condition Assessments
- Forensic Investigations
- Maintenance Plans and Budgeting
- Design Consultations
- Preparation of Design Documents
- Construction Period Services
- Construction Inspections
- Expert Testimony

**Specialized Building Envelope Engineering Services for Educational Facilities Since 1964**

#### Gale Associates, Inc.

1-800-366-1714  
ejm@gainc.com

www.galeassociates.com



# Get Commercial Quality Get Commercialite®!

## THE HEAVY DUTY PLASTIC FOLDING TABLE

Load tested  
to over 3500 lbs!

It can take it!  
Bring on the college kids!

*Polyethylene blow  
molded top has a  
smooth writing surface,  
resists heat, stains,  
chemicals & weather  
and is sealed against  
biological contamination*

*Light Weight!*  
4'x30" = 37 lbs  
5'x30" = 40 lbs  
6'x30" = 44 lbs  
8'x30" = 56 lbs  
6'x18" = 38 lbs  
8'x18" = 46 lbs  
5' Round = 66 lbs  
6' Round = 80 lbs

*Accepts standard 3/4"  
skirting clips*

*Polyester  
powder  
coated US  
steel legs &  
frame are  
tough and  
weather  
resistant*

*Steel frame attached with  
nylon locking nuts and bolts  
through, not just into, table top*

*18" tops  
available as  
**OVERSIZED BENCHES**  
for locker rooms  
and playing fields*



MADE IN  
FORT SMITH,  
ARKANSAS, USA

**BUY FACTORY DIRECT & SAVE!**

**6' x 30" TABLE ONLY**

**\$74<sup>00</sup>**

*Call Rudy*

**800.333.2687**

**www.mccourtmfg.com**

**TOLL FREE FAX 800.982.2530**



**McCourt  
Manufacturing**

\*Commercialite is a McCourt Manufacturing trade name



# The Bookshelf

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

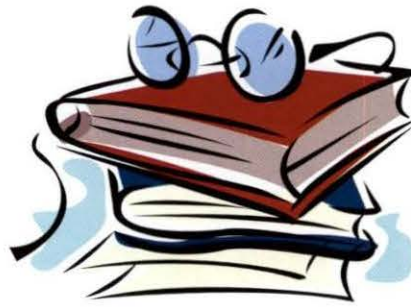
The two books reviewed this month come from the publications department of the American Society of Civil Engineers. Engineers can be good authors for facilities folks because they have been in similar situations or think the same. I believe these two books provide further proof of that.

\*\*\*

**Professional Communications: A Handbook for Civil Engineers**, by Heather Silyn-Roberts. Reston, Virginia: ASCE Press, 2004 ([www.pubs.asce.org](http://www.pubs.asce.org)), 256 pages, softcover.

When I went off to college, we used to share a cartoon of a goofy guy saying "Four years ago I couldn't spell injuneer, now I are one." Many engineering students thought that knowing how to model a system using partial differential equations was more important than knowing how to communicate simple facts in verbal (both written and oral) form. The cartoon was often a sad commentary on what engineering students thought of clear communication. The reality is that clear verbal communication is an essential element for anyone in a technical position.

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



*Professional Communications* practices what it preaches. The language is clear and the figures are well organized.

*Professional Communications* is written by an engineer for anyone who needs help with verbal and graphic communication. It addresses written reports and oral presentations and provides suggestions for graphic material within the reports or presentations. It is well organized, beginning with an outline in each chapter which presents the main points that will be discussed and ends with exercises and opportunities to practice.

*Professional Communications* practices what it preaches. The language is clear and the figures are well organized. Examples are appropriate and relevant to the main topic. It is not a difficult read and while it ought to be read in its entirety, it is possible to pick this book up and focus on a single chapter. Facility managers are regularly challenged with issues that require getting a clear message out to administrators, faculty, and students;

*Professional Communications* provides tool to make one a more effective communicator.

\*\*\*

**The Lead Dog Has the Best View: Leading Your Project Team to Success**, by Gordon Culp and Anne Smith, Reston, Virginia: ASCE Press, 2005 ([www.pubs.asce.org](http://www.pubs.asce.org)), 164 pages, softcover.

Catchy titles sometimes get a reviewer's attention; that is probably what happened in this case but there's more to it. There are hundreds of books, actually Amazon.com shows 16,470, and so the catchy title was important. However, the content of the book is the most important factor. In this case, *Lead Dog* delivers.

First, *Lead Dog* is not overly wordy; it doesn't spend page after page getting to the point. It is pithy and gets the message across. The first chapter presents the "triangle of needs" and 12 leadership characteristics. Like the three-legged stool of capital projects, the triangle of needs looks at content, procedures, and relationships. A project leader blends the three needs in varying levels to achieve success to a given problem. Not all projects have the same needs, but all projects do require some.

The 12 characteristics are very similar to Covey's *Seven Habits*, and include simple characteristics such as honesty, vision, decisiveness, an inclusion that every leader must have. These characteristics work in tandem with the characteristics of other team members and their work style. The Myers-Briggs style preferences are discussed quickly; extraversion vs. introversion; sensing vs. intuition;



thinking vs. feeling; and judging vs. perceiving. The leader recognizes each team member's preferred style and leverages talents.

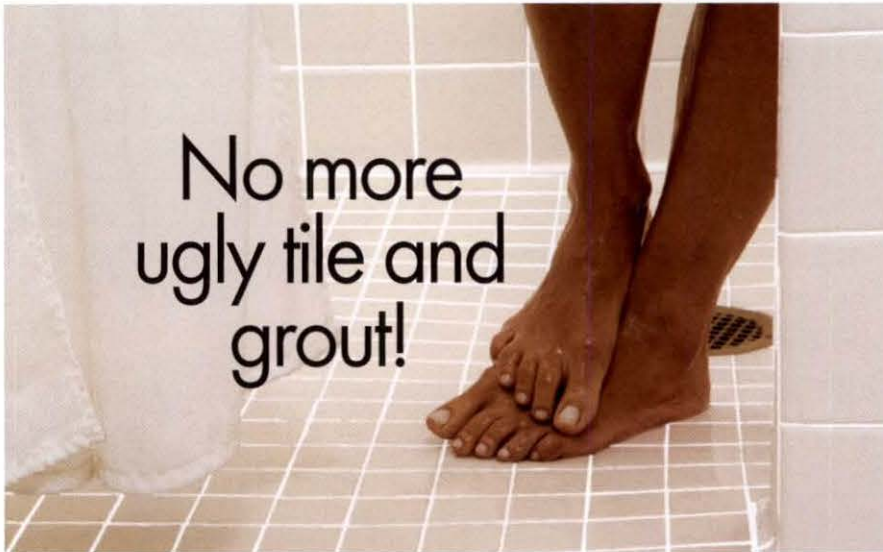
Then the authors discuss direction-setting, planning, delegation, monitoring, and knowing when the goal has been met. The triangle of needs plays a role in each of these areas by showing how concentrating on content, procedure, or rela-



The 12 characteristics are very similar to Covey's Seven Habits, and include simple characteristics such as honesty, vision, decisiveness, an inclusion that every leader must have.

tionships is required at each phase of a project. There are helpful checklists and exercises; also do's and don'ts. For those who are creatively challenged, there are some example worksheets and forms. They can be used or ignored but they help make the concepts real.

In our business we need a quick and easy way of getting up to speed and bringing a large organization or people to perform a task or goal. Taking days or weeks to plan out goals and objectives for an everyday problem just doesn't cut it. *Lead Dog* provides the busy architect or engineer with the essential, yet intangible elements of leadership. I'm making use of it already. 🐕



## Ranked the #1 Housekeeping Product.

— *Facility Care Magazine*

The SaniGLAZE "Restorative Bonding" technology re-creates tile and grout surfaces to make them "like new" and moisture proof.

- Eliminates odors
- Shields against mold & mildew
- Completed overnight
- Easy to keep "sparkling clean"
- Stays "like new" for years
- A fraction of the cost of replacement

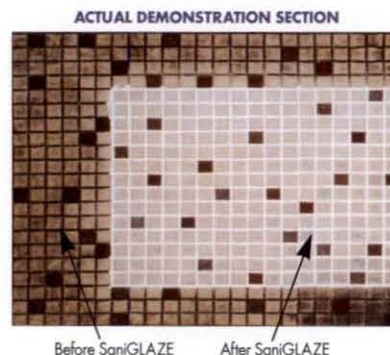
Contact us today for a free demonstration or video.

**SaniGLAZE**

New Tile & Grout Without Replacement

[www.saniglaze.com](http://www.saniglaze.com)

1.800.874.5554



## ACUHO-I/APPA

HOUSING  
FACILITIES  
CONFERENCE

05

October 19–22, 2005  
Salt Lake City, Utah

Contact

April Hicks  
814.292.0099  
[ahicks@astate.edu](mailto:ahicks@astate.edu)



# Congratulations

## to the 2005 Leadership Academy Graduating Class

June 19-23, 2005 marked the unveiling of the Leadership Academy in its new format which introduced the new track, Interpersonal Effectiveness Skills. The reworking of the Academy was undertaken by a group of dedicated APPA individuals last October. The outcome has been an outstanding addition to APPA's educational programming opportunities. We congratulate all participants of the Academy on a job well done.



<b>Erin Babson</b>	Grand Valley State University
<b>Bill Bagnell</b>	East Carolina University
<b>Richard Bretz</b>	John Carroll University
<b>Joni Brown</b>	Embry-Riddle Aeronautical University
<b>David Cain</b>	Carter & Burgess Higher Educ. Unit
<b>Jack Colby</b>	North Carolina State University
<b>Larry Fairbank</b>	Brigham Young University
<b>David Farion</b>	University of Saskatchewan
<b>Harold Johnson</b>	Texas Woman's University
<b>David Lancaster</b>	East Carolina University
<b>John Lawter</b>	University of Michigan/Ann Arbor
<b>Dan MacLachlan</b>	University of Guelph
<b>Michael Ryan</b>	Columbus State Community College
<b>Gary Shumaker</b>	University of Notre Dame
<b>Teresa Stankiewicz</b>	The Ohio State University
<b>William Ward</b>	Pima Community College
<b>Ted Weidner</b>	University of Nebraska/Lincoln
<b>Paula Welch</b>	Choate Rosemary Hall





# New Products

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

**Hilti, Inc.** introduces the Hilti Kwik Bolt 3 Mechanical Anchor. With an improved wedge design and higher strength base material, the Kwik Bolt 3 has the best independent approval ratings in its class and is the best overall stud anchor on the market. Available in sizes ranging from 1/4- to 1-inch in diameter and in electrogalvanized carbon, hot dipped galvanized, SS 304, or SS 316, the Kwik Bolt 3 Mechanical Anchor satisfies a wide range of fastening applications. It is also available as a standard thread length bolt for high shear load applications and as a long (full) thread length (up to 7 inches thread length) bolt. For more information, contact Hilti, Inc. at 800-879-8000.



## Shark Pressure Washers

announces a new line of direct-drive, cold water pressure washers. The DG-212328 delivers high-pressure cleaning power with a flow rate of 2.1 gallons per minute (GPM) and pressure of 2300 pounds per square inch (PSI). It is powered by a 6 HP Quantum gasoline engine and features a Faip vertical, direct-drive pump. The DG-212328 frame is made of a durable 1-1/4-inch steel chassis with a limited lifetime warranty. The compact pressure washer has a fold-down handle to fit in the trunk of a car and weighs only 105 lbs. For additional information, contact Shark Pressure Washers at 800-771-1881.



**AQUAFLEX-USA** introduces its new specification sheet designed to provide customers with the latest specification information on the company's sprinkler drops. The specification sheet highlights the various models available, dimensions, temperature and pressures, parts and material identification. The specification sheet can be downloaded at [www.aquaflexusa.com](http://www.aquaflexusa.com) or by e-mailing [info@aquaflexusa.com](mailto:info@aquaflexusa.com) and requesting spec sheet AQA6003. For more detailed information, call AQUAFLEX-USA at 800-514-3539.



**Rust-Oleum Industrial Brands** has introduced Rust Reformer®—an aerosol rust converter that instantly transforms rusted metal into a non-rusting surface and prevents future corrosion. Rust Reformer dries to a hard, flat-black finish that can then be top coated with oil or latex coatings if desired. Rust Reformer is designed to be applied over existing rust with minimal surface preparation consisting of removal of loose scale and powdery rust with a wire brush. Rust Reformer is ideal for equipment, railings, metal furniture, machinery, seams, complex shapes, and other hard to reach areas. For additional details, log on to Rust-Oleum Industrial Brands website at [www.rustoleum.com](http://www.rustoleum.com).



**Thomas C. Wilson Inc.** announces the addition of the Wils-Matic™ Self-Feeder to its existing tube cleaning product line. This versatile cleaner is designed for use with the straight tubes up to 45-feet long in heat exchangers, condensers, chillers, absorbers, and coolers. The primary feature of the Wils-Matic™ Self-Feeder is its extreme efficiency. This new product reduces cleaning time by an average of 50 percent, effectively doubling the amount of cleaning that can be performed in the same amount of time compared to non self-feeding units on the market. For more information, call Thomas C. Wilson Inc. 800.230.2636.



**Firestone Building Products** has introduced its next generation of commercial roofing products. UltraPly TPO XR delivers the durability and flexibility of a single-ply membrane with the heat welding properties of thermoplastic. RubberGard MAX PT and RubberGard LSFR PT combine with Firestone QuickSeam Tape with RubberGard EPDM for faster installations and more precise seaming. Eco Walkway Pad is an environmentally-friendly solution made with reinforced fiberglass scrim and recycled TPO and EPDM. Penetration Pockets are pre-formed and uniformly sized penetration pockets that are faster to install than metal penetration pockets. QuickTaper enables contractors to install roof seams while standing, yet delivers the integrity of traditional hand-rolled seams. For full details on all these products, visit Firestone Building Products online newsroom at <http://www.firestonebpco.com/about/news.aspx>.





# GILSULATE 500XR



## Thermal Insulation and Protection System for Underground Pipes and Tanks

Gilsulate International, Inc. • P.O. Box 802650 • Santa Clarita, Ca 91380 • 1-800-833-3881 • [www.gilsulate.com](http://www.gilsulate.com)

Gilsulate 500XR is an engineered, patented, insulation and corrosion protection system whose unsurpassed longevity in the market place can be traced directly to its proven track record in college and university campus settings. Gilsulate 500XR is certified to be hydrophobic, meaning that when installed properly, Gilsulate 500XR will withstand hydrostatic heads of ground water from intruding on the piping system. Gilsulate 500XR has performed above our customer's expectations in areas like Houston and Colorado, where 100 year floods have occurred in recent years.

## Job Express

Job Express is APPA's popular Web-based career development site for educational facilities professionals and their employers. If you are looking to hire or looking to get hired, Job Express has tools that can help you meet your goals.

### Advantages of Job Express

- **Timely**—Job Express is updated weekly.
- **Cost Effective**—The cost for listing with Job Express is economical and gives you the added value of access to the Resume Bank.
- **Targeted**—APPA represents the educational facilities community. Find experienced professionals with the right mix of skills.
- **Flexible**—Job Express allows you to write your listing yourself. You can choose exactly what you want to say, update your ad as needed, and decide how long to keep your information online.

## APPA's Job Express

The right tools for  
the job in campus  
facilities management!

### Register Now

To take advantage of  
Job Express  
services, register online at  
[www.appa.org/jobexpress](http://www.appa.org/jobexpress)



## Resume Bank

Whether you are an employer looking for a Director of Facilities or Supervisor for Custodial Services, or a facilities professional looking for a new position, Job Express Resume Bank can help. Resume Bank allows job seekers to post their resume online, and lets employers search resumes to find the right candidates.

## Position Listings

If you are looking for a highly qualified pool of candidates for a facilities management opening, Job Express can help you. Your ad will be posted online where it can be seen by thousands of facilities professionals who access APPA's website. The Job Express audience consists of professional facilities managers in top executive level positions, individuals who are retiring from the military with extensive facilities and engineering experience, and graduates of APPA's Institute for Facilities Management.



# Coming Events

## Coming Events

For more information on APPA seminars and programs, visit our website's interactive calendar of events at [www.appa.org](http://www.appa.org).

### APPA Events - 2005

**Sep 18-22—Institute for Facilities Management.** Norfolk, VA.

**Sep 18-22—Leadership Academy, Track I.** Norfolk, VA

**Sep 18-22—Supervisor's Toolkit: Nuts and Bolts of Facilities Supervisors.** Norfolk, VA.

### APPA Events - 2006

**Jan 22-26—Institute for Facilities Management.** Ft. Worth, TX.

**Jul 8-11—Campus of the Future.** Honolulu, HI. Joint conference by APPA, NACUBO, and SCUP. Visit [www.campusofthefuture.org](http://www.campusofthefuture.org) for more information.

**Sep 10-14—Institute for Facilities Management.** Indian Wells, CA.

### APPA Regional Meetings - 2005

**Sep 11-14—RMA Regional Meeting.** Vail, CO. Contact Tommy Moss, 970-491-1060; e-mail [tmoss@users.fm.colostate.edu](mailto:tmoss@users.fm.colostate.edu).

**Sep 16-21—CAPPA Regional Meeting.** Little Rock, AR. Contact David Millay, 501-569-8897; e-mail [dmlillay@ualr.edu](mailto:dmlillay@ualr.edu).

**Oct 1-5—PCAPPA Regional Meeting.** Tacoma, WA. Contact Craig Benjamin, 253-879-2820; e-mail [cbenjamin@ups.edu](mailto:cbenjamin@ups.edu).

**Oct 2-5—ERAPPA Regional Meeting.** Atlantic City, NJ. Contact

Kevin Herron, 201-569-9500; e-mail [herronk@d-e.org](mailto:herronk@d-e.org).

**Oct 8-11—SRAPPA Regional Meeting.** Memphis, TN. Contact Jim Hellums, 901-678-2077; e-mail [jhellums@memphis.edu](mailto:jhellums@memphis.edu).

**Oct 9-12—MAPPA Regional Meeting.** St. Paul, MN. Contact Tom Dale, 651-962-6530; e-mail [tldale@stthomas.edu](mailto:tldale@stthomas.edu).

### Other Events

**Oct 6-8—ACE: Educating All of One Nation.** Phoenix. Contact Trenny Stephens 202-939-9395; e-mail [caree@ace.nche.edu](mailto:caree@ace.nche.edu).

**Oct 17—Labs for the 21st Century: Energy Efficient Laboratory Design & Operations.** Portland, OR. Visit [www.labs21century.gov/training/designcourse/schedule05.htm](http://www.labs21century.gov/training/designcourse/schedule05.htm).

**Oct 18-21—EDUCAUSE 2005.** Orlando. Visit [www.educause.edu](http://www.educause.edu).

**Oct 18-21—ISSA/INTERCLEAN 2005.** Las Vegas. Call 800-225-4772 or e-mail [info@issa.com](mailto:info@issa.com).

**Oct 18-21—Supervisor's Toolkit: Nuts and Bolts of Facilities Supervision.** Las Vegas. Contact Xenia Murphy, 703-684-1446; e-mail [xenia@appa.org](mailto:xenia@appa.org).

**Oct 18-21—2005 Conference of the Higher Education Facility Managers Association of Southern Africa.** Stellenbosch, South Africa. Contact Anna-Marie Van der Merwe at 27 21 8084846 or e-mail [avdm@sun.ac.za](mailto:avdm@sun.ac.za).

**Oct 19-22—ACUHO-IA/APPA Housing Facilities Conference.** Salt Lake City. Contact April Hicks 614-292-0099; [ahicks@astate.edu](mailto:ahicks@astate.edu).

**Oct 24-25—Academic Science Buildings 2005.** St. Petersburg, FL. Contact Bill Nothofer 925-254-1744; [bill@tradelineinc.com](mailto:bill@tradelineinc.com).

**Oct 31-Nov 1—Construct Alberta and Homebuilder & Renovator Expo.** Calgary, AB, Canada. Visit [www.constructalberta.com](http://www.constructalberta.com).

**Nov 2-5—PGMS School of Grounds Management & Green Industry Expo.** Orlando. Contact 800-609-PGMS or [pgms@assnhqtrs.com](mailto:pgms@assnhqtrs.com).

**Nov 4—Deadline for proposals for the 2008 National Electric Code.** Visit <http://www.nfpa.org/assets/files/PDF/necdigest/NEC2008ProposalForm.pdf> for downloadable proposal form.

**Nov 13-16—NACAS Annual Conference. San Antonio.** Visit [www.nacas.org](http://www.nacas.org).

**Nov 16—Labs for the 21st Century: Energy Efficient Laboratory Design & Operations.** Denver, CO. Visit [www.labs21century.gov/training/designcourse/schedule05.htm](http://www.labs21century.gov/training/designcourse/schedule05.htm).

This is the last issue that Betsy Colgan, assistant editor of *Facilities Manager* and APPA director of communications, worked on before leaving APPA for another association. In addition to handling production on the magazine and all our books, Betsy coordinated all the regular magazine columns, and she also worked closely with the Supervisor's Toolkit Workgroup in developing that successful program and bringing it to members. We were happy to have worked with her for two-and-a-half years and wish her well in her new endeavors.



At the 2005 Educational Facilities Leadership Forum in Orlando, Florida, APPA bestowed the honor of Strategic Business Partner on 18 Business Partner members. These companies have not only given back to the facilities profession with their knowledge and resources for the educational community, but have also provided funding support and additional involvement to APPA as sponsors, authors, and/or collaborators.



## Applied Management Engineering, Incorporated

[www.ameinc.biz](http://www.ameinc.biz)

Expertise in facilities management and engineering consulting services in both the public and private sectors.



## ARAMARK Facility Services

[www.aramark.com](http://www.aramark.com)

Provider of facilities management services addressing unique needs and custom-tailor programs for controlling costs and improving performance.



## Eaton Cutler-Hammer

[www.eaton.com](http://www.eaton.com)

Provides customer-driven solutions in power distribution and electrical control systems, utilizing advanced product development, world-class manufacturing, and global engineering services.



## Facility Engineering Associates

[www.feapc.com](http://www.feapc.com)

Condition assessment, restoration design, environmental engineering, and facilities management professional services.



## FAMIS Software, Inc.

[www.famissoftware.com](http://www.famissoftware.com)

Developer of a suite of integrated software modules for managing facilities assets—from space planning, to capital construction, to maintenance operations.



## Haley & Aldrich, Inc.

[www.haleyaldrich.com](http://www.haleyaldrich.com)

A leading national engineering and environmental consulting firm focusing on real estate development and assisting facilities personnel in addressing the complex planning, engineering, and environmental issues involved in campus improvement and expansion.



## Johnson Controls, Incorporated

[www.jci.com](http://www.jci.com)

Meeting the needs of educational facilities by providing performance contracting, building control system solutions, and planned service agreements.



## Lerch, Bates & Associates - Elevator Consulting Group

[www.lerchbates.com](http://www.lerchbates.com)

Nation's largest vertical transportation consulting organization providing "client-focused" services relative to elevators and escalators.



## MAXIMUS

[www.assetsolutions.maximus.com](http://www.assetsolutions.maximus.com)

Provides improvement, automation, and integration of your existing facility management, asset management, and maintenance operations.



## Nalco Company

[www.nalco.com](http://www.nalco.com)

Combines industry expertise with water treatment expertise to reduce your deferred maintenance, increase student retention and attraction, and promote educational programs for facility personnel.



## School Dude

[www.schooldude.com](http://www.schooldude.com)

Offers facility management software for schools and colleges including CMMS software, event management software, and wireless work order systems.



## SDI, Incorporated

[www.in-plantstore.com](http://www.in-plantstore.com)

Expertise brings control, process improvements, and total cost savings to customers by providing MRO and indirect materials supply chain management services.



## Sebesta Blomberg & Associates

[www.sebesta.com](http://www.sebesta.com)

Mechanical/electrical consulting firm providing design and management services to colleges and universities.



## SIEMENS

## SIEMENS

[www.siemens.com](http://www.siemens.com)

Leading single-source provider of facility solutions for comfort, life safety, security, energy, and operational efficiency.



## Spirotherm, Incorporated

[www.spirotherm.com](http://www.spirotherm.com)

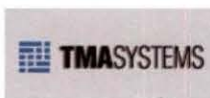
Manufacturers of a line of air and dirt separators for hot and chilled water systems eliminating 100% of the free and entrained air and up to 99.6% of the dissolved air in solution.



## Stanley Consultants

[www.stanleygroup.com](http://www.stanleygroup.com)

Provides a full range of professional engineering services to facilities including central heating and chilling plants, energy generation and conservation, and water treatment and distribution.



## TMA Systems, LLC

[www.tmasystems.com](http://www.tmasystems.com)

The innovator and provider of expert solutions for facility management professionals in the Computerized Maintenance Management Systems market.



## UNICCO

[www.unicco.com](http://www.unicco.com)

Provider of integrated facilities services solutions including maintenance, operations, engineering, cleaning, lighting services, office administration, warehousing, and routine maintenance.

**Congratulations on your achievement and thanks for your continued support of the facilities profession.**



Order Your Copy of APPA's

# CREATING A SERVICE CULTURE:

## Making the Customer Connection

Customer service means different things to different people. On an educational campus, facilities professionals deal with myriad constituent groups, including faculty, staff, students, parents, and members of the community. This book, written by well-known experts in the educational facilities profession, offers plenty of tips and insights into making the customer connection.

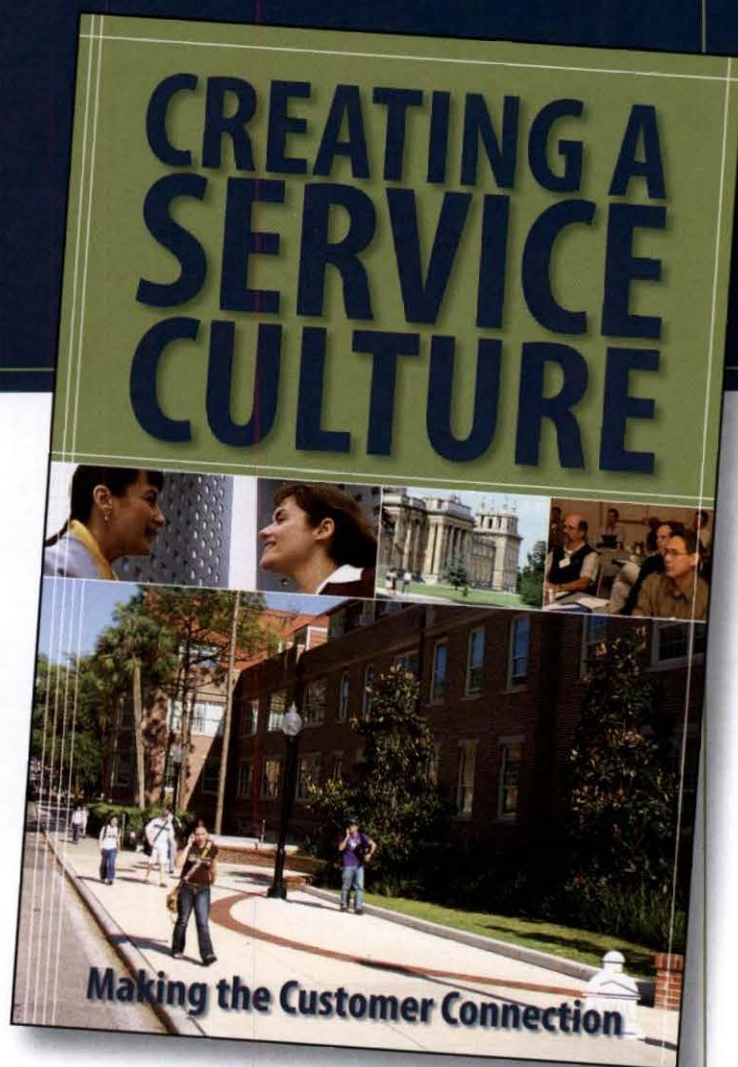
### Table of Contents

1. Great Relationships = Great Customer Service
2. Quality Measurement in a Facilities Management Environment
3. Innovative Customer Service Practices
4. Customer Focus & Technology: A Great Facilities Combination
5. I Don't Receive Complaints Today
6. Enhancing Customer Service and Advancing Diversity
7. Achieving Customer-Centered Facilities Maintenance
8. We Think We Are Doing a Good Job, But What Do Our Customers Think?
9. Maintaining Employee Health and Safety
10. So What Does Data Collection Have to Do with Customer Service?
11. Implementing a Wireless Handheld System
12. A Customer Service Strategy

### Creating A Service Culture: Making the Customer Connection

Copies are available from APPA for **\$45** for members and **\$60** for nonmembers, plus a \$3 handling fee.

*Shipping will be billed at cost; delivery in the United States is by UPS ground.*



Softcover; 134 pp.  
ISBN: 1-890956-31-7  
Item # A752



To order online, visit [www.appa.org/applications/publications](http://www.appa.org/applications/publications)

For international orders (includes Canada) or for rush/overnight delivery,  
contact APPA Publications at 703-684-1446 ext 235.



Air Cycle Corporation ( <a href="http://www.aircycle.com">www.aircycle.com</a> )	55
APPA Awards & Recognition ( <a href="http://www.appa.org/recognition">www.appa.org/recognition</a> )	75
APPA Job Express ( <a href="http://www.appa.org/jobexpress">www.appa.org/jobexpress</a> )	69
APPA Leadership Academy ( <a href="http://www.appa.org/education">www.appa.org/education</a> )	67
APPA Publications ( <a href="http://www.appa.org/applications/publications">www.appa.org/applications/publications</a> )	72, 74

APPA Strategic Business Partners	71
BACnet Conference & Expo ( <a href="http://www.bacnetconference.org">www.bacnetconference.org</a> )	43
Bartlett Tree Expert Company ( <a href="http://www.bartlett.com">www.bartlett.com</a> )	73
Carmanah Technologies, Inc. ( <a href="http://www.roadlights.com">www.roadlights.com</a> )	35
Carrier Corporation ( <a href="http://www.commercialhvacservice.carrier.com">www.commercialhvacservice.carrier.com</a> )	15

Carrier Rental Systems ( <a href="http://www.hvacportablesystems.com">www.hvacportablesystems.com</a> )	51
Carter & Burgess, Inc. ( <a href="http://www.c-b.com">www.c-b.com</a> )	22
CDM ( <a href="http://www.cdm.com">www.cdm.com</a> )	35
Dorlen Products ( <a href="http://www.wateralert.com">www.wateralert.com</a> )	58
DriTherm Inc. ( <a href="http://www.dritherm.com">www.dritherm.com</a> )	8

Famis Software, Inc. ( <a href="http://www.famis.com">www.famis.com</a> )	Cover 4
Gale Associates, Inc. ( <a href="http://www.gainc.com">www.gainc.com</a> )	63
Garland Company, Inc. ( <a href="http://www.garlandco.com">www.garlandco.com</a> )	76
Georgia-Pacific Corporation ( <a href="http://www.gp.com">www.gp.com</a> )	7
Gilsulate International, Inc. ( <a href="http://www.gilsulate.com">www.gilsulate.com</a> )	69

Informed LLC ( <a href="http://www.contraction.com">www.contraction.com</a> )	59
Ingersoll-Rand Co. ( <a href="http://www.irco.com">www.irco.com</a> )	29
Johnson Controls, Inc. ( <a href="http://www.johnsoncontrols.com">www.johnsoncontrols.com</a> )	C3
Kellogg, Brown, & Root Services ( <a href="http://www.halliburton.com/kbr/index.jsp">www.halliburton.com/kbr/index.jsp</a> )	47
Lerch Bates & Associates – Elevators Consulting ( <a href="http://www.lerchbates.com">www.lerchbates.com</a> )	57

Maximus, Inc. ( <a href="http://www.assetsolutions.maximus.com">www.assetsolutions.maximus.com</a> )	38-39
McCourt Manufacturing ( <a href="http://www.mccourtmg.com">www.mccourtmg.com</a> )	64
Outokumpu Heatcraft Commercial Products ( <a href="http://www.heatcraft.com">www.heatcraft.com</a> )	60
SaniGlaze International, LLC. ( <a href="http://www.saniglaze.com">www.saniglaze.com</a> )	66
SchoolDude.com ( <a href="http://www.schooldude.com">www.schooldude.com</a> )	53

Siemens ( <a href="http://www.sbt.siemens.com">www.sbt.siemens.com</a> )	3
Solar Turbines, Inc. ( <a href="http://www.solarturbines.com">www.solarturbines.com</a> )	16
Squire-Cogswell/Aeros Instruments ( <a href="http://www.squire-cogswell.com">www.squire-cogswell.com</a> )	76
Stanley Consultants, Inc. ( <a href="http://www.stanleyconsultants.com">www.stanleyconsultants.com</a> )	61
Strategic Distribution, Inc. ( <a href="http://www.sdi.com">www.sdi.com</a> )	5

TAC/Tour Andover Controls ( <a href="http://www.tac.com">www.tac.com</a> )	11
Tennant Company ( <a href="http://www.tennantco.com">www.tennantco.com</a> )	9
TMA Systems, LLC. ( <a href="http://www.tmasystems.com">www.tmasystems.com</a> )	Cover 2
Von Schrader Company ( <a href="http://www.vonschrader.com">www.vonschrader.com</a> )	52

# Bartlett Science.

Arboriculture • Entomology  
Soil Science • Fertilization  
Forestry • Botany  
Microorganisms • Root Invigoration  
Horticulture • Physiology  
Arboriculture • Entomology  
Soil Science • Fertilization



By the time it grows up it will benefit from everything we know.

Horticulture • Botany • Physiology  
Microorganisms • Root Invigoration

**B**artlett Tree Experts protect the health, beauty and value of one of the most important natural resources on earth, your trees.

Our knowledge and techniques in soil management, the care of root systems, pest control and arboriculture are respected worldwide.



Bartlett innovations such as hand-held diagnostic field computers, and the Bartlett Tree Research Laboratories in Charlotte, NC are unique in the industry. Bartlett Science



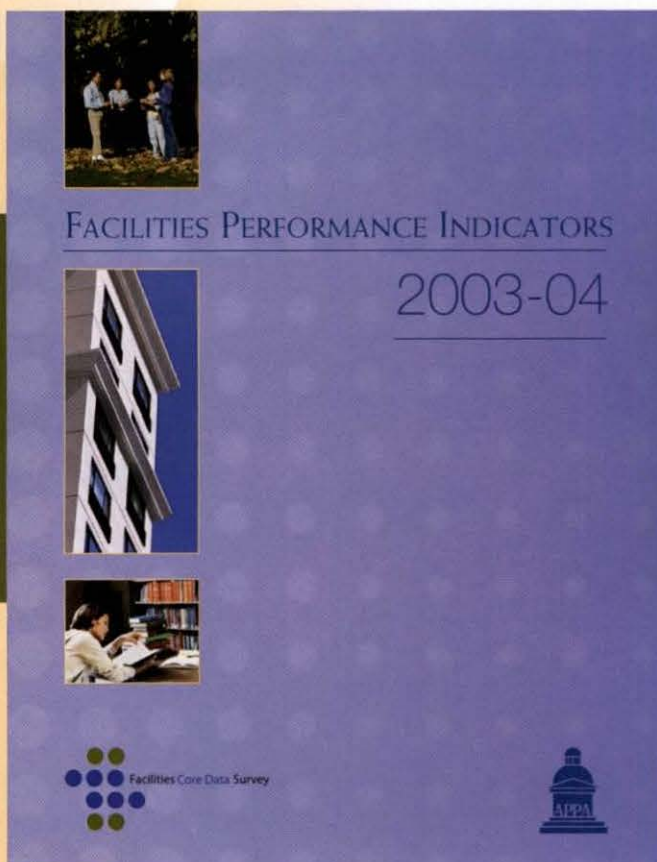
has been dedicated to improving the landscape of tree care, since we first broke ground in 1907.

Please call 877-BARTLETT  
1.877.227.8538 or visit  
our website [www.bartlett.com](http://www.bartlett.com)





# FACILITIES PERFORMANCE INDICATORS 2003-04



**A**re you looking to improve your organizations' financial and operational performance? Do you want to help your employees embrace the future? Could your department be improved and therefore satisfy your customers better?

Recently, over 200 institutions participated in the APPA's Facilities Core Data Survey; answers to the above questions and more can be found in the responses that these institutions provided.

Results of the survey have been published in *Facilities Performance Indicators* (book and CD) and consist of three main reports:

- Operating Costs
- Building and Space
- Personnel Data and Costs

The book includes information in the form of bar charts and statistical tables that will help you easily understand the data. The CD allows you to compare yourself with other institutions that participated in the survey.

**Don't wait – Order now to receive this valuable report!**

To order online visit  
[www.appa.org/applications/publications](http://www.appa.org/applications/publications)





# APPA'S 2006 Awards & Recognition PROGRAM

Each year, APPA recognizes outstanding individuals and institutions for their contributions to the education facilities profession. APPA is pleased to announce it is now accepting awards for 2006.

## *Award for Excellence*

The APPA Award for Excellence is designed to recognize and advance excellence in the field of educational facilities. Originally established in 1988, the Award for Excellence is APPA's highest institutional honor and provides educational institutions the opportunity for national and international recognition for their outstanding achievements in facilities management. The award is designed to encourage a systems perspective of facilities operations as a critical contributor to the overall institutional mission and vision. The Award for Excellence designation is valid for a period of five years. **Award submissions are due no later than February 15, 2006, midnight Greenwich Mean Time.**

## *Effective & Innovative Practices Award*

Sponsored by Sodexo USA, APPA's Effective & Innovative Practices Award recognizes programs and processes that enhance service delivery, lower costs, increase productivity, improve customer service, generate revenue, or otherwise benefit the educational institution. Entries can describe either a new program or significant restructuring of an existing program or process. Up to five ranked submissions will be eligible for a cash award of \$4,000. Winning entries will receive special recognition on both APPA's website and in APPA's *Facilities Manager*. **All entries are due no later than February 15, 2006, midnight Greenwich Mean Time.**

## *Meritorious Service Award*

Each year, APPA members bestow the Meritorious Service Award upon the individual member or members who have made significant, life-long contributions to the profession of higher education facilities management. APPA's highest award for individual service, the Meritorious Service Award is given to no more than three individuals a year. Individuals must be an active member of APPA for a minimum of five years; attended and participated in meetings and other functions at the international level, and demonstrated continued and distinguished service to the association. **All entries are due no later than February 15, 2006, midnight Greenwich Mean Time.**

## *APPA Fellow*

While most awards recognize past achievements, the APPA Fellow designation brings with it both recognition or specific accomplishments to date and expectations for continuing involvement in APPA's leadership program through research and mentoring. This is APPA's highest individual achievement award. Individuals must be an active member of APPA for a minimum of ten years; graduated from APPA's Institute for Facilities Management; completed APPA's Leadership Academy; and completed an approved research project under APPA's Center for Facilities Research. **All entries are due no later than February 15, 2006, midnight Greenwich Mean Time.**

## *Pacesetter Award*

The Pacesetter Award is designed to encourage further participation in APPA among those who have already made significant contributions at their regions or chapters. Up to seven Pacesetter Awards may be given each year. **All entries are due no later than February 15, 2006, midnight Greenwich Mean Time.**

*APPA encourages you to contact your regional representative to discuss how you can apply for an award. To receive an application and guidelines, visit [www.appa.org](http://www.appa.org) for additional details. All award submissions are due no later than February 15, 2006, midnight Greenwich Mean Time.*



**IS YOUR ROOF  
AN UMBRELLA  
OR A BOAT?**

**If new asphalt floats in water (and it does)...imagine what can happen as water and weather begin attacking the layers of your asphalt-based roof.**

Like all roof systems, modified bitumen or built-up roofs start to experience the effects of nature from the moment they are installed. Ultraviolet radiation. Airborne pollutants. Violent winds. Rapid temperature fluctuations. Harsh weather. Roof top traffic. With so many factors conspiring to allow water to penetrate your building envelope, even the best roof systems will leak or deteriorate prematurely if you fail to maintain them properly.

At Garland, we understand what it takes to extend the life of your roof and deliver long-term, leak-free performance. With our Dry Zone program, we customize a preventive maintenance plan to match the specific needs of your roof based on age, condition and construction, so that further deterioration and premature failure is prevented.

Before your roof goes on an unscheduled cruise, call your Garland representative at 800.741.3157. We guarantee smooth sailing.



**The Garland Company**

3800 East 91st Street • Cleveland, Ohio 44105  
800.741-3157 • [www.garlandco.com](http://www.garlandco.com)

# Laboratories nationwide count on Labcair®

Laboratories nationwide count on Squire-Cogswell's Labcair® for vacuum pumps and systems, air compressors and systems, medgas pipeline, and accessories.

Squire offers complete systems design and fabrication. Choose simplex or multiplex systems configured for tank, base, or stack mounting.

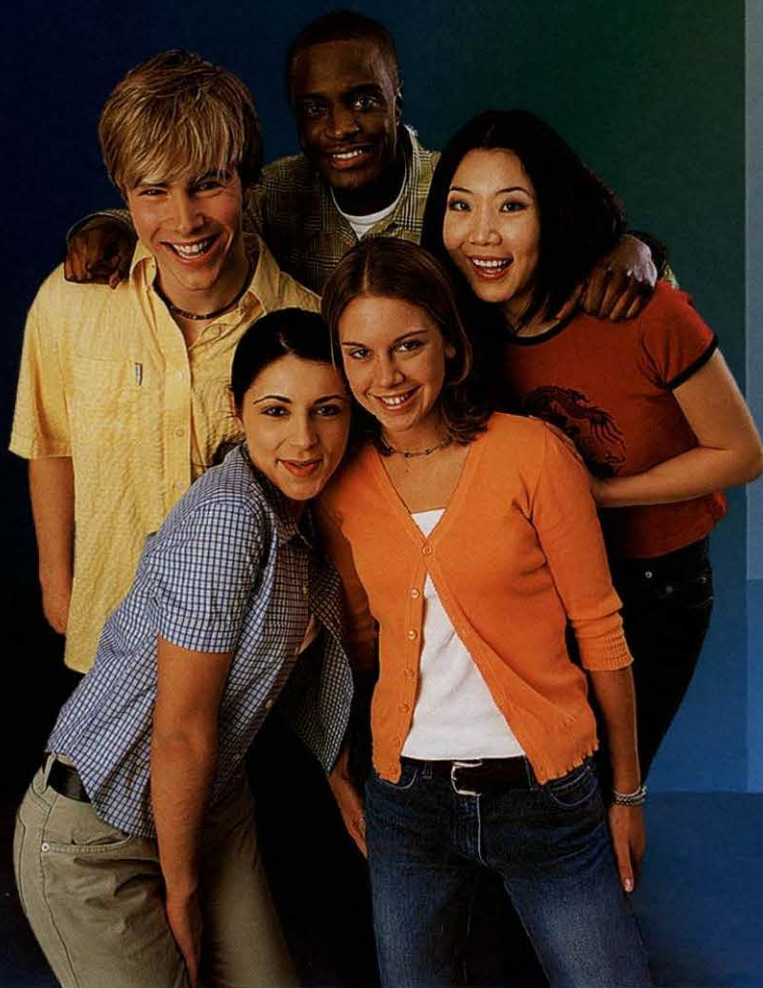
**LABCAIR**  
by Squire-Cogswell  
aeros

Call (800) 448-0770 today or  
visit [www.squire-cogswell.com](http://www.squire-cogswell.com)  
for more information.

Squire-Cogswell/Aeros Instruments, Inc.  
Gurnee, Illinois



# *Creating* Environments for LEARNING and LIVING

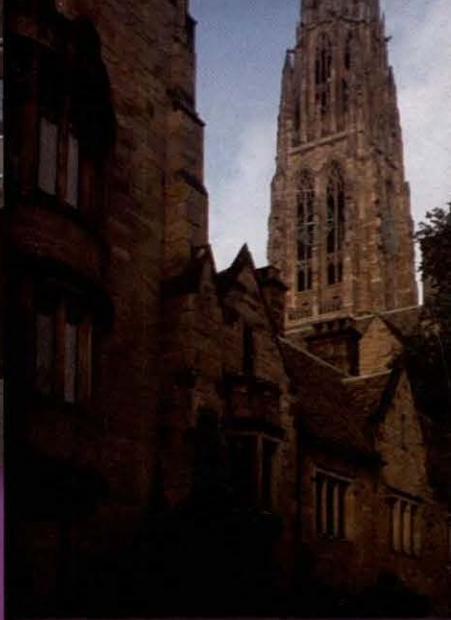


Two-thirds of students say a college's physical environment is the main factor in deciding which school to attend. Students want safe, comfortable surroundings with access to technology. And with budgets being squeezed more every day, it's no surprise that you need innovative ways to manage your campus. Learn how Johnson Controls can generate dollars to fund facility renovation, construction, and integration—just what you need to attract and retain students.

**FOR MORE  
INFORMATION,  
CALL 1-888-214-0916**

**JOHNSON  
CONTROLS**  
[www.johnsoncontrols.com](http://www.johnsoncontrols.com)





# Adapting... to your facility. to you.

FAMIS, the only integrated Enterprise Facilities Management solution available today, can unite all aspects of your facilities management into one, fully adaptable system. The entire facilities lifecycle is managed by a single suite of software, adapting to your changing IT environments, business processes and global technology.

***famis***<sup>TM</sup>