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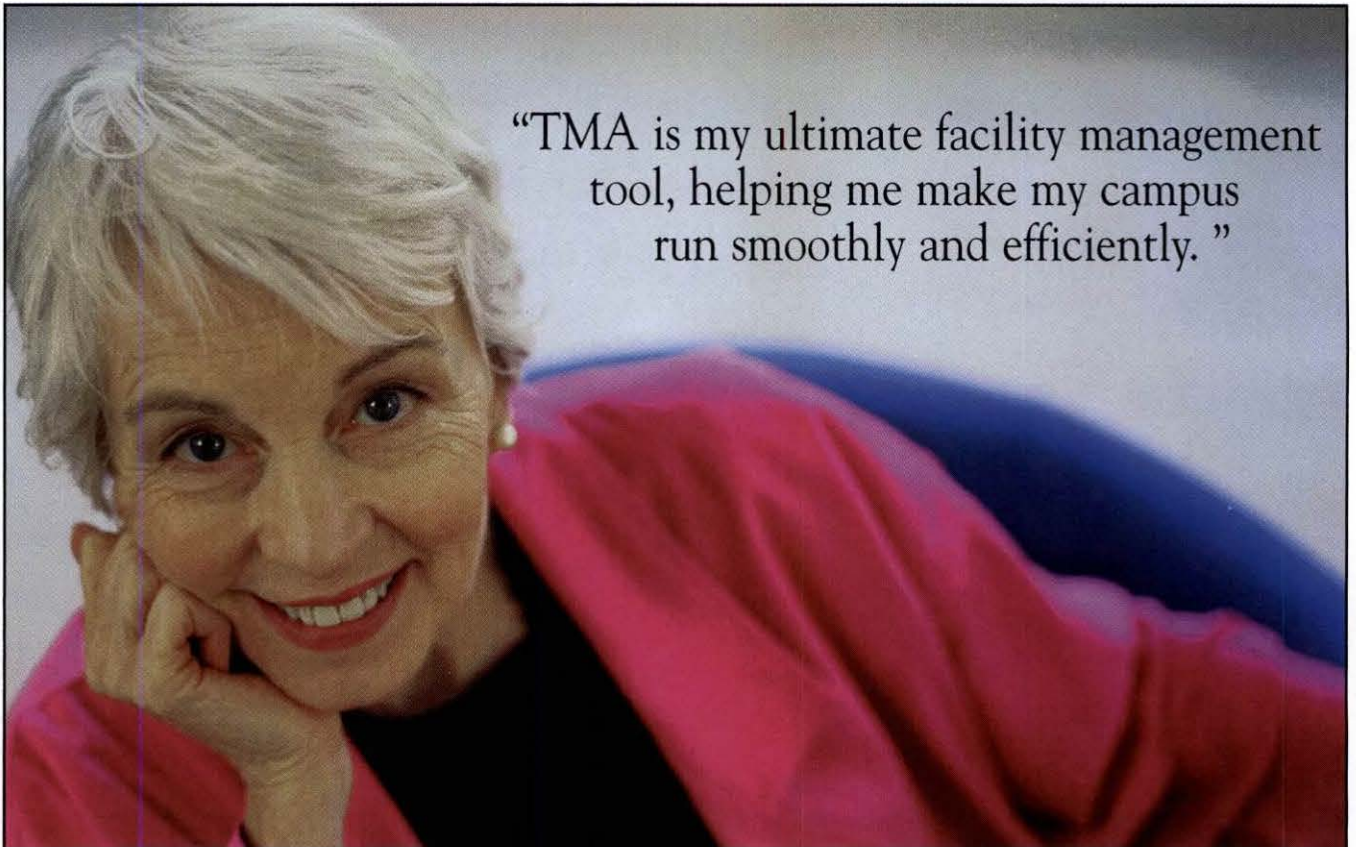
NUMBER 1

Facilities Manager

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

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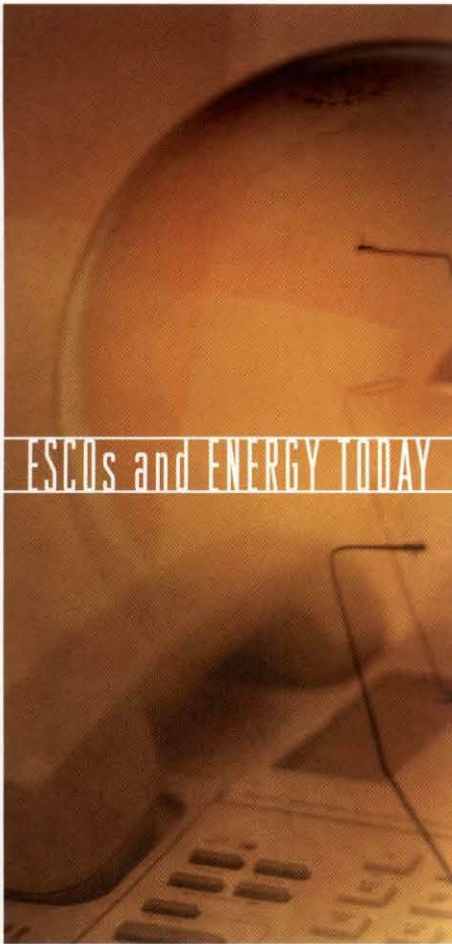
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Global Partner in Learning

From the Editor

by Steve Glazner

Well, what should

we say about electric deregulation? In California recently, where deregulation came earlier and more aggressively than in other states, there have been near-forced blackouts when supplies get low, phenomenal price increases, talk of state or federal bailouts for the utility companies, and consumer outrage at feeling duped. Universities with their own cogeneration plants are being forced to produce power for the grid, despite the costs to the institution.

Most folks view California's trail-blazing in one of three ways: they follow them as innovators, they avoid their precedents at all costs, or they take a wait-and-see perspective and try to apply the viable processes and approaches that remain standing following California's shakeout of its electric deregulation.

It's a bit early to tell what will remain standing when the dust clears from the near-emergency situation that exists in California as of this writing. But it's a certainty that all eyes continue to watch what will happen there.

This issue of *Facilities Manager* includes several articles that discuss ways in which performance contracting and the use of energy service companies (ESCOs) have been implemented at colleges and universities. These approaches are also being seen at K-12 school districts and hospitals as well.

The University of Utah and St. Joseph's University share their recent experience with new approaches to funding utilities construction. We also include articles on performance contracting and two organizations—the National Association of Energy Service Companies (NAESCO) and the Energy Services Coalition (ESC) designed to assist during this transitional stage. You'll also find some valuable guidance for buying telecommunications services.

This issue also includes a report from Kevin Folsom on the creation and growth of the DFW chapter of APPA. We are pleased to hear of this chapter's success, and we welcome reports and updates from other city, state, or region-based chapters of APPA. Our strength as an international organization must begin and be sustained at the grassroots level.

Finally, I'd like to welcome three new columnists to the *Facilities Manager* lineup. First, Jennifer Graham has joined the APPA staff as a publications and marketing assistant as well as assistant editor of the magazine. She not only is ably coordinating the work of all the columnists for each issue, she also has volunteered to write the Listnotes column, which is based on traffic seen on the APPAinfo e-mail list.

Jim Christenson, former APPA Board member and the first winner of the Rex Dillow Award for Outstanding Article in *Facilities Manager*, retired last year from the University of Michigan. We immediately put him to work on a new column called Field Notes, which takes a clear-eyed view of leadership and management within individuals and organizations.

And Ted Weidner, now of the University of Massachusetts at Amherst, has taken on the reins of The Bookshelf. Serving as an Institute faculty member and co-chairing the Trades Staffing Guidelines Task Force was not enough of a challenge, so Ted has agreed to coordinate the book reviews that appear in the magazine. He will write a good many himself, but he also wants your help. If you are interested in writing a short book review for APPA, just let Ted know; he will be glad to have your assistance. In return you get your name in print and a copy of the book for your library.

We hope you continue to enjoy the offerings we bring to you in each issue of *Facilities Manager*, and we look forward to your comments on our features and our new columns. 📖

In Memoriam

We recognize and honor the following APPA member who has recently passed away.

- **Joseph Pasquarelli**, Pace University

Eastern Region

Rick Wareham

ERAPPA Newsletter Editor

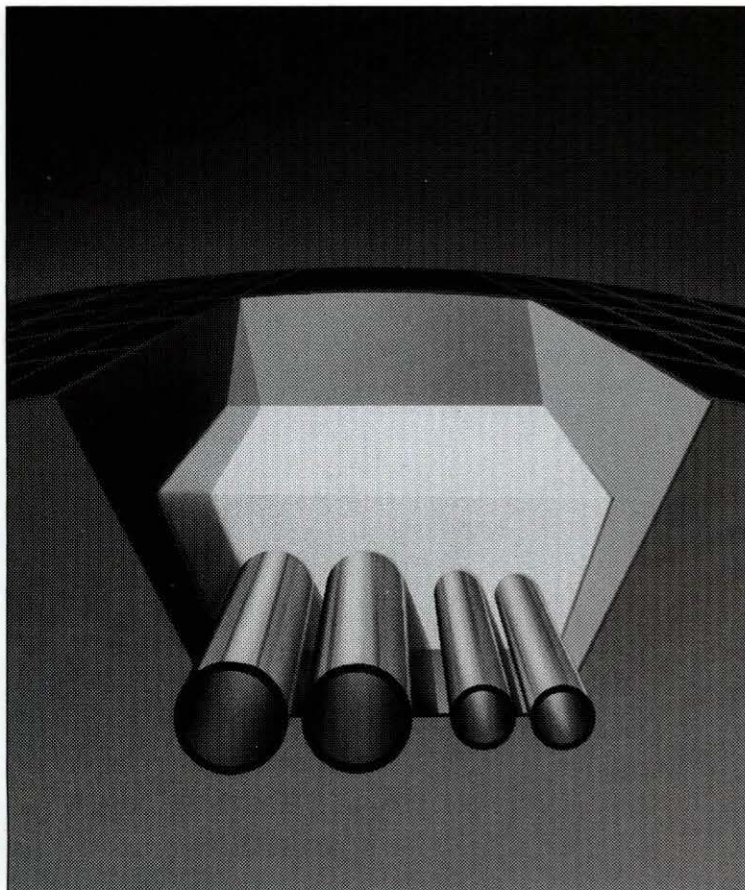
Vermont in October is splendid. The beautiful colors of the fall foliage and snow-capped mountains provided a picturesque background for our 50th Annual ERAPPA Meeting and Educational Conference in Burlington. The meeting

was held October 8-11, 2000 and was hosted by the Northern New England Chapter. The meeting accommodations at the Sheraton Hotel and Conference Center in Burlington were very nice. Because of the fall foliage tourist season, the Host Committee had to book the hotel five years in advance! The conference theme was entitled *Celebrate the Past, Create the Future*.

The first day of the conference started early for some as they boarded a bus at 6:00 a.m. and headed to West Bolton Country Club for a round of golf. Unfortunately, the weather was not cooperative, but there were several dedicated golfers who stuck it out for the complete round. Others opted for the campus tours of Champlain College, St. Michael's College, and the

University of Vermont. Instead of the traditional ribbon cutting, the opening ceremonies and opening of the exhibit hall were marked with a "log cutting" ceremony. President Thomas Stepnowski had the honor, and he took off his jacket and sawed through the log. Approximately 80 business partners took part in exhibiting during the conference. Willard Randall then treated the attendees to an interesting presentation on local history, particularly the role of Benedict Arnold in the Battle of Valcour Island.

The second day began with an inspiring welcome address by Lander Medlin, APPA's executive vice president. The multitrack educational sessions followed and are always informative and well attended. One, in



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Regional Scholarships

Listed are the names of those individuals who were awarded Board educational scholarships to attend an APPA Institute.

ERAPPA

- **Thomas Clark**, Westchester University
- **Daniel Fuchs**, Middlesex County College
- **Warren Moulaison**, Dalhousie University
- **Ricardo Reyes**, American University
- **Paul Specht**, University of Guelph
- **Mary Wilford-Hunt**, East Stroudsburg University

SRAPPA

- **Steven Arndt**, Fayetteville State University
- **John Ayoob**, University of Georgia
- **Gaylord Daughety**, Barton College
- **Sylvester Johnson**, Tulane University

CAPPA

- **Aggie Armstrong**, Texas A&M
- **Jim Duncan**, University of Missouri
- **Darrel Kern**, Maryville University

RMA

- **Craig Bisgard**, Auraria Higher Education Center
- **Scott Perry**, Casper Community College

PCAPPA

- **DeWayne Hurst**, The Claremont Colleges

AAPPA

- **Geoff Dennis**, University of Queensland

particular, was the President's Forum in which four local college or university presidents described their vision of facilities management and answered questions from the audience. Session breaks and lunch were served in the exhibit hall to allow attendees time to visit the exhibit booths.

The third day of the conference began with the continuation of the concurrent educational sessions. The



exhibit hall closed before lunch and many door prizes were given away. The annual business meeting and election of officers took place at lunchtime. There were various committee and chapter reports. Ron Dupuis was elected Director and Kevin Petersen was elected Second Vice President. The educational sessions continued in the afternoon, including a session by Past APPA Presidents Maggie Kinnaman and Doug Christensen on leadership. The third day ended with the annual banquet and passing of the gavel from Thomas Stepnowski of Rutgers University to the new ERAPPA President, Robert Carter of McMaster University.

The final day of the conference concluded with a special presentation by the Franklin Covey Leadership Program. This program was informative as the presenter discussed the *7 Habits of Highly Effective People*. This

session was also well attended with many people expressing interest to continue this program at future meetings.

The 50th Annual Meeting was very successful, and the Host Committee from the Northern New England Chapter should be congratulated for its outstanding effort. Each morning the attendees found a copy of a daily newsletter that provided summaries and pictures of the preceding day's

activities, articles by the ERAPPA board members, and a schedule for that day's activities. This was very helpful since the schedule kept attendees busy.

The 51st Annual Meeting and Educational Conference will be held in Hershey, Pennsylvania on September

29 - October 3, 2001 and hosted by the Keystone Chapter. You can actually smell the scent of chocolate in the air in Hershey. The chapter is working hard to provide a quality conference.

Finally, the ERAPPA board adopted its 2000-2001 Operating Plan. The plan concentrates on membership service and improved collaborative relationships with others. From a membership standpoint, the board is going to investigate and recommend changes to the existing structure of ERAPPA to allow more flexibility and reduce the time commitment of those members wanting to serve as an officer to ERAPPA.

From a collaborative standpoint, the plan calls for maintaining a close relationship with APPA and sharing resources, encouraging more participation from chapter presidents in ERAPPA initiatives, and soliciting more participation from emeritus

Continued on page 6

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- Elliott Masie, president, Masie Center - The Technology & Learning Think Tank, Saratoga Springs, NY

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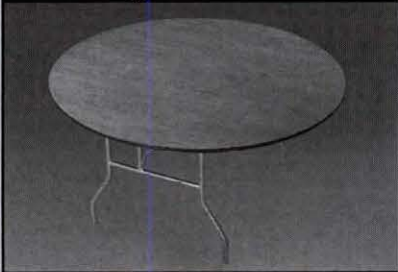


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Continued from page 4

members. For more information about the Operating Plan and ERAPPA, see our newly designed website at www.erappa.org.

* * *

Southeastern Region

David L. Anderson

SRAPPA President

SRAPPA members and friends enjoyed a great meeting, which was hosted by Dr. Sam Polk and Tennessee State University. The theme of the meeting was *Facilities Management: Challenges and Opportunities in the New Millennium*. Educational sessions covered the spectrum of facilities management from: Defining Quality in the Cleaning Operations to Commissioning New Construction, and the usual great topic of Motivating the Motivator, by George Wright.

We experienced a most enjoyable cruise down the Cumberland River filled with food, fun, and entertainment. We also toured the beautiful campus of Tennessee State University and the magnificent Adelphia Coliseum and Stadium.

The featured speaker for the annual banquet was Ed Temple, Olympic coach who coached women's track at Tennessee State University and Olympic Gold Medal winners, such as Wilma Rudolph, in many events.

Goals established for the following year include:

1. Expand participation in SRAPPA with emphasis on diversity for membership and educational offerings.
2. Continue initiative to increase communications among APPA, SRAPPA, and state facilities organizations in the areas of education, research, and recognition.
3. Expand professional development with credit from educational sessions being approved as CEUs

by various professional organizations.

Again, we thank Dr. Sam Polk and his staff for a great conference. We look forward to the 50th annual meeting of SRAPPA that will be hosted by Bill Elvey and the facilities department of Virginia Tech, on October 27-30, 2001 at the Hotel Roanoke and Conference Center in Roanoke, Virginia.

* * *

Midwest Region

Becky Hamilton

MAPPA Newsletter Editor

The theme for this year's conference, *Leadership Renewal—Journey Into the New Century*, generated lots of excitement and anticipation from our membership, and we didn't go away disappointed.

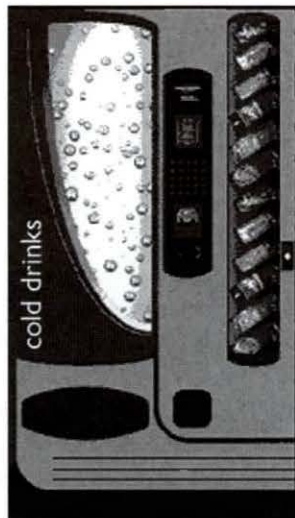
The Ann Arbor campus of the University of Michigan was in full color with its fall foliage. And thanks to the unique setup for this year's conference—meetings and exhibits were held in two different buildings—we had a legitimate excuse to enjoy the weather and walk through the beautiful campus.

The keynote session on Monday morning got us off to a "rockin" good start with Al Lucia from Juke Box Learning, Inc. Al helped us "Rock Your Way Into the New Century!" with a fun-filled couple of hours tying workplace motivation to familiar songs from our past. Assisted by Phil "the Soul Man" Soule on the boom box, he guided us through a long list of oldies but goodies and asked us to relate them to the workplace. Need to make routine work less dull? Sing a little "A-B-C – It's Easy as 1-2-3" and see how much easier it goes. MAPPA members selected several songs that they thought would be appropriate motivators on their campuses: "Wouldn't It Be Nice," "Respect," and for the

Continued on page 8

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end of that long, grueling task, "I Just Want to Celebrate."

The rest of Monday morning included three concurrent sessions: an update on the MAPPA Communication Audit, presented by Dean Kazoleas from Illinois State; What is Process Management, by Chris Ahoy from Iowa State; and Safety Regulation and Compliance, presented by a panel of members including Pam Parker, University of Michigan, David Heinlen, Bowling Green State University, Carol Shelby, Purdue University, and Cecil Smith, Ohio State.

After a tasty lunch and a couple of hours networking with our business partners in the exhibit hall, participants broke up into three groups for the Experience Exchange, a long-time favorite for everyone at our annual meetings.

For the first time at our Regional Meeting a Learning Demonstration Center was created for participants use. Several demonstrations were conducted adjacent to the exhibit hall allowing participants to see first-hand some of the products and services offered by our business partners. Demonstrations included sessions from the MAPPA Education Committee, among many others.

Monday evening our hosts treated us to Dinner Among the Dinosaurs, which consisted of an Italian dinner in the Ruthven Exhibit Museum. The evening was highlighted by a planetarium show offered on the top floor of the Museum.

Tuesday morning started off with an inspiring message from Peter Dove called Shared Organizational Values. This thought-provoking session involved audience participation, and we all came away with ideas that have a place in any organization's culture.

After a barbecue lunch at the Michigan Alumni Center, the afternoon included four more concurrent sessions: an update on APPA's Strategic Assessment Model, presented by Larry Givens, Gamma Group

Consulting; five representatives from the University of Michigan spoke about the Sustainability of the U-M Campus; representatives from ISES Corporation shared their insights with Turning Condition Audits into \$\$\$: Two Different Approaches. The presentation selected for the APPA annual meeting in Montreal was Customer Services Marketing, presented by J. A. Bardouille, University of Michigan; Phil Reed, University of Michigan Upholstery Shop; Eric Kruse, University of Minnesota; and Steve Gyure, Purdue University/Calumet.

The banquet on Tuesday evening was held in the beautiful ballroom of the Michigan League. While we had visited there several times because the space was used for the exhibit hall, this gave us the opportunity to see it used as it was intended. And we were able to experience the wonderful acoustics (that many had heard about during Phil Reed's discussion that afternoon) when the Saline Fiddlers graced our group with their talents. This group of high school musicians (violin, viola, cello, and rhythm) from nearby Saline, Michigan, provided a high-energy toe-tapping performance of country and traditional tunes.

The evening closed with the induction of our new officers for the coming year: President Larry Quick (School of the Art Institute of Chicago), President-Elect Alan Bigger (University of Notre Dame), Secretary Chris Ahoy (Iowa State University), and Treasurer Jerry Carlson (Illinois State University). Terry's humorous farewell speech was in true "Ruprecht-esque" style, and was followed by Larry's quick-wit salute to his predecessor, complete with props!

Another first for this year's conference was the addition of two sessions on Wednesday morning. Jeff Buenting from the University of Illinois gave interested participants an update on the MAPPA Training Initiative and sought our input for the training assessment document. Mark Corn-

well from the University of Michigan used the opportunity of having several of his colleagues in the same place—at an appropriate time of the year—to discuss Reducing Use of Salts and Abrasives for Snow and Ice Removal.

Our *Journey Into the New Century* was filled with a variety of learning opportunities, spiced with "a little bit of country," and a "little bit of rock and roll." We look forward to next year's annual conference in Madison, Wisconsin, October 28-31, 2001.

* * *

Central Region

Robin Boley

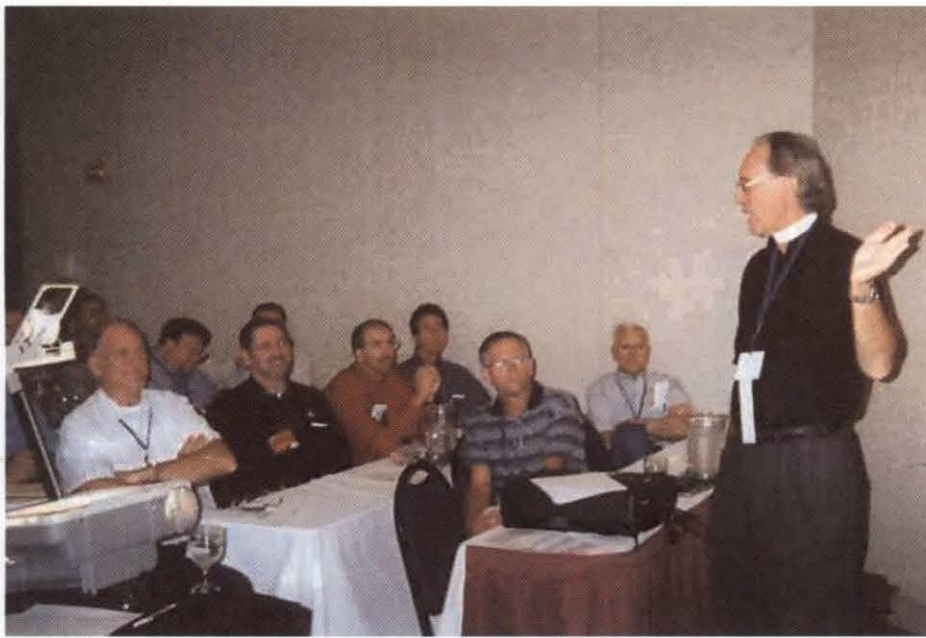
Johnson County Community College

The 48th Annual Meeting of the Central Association of Physical Plant Administrators

(CAPPA), hosted by Johnson County Community College, was held September 23-26th at the Doubletree Hotel in Overland Park, Kansas. The nearly 200 members and their guests who attended the event were treated to informative sessions, innovative products and services, plenty of food, and the best of Kansas City traditions.

Training sessions offered a diverse range of topics, including an all-day session for front line supervisors conducted by George B. Wright of Atlanta, Georgia, new building concept and design, ethics, performance contracting, landscape master planning, HVAC system management, fire protection and code compliance, seamless roofing systems, signage and way finding systems, and a personal enrichment session on retirement and investment strategies. The APPA Strategic Assessment Model was presented by Larry R. Givens, APPA Emeritus member.

Business partners representing 56 companies showcased products and services ranging from architectural, engineering, and construction materials; to furniture, flooring, signage, maintenance products, software, and



even bird removal. The Totally Wireless Campus presentation by Bob Bleumer of AVAYA (formerly Lucent Technologies) presented an alternative to hardwiring for technology, giving attendees a glimpse into the future. A reception on Saturday evening, along with lunch on Sunday and Monday in the exhibit hall gave attendees and company representatives an opportunity to mingle.

Saturday dawned rainy and gloomy, but that didn't deter the 56 members, business partners, and guests who had signed up for the golf tournament at the Overland Park Golf Course. The winning foursome included Jerry Baird of Johnson County Community College, James Packard of the University of Missouri-Rolla, Jody Williams of the University of Manitoba, and Harles Cone of Cone Consulting Group, each of whom received a \$100 gift certificate to the Pro Shop and a first-place plaque. Plaques were also awarded to second- and third-place foursomes.

Energy Masters International sponsored the pink ball contest—each foursome that finished with their “pink ball” was eligible for a drawing. The winning foursome each received a \$100 cash prize. Each participant in the tournament also received either

golf balls, an umbrella, or head covers.

Those who preferred to remain indoors headed over to the JCCC gymnasium for a lesson on fly fishing, taught by Mike Reuck of William Jewell College in Liberty, Missouri. Fly fishermen learned to tie flies on, tie lines on, and cast. Needless to say, even Mike couldn't catch a fish off the gym floor.

Others stayed dry by boarding a trolley for a narrated tour of the city (even native Kansas Citians learned a thing or two about their home town), followed by an afternoon of shopping and browsing through the Plaza Art Fair on the famous Country Club Plaza.

On Sunday, attendees had the opportunity to visit the JCCC campus for a matinee performance of the Preservation Hall Jazz Band in the Carlsen Center, the college's performing arts building. Following the performance, attendees could take one of four campus tours, showcasing the college's sculpture collection, two new buildings, and the thermal storage facility.

At the guest breakfast on Monday, attendees got a few tips on how to successfully communicate with their significant others from Dr. Sally

Winship, dean of continuing education and community services at JCCC, in her talk on gender differences. Afterward, it was all aboard for Union Station, Science City, and shopping at the adjacent Crown Center Shops.

Specially arranged tours by business partners included a behind-the-scenes look of the Kansas Speedway, under construction in Kansas City, Kansas, and a tour of Labconco Corporation.

The banquet on Monday evening marked the retirement of Jack and Margaret Pellek from CAPP. Jack passed the gavel to incoming President John Skubal of Johnson County Community College. The CAPP Board spouses presented Margaret with a specially designed, handmade quilt created by Jan Bogard, commemorating Margaret's exemplary service to the CAPP organization. Pat Apel of Maryville University in St. Louis was honored with a surprise presentation by his boss honoring their long-term friendship and Pat's service to the university. Cutler-Hammer, Bibb & Associates, and Energy Masters International were recognized for their long-standing support of CAPP. Business partners presented a wide array of door prizes.

Following the dinner, the band DV8N entertained with a medley of 1960s tunes. JCCC's conference planning staff was headed by John Skubal, Susan Rogers, and Robin Boley. All three began preparing for the conference by attending the annual CAPP meeting in San Antonio last year.

This year, Southeast Missouri State University in Cape Girardeau, Missouri began gearing up to host CAPP 2001 by offering preregistration information for both members and business partners during the conference. Jeanne Hanson and LeAnn Vandine from Black Hills State University in Spearfish, South Dakota—hosts of CAPP 2002—worked at the registration desk alongside JCCC staff

members, and attended tours and events to learn more about planning the annual event. With such advance dedication to planning for upcoming CAPPA conferences, we know that both of these events will be as informative, fun, and successful as CAPPA 2000.

* * *

Rocky Mountain Region

Craig Bohn

RMA President

The University of Utah, along with the other Utah universities and colleges, hosted the 48th Annual Educational Conference of the Rocky Mountain Association of Higher Education Facilities Officers, at St. George, Utah from September 24-26, 2000. St. George was selected as the site for this year's conference because of the natural beauty and opportunities it affords. People found a wide variety of museums, shops, boutiques, and outdoor activities. The landscape of the area reveals a geological history that stretches back millions of years and offers some of the most striking scenery found anywhere.

The theme for our conference was *Mastering the Present to Assure the Future*. Educational sessions were provided to not only help us with the challenges of today, but help ensure our success in the future. The educational sessions, networking with our peers, and the exhibits and information from our business partners, provided us a way to ensure our institutions have a positive future.

The conference started on Sunday with a choice of participating in the annual golf tournament or a tour of Zion National Park. This year's golf tournament was held at the scenic Entrada Golf Course in Snow Canyon. This course not only challenged our skills as golfers, but provided some of the most beautiful landscape that you

will see on any course. The tour of Zion offered some of the most magnificent and natural scenery ever witnessed, along with a showing of *Treasure of the Gods* at the IMAX Theater.

After a full day of activities and the annual business meeting, we had the wonderful opportunity to visit with

Mesquite, Nevada to try your luck at the casinos, and our Annual Banquet.

The banquet provided a venue for honoring RMA's superior supporters. Retiring President Harvey Chace presented gifts of appreciation to his board members and committee chairs. Johnson Controls was awarded the Lee Newman Award, for the most

consistently supportive business partner. The Authorship Award was presented to Robert Lashaway for his contributions to RMA Newsletter. It was a pleasure to have with us John Harrod, who assist-



our friends and interact with our business partners at the Opening Social and Business Partner Fair. This was not only a great time to network and visit with all the attendees, but to enjoy some great food.

A variety of educational sessions were held over the next two days, along with some fun evening entertainment and activities. Whether you attended a session on performance contracting, stress management, master planning, working with the media, or employee retention, you had the opportunity to learn and expand your knowledge. One of the most enlightening sessions was titled *Then, Now and the Future*. This session was presented by longtime APPA and RMA supporters Randy Turpin and Val Peterson. Everyone who attended had a great time!

Nightly activities included a dutch oven cookout in the park, cowboy poetry, music by Ridin' Easy, a trip to

ed in passing along the mantle of leadership.

This year's officers and committee members consist of myself as President, Paul Smith as 1st Vice President, Steve Baldick as 2nd Vice President, and Dave Brixen as 3rd Vice President. Wayne White and Harvey Chace are our Senior and Junior Representatives for APPA.

I want to thank all those who attended the 48th Annual Educational Conference. Success of a conference depends on the support of those affiliated with the organization. The support of our RMA members, non-members, business partners, and companions was overwhelming. Without this support, it would be difficult to provide such a positive learning experience.

Next year's conference is being hosted by Pima Community College in Tucson, Arizona. Paul Smith and his committee are well on their way to

planning a successful and meaningful conference. They have selected the theme *Endless Horizons*, and it will be held September 12-15, 2001.

* * *

Pacific Coast Region

Hildo Hernandez

Chair, Education Committee

The 49th Annual Meeting and Educational Conference at Long Beach, California, October 1-3, 2000 was a special occasion this past year. As a matter of fact, it was a fast trip to the beach. *Catch the Wave of the Future* was the theme selected by the two cohost universities, Cal State Long Beach and Cal State Northridge.

The conference was exciting and full of new and innovative ideas that were shared by the presenters and attendees. The educational topics included state-of-the-art practices and methods used in the facilities professional field. Also, the Long Beach area was very conducive to relax and learn. The networking with other participants provided a way of sharing experiences and gaining new knowledge. New friends were made and business partners were involved in every aspect of the conference. We were especially grateful for all the donations, support, contributions, and sponsorships received from our business partners for gifts and prizes. Additionally, \$2,500 was donated by San Joaquin Chemical Company for educational scholarships. This money will provide scholarships to PCAPPA members.

The conference sessions were well attended with 98 percent attendance. This was a record accomplishment. There were 206 registered attendees and 41 business partner sponsored booths in the Exhibit Hall. This too was an all time record for a PCAPPA conference.

The Long Beach Convention Center is a beautiful facility overlooking the Pacific Ocean and the waterfront

recreational attractions were outstanding. The welcome reception at the Long Beach Aquarium provided an excellent backdrop to the next day's opening conference remarks made by CSU Long Beach President, Dr. Robert C. Maxson who said, "Welcome – see you at the Beach." This was followed by the educational session opening remarks made by Dr. Mohammad H. "Mo" Qayoumi from CSU, Northridge, who reflected on the wave of the future and how it is all connecting to the past, present, and future of our profession. The keynote speaker, Dr. James Davis, professor of strategic management at University of Notre Dame, provided a discussion on imperatives for success, competencies, coalitions and alliances, strategic planning, and state-of-the-art change.

The speakers were all rated on a 4.0 grade scale and we are pleased to say that the overall rating by 98 percent of attendees were very satisfied with the presentations as shown in the 3.47

rating. Likewise, the facilities, location, hotel, food, conference registration, and services were rated at 3.71. These ratings are outstanding. Congratulations to the regional host committee from Long Beach and Northridge. Additionally, the PCAPPA Education Committee should be recognized for the excellent educational program. The PCAPPA Board and its members are very fortunate to have the support of sponsors and business partners who gave whole-heartedly.

The common thread that pulled this regional conference together was the previous conference—and that's the way it ought to be!! We pull ourselves and push the limits to ride the next "wave" or "roll the dice" to do something just a bit better each time we meet. We need to look at our past, reassess our views, and quickly adjust to the changes that will make a difference. The educational topics, facilities, location, and presenters are

Continued on page 13

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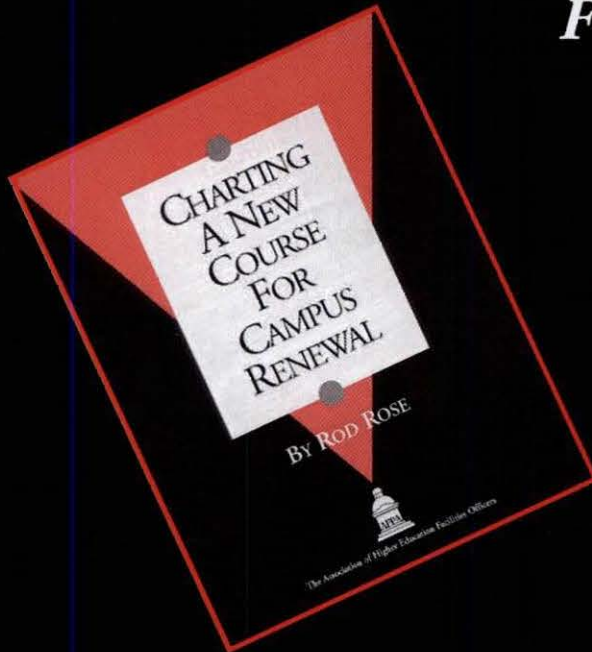
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Continued from page 11

all areas that impact us when deciding whether or not to attend a conference. In the case of the 49th PCAPPA Conference, these factors were the major contributors to the record attendance and participant satisfaction of the education sessions and conference services. We are professionals who demand the best, and we should plan to be the best each year.

Next year the 50th Annual Meeting and Conference will be in Vancouver, British Columbia from September 30 to October 2, 2001. The host committee will be lead by Walter Watkins, director, physical plant at British Columbia Institute of Technology. He can be reached at 604-432-8343 or e-mail wwatkins@bcit.bc.ca, or contact the APPA Web page for more information.

Yes, we have set a pattern of success. Now we must practice it each time we are challenged through our own leadership and the skills we have gained by attending regional conferences like PCAPPA 2001 in Vancouver.

* * *

Australasian Region

Neville Thiele

AAPPA Board of Directors

The AAPPA Annual Conference was held in Melbourne, Australia from September 24-27, 2000 and again, as is the practice, with the conference of the Association for Tertiary Education Management (ATEM). We were pleased to welcome APPA President-Elect Gary Reynolds to our meeting.

Melbourne is a vibrant and cosmopolitan city and is considered the shopping capital of Australia. It has numerous galleries and art and craft stores and offers executive dining options in every conceivable style of cuisine. The venue for the conference was the Melbourne Convention Centre, which has excellent conference facilities.

Year 2000 Conference theme was The Selling of Education New Ways of Doing Business. In the knowledge economy, education is no longer only an input into the production process in the form of skilled labor, a patented machine, or a copyright computer program. The production of knowledge (research) and the reproduction of knowledge (teaching) becomes integral to the production process throughout the economy. Universities cannot fulfill their roles in the new knowledge economy from the ivory tower, but how business-like must they become? Is Warren Osmond right in suggesting that the era of the university account executive has arrived?

The key presentation, Becoming an Enlightened Leader, was provided by Maggie Kinnaman. AAPPA's conference streams included papers, workshops presented by AAPPA's seven business partners, and AAPPA members. Topics that were covered included: strategic planning process

for facilities management; private sector involvement in major developments in the tertiary sector; performance based contracting; major refurbishment of a library; occupancy chargeback; the role of an architect in the marketing of education; energy management; services management; getting value out of deregulation; service level agreements; matching demand and supply; strategic planning and capital development; building a new campus on a heritage linked site; asset management new and existing; environmental sustainable design; and new ways of fire engineering education facilities.

AAPPA's year was steady and delivered the majority of outcomes listed in the business plans. Services to the membership were maintained and in some areas (workshops) additional activities were provided. Maurice Matthewson's outgoing President's Report produced an excellent summary of 1999-2000 activities for the various committees. 🏛️

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4 Resolutions You Should Make

by E. Lander Medlin

Welcome to the New Year! I open my article as I closed the last issue, with a quote from Goethe: "Knowing is not enough; we must apply. Willing is not enough; we must do." Yet it is difficult to "apply and do" without first obtaining the knowledge necessary to willingly take the appropriate actions. This is extremely important and absolutely essential when it comes to: 1) implementing the new GASB 34/35 regulations on the depreciation of infrastructure assets; 2) responding to EPA's new initiative that targets colleges and universities on environmental compliance issues; 3) recognizing the importance of getting up-to-speed on emerging technologies in the building industry; and 4) further understanding your stewardship role in effectively managing your facilities portfolio as a financial/capital asset.

My goal for this column is to give you a brief but detailed heads-up on some important issues of greater accountability. These will require your time and attention over the course of the next few months so that you may "apply" and "do." Let's take a more in-depth look at these four "opportunities" unfolding before our very eyes during the next few months.

GASB 34/35

The **Government Accounting Standards Board Statement** sets new generally accepted accounting procedures and requirements for reporting basic financial statements and management's discussion and analysis. The new financial

statements must use accrual accounting methods to report your major capital assets, most importantly infrastructure assets such as roads, bridges, sidewalks, and utilities like water and sewer infrastructure. This represents a major change for those institutions that have traditionally used cash accounting reporting methods. Most institutions have not assessed their

My goal for this column is to give you a brief but detailed heads-up on some important issues of greater accountability. These will require your time and attention over the course of the next few months so that you may "apply" and "do."

infrastructure's original cost, present and current replacement value, nor their condition and useful life. Reporting on infrastructure assets has been a contentious issue given the cost, complexity, and effort involved to collect it. However, GASB concluded that infrastructure reporting is vital to demonstrating accountability for all institutional assets and the corresponding cost of its services. This change is considered important to potential lenders.

According to GASB 34/35, each jurisdiction can use one of two general methods for valuing existing infrastructure assets: depreciation or the "modified approach." Whichever method is used, a fundamental

requirement is a good inventory of assets which includes the historical cost, or estimated historical cost, of construction. Therein lies one of the most problematic requirements: deriving a current value for infrastructure assets. Unfortunately, little guidance is made available.

To further complicate matters, GASB will not require those who elect the "modified approach" to report depreciation on eligible infrastructure assets, if they meet two requirements: 1) they have an asset-management system with characteristics specified in the model, and 2) they can document that eligible infrastructure assets will be preserved at or above a condition the institution establishes and discloses. Condition assessments must be performed every three years. In addition, it requires annual information about the estimated amount needed to maintain the established condition level, and the amounts actually expensed for the past five years. Because implementation of the standards will be a challenge, a phased-implementation based on total annual revenues has been established:

- revenues of more than \$100 million begin implementation* after June 15, 2001;
- revenues for \$10 million to \$100 million begin implementation* after June 15, 2002;
- revenues of less than \$10 million begin implementation after June 15, 2003.

*(Plus, retroactive reporting of major assets four years after the respective implementation dates.)

Now, are you sufficiently confused?! Most of us are, which is why APPA and NACUBO (National Association of College and University Business Officers) have established a

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

quick action task force to develop guidelines for evaluating a depreciation model and to outline the key points of an implementation strategy. These will be highlighted in a comprehensive article for the March/April issue of *Facilities Manager* magazine. Mo Qayoumi, vice president of administration and finance and chief financial officer at California State University, Northridge, has agreed to chair this group.

EPA'S College and University Regulatory Enforcement Initiative

Well, if GASB 34/35 isn't enough to be concerned about, the next big opportunity we are engrossed in is EPA's recent initiative for environmental compliance/enforcement at our institutions. As of late, schools in the northeastern United States have borne the brunt of increased EPA inspections, fines, and penalties. APPA and CSHEMA (Campus Safety, Health, and Environmental Manage-

ment Association, a division of the National Safety Council) joined forces in December 2000 to focus on the compilation of a comprehensive environmental compliance assistance guide, specifically targeted at colleges and universities operations staff who are not environmental safety experts, and who do not have a cohesive environmental compliance program.

This new guide will consist of several strategic sections: 1) an introduction stating the guide's purpose, use, and limitations; 2) elements of an effective environmental compliance and management program which includes the institution's commitment to an integrated program, and the corresponding roles and responsibilities of all institutional departments; 3) working with regulators and inspectors to include preparation, resources, and responses to these visitors; 4) technical information, abstracts, and summaries of various regulations and requirements; and 5) audits and

checklists. Roll out of this resource will occur in print and electronic media followed by presentations at both APPA and CSHEMA's Annual Meeting and Educational Conferences in July. (Jack Dempsey, director of facilities for the University of Illinois, Urbana-Champaign, is co-chair for APPA; and, John DeLaHunt, environmental health & safety manager at The Colorado College, is co-chair for CSHEMA.)

This is considered the first phase of a three-phase effort. The second phase will begin in tandem with the above guidelines development and will include, to a greater degree, our counterparts at the American Council on Education (ACE), NACUBO, and the Hale and Dorr law firm. Our goal is to establish a more productive dialogue with the EPA regarding policy and regulation interpretation. These are difficult tasks, but important and certainly timely.

The third phase can be classified as a concerted education and outreach effort to assist in the professional development of non-environmental staff on EPA compliance programs and approaches. (The Regulatory Reporter column of this issue contains a comprehensive EPA checklist that is geared toward higher education facilities.)

Emergent Building Technologies Conference (February 12-13, 2001)

So what is an EBTC (Emergent Building Technologies Conference)? It isn't a traditional trade show nor is it just a series of lectures on the subject of technology. It is a unique combination of multiple hands-on learning laboratories, interactive technology demonstrations, provocateur-driven general sessions, and late-breaking innovative technologies that will shape how the construction industry will do business tomorrow! EBTC will showcase solutions for the future in security, lighting, egress, air quality, workplace productivity, anti-terrorism, and inte-

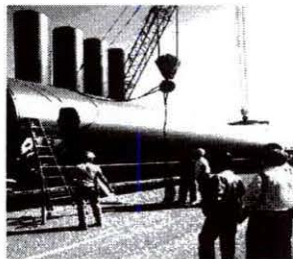
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Institute For Facilities Finance

APPA and NACUBO are successfully collaborating on the delivery of a new seminar called the Institute for Facilities Finance, to be delivered April 8-10, 2001 in Baltimore, Maryland. The content has been designed from the reformulation and, to date, a significant revision of a previous book which we expect to call *Managing Facilities as Capital Assets* (for publication delivery late this summer). Both the seminar and the book will focus on a strategic framework for understanding facilities assets as financial or capital assets.

Let's face it, ownership of facilities encompasses a significant investment in the present and a substantial commitment to the future, given the responsibility for and long-term costs of maintenance. Ownership is not only represented by money, but requires vision, resolve, experience, and expertise to determine institutional needs, provide an evaluation of present facilities and infrastructure with respect to these needs, and develop a plan to achieve

the stated needs and vision. This is all done to ensure that resources are allocated effectively to protect the value of the total investment. This requires strong players in the roles of the business officer and the facility professional both as strategists and planners, thereby linking the institution with its physical structures to accomplish the mission of the institution. This new professional development program will provide you with the language and the resources necessary to meet the challenges of the changing role of the facilities professional.

These "opportunities" and many more that I have not mentioned will remain as such if you approach them as depicted in the following narrative description of one of Garfield's cartoons:

It was January 1, New Year's Day, as John (the owner of Garfield, the famous cat of this cartoon) awakes.

He grabs Garfield and exclaims, "Garfield, it's a new year. Look outside from the picture window; it's a new world filled with new opportunities!" At that moment he takes Garfield by the paw and runs to the door screaming, "C'mon, let's seize them!" He proceeds to open the door and everything from the closet falls down atop his head. The final frame of the cartoon is a bubble enclosing Garfield's response: "New year, new world, new opportunity, SAME John!"

What about you? Will you continue to approach the issues you face in the same manner as the past? Or will you seek to approach the opportunities outlined above (and others as they arise this year) with a new attitude, ready to seize them, and move forward with alternatives and solutions for your institution? It's essential if you want to be successful in meeting these challenges and opportunities head-on. 🐱

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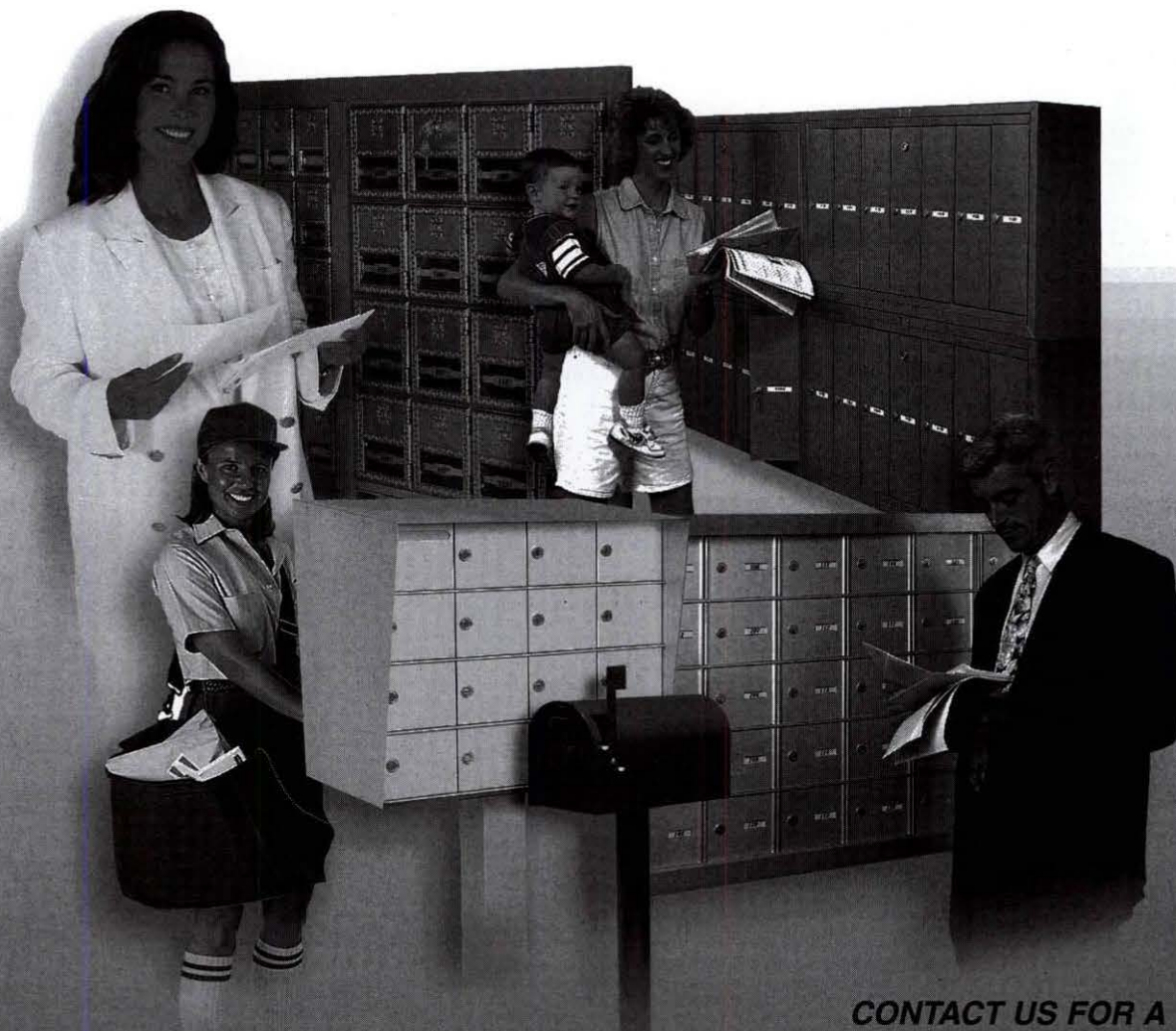
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Membership Matters

It's That Time of Year Again

by Dina Murray

If you watch PBS, you will know that it's pledge time: your time to make that show of support for quality television programs. As an APPA member this means you will also begin receiving membership renewal notices for your institution, organization, or company, for the fiscal year April 1, 2001 through March 31, 2002. Yes, it's that time of year to show your support for the educational facilities management profession.

Membership dues help to provide a solid financial base for APPA. While your financial support ensures longevity, without your talents, enthusiasm, and thirst for knowledge, APPA would not be the association it is today. Like any partnership, familial or organizational, there is always a give and take.

As a member you give APPA the sustenance to create innovative educational tools and other programs. APPA, on the other hand, gives you, our members, many tangible products, as well as credibility. Through our publications, educational programs, leadership opportunities, and networking, APPA lets the outside world know that the educational facilities profession is noteworthy, credible, and makes an impact everyday on students, academia, and the larger community where it resides. This intangible "product" can also be felt in APPA's new tagline, *Building Your Children's Future*.

APPA wants you to take advantage of all the membership benefits we

Dina Murray is APPA's director of member services. She can be reached at dina@appa.org.

provide. Although there are more services being offered through APPA's website, www.appa.org, and via e-mail, we are finding a lower-than-expected number of users. This demonstrates that not all APPA members are using the resources provided as part of the member benefits package. Instructions to use APPA's e-mail discussion list are printed in the 2000-2001 Membership Directory and Resource Guide on page 9. Guidelines and a signup form are also posted on the website at www.appa.org/resources/internet/appainfo.html, and information on regional discussion lists as well as four special interest ones are also posted at www.appa.org/resources/internet/lists.html. Lastly, the APPA staff is only a phone call away to answer any questions you may have about subscribing to this service or other membership benefits.

Your e-mail address is important to APPA for more reasons than you might think. Listed in the Membership Directory, it becomes a valuable networking tool. It also lets us reach you less expensively than a phone call, letter, or printed material. The abundance of members with e-mail has prompted APPA to provide a new service to current members in all membership categories. Last October, an e-mail newsletter *Inside APPA* was introduced to provide members with up-to-date information regarding trends, services, research, and educational programs. The response to this new benefit has been a positive one. Please be sure to notify APPA if your e-mail address changes.

As cell phones, pagers, and other wireless devices are grabbing up phone numbers at a high rate, area codes across the country are changing

to the meet the demand. These changes greatly affect the membership database as well as the accuracy of the Membership Directory and online database. Your assistance in helping APPA maintain this data will help us stay focused on maintaining other services.

For many APPA members the annual Membership Directory and Resource Guide is a permanent desk fixture that is used daily. The information published is as current as possible, allowing for production time before the book actually makes it to the press. Only you can help APPA



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From Jack C. Dudley, PE, APPA Member Emeritus, Editor and Co-author of the APPA: Association of Higher Education Facilities Officers publication *Custodial Staffing Guidelines for Educational Facilities*, first edition, and Co-author of the second edition. Software uses methods developed for the book.

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maintain accurate information. On page 4 of the Directory there is a form that can be faxed or sent to the Member Services Department so that your data can be updated. You can also call or e-mail any changes.

For every position change that APPA is notified about there are additional steps that must be completed. Research must be done to find out what happened to the person who you'll be replacing, and who will be stepping into your former position. Usually several phone calls are made to one or more institutions or companies. All database fields, for all parties involved must then be reentered in the database to ensure accuracy. Your assistance in this matter is appreciated more than you realize. Your fellow members will also thank you as they sometimes call the APPA office for more up-to-date information.

Another popular resource that members can take advantage of is the

online member directory. Members can update their own membership record or search the directory for friends, colleagues, and former coworkers. The member ID number to access the searchable directory is printed on each Institutional, Affiliate, and Business Partner membership card.

At this time Emeritus members are not provided with a member ID number due to programming challenges with our membership database. Because APPA is an institutional based association, all member ID numbers are currently tied to a member's institutional ID number, which is not applicable for Emeritus members. We apologize for this inconvenience and assure you that we can meet your needs through other avenues until a long-term solution can be found. We are happy to respond to any request to do a database search for you.

The support of APPA's Emeritus members is very important to us, and we do plan to explore this membership benefit for Emeritus members while we continue to evaluate our computer programming needs. We recognize the long-term commitment and service that Emeritus members have demonstrated to this organization. Please continue to look for changes and updates to all member services in this column and in the e-mail newsletter *Inside APPA*.

By sending in your renewal notice with your membership dues you are stating that APPA is your "Association of Choice." It is our intention to give you the support, resources, and educational programs to enhance your career in the educational facilities arena. We hope you will take advantage of our top-notch services that are affordable and user friendly. 🏰

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CHANGE: What Should We Do With It?

by James E. Christenson

It is not the strongest of the species that survive, nor the most intelligent, but the one most responsive to change.

-Charles Darwin

In times of change, learners inherit the earth, while the learned find themselves beautifully equipped to deal with a world that no longer exists.

-Eric Hoffer

How long has it been since someone talked to you about change? Five days? More likely, five minutes. And how was the word used? Probably as a six-letter incarnation of a four-letter word.

People tell us that computer power doubles every 18 months and that engineering knowledge now has a half-life of four years. We observe that the "new" workforce is different than the "old" workforce. And we see organizations turned upside down every six months. Sometimes it feels like we're hanging onto a log about to go over Niagara Falls.

And then we hear Tom Peters, one of America's popular business writers and speakers, promoting ideas like "Crazy times call for crazy organizations," "Failure is the breath of life," or "The only way to fail these days is not to 'try stuff!'" Peters says that business organizations have to radically shake things up to stay competitive. He is saying stop playing the part of the victim of change, cause change. Is he right? Does what he says have any bearing on our business of education facilities management?

Jim Christenson recently retired after serving 40 years in university and federal facilities management. He can be reached at jchriste@umich.edu. This is his first Field Notes column for Facilities Manager.

Tom Peters and Stephen Covey are very different people. But they and many other observers of the American scene agree on several basics:

- The pace of change has gone from "fast to frantic" (Peters' phrase)
- Most of the old ways of doing things don't work in that frantic environment
- We need to spend less time planning and more time trying new things
- Finding new challenges requires use of a part of our brain that many of us have neglected: the right side—the source of creativity
- An organization can't stay in existence unless it allows its employees to work creatively on the challenges they face
- People won't feel free to use their brains unless they are allowed to take risks.

Whatever terms are used, voices around us speak constantly of change. Some remind us that "we have always done it this way." Others tell us to "Stop doing what you are doing. Change your direction or you'll be extinct." We are told repeatedly that people don't like change. Could it be, as some suggest, that people don't naturally resist change, but that they resist *being* changed. And, perhaps, what they really don't like is the personal transition required to change.

Having just retired, I decided that a logical first topic for me to write about is change. It is logical for me not just because I'm personally going through a transition now, but also because my life's work has been a continuous stream of changes that also required transitions. Since 1958, I have served in 17 facilities management positions within 13 organizations, in 12 different locations, on three continents, for five employers.

For the first 20 years of our 42-year marriage, my wife and I moved an average of 7,000 miles. We are presently living in our sixteenth house. If change really causes stress, I should have been stressed out long before now—and my wife should have left me 30 years ago. But, beyond my personal world, are any of you who read this exempt from change? Do you really want to be exempt?

William Bridges, author of *Managing Transitions: Making the Most of Change*, makes an interesting observation. He says, "It isn't the changes that do you in, it's the transitions... Transition is a psychological process people go through to come to terms with a new situation. Change is external, transition is internal."

Too often, change is imposed abruptly. Bridges has a great picture that he sometimes sets before an audience as he talks about managing transitions. It shows two landmasses separated by a crocodile-infested swamp. The CEO (read chief facilities officer, chief financial officer, or college president) and his immediate staff have just landed on the new landmass in their executive helicopter. Hundreds of staff members are in rowboats, trying to find their way among the intervening islands, beating off the crocodiles with their oars. And back on the old landmass are the engineers and accountants, who haven't noticed that everyone else has left.

It doesn't take much imagination to recognize the situation represented by the picture. The CEO had this great vision of what his company could become. He shared enough of his vision to convince his executive team to come along for the ride. It remains to be seen whether they will be able to support this vision, but they think

that, by arriving at the destination themselves, the change has been made. If these executives really looked beyond the executive team, though, they would see that very little has changed. The workers don't understand the vision and don't know the direction. Some, not realizing that a change has been ordered, don't know their new role and are fearful of a hundred things.

Bridges, to illustrate change, cites the story of the Israelites' exodus from Egypt. The required change—the vision—was crystal-clear to Moses: get these folks out of slavery to the freedom of the Promised Land. But the transition—the psychological process the people had to go through to come to terms with the change—was another story. After they were underway, Egypt somehow seemed a lot better to them than the uncertainties of the wilderness. Incredibly, they repeatedly pleaded to return to the certainty of harsh slavery. In fact, they were so distrustful and fearful that they were

forced to wander in the wilderness 40 years, until the old generation had died off, before the big change could be successfully made.

Getting rid of the present population to make a change is far too radical! There has got to be a better way for our facilities organizations to successfully cross into the promised land of better technology, outstanding customer service, full accountability, and self-direction.

Change management requires that the vision be well understood by everyone. Unless most of the team has that understanding and is *convinced that the vision is valid*, it won't be realized.

But even with a clear vision, successful transition management can only happen if people are convinced to leave home. When changes happen, there are losses. Often it is important to allow people to grieve those losses. It is also important not to condemn the honest efforts that went into the service as it was being

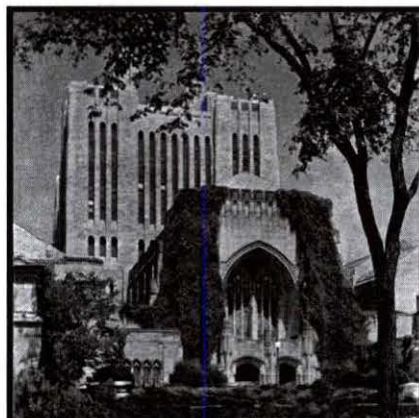
performed. Under the past circumstances, resources, and vision, people were probably doing their best. That should be recognized and honored. There should be time to listen to people discuss the past and the potential losses. Phillip Stanhope, Earl of Chesterfield, suggested, "Many a man would rather you heard his story than granted his request." What "used to be" must be ended before the new can be birthed. Further, it must be clear what aspects of the past need changing. Should everything be dumped? In most cases, that would be an error of strategic proportions. What stays and what goes must be decided.

William Bridges calls the time between the old ways and the new ways the "neutral zone," or the wilderness. He compares it to being between trapezes. There is nothing to hold onto. It's a time of chaos. Henry Adams, American historian, suggested that, "Chaos often breeds life, while order breeds habit." The chaos of the neutral zone offers a unique advantage. The organization's usual obstacles to the adoption of new ideas are in disarray, permitting creative ideas to thrive and take root. Being between trapezes brings discomfort, yet it can be a time of exhilaration and growth.

Floating between trapezes, though, is an activity with a finite time limit. Before that limit is reached, one must catch the new trapeze. In the work world, however, it doesn't have to be grabbed all at once. While still in the neutral zone, movement in the right direction can be assured by achieving some quick successes, no matter how small. As Bridges states, this reassures believers, convinces doubters, and confounds the critics.

For the leader—whether that leader is you or your boss—change can be satisfying, even thrilling. By consciously managing the transition that accompanies the change, you can let the people in your organization in on a bit of that satisfaction and thrill.

Next time, some more thoughts on change, especially the *why* of change. 🏠



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MONEY IN THE BANK



By Pete van der Have

At times, I still toss in my sleep wondering if we've placed our university and our plant operations department at excessive risk. We've obligated our institution to 20+ years of debt service at a time when our budget is already tearing at the seams. But then, when I fully awoken, I realize we've done something for our campus—something huge that we could not have accomplished any other way.

Setting the stage...

In 1997, there were several issues brewing at the University of Utah that we could easily force to be interrelated.

1. *Old chillers:* Within a diameter of less than a third of a mile, we had a group of buildings cooled through the services of 20 to 30+ year old chillers. These units were old, unreliable, and troublesome. Since a number of them were associated with patient care at the hospital, downtime was unacceptable, yet unavoidable.
2. *"Bad" refrigerants:* There were R22 type chillers all over this part of the campus. Recharging them became an increasingly challenging and expensive task.
3. *Code compliance:* We were also faced with bringing the mechanical rooms in which they were housed up to code, again a very expensive obligation.
4. *Sight-line conflicts:* A donor-driven 200,000 gsf (gross square feet) cancer research facility was under construction next to and uphill from an unattractive, small chiller plant with cooling towers on its roof. Researchers who were to be quartered in the new building did not relish the idea of

having to look down on these cooling towers and associated plumes. They wanted to enjoy their view of our valley without these distractions.

5. *Energy (mis)management:* Most of this group of buildings, along with others on campus, were constructed between 20 to 40 years ago. They were highly inefficient.

We had approximately 1.3 million gsf of space where we used thousands of T12 fluorescent lights, inadequate building controls, fixed air systems, highly inefficient chillers and motors, and other such energy wasters. Since much of this space was in full operation around the clock, the financial impact was significant, even if previously unnoticed. Although energy in our area was then (and still is) moderately inexpensive when contrasted against other parts of the country (and the world), those conditions still created an avoidable drain on our budgets.

About that period of time, I had the wonderful opportunity of visiting various programs where the focus was energy management. Some dealt with the issue from a utility company perspective, others from the perspective of an energy service company (ESCO), a few were presented by independent consultants, and others by institutions who had performed certain retrofits. Although initially skeptical, I began to wonder if we were potentially missing out on an opportunity to resolve most if not all of the issues listed above. Upon every chance offered, I brought the subject up to peers, consultants, and senior administrators. To my surprise, no one told me to drop it. So I didn't!

Happiness is having a dream, but success is bringing a dream to reality...

We had a vision, if not a hallucination. We dreamed of a brand new chiller plant, located outside of the existing buildings, remote but still in close proximity. This should be a

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plant that could handle all of the existing load on this part of campus. It should be able to accommodate all future growth. It should be designed in such a way as to represent any mechanical engineer's wildest dream—to become a model for the industry.

Most importantly, its realization could not be predicated on any allocations from the state legislature, since that resource did not appear to exist. Instead, it had to be fully financed through the implementation of energy saving retrofits, but could not rely on any operation savings generated by their implementation. Finally, the savings would have to be guaranteed so that the campus would not be at undue risk.

Building that dream...

In late 1997, we formed a project team that crossed departmental and agency boundaries. Invited were representatives from our budget office, general accounting, legal, hospital administration, the state energy office (who also provided seed money for the project), the state's division of facilities construction and management, our own department, and an independent engineering consultant. The idea was discussed, poked at, shot down, and resurrected until we felt comfortable testing the waters.

A subcommittee of this project team relied on information available through NAECSO (National Association of Energy Service Companies) to identify a list of approximately two dozen accredited ESCOs who might be able and willing to help us realize our dream.

An RFQ was developed and distributed through public advertisement as well as direct solicitations. We received approximately a dozen responses to our inquiries. It is still interesting to us how seriously some of the respondents took the request, yet how totally unprofessionally some others responded.

The entire project team then had the opportunity to review the responses, in order to narrow the list down to three ESCOs. We were looking for an ESCO who had a solid track record on similar projects for a specified number of years, had various financing options to offer, was not linked to any single manufacturer of any of the products we would use, had a good guarantee package, and had consistently good references. (Ironically, some of the references provided to us

were quite negative, and in one instance, consistently so.) Equally important to us was that we had to be convinced the selected ESCO fully understood our goal: *to construct a chiller plant by saving energy dollars.*

The three ESCOs on our short list made face-to-face presentations to our team. We invited them to bring anyone they wanted to help "make the sale." One group of presenters focused primarily on the financial aspect of the project, but very little on the engineering challenges. Another did the exact opposite, if only to emphasize to us that our plan was unworkable, and that we should allow them to retrofit the entire campus, and let them run the plant afterwards. The third gave reasonable attention to all critical aspects. But only one understood and built their presentation around our stated goal: *to construct a chiller plant by saving energy dollars.*



After the interviews, the team members individually rated the three respondents. We were amazed at the consistency of our ratings, since we intentionally did not discuss them before committing them to paper. The references and the ratings of the written and oral

presentations together led to the selection of the ESCO who would help us reach our goal.

Once the successful ESCO was selected, it was time to move into the technical/analytical phase. The first part of the contract stipulated that a *technical audit* would be performed. If we, after reviewing the results of the audit, decided not to pursue the balance of the project, we agreed to pay the ESCO for services rendered at a stipulated flat rate per gsf, with the results of the audit being our property. If we all agreed to move into the implementation phase, the cost of the audit would be rolled into the cost of the project.

The ESCO we selected has its strength in its engineering capabilities. There were thus no qualms about sending them into our specified buildings to perform the audit. A team of specialists carefully analyzed components, performance, and utilization patterns of those buildings. Their engineering expertise allowed them to make a non-prioritized list of proposed energy saving modifications (ECMs) for each of those buildings, identifying cost and payback for each line item.

We were extremely pleased to see that the recommended

retrofits pertaining to lighting only amounted to approximately 15 percent of the total, thereby allaying any fears that we were only going for the quick fix and quick payback items. Most of the recommended ECMs were accepted, with a few being modified or deleted.

It now appeared certain that the dream was going to be realized. The sum of the measures to be implemented showed a **guaranteed net** energy savings sufficient to cover the cost of construction of our chiller plant, **after covering the cost of the implementation** of the approved ECMs. There was nothing that could stop us now!

Even good dreams have their bad moments...

The legislation in our state requires us to obtain formal approvals and support from our institution's Board of Trustees, our system's Board of Regents, the State Building Board, and the legislature in order to construct a project of this scope. Thus, before we even entered into the above selection process, some of us were deeply involved in successfully acquiring those approvals. This proved to be frustrating in a small number of cases.

There were individuals along the way who remembered too well the energy service industry of the 1970s, when there were many unethical "consultants" hovering like harpies. Some of us were duped into implementing quick-fix measures that ultimately cost more in the long run. We encountered some skeptics who feared the chosen ESCO would dupe us into accepting inferior products and service at excessive cost.

Our challenge, thus, was to devise a contract that would convince our skeptical friends in critical places that we knew what we were doing, and that we (the university) were reasonably protected from known and unanticipated risks. We had to establish specifications that required the use of components and systems of *our* choosing. We reserved the right to accept or reject any subcontractor, both on the retrofit work and the plant construction. An open-book pricing requirement had to be imposed through the contract. With these assurances in place, the mandated approvals were acquired, even then in spite of our inability to hush all of the naysayers.

There is another Utah code that requires institutions like ours to receive approval for any long-term financial obligation. The previous approval had addressed the construction of the chiller plant, but was not intended to concern itself with the funding scheme for its construction. Since we did not know at that time if, how, or when we were going to proceed to construction, we elected to hold off on this approval process.

Thus, once we identified the financing strategy for the construction project, we had to go to the trustees, the regents, and various legislative and executive branch authorities for additional approvals. I found that the sweating I was doing before was nothing compared with my experience at this point. I had a deeper appreciation of what that deer blinded by the headlights of an oncoming car might feel like. But,

after days and weeks of worrying, that approval also came forth, thanks largely to the enthusiastic support of our administration.

From dream to success...

The dream turned into a miracle. The construction project was authorized and took off formally in August 1999, approximately eight months after the work began on the implementation of the energy saving modifications. The condition of some of the old chillers in the Patient Care Hospital did not allow us to prolong the construction project any longer. In fact, we had to scrunch that timeline as much as possible. We also expanded the scope of the project (with separate funds) to include the elimination of failing chillers serving two high-rise residential buildings, located in close proximity to the new chiller plant.

The project scope was impressive. We had to bury thousands of feet of a new chilled water distribution system and interconnect it with existing building systems, properly deal with a previously unknown fault line, complete the design and construction of the chiller plant, and acquire nearly 7,000 tons of chillers and associated cooling towers. Yet, the entire project was completed ahead of schedule, by the end of June 2000! This was the original deadline we had picked when we first began the process in late 1997, before we knew all of the hurdles we would have to cross. We are convinced this success is entirely the result of the tremendous team effort that all of the players put into the project. It would be remiss on our part not to recognize the ESCO and associated consultants and subcontractors as being undeniable partners in this success.

After the dream...

The chiller plant has been purring along since June without any significant bleeps. The retrofits are producing the projected results. We even have a five-year warranty on all lights. But, as one of my previous bosses liked to say, "A satisfied man has no future." Not being content with peace and quiet, and as these words are being written, we are seeking approvals to move into another phase: to install a satellite high temperature hot water plant in a shelled part of the building we had already built for that purpose. The funding concept will be the same, if we are successful. Going through the same approval process with a different mix of board members could be, shall we say, stimulating. By the time this article is published, we'll know where we stand on this final phase.

There is, in our mind, no reason to believe we will not be successful. Who knows, perhaps a year from now we will be able to brag about having constructed a \$20 million chiller/HTHW plant, and implemented nearly that same dollar value in ECMs. And all that without spending one new dollar acquired from taxpayer or student! 🏠



Safety Signs Installation

PERFORMANCE CONTRACTING

MEETING THE CHALLENGE OF DEFERRED MAINTENANCE

By Terry E. Singer and Mary E. Johnson

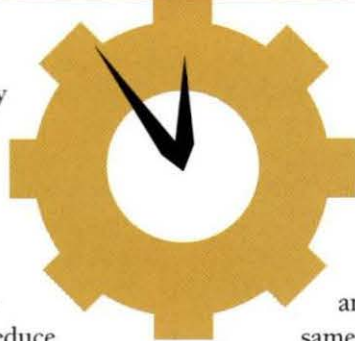
The deteriorating physical condition of many American college and university campuses is well documented and demands positive and immediate action to reverse this trend. Performance-based energy efficiency retrofits, as implemented by energy service companies (ESCOs), offer a solution that allows these institutions to replace aging and inefficient equipment, reduce their energy consumption and associated costs, and improve comfort and productivity levels without spending a dollar from current operating budgets.

The Magnitude of the Problem of Deferred Maintenance

A 1995 survey of the condition of facilities at U.S. institutions of higher learning, undertaken as a collaboration of APPA, the National Association of College and University Business Officers (NACUBO), and Sallie Mae, was based on a sampling of 400 colleges and universities. The survey results verify that higher education facilities in the United States have a backlog of at least \$26 billion in deferred maintenance, including worn-out buildings and failing utility systems. Almost \$6 billion of these needed repairs are classified as urgent needs. These results were published in *A Foundation to Uphold*.

Deferred maintenance is defined in the report as the "backlog of major maintenance projects unfunded in operating budgets and deferred to a future budget cycle." Urgent needs are "conditions that, if not attended to now, will...become even more costly to remedy in the future."

The average public research university spends approximately \$2.3 million annually on deferred maintenance, against a backlog of approximately \$64 million in accumulated deferred maintenance and more than \$15 million in urgent needs. According to the survey, a large proportion of colleges are experiencing an increase in accumulated deferred main-



tenance (ADM) and their ADM amounts represent substantial portions of their budgets. The largest ADM problems are at the largest research and doctoral universities.

The survey results also indicate that American college enrollment has grown sixfold since 1950 and campus space has grown sevenfold during the same time frame. At the same time, institutions of higher learning are encountering the problems associated with aging campus facilities. In 1994, the median age of campus buildings was 28 years.

Despite a growing need to address the problems created by unchecked deferred maintenance, U.S. school districts allocated just more than 9 percent of their net current expenditures (NCE) to maintenance and operation in the 1998-99 school year according to *American School & University* magazine's 28th Annual Maintenance and Operations Cost Study. This represents the second year in a row that schools allocated a smaller percentage of their budgets to preserve and run their facilities and amounts to much less than the 13 percent of NCE earmarked a little more than a decade ago.

Solving the Problem with Performance Contracting

Performance contracting addresses the problems commonly faced by colleges and universities: severely constrained capital budgets, aging buildings and equipment in need of modernization, incentives to reduce operating costs, and lack of in-house technical expertise. The ESCO designs, finances, installs, and maintains energy conservation measures and high efficiency equipment in a university's facilities. In addition, the ESCO measures, verifies, and reports energy and energy cost savings.

In many cases, the financing of a comprehensive, performance-based retrofit is structured so that other capital repairs and improvements needed at a campus or research facility can be folded into the project and paid for out of energy savings. In addition, these projects typically are designed so that all project costs, including the ESCO's profit, are paid for by the energy cost savings realized with an average payback period of seven to ten years.

Replacement of outdated lighting and HVAC systems offer relatively short payback periods that can be used to subsidize

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the cost of items such as chillers, boilers, power plants, and combined heat and power (CHP), also known as cogeneration plants, which have longer payback periods.

Based upon the results of a study conducted by the Lawrence Berkeley National Laboratory for the National Association of Energy Service Companies (NAESCO), ESCO projects at university and colleges produced average annual electricity savings of 26 percent and gas savings of 21 percent annually. Of the 780 surveyed projects, approximately 10 percent were implemented at colleges and universities.

Case Study

An ESCO designed and installed a project at the University of Rhode Island (URI) that included an energy efficient lighting retrofit of 1,600 indoor light fixtures; a 1,500 point energy management system to reduce winter heat demand; energy efficient motors, chillers, condensate feed pumps, boilers, and hot water heaters; and outside lighting. URI's energy savings were maximized by combining cogeneration technology with the energy efficiency retrofit. Three small cogeneration engines provide electricity and hot water to URI's dormitories and a larger unit provides electricity to the campus' main grid, with waste heat used for the main boiler plant.

The comprehensive energy efficiency/cogeneration retrofit at URI enabled the ESCO to use the short payback on items like lighting to mitigate the cost of the longer payback items to finance the entire project over a period of ten years, using only 20 percent of URI's monthly energy savings generated by the project. The \$5.5 million energy efficiency/cogeneration project has reduced the university's energy demands by 8,730,000 kWh and 490,000 gallons of oil equivalent (net gas and oil) annually, for energy cost savings of more than \$1 million per year.

Outdated campus and research facility utility systems offer a tremendous opportunity for colleges and universities to fund facility upgrades with the energy cost savings available in their facilities. In many cases, the energy cost savings generated by equipment upgrades also can be used to upgrade deteriorating campus structures.

Case Study

A retrofit implemented by an ESCO at Louisiana State University in Baton Rouge employed partial-load cogeneration technology to provide adequate heating and cooling to cover campus expansion plans within a limited budget. The project saves nearly \$6 million in energy and maintenance costs per year and has reduced air emissions by more than 160 tons annually. The ESCO received an award from the U.S. Environmental Protection Agency and the U.S. Department of Energy's Combined Heat and Power Energy Star® Program for the project.

ESCOs adapt the scheduling of their work to the unique requirements of each facility. When working on a college or university campus, ESCOs adjust their schedules to the various uses, daytime and nighttime, that students, faculty, and administrators make of university facilities such as classrooms, laboratories, libraries, dormitories, and eating and socializing areas.

Case Study

A project at Bowie State University in Maryland incorporated both HVAC and lighting technologies, along with other enhancements, to create a comprehensive energy savings retrofit. The ESCO on the project replaced a 14-year-old centrifugal chiller with a 160-ton centrifugal chiller which yields approximately 30 percent annual energy savings. High efficiency, modular, natural gas boilers installed in 16 campus buildings replace steam boilers housed in a central plant and are estimated to save \$84,000 each year in energy expenses and \$236,000 in operational costs. The university's existing energy management system that controlled HVAC equipment in nine facilities have been reprogrammed, some control points were added in current buildings, and the system was expanded to include all of the 21 buildings on campus. To improve energy efficiency at an administration building, the bypass ductwork was blocked and variable frequency drives were installed on the supply and return fan motors. Constant volume reheat air handlers were converted to VAV in a building used for laboratories and classrooms, which improved efficiency by about 26 percent.

An extensive lighting upgrade involved installing T8 fluorescent lamps, power reducing and tandem wired electronic ballasts, specular reflectors, compact fluorescent lamps, metal halide lights, and interior photocell lighting control. In addition, exit lights now use LED lamp strips instead of incandescent lamps, and some lights are controlled by occupancy sensors. According to Bowie, energy and operational savings are meeting projections and surpassed \$800,000 in the first year, yielding 28 percent improved efficiency. It is expected that over the next ten years, there will be more than \$3 million in energy savings and nearly \$5 million in operational cost savings.

The technology associated with energy management or control systems for conditioning space only when it is in use and not when it is lying dormant can also pay big dividends.

Case Study

A comprehensive energy audit conducted by an ESCO at Ottawa University revealed annual energy consumption of more than 3 million kWh and 32,753 MCF. Application of scheduled on/off controls on the heating equipment, the staging of gas fired boilers, and a night temperature set back program through the centralized energy management system reduced the university's gas bill alone by more than \$10,000 annually. The energy management system was programmed to schedule heating and cooling on a preset basis at the student union building, rather than allowing a large multi-zone HVAC unit to simultaneously heat and cool the facility. In addition, the university installed high efficiency lighting, occupancy sensor controls, new natural gas boilers, reciprocating chillers, variable frequency drives, and an energy management system. Through these applications, energy consumption at the university was reduced by 920,000 kWh and 5,009 MCF annually, for cost savings of more than \$70,000 per year to be reallocated to support academic programs.

Chillers equipped with the more environmentally friendly and energy efficient hydrochlorofluorocarbons (HCFC) rather than the ozone damaging and less efficient chlorofluorocarbons (CFC) can not only benefit the environment, but can reduce energy costs. In addition, new equipment, such as

chillers and air handling units (AHUs), contains energy efficient motors, requiring less power to operate. New equipment also ensures less down time brought about by unscheduled maintenance, as well as the need for less general maintenance.

Case Study

In its first year of measured savings, following an energy savings retrofit, the University of Houston Central Campus achieved energy savings of 25 percent as the result of an upgrade of the existing 18,500 ton central plant with conversion of existing chillers to a non-CFC refrigerant, the installation of a new 2,000 ton chiller, piping and valve modifications, and the installation of a new PLC-based central plant automation system controls. A new 138kV electrical substation was built to serve the entire campus load and a 12.5kV electrical distribution was extended to add outlying campus buildings onto the substation service. Other measures included a lighting retrofit in 56 buildings, installation of variable speed drives, energy management system controls, and window film for auxiliary buildings. Based on a full year of monitoring, the university expects to save approximately \$2 million annually on utility costs.

Performance contracting as provided by ESCOs offers colleges and universities a viable solution to the problems

associated with aging and inefficient facilities without significant cash outlay. To receive a list of energy service companies containing a more detailed discussion of the services that they provide, and the sectors that they serve, please contact the National Association of Energy Service Companies (NAESCO), 1615 M Street, N.W., Suite 800, Washington, DC 20036. You may also contact NAESCO by phone at 202-822-0950, by fax at 202-822-0955, or visit its website at www.naesco.org.

Source Material

Agron, Joe. 1999. "28th Annual Maintenance & Operations Cost Study: School Administrators: A Budget Deferred." *American School & University*, Intertec Publishing (April).

Goldman, C. A. et al. 2000. "Historical Performance of the U.S. ESCO Industry: Results from the NAESCO Project Database." *ACEEE Summer Study on Energy Efficiency in Buildings*, American Council for an Energy-Efficient Economy (August 20-25).

Kaiser, Harvey. 1997. "A Foundation to Uphold: A Study of Facilities Conditions at U.S. Colleges and Universities." *Facilities Manager*, APPA: The Association of Higher Education Facilities Officers (APPA) (March/April). 🏛️

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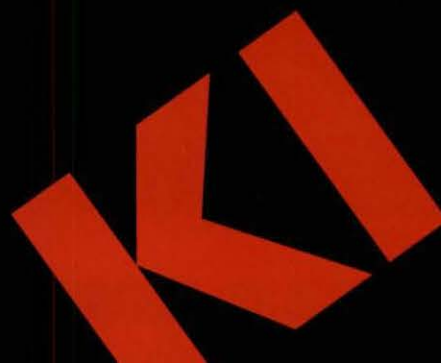


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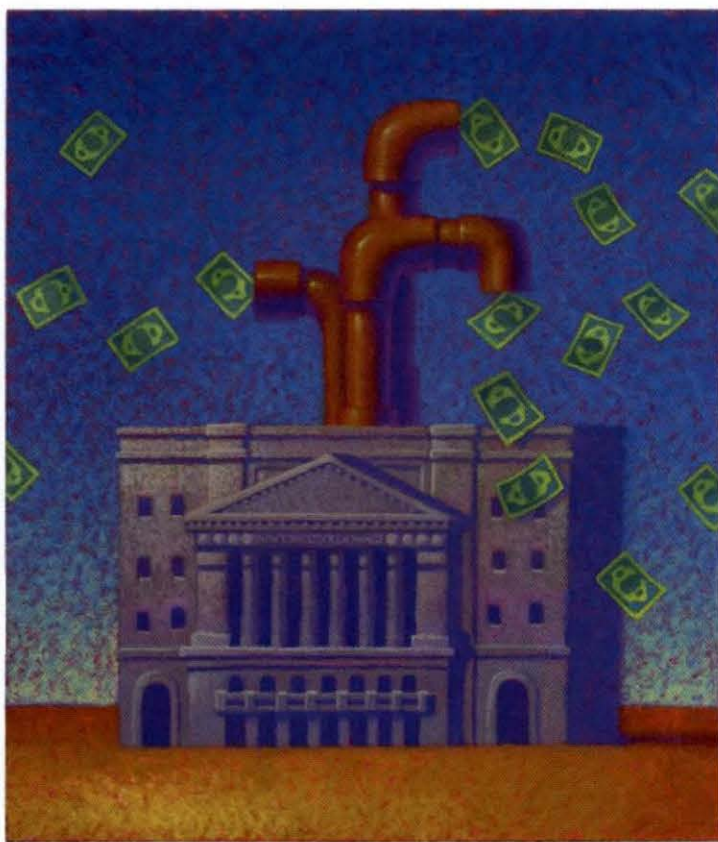
Maximizing FINANCIAL AND OPERATING BENEFITS OF A COMPREHENSIVE Central Plant

By Chander Bhan

In many campus facilities, for day-to-day operations, some or all of the required steam and chilled water for space conditioning is produced in central plants and distributed in a district heating/cooling system setting. As the need may dictate, these plants can also be utilized to produce additional steam for other uses.

Over the years, in many cases the plants have been expanded incrementally to meet the campus' growing energy requirements alone. They have not necessarily been configured or operated in an optimized manner to provide maximum service benefit at a minimum cost to the institution. But recent technological advances in steam and electricity production, coupled with the development of deregulated energy markets, not only afford significant opportunities to reduce energy costs, but reduce ancillary operating expenses as well.

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A Value Proposition

One value proposition can be stated simply: Most central plants will produce more reliable service at a lower cost if all aspects of plant operation and maintenance are managed by an enterprise that has economic incentives to make the most cost-effective capital and operating decisions. There are several institutional factors that can lead to this conclusion.

Most organizations struggle to meet short-term maintenance requirements, since expenditures on maintenance are most easily deferred when juxtaposed with other priority operating needs. Yet short-term maintenance produces long-term cost savings, improves service quality and reliability, and extends the useful life of equipment. The failure to undertake timely maintenance is one of the most important causes of service outages and higher long-term operating costs.

Constrained capital budgets frequently lead to inefficient capital choice decisions. Less efficient equipment is frequently chosen because it has lower first cost, even though its life cycle costs may be higher. Equipment that has reached the end of its economic life may continue to be operated, even though newer, more efficient equipment may have very short

paybacks. A complete system redesign may prove highly cost effective, but it generally will not be implemented if a significant upfront investment is required.

Changes in the energy market offers many additional opportunities for cost savings and service improvement. These savings arise, in part, from lower energy commodity costs brought on by competitive market trends. However, there are additional savings that can only be actualized when the inter-related nature of capital, fuel choice, and plant operating decisions are integrally managed. The skills required to take advantage of these opportunities are highly specialized. The complexities are generally not cost effective for end users to manage internally, especially when bureaucratic protocols require multi-level input and/or decision-making.

It is not uncommon for institutions, educational or otherwise, to place a low priority on maintenance management issues. This may simply be due to a lack of field-knowledge on the part of an academic vice president or provost regarding the operations of a physical plant. The facilities administrator may thus face political and bureaucratic pressures that may inhibit the implementation of a well-constructed and cohesive energy management plan. Further, outsourcing these responsibilities to a single entity allows the organization to benefit from a coordinated decision-making process without having to develop the in-depth knowledge of commodity market, which would otherwise be required.

This concept can be further explained by examining the four main components of this value proposition.

1. Ownership or long-term lease of the central plant energy-producing facility
2. Operation and management of the central plant facility
3. Capital choice, financing, and construction
4. Energy and fuel procurement.

The Structure of the Deal

To safeguard all vested interests, there are generally at least two contracts between the plant owner (Owner) and the Energy Services Company (ESCO). The first contract covers the lease on the existing plant and the terms under which any new plant may be constructed. The new plant may be required to meet growing service requirements, to retire a worn out plant and equipment, or to take advantage of lifecycle saving opportunities. Any new construction requires the explicit authorization of the owner.

A second contract contains the operating and maintenance agreement. Ideally, the length of operating contract should range from 10 to 20 years. Such duration allows sufficient time to permit payback of any required capital investment. The ESCO is responsible for meeting specified service requirements stated in delivered pounds of steam and kilowatt-hours of electricity. Within a specified set of parameters, the ESCO is given significant latitude in deciding how to meet its service requirements for the contracting institution.

Payment for construction and operations can be made in several different ways. Usually payment includes a fixed payment per month and a commodity charge expressed in cents per kilowatt-hour and cents per pound of steam.

In addition to the construction and the operating and maintenance agreement, a third agreement, which covers energy and fuel procurement, can add substantive dollar value. This agreement can provide significantly more economic value to the two contracting parties because it permits coordinated decision-making for fuel purchases, for off-system energy sales, and for unit dispatch.

An Example

Improvements in electricity generating technology mean that one of the most efficient and cheapest ways to produce



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electricity and steam is to produce them simultaneously with a combined cycle combustion turbine, a heat recovery system, and a backpressure turbine. This type of unit produces electricity and steam from gas or oil. The life cycle cost of a cogeneration unit with backup from existing conventional boilers is usually lower than purchasing power from central stations and producing steam from existing boilers.

Coordinating the operation of the cogeneration unit with the purchase of gas and electricity affords the flexibility to produce electricity on site when electricity prices are high, and to buy from the grid when prices are low. This ability, to coordinate the dispatch of the cogeneration unit with the backup boilers, provides significant option value to the owner, as well as the ESCO, and can thus substantially reduce costs.

Conclusion

As most campus facilities are getting older, the state of electro/mechanical equipment is fast reaching functional obsolescence. In the absence of a roadmap to slow down the decay of the physical plant and its infrastructure, we anticipate that the maintenance and operational costs will rise exponentially. Many institutions have used their deferred maintenance backlog as a leverage to invite and entice ESCOs to make competitive offers, and they have entered into a contractual relationship to improve the infrastructure, without any upfront capital cost.

Even the utility companies have changed their modus operandi by forming unregulated subsidiaries to concentrate on the educational industry. The offers from these utilities include preliminary engineering surveys, design-build options, and, most importantly, financing the construction cost.

The financing options alone can range from operating lease, tax-exempt financing, to conventional financing. This turnkey approach that integrates design, procurement, construction, and financing into one total process can minimize the risk for a university, college, or school district.

Entering such a contract will require acumen, experience, and professional savvy on the part of the facilities administrator for discerning all critical complexities of the process. One word of caution is to ensure that there is administration involvement at every crucial step and that the contract document language is succinct. A further safeguard is to have the document reviewed by other pertinent institutional units, such as the financial and the legal departments, for appropriate checks and balances.

A value proposition such as this can enable an educational institution to replace equipment, modernize the facility, and enjoy potential utility expense reduction. These considerations make this option a viable alternative. This type of initiative can permit your institution to demonstrate fiscal acumen in addressing urgent facility problems during periods of diminishing resources. 🏢

THE ENERGY SERVICES COALITION (ESC)

The Energy Services Coalition (ESC) is a national nonprofit organization working at the state and local level to increase energy efficiency and building upgrades through energy savings performance contracting. Energy savings performance contracting enables building owners to use future energy savings to pay for the upfront cost of energy-saving projects, eliminating the need to dip into capital budgets.

The ESC is a public/private partnership made up of a network of experts from a wide range of organizations involved in increasing the implementation of energy efficiency improvements and building upgrades through performance contracting. Like APPA, the ESC is a strategic partner in the U.S. Department of Energy's Rebuild America program.

The ESC currently has members in 23 states, representing state energy offices, energy service companies (ESCOs), finance companies, energy engineering firms, vendors, building owners, federal agencies, and other public and private entities. This diverse membership gives the ESC a unique capacity to comprehensively address virtually all issues involving performance contracting and energy efficiency.

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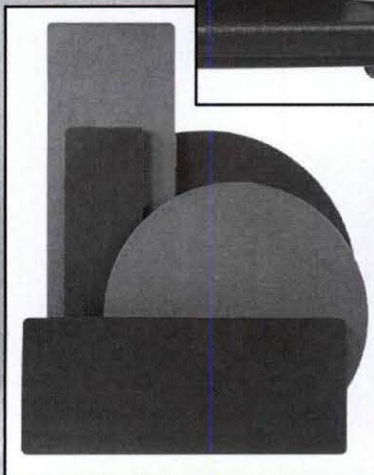
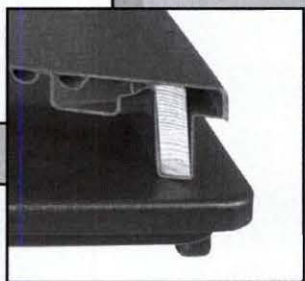
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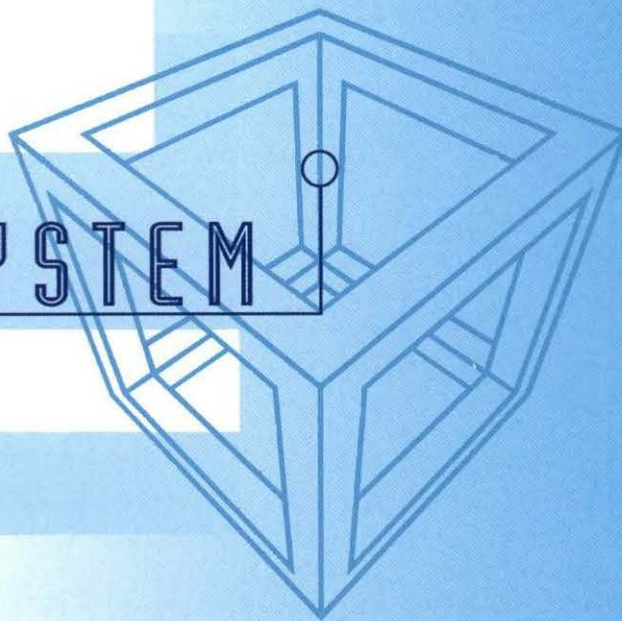
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EVALUATING AN ICE-STORAGE SYSTEM IN A DEREGULATED ENVIRONMENT



By Theodore J. Staniewicz and Joseph J. Watson, P.E.

The deregulation of the electric industry may offer opportunities for reducing your electric utility bills. But be careful—these golden opportunities may have a dark side, especially for those facilities with ice-storage systems.

The Owner's Perspective

Hindsight can sometimes make you feel like a genius, or sometimes the fool, but it often leaves you feeling perplexed. The past three years of electric deregulation in the State of Pennsylvania have given large volume purchasers an initial exhalation of lowered anticipated energy costs. More recently, large users have become dismayed with higher electric rates and a lack of interest by electric providers to enter into competitive bidding.

Two years prior to deregulation, St. Joseph's University in Philadelphia was engaged in the design of a state-of-the-art School of Business classroom and conference center. As part

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of the HVAC design, the engineer recommended the installation of a thermal ice storage system. The engineer received a small design rebate from the electric provider and negotiated a special time-of-use energy rate based on the anticipated use of the building. Technology and finance (operating cost) would equal efficiency and savings. The formula looked great on paper.

Deregulation

Eventual deregulation afforded the university an opportunity to participate in a large electricity-purchasing consortium. There were multiple bidders involved, which allowed the consortium to significantly lower the average cost by purchasing electrical generation at a flat rate. Although the new rate provided campus-wide savings, the change actually caused an increase to the previously negotiated electrical rate for the thermal storage system.

Another factor impacting the economics of the thermal storage system changed after the building was built. The original analysis was based on building usage of five-to-ten-hour days. Once the building was occupied, usage quickly expanded to 7-to-16-hour days. The time available for making ice was so reduced that we often had partially frozen tanks, which quickly became depleted during high-load days. We were then forced to override the chiller operation to provide maximum cooling.

The Engineer's Perspective

The university retained a consultant to provide a survey and analysis of the energy using systems in the School of

Business. The intent of the project was to develop recommendations to reduce the annual energy costs.

Cooling System Design

Cooling for the building is provided by chilled water, which is supplied to seven air handling units located throughout the building. Five of the units serving classrooms are equipped with variable speed drives, designed to reduce flow to building variable air volume (VAV) boxes during periods of low load. The remaining two air handlers are single-zone units, controlled by thermostats located in the dining area and auditorium. The chilled water system consists of a 180 ton air-cooled chiller coupled with an ice storage system to allow up to 1,000 ton-hours of cooling to be generated at night for use during the day.

When the building was planned, the ice storage system was suggested as a way to reduce the peak demand charges and to reduce the size (and first cost) of the air-cooled chiller. The peak load for the building was estimated at 230 tons. In the ice-making mode, 18 deg F chilled water was supplied to the ice storage tanks to build ice during the night. The system was indexed off when the tanks were full. Then, during occupied hours, the ice was to be "burned" throughout the day to keep the peak chiller load at 125 tons.

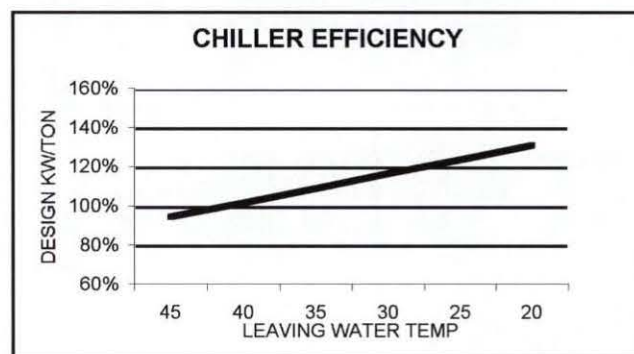
The economic justification for this configuration was based on a time of use utility rate, which allowed the ice to be generated at night at a low cost per kWh and with no demand charges. Since that time, deregulation of the electric utility industry has created a change in the utility rate structure. There are now four components of the electric bill: distribution, transition, transmission, and generation. The university had previously entered into an agreement to purchase electrical generation for the entire campus at a flat rate. This decision was beneficial due to the substantial cost savings during peak operating hours. However, this pricing structure caused an increase in the off-peak incremental rate.

Recommendations

The total electric cost for the building over the first year of operation was over \$150,000, roughly \$1.50 per square foot. A mathematical model of the chiller plant energy use and operating cost was developed using the revised utility rate structure. Annual electric costs for the chiller plant were estimated at \$50,000 per year. An analysis was performed to determine the actual benefit from operating the thermal storage system.

The energy required to manufacture ice is significantly higher than the energy required to provide an equivalent amount of chilled water. The chiller efficiency (kW/ton) is reduced with the colder leaving water temperature.

The analysis indicated that the cost of the additional energy expended to make the ice was greater than the savings available by shifting load to off peak, especially with the chiller running at full capacity during peak times. Our recommenda-



tion was to eliminate the automatic ice-making mode and to allow it to be energized manually. The estimated annual cost savings was \$11,000.

One concern in eliminating the ice mode was the loss of cooling capacity during peak loads. Although the chiller was sized 50 tons less than peak design, by modifying the control sequences to allow precooling, and by controlling fresh air intake during peak times, it was believed that the system could maintain satisfactory space conditions.

Implementation

A package of recommendations was presented to the university, which included the elimination of the ice-making mode, monitoring and control of outside air intakes, and revising control sequences to optimize the HVAC system operation. Part of the control package included provisions to allow remote monitoring of the system operation. The total package had an installed cost of \$50,000 with an estimated annual savings of \$21,000, yielding a payback of just over two years. The project was approved and implemented over four months, prior to the cooling season.

Monitoring and Validation

As part of the verification process, the consultants were responsible to monitor the operation of the HVAC systems for a period of one year. Critical operating information was gathered hourly over the course of the cooling season using the trending software provided with the building energy management system. Information was summarized monthly, and reports generated showing the actual energy usage of all HVAC components. Based on the information gathered through September 2000, the chiller plant revised operation and energy savings were verified. In addition, the monitoring program provided valuable baseline operating information that will be used as the basis for developing additional energy saving projects as opportunities are identified.

MONTHLY EQUIPMENT SUMMARY			YEAR-TO-DATE	
BUILDING ENERGY USE			\$ 0.081	AVERAGE \$ / KWH
	ELECTRIC		GAS	\$.55 PER CCF
TOTAL	932200	KWH	1970	MMBTU
PEAK	510	KW	7881	MBH
EST OPERATING COST	75082	DOLLARS	13541	DOLLARS
HVAC ENERGY USE				
TOTAL	562342	KWH		
PEAK	351	KW		
EST OPERATING COST	50126	DOLLARS		
AIR-COOLED CHILLERS			CHILLER PLANT OPERATING COST	\$ 31,154
CHILLER #	CHILLER # 1			
OPERATING HOURS	2525			
TON-HRS	245767			
KWH	301695			
KW/TON	1.23			
HOURS OFF	1867			
PUMPS				
PUMP #	CHILLED WATER 1	CHILLED WATER 2	HOT WATER 3	HOT WATER 4
OPERATING HOURS	2795	2814	4286	0
KWH	42419	42687	15890	0
AVERAGE % FULL LOAD KW	84%	84%	82%	0%
HOURS OFF	1597	1578	106	4392
AIR HANDLING UNITS				
AHU #	SF 1	RF1	SF 2	
OPERATING HOURS	3845	3345	3775	
KWH	27485	6088	4530	
AVERAGE % FULL LOAD KW	79%	61%	100%	
HOURS OFF	548	1048	618	
AHU #	SF 3	RF 3	SF 4	RF 4
OPERATING HOURS	3775	3775	3774	3453
KWH	16988	6795	18737	3829
AVERAGE % FULL LOAD KW	100%	100%	55%	37%
HOURS OFF	618	618	619	940
AHU #	SF 5	RF 5	SF 6	RF 6
OPERATING HOURS	3775	3777	3775	3762
KWH	26118	8710	22239	7415
AVERAGE % FULL LOAD KW	77%	77%	65%	66%
HOURS OFF	618	616	618	631
AHU #	SF 7	RF 7		
OPERATING HOURS	3770	3772		
KWH	19949	9973		
AVERAGE % FULL LOAD KW	88%	88%		
HOURS OFF	623	621		
	HIGH	LOW	AVG DB	AVG %RH
AMBIENT TEMPS	108	24	71	69

Conclusions

Through careful "recalculation" of actual building occupancy, outside air optimization, and elimination of ice making, combined with the newly deregulated electric rates, allowed us to achieve our goals of reducing our energy use and operating costs. This has now become a continual and dynamic evaluation process due to the volatility of the utility market. It requires regular assessment and monitoring to evaluate operational efficiency and guarantee optimum savings. The results so far have been positive and satisfying. 🏢

Most major companies spend anywhere from hundreds of thousands to tens of millions of dollars each year on long distance telecommunications services. Many of these companies may not realize, however, that contracting for telecommunications services is very different from contracting for machine parts, software, or accounting services.

Even though there are hundreds of competitive long distance carriers vying for a piece of the \$200 billion corporate telecom market, those carriers are at least nominally regulated by the Federal Communications Commission and its state counterparts, the public utility commissions. Consequently, any negotiation for telecom services must consider certain unique issues resulting from this regulatory overlay.

Set forth below is our "top ten" list of regulatory and other matters to consider when procuring corporate telecom services.

1. Tariffs or their replacements remain relevant.

In a decision released April 28, 2000, the District of Columbia Circuit Court upheld an FCC order requiring long distance carriers to withdraw their existing tariffs for domestic long distance services and refrain from filing new ones. A tariff is a statement of rates, charges, terms, and conditions filed by a telecom carrier with a regulatory agency. Under case law going back to the early 1900s—known as the "filed rate" or "filed tariff" doctrine—tariffs take precedence over contracts. One of the primary reasons the FCC ordered detariffing was to eliminate the ability of long distance carriers unilaterally to alter contracts with their customers by filing changes to their tariffs.

As a result of the court's decision, tariffs will be neither required nor permitted for domestic long distance services. Specifically, as of May 1, 2000, long distance carriers may not file new "contract tariffs" for those services. (Contract tariffs are used to provide service to most medium and large business customers.) In addition, carriers must withdraw all existing domestic long distance tariffs (including the domestic portion of bundled domestic/international tariffs) no later than January 31, 2001.

Customers should recognize, however, that carriers are likely to replace those tariffs with standard "price lists" or "service guides" that they will then seek to incorporate by reference into their contracts. Doing so will give the carriers

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TOP 10 TIPS

for
**BUYING
TELECOMMUNICATION
SERVICES**

By Jeff Linder

the same ability to modify rates or terms and conditions that they enjoyed through their tariff filings, unless the contract expressly provides that the contract is entirely self-contained; that is, that the service guide or price list is irrelevant.

In addition, tariffs still will be required for international services, so customers will need to make sure that any rates, discounts, or credits for international offerings are contained in a tariff—side letters are not enforceable.

2. Everything is negotiable.

Long distance carriers often say that they would like to give the customer what he or she is asking for, but they are pre-

vented from doing so by regulation. This is never correct. Long distance carriers are free to charge any rate and to negotiate any terms and conditions they want. (Once again, international rates still must be tariffed.)

While carriers will point out that they cannot engage in unreasonable discrimination among customers—which is true—it is not the case that, as they often claim, “If I gave that to you, I’d have to give it to everyone who asked.” Long distance companies enjoy great flexibility to “fence off” their deals so that they apply only to a single customer.

3. Telecom is a declining-cost industry.

As competition increases, regulation decreases, and technology advances, telecom costs generally are declining. As a result, customers should ask for a rate ceiling (to guard against increases), but should also seek some mechanism for periodically reviewing and adjusting rates to make sure they remain competitive. This is particularly important for international services, where rates have begun to fall dramatically.

As a corollary point, customers should procure services through a competitive RFP process that avoids identifying a tentative winner too early. As soon as a tentative selection is made, the leverage shifts from the customer to the carrier.

4. Beware of exclusivity.

Long distance carriers often like to ask for exclusivity provisions—that is, commitments that a customer will give 80, 90, or even 100 percent of its telecom business to the carrier. Agreeing to exclusivity may (or may not) yield very competitive rates when a contract is signed. Most telecom contracts, however, last for three years or even longer.

As a result, a user bound by an exclusivity clause will have no leverage to force the carrier to reduce rates in the out years of the contract, even if market rates have declined significantly. We generally advise clients not to agree to an exclusivity provision unless the contract has a strong provision for forcing rate reductions during the term of the agreement.

5. Understand your revenue commitments.

Long distance carriers always ask customers to commit to a certain amount of revenue each month or each year of the contract term. Make sure you understand whether this com-

mitment is based on gross (prediscounted) rates or net (discounted) rates—the difference between the two often is more than 50 percent. In addition, many customers find annual commitments much more predictable than monthly commitments, due to usage variations.

6. Deal with planned business changes up front.

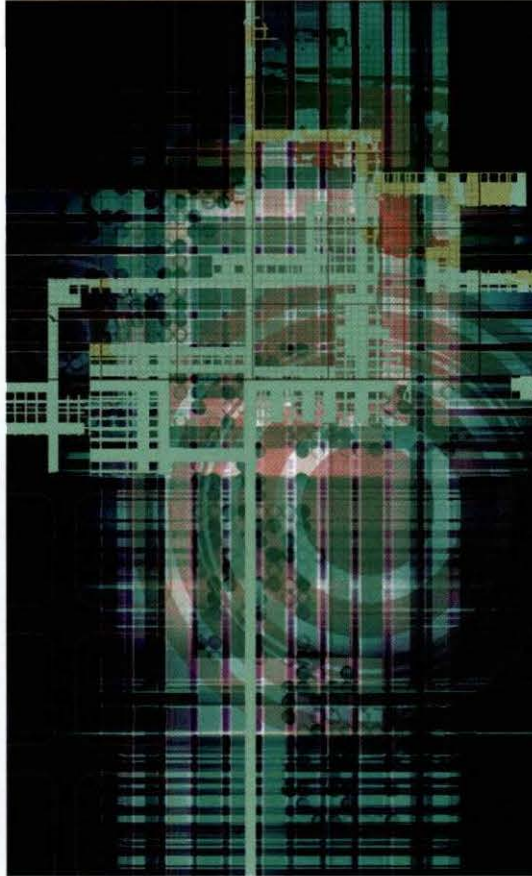
Many customers consider it likely that they will be divesting a business unit or acquiring new companies during the term of an agreement. These matters are best dealt with during the initial contract negotiation, rather than relying on the carrier’s stock “business change” clause (which usually commits both sides to negotiate a mutually acceptable outcome but provides no certainty over rates and discounts). For example, a company that plans to divest a business unit should make sure that the carrier is aware of this, and should secure the carrier’s upfront agreement that any annual revenue commitment will be reduced by the amount of the telecom expenditures generated by the divested unit. Similarly, many companies negotiate a provision that commits the carrier to 1) allow the customer to bring newly

acquired entities under the contract, and 2) waive any termination liability associated with an acquired entity’s existing, less favorable deal with that carrier. This second provision is particularly useful when dealing with one of the “Big 3” long distance carriers (AT&T, MCI WorldCom, and Sprint), since they have a large combined share of the business market.

7. Keep your technological options open.

Arguably, no industry undergoes more constant and climactic change than telecommunications. Given the intensity of competition, it is not surprising that carriers continually look for innovative ways to move more information, more quickly, at lower cost. To capitalize on this technological dynamo, customers should ask their vendor to agree that they can switch from an existing service to a more efficient, new one without incurring penalties for failing to meet the revenue commitments.

Similarly, customers should negotiate provisions obligating their carrier to allow them to discontinue a certain service



without liability if another carrier introduces a more efficient substitute than their existing vendors can match.

8. Beware of mid-term renegotiation.

Long distance carriers often like to renegotiate and extend their agreements part way into the contract term. Given the declining cost structure of the industry, they can often promise the customer substantial cost savings if it is willing to "re-up" for a few more years. While these offers may be attractive, customers still may be able to do better by going out with an RFP that solicits competitive responses. At a minimum, any customer thinking about extending prior to expiration of the contract should ask a telecom consultant to opine on whether the proposed rates are as aggressive as they could be.

9. Ask for a service level agreement.

Although the reliability of telecom networks is generally excellent, there are always problems, some of which can be catastrophic. The carriers' tariffs or service guides substantially limit their liability for problems caused by service outages, usually providing only a credit for the time that service was unavailable. Customers with critical telecom needs therefore should ask for a service level agreement (known in the industry as an SLA) that accomplishes two things.

First, the SLA should provide for escalation to senior management within the carrier to assure that problems are rapidly resolved and that the underlying causes of those problems are fixed so that there is not a recurrence.

Second, the SLA should provide for significant financial penalties for service outages—and ultimately, for the right to terminate in whole or in part without liability if service is chronically unacceptable.

10. Focus on dispute resolution.

As in any complex commercial agreement, there are often disputes between long distance carriers and their customers. Major problem areas include inaccurate bills, service problems, and changes in the customer's account team. Most long distance carriers include arbitration clauses in their standard agreements, some of which refer to arbitration rules in internal carrier documents that may be designed to enhance the likelihood of the dispute being resolved in the carrier's favor. Customers should demand balanced dispute

resolution provisions that begin with executive escalation. In addition, if arbitration is the ultimate remedy, customers should assure that it proceeds under neutral rules.

Not surprisingly, there's a lot more that goes into negotiating a favorable telecom agreement than the ten tips discussed above. Nonetheless, keeping these tips in mind can go a long way toward securing an enforceable, mutually beneficial, and workable business arrangement with one of your institution's major vendors. 🏢

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DFWAPPA: The Creation of an APPA Metroplex Chapter

By Kevin Folsom

I joined APPA in 1994 with high hopes of learning and networking with peers from educational institutions all over the world. Charlie Jenkins was the APPA President at the time, and I was impressed with the message that he conveyed. In addition, the association promised training and useful publications.

As a new member, I began researching methods for making contact with other members. The Internet was a new method of communication for APPA, and I could not locate the information I was searching for there. I was especially seeking a local chapter. Since there was a large number of educational institutions located in the Dallas-Fort Worth area, I thought surely there was one. My research proved futile.

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The next four years consisted of attending APPA international educational conferences, CAPP regional, and TAPP state meetings. In addition, I was able to gain some of the richest knowledge and experience than I could have ever imagined from the APPA Institute for Facilities Management. I was impressed with the APPA organization and learned to appreciate my job/ministry at Dallas Theological Seminary more than ever.

During the last session of the Institute for Facilities Management, I stopped by to tell the APPA staff goodbye and thanked them for making the training possible. Andria Krug asked me what I was going to do next. I responded without a doubt, "I'm going to start a Dallas-Fort Worth chapter of APPA."

Even though I was able to make wonderful friendships, which I still maintain today, and gain outstanding knowledge and wisdom, I was still missing something. I wanted to be able to share information regarding contractors and suppliers that were being successfully used by other institutions in my

area, and I wanted to share successes and failures in roofing, waterproofing, landscaping materials, and other issues in my particular climate.

A week after returning from the Institute, I composed an e-mail message to be sent out to all APPA members in the DFW area. Realizing how much information a facilities manager can be inundated with, I tried to be brief but include as much of my dream as I could. Unfortunately, I received only one response, and this was from a person stating that he was too busy. My next strategy was to continue attending APPA meetings to meet people specifically in my area and to help them understand the benefits of a local chapter.

A few months later, I was attending a Texas APPA meeting

when a drawing was being held for prizes during the general session. They held up a small barbeque grill and called out my name. When I turned around after receiving my prize, there were four people sitting close to my table waiving and pointing at me. As I got closer, I could hear them saying, "Hey, we want to talk to you." I sat down, and they leaned over and said, "Aren't you the guy who wanted to start a DFWAPPA chapter?" I confirmed, and they said, "Great! Let's do it. We want in." We introduced ourselves and exchanged contact information. The group consisted of Art Sykes with Eastfield College, Tim Leitch with Southwestern Baptist Theological Seminary, John Russell with the University of Dallas, and Pat Howell who was with Texas Wesleyan University at

the time. Pat is now with the University of Texas Health and Science Center in Fort Worth.

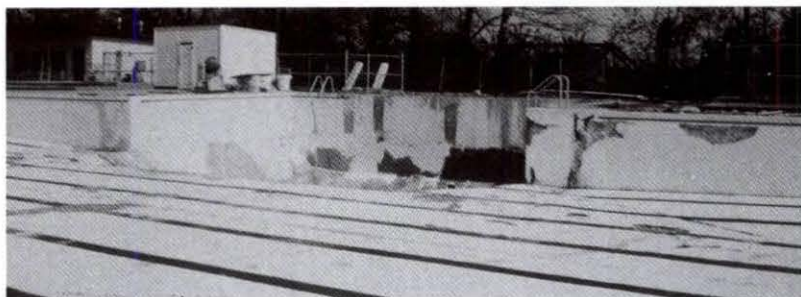
When I returned from the TAPPA meeting, I quickly composed another message about uniting to create an APPA chapter in our area and sent it to the four mentioned individuals. I volunteered my campus to be the first site for a meeting on May 27, 1999. Three were able to attend the first DFWAPPA meeting, including myself. I was excited!

Then we began establishing goals, a mission, and a website, which serves as a tool to share our information. On June 1, 2000, we initiated a Business Partner Program, and we now have 20 paid memberships. The business partners have agreed to financially support our organization so we can have the tools, meetings, and a website to share our information. In turn, the business partners are advertised on the website.

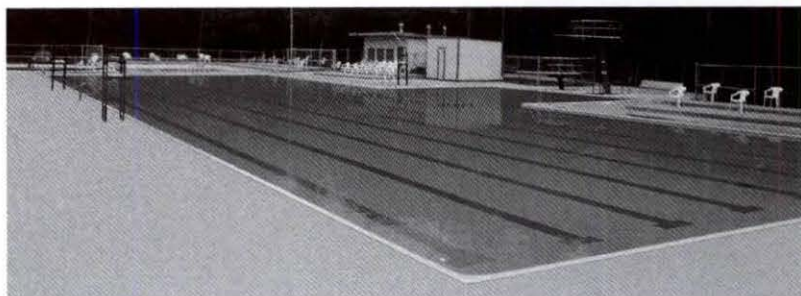
John Hughling at Northlake Community College hosted the last quarterly meeting on November 2, 2000. We had a total of 22 attendees. We currently have 16 educational institution members, 20 business partners, and have had over 5,000 views of the website since April 2000.

It is rewarding to see the growth of the organization. The members share the excitement and realize their contribution as they share information on a regular basis. The membership is too numerous to list, but the DFWAPPA developmental progress can be seen at the Meetings/Meeting Photos link on www.dfwappa.org. 🏠

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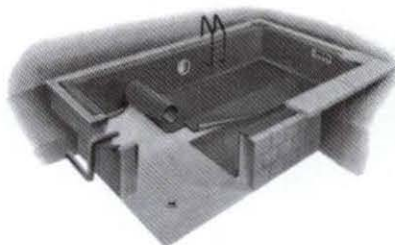


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by Steve Glazner



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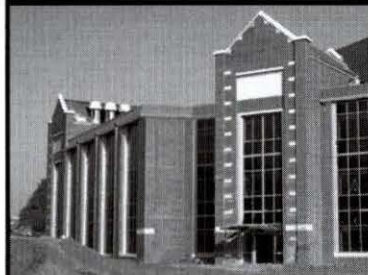
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Unrelenting Expectations

by Matt Adams, P.E.

No matter how much self-analysis and measurement goes on at your facilities management department, you will still be judged, in part, by the success your department has in dealing with campus customers. It is both a "facility" as well as a "people" business. Every time a plant administrator is rebuked by a faculty member, this reality is reemphasized. Some facilities operations get rave reviews while others get harangued. What is the difference? Can this relationship be effectively managed? The term *managed* may be optimistic, but *influenced* is certainly appropriate.

The best test of a facilities director is always to imagine themselves as one or more of the typical campus customers. What do these people ask of and receive from the facilities staff on a daily, weekly, or monthly basis? The typical customer has expectations that they have been trained or have learned to expect. If you have visited any of your peer campuses, you noticed an odd and ironic phenomenon: at some campuses where the physical plant is down-right indifferent to the customers, the customers don't complain. On the other hand, there are those campuses where the department is trying harder and harder to please the customers, only to be frustrated

by the memory of one bad occurrence from years ago or unrealistically high expectations. Over time I have tried to understand this experience in the hopes of finding ways to change it.

The answer lies in one or more of four areas: environment, institutional memory, economics 101, and the recognized but rarely identified physical plant reality of "multiple competing priorities."

The answer lies in one or more of four areas: environment, institutional memory, economics 101, and the recognized but rarely identified physical plant reality of "multiple competing priorities."

The environment of the institution represents the values, shared mission, and priorities. The customer service level provided by the facilities staff must be consistent with the service levels of the other agencies within the institution. The agricultural experiment station of a state institution typically operates in a financially constrained environment. The operating standards of the station illustrate that staff members will often do without some supplies and services just to make ends meet. Clearly, a plant maintenance level that is near the top of the spectrum for response, image, and costs is not compatible with the example station.

On the other end of the spectrum are the lucrative research or medical facilities. Slow response and a

less-than-professional image is incompatible with this environment of high-powered researchers. Incompatibility of service delivery standards with specific environments is a direct cause of poor customer service. Physical plant administrations that cannot adjust to this reality often find the campus split into multiple, independent maintenance departments, serving individual constituents.

Where there are long-term institutional staff members, there are always stories of terrible service by the facilities department. The stories grow and take on folklore status. Is it fair? Of course not. Does it hinder customer service marks? Always. However, this problem can be reduced. Most of the campus staff that share this dogma do so with little or no understanding of the real magnitude of campus facility management services. People tend to respect what they understand. In addition, people tend to offer professional respect to other staff members that they interact with on a consistent basis.

The message here is one that cannot be repeated to facilities administrators too often: communicate the mission of your department to customers as much as possible. This comes in the form of websites, the work control center, steering committees, facility capital budgeting presentations, customer information, satisfaction surveys, and informational presentations to various faculty and staff.

It was in my old college economics class that I was first exposed to supply and demand side economics. We can actually use some of that theory in this discussion. In the supply/demand concept, when demand was variable (elastic) and supply approached no

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cost or infinite capacity, then demand would become infinite as well. We came to this conclusion during a Trades Staffing Guidelines Task Force meeting recently. Some portion of the available staff hours of a hypothetical physical plant is allocated to behind-the-scenes preventive and corrective maintenance, in the absence of customer contact. The other portion of the staff serves customer-requested services—called “good will” by the Task Force. The demand for good will service will always grow to meet the maximum capacity of the maintenance staff to provide the same. In other words, if it’s a basically free and good service, the staff will demand as much as possible.

This is the paradox of a customer driven facilities operation. The limit to the level of customer services provided will eventually be met, and the

customers will be disappointed. It is inevitable. The solution is to communicate to the customers that there is a cost and associated budget limit for good will. It is *not* free and it is *not* unlimited in supply.

At any given time, on a busy day of campus life, the facilities department may have more requests for services than resources. Imagine that there is a stuck thermostat at the grand opening of a new residence hall. At the same time, a walk-in cooler for research material has failed. At least one customer is going to be unhappy. There is no fault, but there is blame.

In another case, the new dean wants to renovate his laboratory and office. His budget is based on a grant and is fixed. When the estimate comes in for renovation costs, it includes asbestos abatement, accessibility improvements, and new

utilities and fire identification/suppression hardware. The university and its facilities department have codes to comply with and construction standards to meet. The new dean has limited funds and doesn’t see why all of this extra work must come from his or her budget. These competing priorities create discontentment among the faculty and the plant staff as well.

The best way to minimize this dissatisfaction is to reduce the element of surprise. The time to disclose the “required” spending is not in the final stages of cost estimating. Campus disclosure and communication of the renovation specification and costing standards will help. I know it is not always that easy. What separates the pros from the amateurs is the tool called “finesse.” 🏰

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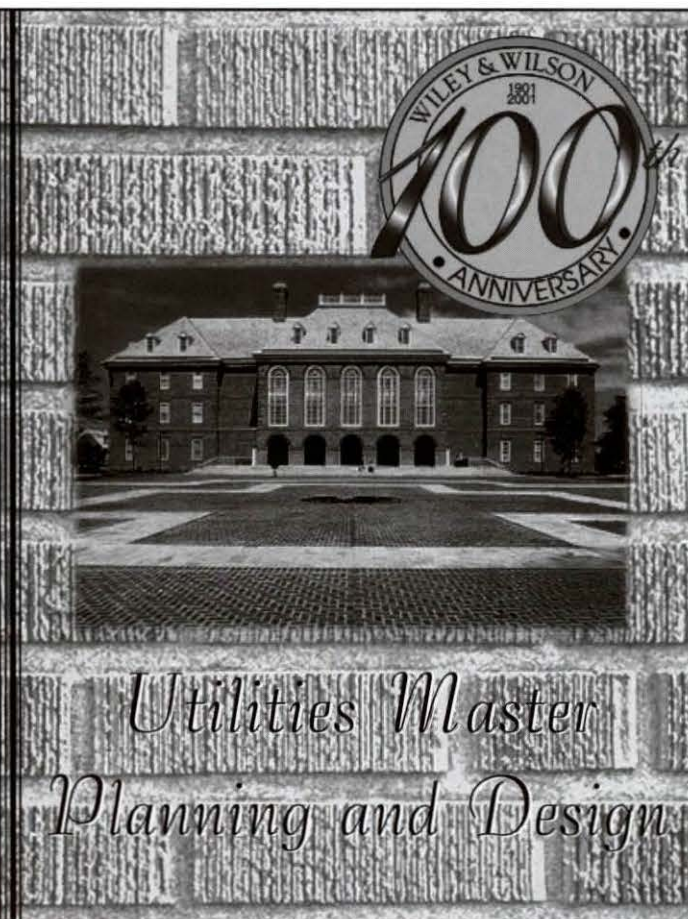
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You're Wasting Electricity!

by Jennifer Graham

There's been discussion lately regarding APPA members participation in information sharing, both with each other and with APPA headquarters. Being relatively new here, I was impressed by the energy and enthusiasm on the APPAinfo e-mail list, not to mention the valuable information that you are sharing with each other. So I thought what better way to highlight this member activity than resuming the Listnotes column.

In keeping with the theme of this issue, I have incorporated your advice and suggestions on energy and utilities issues. Remember that what is most appealing about the list is gaining valuable information in a form that is much more interesting than a textbook or a seminar, while communicating with your colleagues, fellow members, and APPA staff. To join APPA's e-mail list, register at www.appa.org/resources.

Question: I am interested in hearing from those of you who have recently communicated to campus building occupants measures they can take in their office and/or at their desktop to conserve electrical consumption. Recent literature suggests that significant savings can be made by turning off computers, monitors, printers, etc., as well as lights.

Question: Does anyone have and/or know of a website(s) that promotes office/desktop energy savings opportunities? Is anyone aware for public entities, utilities, and/or corporations that have promoted office/desktop

energy savings opportunities? How about information on recent energy conservation projects?

- In response to your question about personal workstation office equipment energy use, EPA has a lot of information in their Energy Star Program about energy efficient office equipment. Energy Star labeled equipment has power management features that put equipment into a "sleep" mode when it is not being used and then return to full power almost instantaneously. Energy Star products have all the performance features of standard equipment, but you must make sure the power management features are activated in order to get the savings. Multifunction office equipment with power management features can operate as printers, copiers, or fax machines. On a monthly or annual basis, this equipment uses about half as much electricity as conventional equipment. This means a typical office could save approximately 50 percent on the energy costs for these products by taking advantage of the power management features of Energy Star-labeled office equipment. Interestingly enough, specifying Energy Star-compliant features on equipment generally doesn't increase equipment cost in quality equipment.
- Take a look at the EPA website <http://www.epa.gov/appdstar/esoe/index.html> for a good description of myths and facts about energy efficiency and office equipment operation. Another source of energy efficiency information is the Energy Solutions Database operated by the Energy Ideas Clearinghouse at http://www.energyideas.org/energy_solutions/.
- We have identified computers as a major source of growth in load in

our facilities. In addition to the increase due to larger monitors and power supplies, there is the impact on demand, and a/c costs. Our users are difficult to convince that systems should be turned off when not in use. The response to a college-wide effort has shown less than 10 percent cooperation so far. We are working on an awareness campaign. I have not found any really good sites for information, but will share our experiences as we have them.

- The University of Buffalo is very proactive on energy conservation and has some information on "Green Computing." You may find more useful/pertinent information in other parts of their web site: http://wings.buffalo.edu/ubgreen/energy_conservation/green_computing.htm
- There is an excellent website that might have what you're looking for: www.energyideas.org.
- Visit <http://www.epa.gov/energystar> and learn more about the Energy Star programs!
- <http://www.epa.gov/building/index.html> is a good start.
- Below is a collection of URLs you might find interesting. There definitely are opportunities. The task is to find ways to entice folks to realize that their individual efforts will collectively make a difference. It's worth the challenge! <http://www.epa.gov/appdstar/esoe/index.html>
http://wings.buffalo.edu/ubgreen/energy_conservation/green_computing.htm
<http://www.energyideas.org/>
<http://www.epa.gov/energystar/>

Question: I am needing information regarding the cost of fluorescent lighting. In particular is it more cost effective to leave a fluorescent light on or turn it off throughout the day?

Jennifer Graham is the assistant editor of Facilities Manager and APPA's publications and marketing assistant. She can be reached at jgraham@appa.org.

The argument is that it cost more to turn it on/off than it is to leave it on.

- Several decades ago it was argued that due to wear of electrodes in fluorescent tubes it was more cost effective to leave the lights on. That changed at least ten years ago and subsequent articles were published in *Architectural Record* and other locations. Electronic ballasts and T8 lamps are very efficient and have the capacity to endure thousands of on/off cycles, check with manufacturers such as GE's Nela Park for their research. The EPA Green Lights or Energy Star programs are another excellent source of conservation information.
- I've seen a number of analyses that show cost effectiveness in turning fluorescent lights off even if the off time averages a couple of minutes. For a very thorough analysis and list of references and referrals see the Energy Ideas Clearinghouse Energy Solutions Database http://www.energyideas.org/energy_solutions/ under Lighting, Operation and Maintenance. The recommendation from the California Energy Commission seems to sum up the situation, "When to Turn the Lights Off: Any time You Leave the Room."
- This "myth" has been around for some time. Yes, turning off fluorescent lights more frequently does decrease the rated lamp life (usually lamp life ratings are based on a minimum of three hours on). However, leaving the light on all the time means that it will reach those rated lamp life hours that much sooner. Typically turning the lamps off will give you longer time between lamp changes. The best way to figure out the answer is to determine the crossover point. This point is where the savings in electrical energy begin to outweigh the cost of decreasing the life of the lamp. It depends on your local electric rates, but our crossover point is something like 15 to 20 minutes. What that means is that if you are going to be gone from the room for more than 20 minutes, turn it off. If you are only going to

be gone for a few minutes leave it on. Ask your lighting vendor for a curve that shows rated lamp life vs. switching time. You can use that data (along with local electric costs) to figure out your crossover point. By the way, incandescents have a crossover point of roughly zero. Turning them on and off does not change the rated life much, so it always makes sense to switch them off.

- From an electric standpoint there is no question that turning off fluorescent lights saves energy. There is a small spike when the lights are turned back on, but it is of such short duration that the kWh is negligible. Turning the lights off saves kWh, usually saves on air conditioning costs (reheat systems excluded), but can add slightly to the heating costs in perimeter rooms during the heating season. The impact on the heating costs is almost always less than the electrical savings.
- Depending on the application an aggressive campaign to turn off

lights during the day, or the installation of occupancy sensors, can also save substantially on KW or demand costs. In schools this depends greatly on the usage and occupancy patterns of the school. Again depending on your utility rate structure and occupancy patterns this savings can be considerable. In our newest building we tied the room occupancy sensors into both the lighting and HVAC systems. In unoccupied rooms we shut off the lights, and switch the room HVAC into an unoccupied mode which reduces ventilation rates and heating/cooling costs.

- The only added cost to aggressively turning off lights is that it does shorten the life of the tubes. The 20,000 hour rating is based on very few on-off cycles. The energy costs usually far outweigh the relamping costs for fluorescent tubes. If you are group relamping every 36 months, the impact of the slightly shorter lamp life is usually zero. 🏠

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Environmental Reality Check

by Santo Manicone

Throughout the years of working with a number of educational facilities, I've found that performing a self-audit is the best way to reveal any environmental concerns that are hidden. I like to call this audit a "reality check." For a number

Santo Manicone is president of Facility Support Services LLC, a national environmental and safety engineering consulting firm with offices in Connecticut and Illinois. He has worked and assisted higher education facilities for over 16 years achieving federal and local compliance. He can be reached at support@snet.net.

of facilities, this reality check is unwanted because it uncovers hidden secrets that lurk in the basements and in other department's cabinets. Sometimes facilities managers have to enter into these "forbidden zones," to bring out the real truth, eliminate secrets, and ensure that any future liability isn't placed on the facility.

The environmental audit is an objective evaluation of environmental performance, management systems, and equipment. The first aim is facilitating management control of environmental practices, and second, assessing compliance with an operations or activity's environmental

policies, including meeting regulatory requirements. Environmental auditing is not a legal requirement under any specific law or regulation. Rather, it is a proactive management tool, which is used to consciously identify environmental problems before they occur.

As the U.S. Environmental Protection Agency (EPA) gradually moves on with their compliance audits and the "environmental consulting field" pushes the scare upon facility directors, one has to stop and take a self-assessment of their existing program, before making drastic decisions. I have prepared an audit program that has worked with a number of facilities over the years. It brings into view whether a facility is in compliance or not. The audit program is derived from recent inspections performed from various state agencies and is similar to an EPA investigation program. In order to achieve a baseline compliance program, it is important to incorporate the assistance of other departments or divisions at your school in the evaluation process.

The results of the audit is medicine that's hard to swallow, especially for a number of facilities that have not invested time in environmental programs. Try to be honest and take a moment to gather the important information (i.e., permits, analytical, inventory, manifests) that is needed to answer some of the checklist questions. If you are not able to answer the questions, consult other department managers, who might offer some results and recommendations.

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General Information

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- Products mfd. and description of facility:

Air: Stationary Source Compliance

1. Does the facility emit opaque smoke emitted from a smoke stack (dark enough to obscure anything behind the plume)? –

If yes - Which process line (be specific on location)?

Air pollution control equipment out of service?

If yes –When will it be back on line?

2. Did you smell any strong material odors?

If yes, from what process?

What chemicals (i.e., solvents) were causing the odors?

Is the process controlled by air pollution control equipment?

3. Has the facility added any processes which emit air pollutants or expanded any pre-existing air-pollution emitting processes in the last two years?

If yes, what type of process was added?

Did the facility obtain a state air permit?

4. Does the facility operate a degreaser(s) that uses one of the following cleaning solvents: Methylenechloride Perchloroethylene Trichloroethylene, 111-Trichloroethane Carbontetrachloride Chloroform.

If yes, has the facility submitted an initial notification and a notification of compliance to the EPA?

EPCRA N313 (Spill Notification/Chemical Inventory) and **CAA 112(r)** Risk Management Plans

5. Has the facility experienced any accidental releases above the Reportable Quantity (RQ) within the last three years?

If yes, provide the name of the chemical released, the quantity and the date.

6. Does the facility have on-site at any time during the calendar year a) 10,000 lbs or more of any hazardous chemical requiring an MSDS or b) a threshold reporting quantity of a listed Extremely Hazardous Substances (EHS)?

7. If yes, have Tier II chemical inventory forms been filed annually with the fire department and local/state planning authorities?

8. Does the facility have more than a threshold quantity of a listed chemical in any individual process (including storage) requiring preparation of a Risk Management Plan?

If yes, has the facility submitted an RMP summary to EPA via the Internet?

EPCRA Section 313 (Toxic Release Inventory)

1. Does the facility manufacture, process, or use any toxic chemicals in a quantity greater than 10,000lbs per year?
2. Has the facility submitted any toxic chemical release forms (Form R) to EPA?

FIFRA

1. Does the facility manufacture, distribute, repack, relabel, store or use pesticides? (Product which would be considered pesticides includes disinfectants, sterilizers, germicides, algicides, virucides, swimming pool compounds, insecticides, fungicides, herbicides, etc.) If yes, does the label bear an EPA registration and establishment number?

RCRA

1. Does the facility generate or otherwise handle hazardous waste? If so, describe the types of hazardous waste generated/handled, and state whether it is generated on-site or received from off-site.
2. Are any waste stored in containers, drums, tanks, pails, or dumpsters? Note the approximate quantity of waste, and its location.
3. Are there any containers or tanks of hazardous waste that are open or in poor condition (leaking, corroded, etc.)? If so, describe waste (e.g., liquid, sludge, etc.), indicate markings on containers/tanks and the container/tank location(s).
4. Is there any evidence of spills or leaks or dumping to the ground, pits or lagoons? If so, note location and extent of release.
5. Does the facility operate a boiler or industrial furnace? Has there been any incineration of hazardous waste on-site? If so, what type of hazardous waste, and is this an ongoing operation?

SPCC

1. How many gallons of oil does the facility store above and below ground? If the facility stores more than 660 gallons in a single tank or more than 1320 gallons in a number of tanks above ground or more than 42,000 gallons below ground. Does the facility have a certified SPCC (Spill Prevention, Control, and Countermeasure) plan signed by a P.E.? Date of plan: Certifying P.E.

TSCA PCB

1. Is there any evidence of liquid-filled electrical equipment that may contain PCBs? If "yes," describe type of equipment:
2. If the above equipment is considered to contain PCBs, what was the basis for this determination: based on- marking

with "Large PCB Mark"? Yes: No: based on- equipment Nameplate? Yes: No: based on- information from facility rep.?

3. Is there any evidence of spills or leaks from transformers, capacitors, or other liquid-filled electrical equipment that may contain PCBs? Yes: No: If "yes," describe type of equipment and spill or leak
4. Are there any PCB items (equipment, drums of waste or other containers) in storage for disposal? Yes: No: Where are these items being stored, and what is their condition?

TSCA CORE

1. Does the facility manufacture (synthesize a new) any chemical substances in any amount? If so, in simple terms, what chemical(s) do they make?
2. Does the facility import any chemical substances into the United States? (Company is "Importer of Record")

UST

1. Does the facility store in USTs motor fuels, waste oils, and/or hazardous substances? YES NO
(Note: USTs containing heating fuels for on-site heating purposes are exempted from RCRA UST.)
2. Are the USTs registered with the state? YES NO (Each state keeps notification data for USTs)
3. **I** Is some form of leak detection in use for the UST system's tank and associated piping? YES NO
4. **I** Are records available showing registration and monthly leak detection along with the yearly UST system tightness test? YES NO

Water

A. DIRECT (NPDES) & INDIRECT (PRETREATMENT) DISCHARGERS

1. **I** Has the facility expanded its production or wastewater flow, or changed its processes, since its last permit? **O** Did you observe any outfalls? If so, was there any discoloration, steam, oil sheen, or odor?
2. **P** Does the facility use water in its manufacturing processes?
If yes — **I a** Does the facility discharge wastewater (process, sanitary, cooling, etc.) into a surface water, municipal sewer system, or a subsurface system? Is the municipal sewer separate or combined? **I b** Are all of the discharges covered by a permit?
3. **P** Does the facility have floor drains? If yes - a) Are materials stored in a manner that leaks or spills could enter the floor drains?
b) Are materials dumped down the floor drains?
I c Where do the floor drains discharge (1. treatment facility, 2. municipal sewer, 3. subsurface system, 4. storm drain or 5. surface water)?
4. Does the facility treat its process and/or sanitary wastewater prior to discharge? If yes - **OP a** Is the treatment equipment operational, clean, and well maintained? **OP b** Is the discharge free of solids, color, and odor?

B. STORM WATER

1. **O** Are there catch basins, drains, culverts, ditches, etc. on the property intended to convey storm water. If yes - Is the storm water conveyed to a (1) treatment facility, (2) combined sewer, (3) separate storm sewer, (4) separate sanitary sewer, or (5) surface water?
2. **I** Are the storm water discharges covered by a permit or has the discharger applied for a permit?
3. **O** Are materials stored outside? If yes - a) Are materials (1) stored in sealed containers, under tarps or roofs, or (2) are they open to contact with precipitation? b) Are outside material handling/storage areas clean and kept in a manner to prevent contamination of runoff?

Wetlands

1. **O** Within view, are there a) streams, ponds or other water bodies; b) vegetated areas with standing water; or c) areas with mucky, peaty, or saturated (squishy) soils? If yes, have any of these areas been disturbed by waste/refuse disposal, storage of materials, ditching, or filling? If yes, briefly describe:
2. **I** If yes to both "Observable" questions, does facility have a federal CWA section 404 permit, or any state or local permit authorizing the activity(ies) observed? Underground Injection Control (UIC) Subsurface Wastewater Disposal
1. **A.** [1] Does the facility discharge fluid wastes to drains, plumbing, or drainage systems connected to a subsurface wastewater disposal system(s) listed below? Yes: No:
If "yes," circle discharged fluid waste type(s) in list below.
If "yes," circle subsurface wastewater disposal system type(s) in list below.
1. **B.** [1] Does the facility have a state or local permit authorizing the subsurface wastewater disposal system(s)?
Yes: ___ No: ___

Subsurface Sewage Disposal

2. **A.** [1] Does the facility have an on site sewage disposal system(s) that serves more than 20 people per day?
Yes: ___ No: ___
2. **B.** [1] Does the facility have a state or local permit authorizing the on site sewage disposal system(s)?
Yes: ___ No: ___
2. **C.** [1] Is the onsite sewage disposal system used to dispose of any fluid waste type(s) listed below? Yes: ___ No: ___
If "yes," circle discharged fluid waste type(s) in list below.
3. [O] Do you observe any floor drain(s) or surface drain(s) that can receive any of the fluid waste type(s) listed below?
Yes: ___ No: ___ If "yes," check the discharged fluid waste type(s) in list below.
3. [I] If "yes", where does the facility drain(s) discharge:
a. Municipal sewer? _____
b. Subsurface disposal system type(s) listed below? _____ c. Unknown _____

Disposal System Type

dry well septic system cesspool leach field leach pit leaching trench disposal well

Fluid Waste Type

Liquid Wastes

Process Wastewater

Non-Contact Cooling Water

Boiler Blowdown Fluids

Air Conditioning Fluids

Heat Pump Fluids

Other Waste _____

Wash Water, Spills or Storm Water from:

- * maintenance areas
- * hazardous material or waste storage areas
- * hazardous material or waste handling areas
- * process or manufacturing areas
- * fuel storage areas
- * areas prone to hazardous substance release

CODES:

O - OBSERVABLE P - PROCESS

I - INTERVIEW

Pollution Prevention (Optional)

I.I Does your facility have a pollution prevention, toxics use reduction, or RCRA waste minimization program?

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AIRS - Aerometric Information Retrieval System

BACT - Best Available Control Technology

CAA - Clean Air Act

CAAA - Clean Air Act Amendments

CEM/CEMS - Continuous Emission Monitoring/System

CFC - Chlorofluorocarbon

EER - Excess Emission Report

HAP - Hazardous Air Pollutant

HON - Hazardous Organic NESHAP

LAER - Lowest Achievable Emission Rate

NAAQS - National Ambient Air Quality Standards

NARS - National Asbestos-Contractor Registry System

NESHAPS - National Emission Standards for Hazardous Air Pollutants

NSPS - New Source Performance Standards

NSR - New Source (Pre-construction) Review

PM - Particulate Matter

RACT - Reasonably Available Control Technology

SIP - State Implementation Plan

VE - Visible Emissions

VOC - Volatile Organic Compounds

EPCRA

EPCRA - Emergency Planning and Community Right-to-Know Act

LEPC - Local Emergency Planning Committee

SERC - State Emergency Response Commission

TRI - Toxic Release Inventory

FIFRA

FIFRA - Federal Insecticide,

Fungicide, and Rodenticide Act, as Amended

EPA Reg. No. - EPA Registration Number (one for each pesticide)

EPA Est. No. - EPA Establishment Number (where a pesticide is manufactured)

RCRA

RCRA - Resource Conservation and Recovery Act

HSWA - Hazardous and Solid Waste Amendments

TCLP - Toxicity Characteristic Leaching Procedure

LDR or Land Ban - The Land Disposal Restrictions

TSDF - Treatment, Storage and Disposal Facility

LQG - Large Quantity Generator

SQG - Small Quantity Generator

BIF - Boiler and Industrial Furnace

TSCA/PCBs

TSCA - Toxic Substances Control Act

PCBs - Polychlorinated biphenyls

ML - Large PCB Mark

UST

UST - Underground Storage Tanks

OUST - Office of UST

WETLAND

CWA - Clean Water Act

404 - specific section of the CWA

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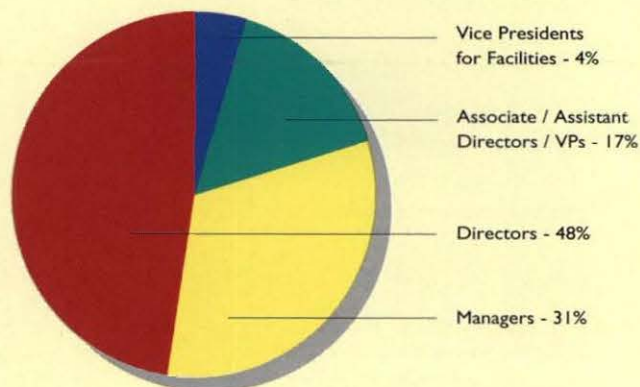
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2. Listings in the pre-show promotional materials, the APPA website (with link), and the on-site program identifying your company as a sponsor.
3. Post-conference mention in the September/October issue of *Facilities Manager* magazine.
4. Complimentary set of registrant mailing labels for a pre-conference mailing.
5. One piece of your company's promotional literature distributed to registrants in their conference materials.
6. Verbal acknowledgment at events.
7. Opportunities to address the conference audience.

Who Attends the APPA Annual Meeting & Educational Conference?

APPA conference goers are facilities professionals in higher education, K-12 school districts, museums, and other education-based institutions. With higher education, APPA represents more than 80 percent of U.S. research, doctoral, and comprehensive/masters institutions. The Annual Meeting draws attendees from across the nation and Canada, as well as Australia, New Zealand, Hong Kong, and several other countries.

2000

ANNUAL MEETING ATTENDANCE



Sixty-nine percent of conference-goers hold the title of Vice President, Associate Vice President, or Director of Facilities. Visibility at the annual meeting puts your company in front of the decision-makers on campus.

Opportunities Abound

There are still plenty of opportunities remaining for sponsorship. APPA is looking for support for several areas. APPA is also open to any suggestions you have for sponsorship. Call Ron Hicks at 703-684-1446 ext. 231 or e-mail hicks@appa.org.



Special Platinum Opportunity

Support APPA's banquet performance by the world-renowned acrobatic performers of Cirque du Soleil. Guaranteed to be the highlight of the conference!

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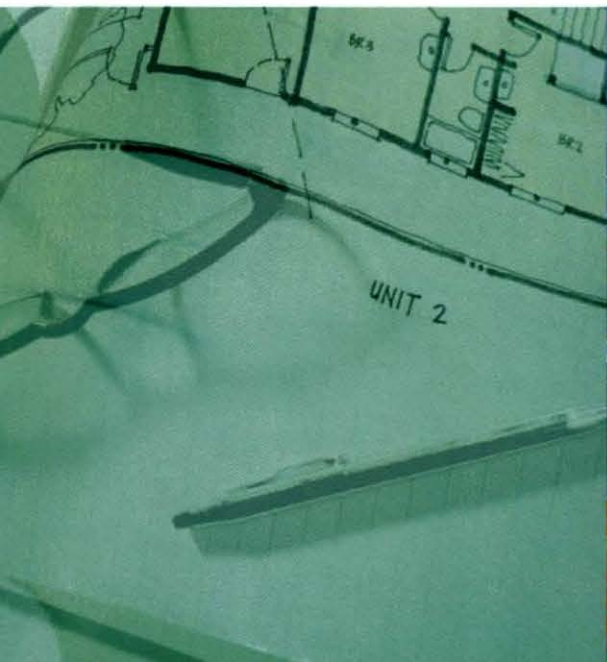
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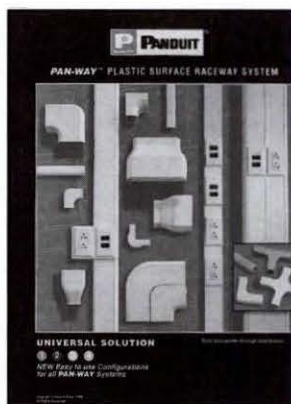
Official Annual Meeting Commemorative Pin



New Products

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

Panduit Corp. offers its new 140-page catalog with a complete range of non-metallic raceway solutions. The catalog features the company's PAN-WAY Surface Raceway System designed for quality cable protection and routing. Also included in the catalog are new raceway designs, outlet poles, fittings, and accessories. For more information call Panduit Corp. at 888-506-5400.



Safety Storage, Inc. announces its line of standard shelving, separation walls, and other interior furnishings for use in hazardous materials storage buildings and lockers. Convenient storage, handling and use of bottles, buckets, bags, and boxes of dry and liquid chemicals, can be achieved with Safety Storage, Inc.'s products. For additional information call Safety Storage, Inc. at 800-344-6539.



3M announces the reintroduction of its popular Amber Scotchtint window films, which allow more daylight to enter buildings without sacrificing sun control and comfort. The first two Amber films available are RE35AMARL, which controls sun glare and heat, and LE35AMRL, which offers winter heat retention in addition to sun protection. To find out more about 3M's Amber Scotchtint call 800-947-2676.



Solatube International, Inc., innovator of the tubular skylight, announces the launch of its commercial division. Coinciding with the launch is the introduction of its SolaMaster Series, the first line of tubular skylights designed specifically for commercial buildings. The SolaMaster Series is a versatile product line designed for a variety of configurations, including suspended ceiling systems, finished drywall ceilings, and open warehouse spaces. For more detail call Solatube International at 760-497-4400.

Protection Knowledge Concepts, Inc. introduces "Practical Bomb Defense," a knowledge transfer program designed to provide facilities managers, architects, and engineers with a basic program to protect property and employees against devastating explosions. The program features a 40-minute audio tape and a wall chart outlining practical bomb defense strategies. Topics include the three components of a bomb defense plan, the importance of a "glass plan," and the proper response to bomb threats. For more information call Protection Knowledge Concepts, Inc. at 888-831-4752. 🏢



Benchmarking and Organizational Change

by Mohammad H. Qayoumi, Ph.D.

Contents

Chapter 1: Why Benchmark?

"There are roughly 3,700 institutions of higher education in the United States, serving close to 15 million students. . . Today, however, higher education is faced with profound challenges that will unavoidably transform many of its entrenched beliefs. . ."

Chapter 2: What Is Benchmarking?

"The common elements of the various definitions of benchmarking are continuous improvement, measuring and analyzing, comparing, and adoption of superior practices. . ."

Chapter 3: Critical Factors for Benchmarking Success

"A number of critical factors play a pivotal role in the success of a benchmarking project. . ."

Chapter 4: Leading Organizational Change

"A benchmarking project should contribute to the strategic direction of an organization and should be part of changes devised to improve the organization's competitive position. . ."

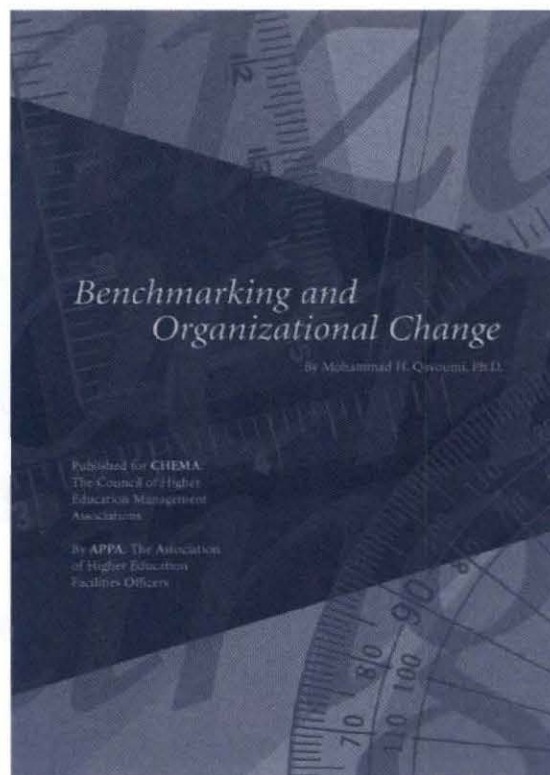
Chapter 5: Leveraging Organizational Learning

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Chapter 6: Conclusion

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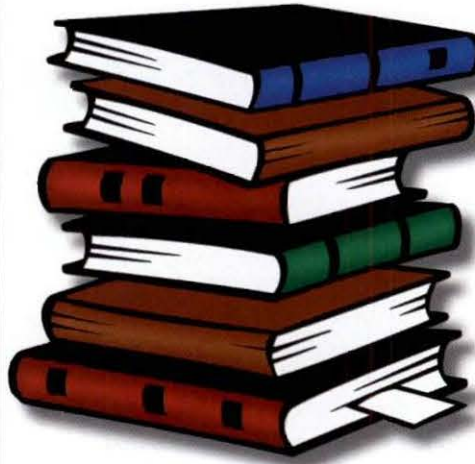
This edition begins my first effort as The Bookshelf editor. John Casey filled this position for ten years, often writing many of the book reviews himself. I hope to maintain the quality and quantity of reviews that John achieved.

One person alone cannot do book reviews; it would not reflect the diverse backgrounds of APPA members. So before getting serious about books, I'll ask every APPA member to consider writing a review, positive or negative, to assist and support fellow members in doing the tough job of facilities management. When I meet you at a conference or educational program, I'll make a similar pitch. Additionally, unsolicited reviews are also welcome. Send them to tweidner@admin.umass.edu. They will be published as soon as practical.

My hope is to provide reviews based on several themes affecting facilities officers today. Initial themes include leadership, management, engineering, architecture, finance, technology, and politics. Other themes may develop based on the magazine's theme or requests from the membership. Your comments are welcome.

This first edition of the millennium—the true beginning was January 1, 2001—focuses mainly on books about the Internet and technology. We see it everywhere and are

Ted Weidner is the associate vice chancellor for facilities and campus services at the University of Massachusetts/Amherst. He is also the co-chair of APPA's Trades Staffing Guidelines Task Force. He can be reached at tweidner@admin.umass.edu.



challenged by it everyday. How are we getting technology to the classroom, how are we getting it to the workforce, and how are we using it? If we don't use technology, what will happen to us? Can the direction of technology or the use of it predict the future? There are many people willing to predict the future, but not many of us are willing to accept the predictions.

Beyond the subject of technology is a book on college and university costs. Why is it that our services are considered so expensive? Why is it that colleges and universities have raised their costs faster than the rest of the economy? Will cost increases be maintained? How do universities spend the money they receive?

Whether these reviews entice you to read or buy the books, I hope you become inspired to question the issues presented, question your situation relative to the issues, and to seek out new answers as they affect your life.

The "E" is for Everything: E-Commerce, E-Business, and E-Learning in the Future of Higher Education, by Richard N. Katz and Diana G. Oblinger, editors, Educause Leadership Strategies No. 2. San Francisco, CA: Jossey-Bass, 2000. 113 pp, softcover.

This relatively brief book has several tables, graphs, and statistics that will quickly assist the reader in understanding various conditions and trade-offs in the electronic world of higher education. The editors bring in several authors experienced in the management of technology in higher education. They first present the various areas that technology has or can be more deeply ingrained into higher education. These are not just the utilization of technology in the classroom (on-site or distance), but also for business processes and management of information.

There is a separate chapter presenting the essential elements needed to prepare to utilize technology for business. Topics such as electronic signatures, authentication, billing, encryption, and passwords are discussed. The authors do not provide the details of these, but the book does give the generalist the opportunity to understand the complexity of e-business as well as provide assurances that the technology can handle many of the security concerns if the correct steps are followed.

From the perspective of an individual who might be expected to oversee the implementation of paperless processes through electronic applica-

tions, the last chapter is valuable. It presents an excellent guide to becoming more electronically focused for business. There are cautionary steps outlined before one jumps into the electronic world. A brief listing of providers is organized by "process area," i.e., admissions, textbooks, procurement, and merchandising. There is also a diagram, developed by Price-waterhouseCoopers LLP, which identifies eight areas that must be addressed to prepare for e-business as well as five milestones for each area. When one considers the numerous horror stories about implementing new electronic business systems, this chapter alone is reason enough to buy the book.

* * *

The Digital Economy, Promise and Peril in the Age of Networked Intelligence, by Don Tapscott. New York, NY: McGraw-Hill, 1999. 321 pp, hardcover.

One reason to read a book is for inspiration and this book falls into that category. The mechanics of digital networks are introduced, discussed, critiqued, and recommended. The reader will finish the book energized and ready to look for ways to utilize existing systems in different ways.

The author starts every chapter with a technique that I enjoy. He uses quotes, sometimes from a well-known person, sometimes not, to set the discourse for the chapter. They inspire immediate thoughts about the focus of the chapter and heighten the reader's awareness of the issues that are presented.

Each chapter is thought provoking and divided into several, sometimes initially contradictory, subchapters. There are the 12 themes of the new economy, the traveling network, digi-

tal learning, internetworked leadership, privacy, and responsibilities, to paraphrase some of them. Within each chapter is the constant and essential underlying theme that a digital economy can provide increased knowledge, better service, more efficient organizations, and new leadership challenges.

Leadership appears as a theme in two parts, four chapters, and one-third of the book. Non-digital leaders are few; digital leaders are many. The head of a leading team must recognize that there are many leaders he or she works with in order to succeed. Success comes from being quick, thorough, and creative. Lack of success, the status quo, is none of these. The challenge of a digital economy is to manage the rapid changes that being digital will bring.

The author starts every chapter with a technique that I enjoy. He uses quotes, sometimes from a well-known person, sometimes not, to set the discourse for the chapter.

On a more practical level, *The Digital Economy*, provides a roadmap to implementing technology through a process that looks at efficiency, process redesign, organizational transformation, changes in external relationships, and wealth creation. It isn't necessary to perform all five steps, but one cannot create wealth without becoming more efficient first. So the complexities of the roadmap's hierarchy is important to understand. It is easy to understand through several examples, some of which have parallels to higher education facilities.

This book is an energizer; it takes the long view and uses big pictures. It is designed to inspire those who lead organizations. It includes both for-profit organizations as well as not-for-profit. It is a source of excitement for those contemplating what to do with a new technology resource.

* * *

Net Future, The 7 Cyber Trends That Will Drive Your Business, Create New Wealth, and Define Your Future, by Chuck Martin. New York, NY: McGraw-Hill, 1999. 264 pp, hardcover.

It seems as though the future is here and nearly everything is being done on the Internet. Most of us are familiar with e-mail, checking the weather or stock market, seeing the latest news or sports scores. If you are like me, you already do your banking (pay bills, transfer money, and obtain loans), invest (buy and sell stocks as well as check on your retirement), and purchase airline tickets, clothes, books, or food online. What used to be done over the phone can now be done over the Internet.

Net Future discusses the many different advantages of using the Internet. One of the particularly challenging, but interesting, uses of the Internet is the increased widespread sharing of information. Some people believe that knowledge is power. With the Internet, access to knowledge is easier than ever. Net Future presents compelling arguments for sharing internal information via the web. When the customer has access to personal information, he or she can keep the information accurate. The customer can perform tasks that employees previously had to perform, saving the employer or company (ultimately the customer) money and time.

At the same time, the ability to distinguish between products or vendors based on the effects of advertising are much more difficult. Products, despite how long-lived they may be, are commodities because the Internet user has better access to pricing information and to product reviews with which to compare quality or other differences. Producers, vendors, and service providers are more significantly challenged to deliver value added products to consumers.

In higher education we share a great deal of electronic information with our students and potential students. Catalogs are virtual, there are webcams of our campuses and details of university policy and structure can also be accessed. Some campuses provide applications, registration, bill payment, degree completion, and transcripts over the Internet. There are also entire courses and programs of study provided over the Internet. There is significant pressure to offer more over the Internet; examples in this book demonstrate the for-profit challenges our academic colleagues face. But this may not be enough and the author makes a compelling argument.

Our internal operations should be available through the Internet, as well; it is one of the most widespread tools on campus. For example, there should be access to budget information, purchasing, and personnel. As facilities officers we will be challenged to provide information on maintenance/repair requests and the condition of buildings: How much space is occupied or maintained by a department? What is the status of a construction project? Is there a vehicle available for a field trip?

Net Future challenges us to look at our operations and our customers in a different way. The issue may no longer be the information itself, but the availability of the information. We should recognize the growing

desire for information as we utilize the Internet now and in the future. Martin's book will help us do that.

* * *

Tuition Rising, Why College Costs So Much, by Ronald G. Ehrenberg. Cambridge, MA: Harvard University Press, 2000. 284 pp, hardcover.

Understanding college and university budgets and their associated costs used to require a background in fund accounting or the ability to determine the financial impact of GASB34/35. That is no longer the case because this book makes university budgets understandable. Granted, it uses Cornell University as the model, a large and complex campus in its own right, but the use of everyday language and clear examples make this an important text for anyone working at a university, or contemplating paying tuition.

Professor Ehrenberg spent five years in administration at Cornell University and has since returned to academic pursuits. This book is part of his scholarly work and should be appreciated by many. While there is considerable effort spent to justify the high costs of private higher education, particularly at selective (Ivy or Ivy-like League) colleges and universities, several very clear cases are made to explain why college costs rise faster than inflation. Ehrenberg, who is an economist, does an excellent job presenting the dismal truth of higher education economics. From image and branding, through faculty tenure and salaries, via financial aid and tuition discounting, to space, construction, and utility costs (the hard numbers that facility officers understand), Ehrenberg leads the reader through the many hard decisions that are made on an annual basis, on every campus. Some of the hard decisions about cost containment, resulting from legislative or trustee mandate,

are not addressed. Alas, we are not all Ivy.

It was disappointing, due to the magnitude of the problem on many campuses, to see deferred maintenance combined with space planning in a single chapter. But the author did an excellent job articulating the reasons for its growth. Many of us should take advantage of this layman's description the next time we have to explain the need to replace a major building component that no longer works.

The complexities of space management are also addressed, with an interesting example of where Ehrenberg, the professor-administrator, was fooled by a clever colleague. There are sufficient examples so that one can get a better picture of what our colleagues are facing as they deal with their side of the administration.

A bright spot in the book was an entire chapter devoted to the complexities of creating Cornell's unique Cayuga lake-source cooling system. Descriptions of the many community and regulatory hurdles, cries of BANANA (building absolutely nothing anywhere near anyone), and other challenges that facilities officers face were welcome, if only to share in the pain of the effort. Another chapter dealt with parking and the never-ending struggle to maintain the ideal of a green campus core.

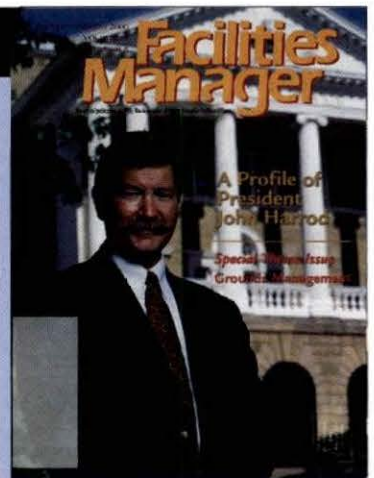
While the author occasionally lapsed into more wordiness than I cared to wade through on certain subjects, the book is well written and provides much needed insight into what is often considered a mysterious process. Some readers will develop an admiration, or at least an understanding, for the budget people who never provide the facilities operation with its needed resources. If you want to gain a better understanding of the business side of your campus without getting too technical, read this book. 📖

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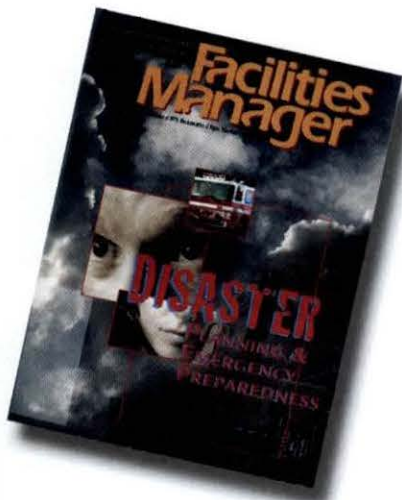
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Coming Events

APPA Events

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

Jan 28-Feb 1, 2001—Institute for Facilities Management. Newport Beach, CA.

Feb 12-13—The Emergent Building Technologies Conference: Integrating People, Technology & Design. Las Vegas, NV. Sponsored by APPA, CSI, and NSCA. Contact: Construction Specifications Institute at 800-689-2900, or visit www.emergentbuildingtech.com.

Jun 17-22—Leadership Academy. Fort Lauderdale, FL.

Jul 22-24—Moving Beyond Boundaries: APPA 2001 Educational Conference & 88th Annual Meeting. Montreal, Quebec, Canada.

Sep 16-20—Institute for Facilities Management. Scottsdale, AZ.

Jan 13-19, 2002—Institute for Facilities Management. Tampa, FL.

Jun—Leadership Academy. Date and location to be determined.

Jul—APPA 2002 Educational Conference & 89th Annual Meeting. Phoenix, AZ.

Sep 8-12—Institute for Facilities Management. Norfolk, VA.

APPA Regional Meetings

Sep 13-15, 2001—RMA Regional Meeting. Tucson, AZ.

Sep 29-October 3—ERAPPA Regional Meeting. Hershey, PA.

Sep 30-October 3—PCAPPA Regional Meeting. Vancouver, BC, Canada.

Oct 10-14—CAPPA Regional Meeting. Cape Girardeau, MO.

Oct 27-30—SRAPPA Regional Meeting. Roanoke, VA.

Oct 28-31—MAPPA Regional Meeting. Madison, WI.

Other Events

Jan 14-16, 2001—TNLA's 24th Annual Trade Show & 95th Annual Convention. Chattanooga, TN. Contact: Tennessee Nursery & Landscape Association at 931-473-3951 or www.tnla.com.

Jan 14-17—Restoration & Renovation 2001. Washington, DC. Contact: EGI Exhibitions 978-664-8066 or 800-982-6247 or show@egiexhib.com or www.restorationandrenovation.com.

Jan 18-20—AACU 87th Annual Meeting. New Orleans, LA. Contact: The Association of American Colleges & Universities at 202-387-3760 meetings@aacu.nw.dc.us or www.aacu.edu.org.

Jan 28-29—CEFPI's 8th Annual Technology Conference. Scottsdale, AZ. Contact: Council of Educational Facility Planners International at 480-391-0840 or cefpi@cefpi.org or www.cefpi.org.

Feb 7-9—School Equipment Show 2001. Dallas, TX. Contact: National School Supply & Equipment Association at 800-395-5550 or 301-495-0240 or www.nssea.org. (Half-price for APPA members)

Feb 21-23—IDEA: 14th Annual College and University Conference. New York, NY. Contact: Rob Thornton at robertpthornton@aol.com.

Feb 26—State-of-the-Art Learning Environments: Pew Grant Program in Course Redesign Round I Results. Dallas, TX. Contact: 303-449-4430 or info@educause.edu or www.cenr.rpi.edu/forum/learnenv.html or www.educause.edu.

Mar 1-3—3rd Annual CSI Product Representative Academy. San Antonio, Texas. Contact: CSI Customer Service at 800-689-2900.

Mar 15—Technology Driven Planning. SCUP/PBS. Contact: Jolene Knapp at 734-998-6969 or www.scup.org 

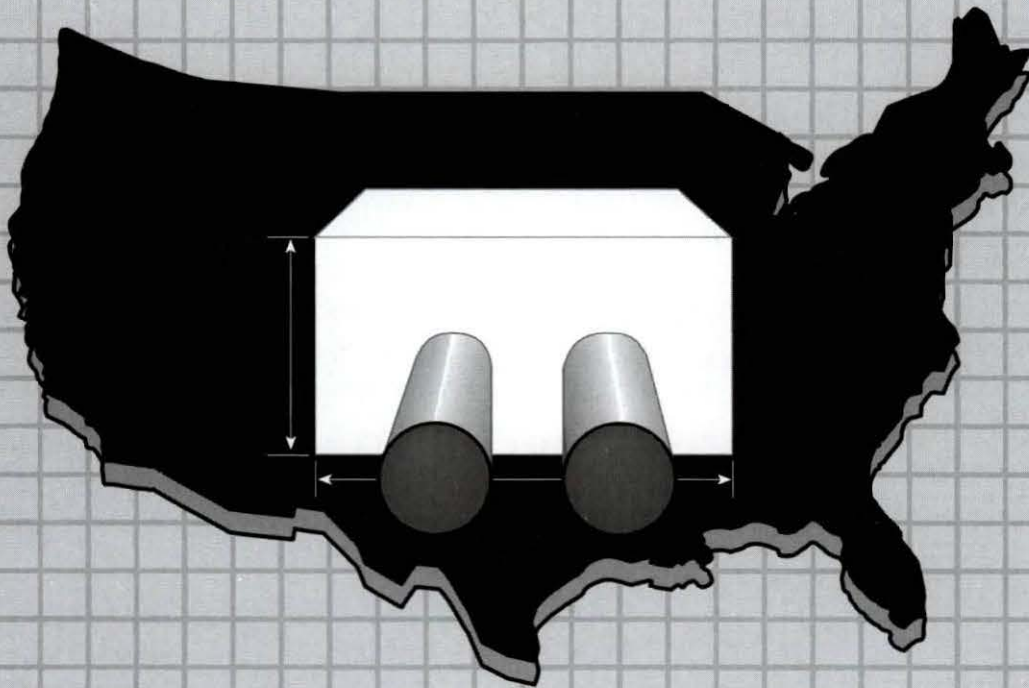
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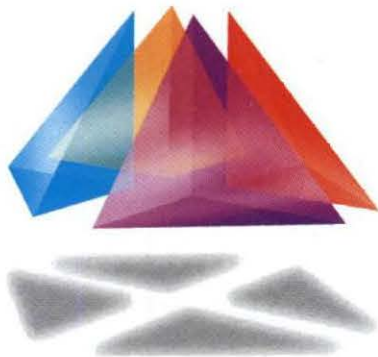
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