July/August 2004
VOLUME 20
NUMBER 4

Facilities Manager

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

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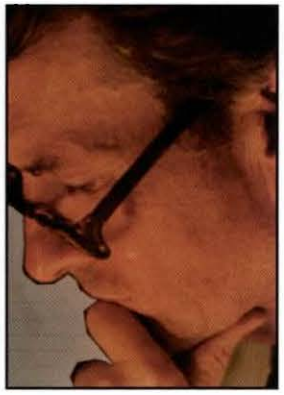

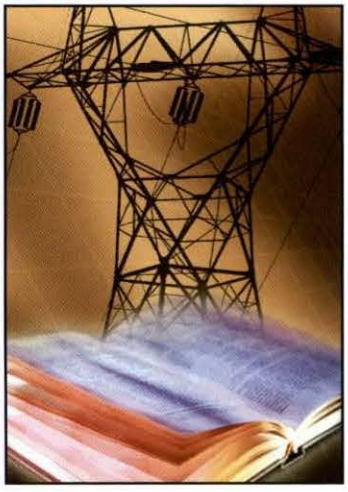

THIS ISSUE'S TOPIC:

ADVOCACY AND COMPLIANCE

OTHER FEATURES:

Facilities Manager
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Columns

Facilities Manager

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Global Partner in Learning

From the Editor

by Steve Glazner

Rich Robben Receives 2004 Rex Dillow Award

It is always a pleasure each year to share the names of the author or authors who were selected by APPA's Information and Research Committee to receive APPA's Rex Dillow Award for Outstanding Article in *Facilities Manager*.

The 2004 Rex Dillow Award is given this year to Richard W. Robben of the University of Michigan. His article—his first written for *Facilities Manager*—was "Quality Measurement in a Facilities Management Environment" and was published in the May/June 2004 issue. Rich was presented his award at the 2004 APPA Forum in Washington, D.C.

In his award-winning article, Rich explains how increased competition and greater demands by our campus constituencies have resulted in a re-thinking of how quality is measured and delivered to the customer. He describes a process that builds on customer expectations that focus on identifying the critical indicators that will define quality, taking actions that bring quality results, and tracking the processes to ensure that the indicators are maintained and communicated to stakeholders.

The award, first presented in 1987, is named for APPA member emeritus Rex O. Dillow, formerly of the University of Missouri-Columbia, who contributed much to the development and improvement of APPA's publication and education programs during his active membership in the association. There were 15 eligible articles for this year's award. Congratulations again to Rich Robben for his excellent work.

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President's Report

by Brooks H. Baker III

Fall Regional Meetings

The annual meetings of the APPA regions are always exceptional events featuring educational programs and opportunities for peer networking and great value to those attending the meetings. This year, I was able to attend two of the APPA regional meetings, CAPPA and PCAPPA. Unfortunately, my trip to RMA had to be cancelled, but Past President Gary Reynolds attended their meeting held in Sedona, Arizona.

The PCAPPA region covers a diverse geographical area reaching from the southern tip of California to western Canada and from Hawaii to Nevada and Idaho, but its members have a camaraderie and fellowship that was tremendous. Towny Angell and his group from Reed College did a magnificent job of hosting and the business meetings had John Wong of the British Columbia Institute of Technology at the helm. The meeting went smoothly and everything was accomplished in a very cooperative setting. With Chris Christofferson of Stanford University as the incoming president of PCAPPA, they will have an experienced leader at the helm throughout this year.

The CAPPA region met in Corpus Christi and made me feel like part of the family when I arrived. Ron Smith and his group from Texas A&M University did an excellent job hosting the event, and Art Jones, CAPPA President, ran a great meeting. The strength and health of CAPPA was evident in their lively discussions over revisions of their Bylaws and through the general attitude and atmosphere that was experienced at this meeting.

Annual AUDE Conference

The annual conference of the Association of University Directors of Estates (AUDE) of the United Kingdom was held this year at the University of Manchester Institute of Science and Technology (UMIST) in the midst of the city of Manchester, England. The UMIST conference center was a wonderful location for this meeting since the trade show, educational meetings, and overnight accommodations were all in the same building. The meeting was well attended and included guests from several countries outside the United Kingdom.

In typical AUDE style, the closing banquet was a black tie affair in a beautiful setting. The banquet was held in what appeared to be a convocation building at the campus of the University of Manchester, located adjacent to UMIST. The grand hall where we dined was awesome with a cathedral-like pipe organ and beautiful architectural features. We were entertained by a truly wonderful string quartet called Palm Court during the meal—what a treat! Leave it to the British to overwhelm you with their class and style.

Mike Stacy was a wonderful host to us during our stay in Manchester and arranged for our special needs in a gracious manner. Simon Britton is the new chair of AUDE as Andrew Nightingale stepped down from his term of office.

We were invited to attend the Algemene Vereniging Schoolleiders (AVS) conference in the Netherlands while we were in that area of Europe, so we stopped by for a couple of days of their conference. The AVS group had questions about the management of deferred maintenance, outsourcing, and other topics related to the business of facilities management. Approximately 1,000 members attended, representing mostly secondary schools.

GAPPA

This report would not be complete without commenting on the Georgia APPA (GAPPA) meeting held in Jekyll Island, Georgia. Ed Rice was the official APPA representative, but Lee Richey with GAPPA was kind enough to invite me to be the keynote speaker. As always, the GAPPA meeting was a great event with camaraderie, fun, a great educational program, and with many business partners in attendance.

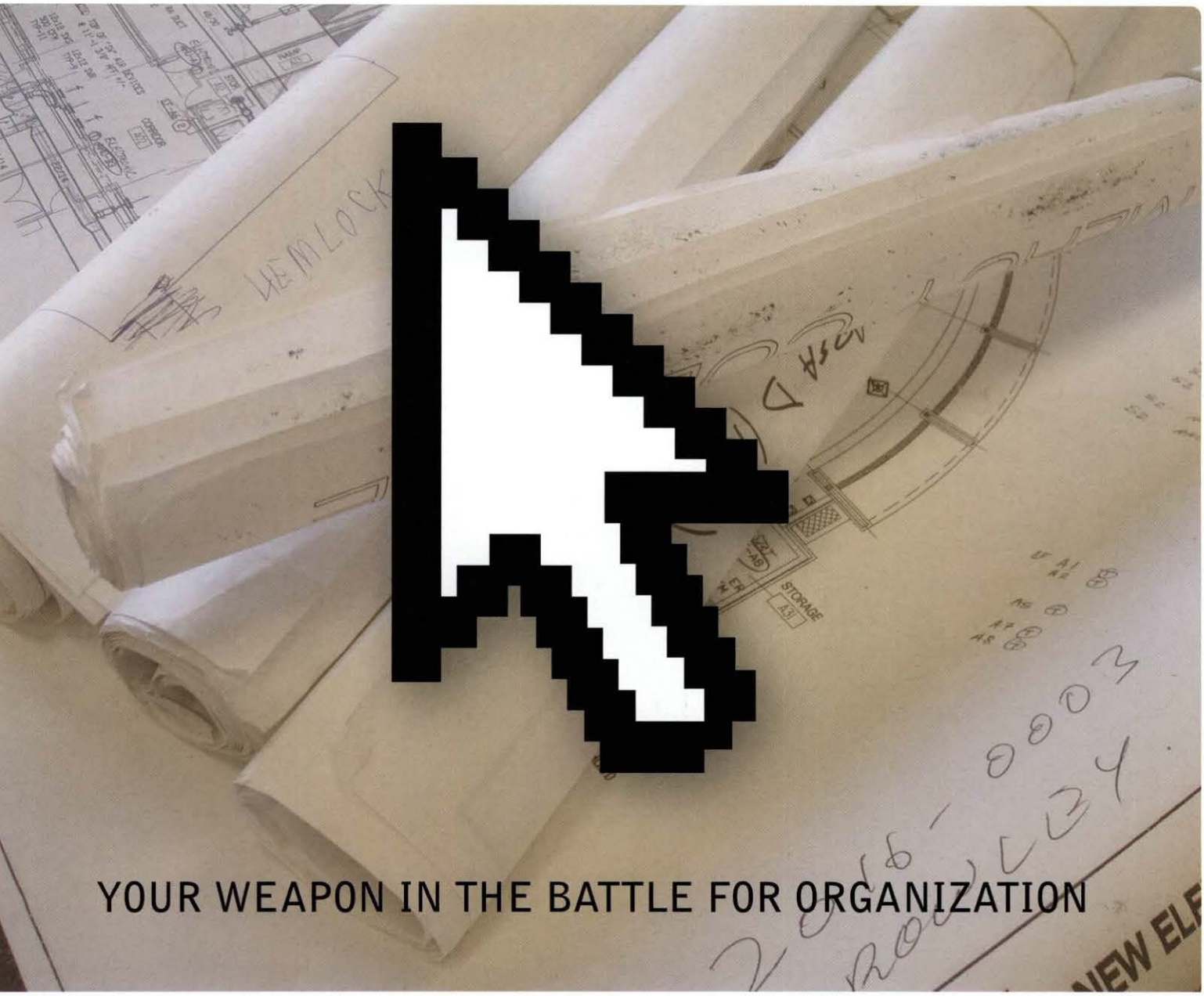
Other Comments

This year also brought a new relationship into existence with members of the newly created Tertiary Education Facilities Management Association (TEFMA) formed by many of the former members of Australasia APPA. We have forged a strategic partnership with TEFMA and will continue close relationships with this group as they move forward to nurture and develop their own association.

Mexico APPA is still moving forward as it continues to strengthen its numbers and provide valuable educational offerings for those participating institutions in Mexico. We look forward over the coming months and years to strengthen this relationship with our friends in Mexico and being able to provide them with APPA resources as well as learning from their experiences in higher education facilities management.

APPA is healthy financially and in its attitude. The exuberance of the volunteers and their willingness to

Continued on page 8



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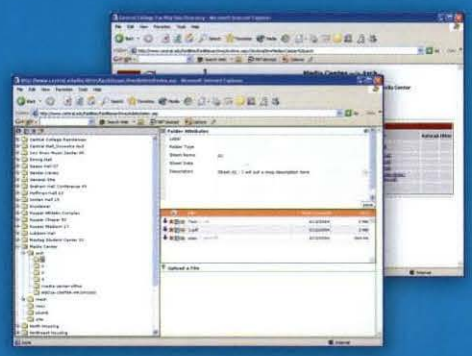

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Continued from page 6

devote many hours to the association bode well for the coming year. A highly skilled and motivated staff in Alexandria provides the association with tremendous support with a great attitude and with dedication to what they are doing. With the introduction of a new training program, Supervisor's Toolkit: Nuts and Bolts of Facilities Supervision, the Center for Facilities Research (CFaR), a renewed Strategic Assessment Model, and all of the other positive things that have happened in the last year or two, APPA will grow in numbers and in influence and will continue to be the Association of Choice for Educational facilities professionals.

Once again, thank you for enabling this country boy to be of service to the association for the past year as your president. It has been a delightful experience.

Immediate Past President's Report

Philip L. Cox

As I prepare to transition off the APPA Board of Directors, something I really do not wish to think about because I am going to sorely miss my Board involvement, I thought I would pass along a few observations.

APPA is in remarkably good health considering the economic stress it has endured over the past two to three years. Through hard work and careful attention by the Board and especially the staff, our association has weathered the economic storm while at the same time undertaking some remarkable initiatives. While many associations hunkered down to get past the economic challenges we presently face, APPA has courageously forged ahead with such initiatives as the Center for Facilities Research (CFaR) and re-tooling the annual meeting into the Educational Facilities Leadership Forum. To me, these initiatives illustrate the style of APPA's leadership. It would be easy to subscribe to the philosophy of "if it ain't broke, don't fix it" or "go with a winner"—especially in times that are calling for caution. Not APPA. Rather, our association, looking for continuous improvement, is continually testing assumptions about the relevance of our membership services in an environment of shifting stakeholder requirements. By staying nimble and flexible, our association is able to respond to members' changing needs.

At a time when there are several issues competing for APPA's time, resources, and energy, it is my firm conviction that our #1 priority is our membership. We must never become complacent about our membership base. For it is our membership that pays the dues that allows us to operate; it is our membership that purchases our publications; it is our membership that attends our training offerings; and most importantly, it is our membership that makes up the wonderful body of people with whom we associate.

It has been gratifying to me during my years on the Board to observe that APPA has become a more inclusive organization. We now have provisions for individuals to become members of APPA. Also recognizing that one size does not fit all, member institutions can now designate whomever they chose—direct paid employees or contractor employees—to represent them as institutional representative. We have also extended voting privileges to affiliates. We now formally recognize state, provincial, and local chapters. And, perhaps as a terrific way to assure succession in our profession, we have recognized and welcomed into our ranks student chapters. To me these changes represent steps to increase APPA's diversity. And while we still have a long way to travel on our journey to greater inclusiveness, these initial steps signal to me that we are headed in the right direction.

Being a "global partner in learning" calls to mind the aspect of our geographic diversity. APPA is paying careful attention to our international members and guests—realizing that if we are to truly partner on a global scale, we must be better versed in how to interact with these partners. It is now possible for international organizations to engage with APPA on several levels, beginning at an informal level and going all the way up to a strategic partnership. Further, APPA now has an international protocol policy and a staff member serving as the protocol director, all of which are intended to make our international visitors feel more welcomed and included in our meetings and events.

As a long-time observer of the APPA Board of Directors, it appears to me that the Board has struck an optimum balance in the devotion of its time and energy between strategic and tactical issues. That is, the Board, rightfully so, devotes much of its attention to long-term strategic matters while relying heavily on trusting partnerships with the staff and committee members to lead the tactical efforts. Not only does this speak well of the Board for doing the right things, but it is also an indication of the trust that has been earned by outstanding staff members and the dedicated, hardworking committee members.

One final observation, if you will permit the musings of a lame duck. Some experts argue that it is better for leaders to keep their professional and their social lives separate. Whether you agree with this advice or not, you might at least agree that it is not always easy to accomplish. However, with APPA, I have felt blessed to be able to combine professional and personal facets of my life in a perfect union. While pursuing my professional interests and personal development in APPA, I have made many, many lifelong friends from literally around the world. These associations and friendships are what I will most cherish about my involvement in leading this superlative organization. Thank you for the privilege and honor.

President-Elect's Report

Edward D. Rice

It has been a very busy year, starting last July when I took the oath of office along with the other APPA Board members in Nashville, Tennessee. The remainder of 2003 was taken up with attendance at the Australasia Conference in Adelaide, Australia; the CAPPA annual meeting in Corpus Christi; the Missouri APPA meeting in Columbia; the Florida APPA meeting in Daytona Beach, and finally the Georgia APPA meeting at Jekyll Island. The enthusiasm and pride our membership has for this truly unique business of higher education facilities management is tremendous. There is a great thirst to learn and become the best of the best.

And by participating in APPA, one has the potential to excel in this business.

In reading and listening to the stories of successful members who came from nowhere to become the top in their organization and also leaders in APPA is inspiring. Don Mackel and Ron Flinn had humble beginnings in our facilities but went on to become APPA Presidents. How did they do it? Through their association with APPA and with membership in APPA they became professionals in the field of higher education facilities management. For an individual to become successful in our profession, a great first step is to become associated with APPA.

As an example, one only has to look at the association's history beginning in 1914 when the first meeting was held in Chicago. A history of APPA written in 1988 for the 75th annual meeting and printed in the summer issue of *Facilities Manager* provides insight. In the article Bruce Rutherford states, "APPA provided the opportunity to meet with and talk to some of the best people in the business and to pick up new ideas and procedures."

The "opportunity" is still there today and even more dramatic because we have more experienced and educated members today that can and will let an individual have access to their experiences.

In 1922, Roy Lund started at the University of Minnesota as a draftsman. In 1927, he attended APPA's annual meeting at the University of Minnesota. Lund recalled. "There were about 15 present and the meeting was mostly "bull" sessions. Discussions were mainly on custodial problems, painting, classroom lighting, and watchman services." Lund retired from the University of Minnesota in 1970 as assistant vice president and director of plant services.

Today we still have custodial and painting issues, but the lighting is about energy management and watchman services are security issues. The issues are nearly the same as they were in 1927, yet they are more complex because our methods of doing business are far more technical and defined and our employees have more rights and autonomy in performing their work. Still, we have the need to meet and interact with our peers which is the strength of APPA—in bringing together people of the same profession to exchange thoughts,

ideas, and to learn how to be the best of the best.

This will be an exciting year for me and I look forward to working with each of you.

Secretary-Treasurer's Report

Robert J. Carter

In the fiscal year ending March 31, 2004, the floundering economy caused financial challenges for the Board and the APPA staff. I am pleased to tell you that, in spite of these challenges, APPA ended the year with a surplus. This is due in no small part to the proactive actions of the APPA staff in controlling expenditures and pursuing additional revenue sources as well as fiscally prudent planning by the Board.

The first graph on page 12 shows the six-year history of revenues and expenses for APPA. The budget surplus at the end of this fiscal year was $171,518 including $62,941 of unrealized value gain on equity investments. Of this surplus, $108,000 was put into APPA's capital and operating reserve fund. These reserves now stand at $848,000 or 77 percent of the $1,100,000 goal that represents 25 percent of the operating budget and 10 percent of the estimated replacement value of our physical assets such as the headquarter building and equipment.

APPA's equity investments ended the year with a positive return as mentioned above. This resulted from the rebound in the equity markets given the losses of the last few years. The Board's objective for this portion of the reserve is long-term capital appreciation, therefore, fluctuations in returns are expected and considered normal.

There are several factors that affected our financial performance. The slight decline in membership of the past few years seems to have stabilized resulting in a small increase in revenue from membership dues. Sales of APPA publications and advertising in *Facilities Manager*, presenting leading edge educational programs including the newly added Supervisor's Toolkit: Nuts and Bolts of Facilities Supervision, and the Facilities Management Evaluation Program (FMEP) remain strong. The revenues generated from the above activities coupled with tight control on expenses by the APPA staff have resulted in a healthy surplus exceeding the budget in a difficult economic climate. I cannot stress enough how fortunate we are to have such a competent and motivated staff. The revenues for the year by category are shown on the second graph.

The third graph indicates how APPA expends funds to achieve our mission of supporting educational excellence with quality leadership and professional management through education, research, and recognition. APPA uses the majority of its revenues to fund education, member services, and publications. However, expenses for electronic communication and information delivery for members are growing. It is important that APPA continues to fund this type of activity adequately so that we keep pace with the technology required to deliver many member services efficiently and effectively.

The meeting minutes of the Board of Directors provide further information on APPA activities during the past fiscal year and can be found at www.appa.org/leadership/board/minutesmain.cfm.

Vice President for Educational Programs

James O. Roberts

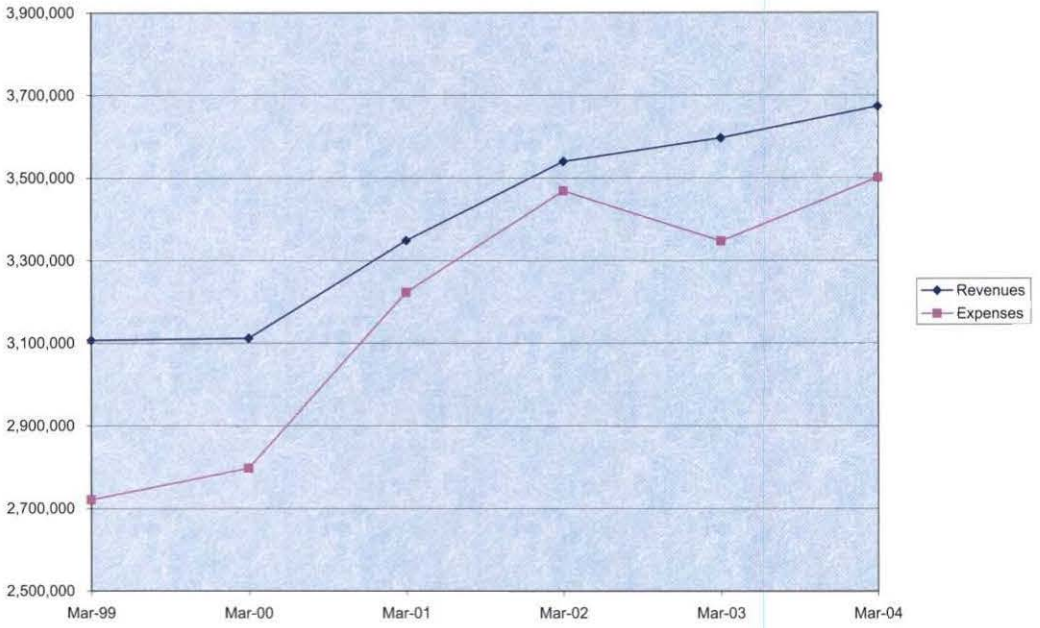
We are continuing to look at new ways to deliver and provide for the educational needs of the membership. I should always start with a sincere thank you to the APPA staff. Also, Lander Medlin does not get the recognition she deserves. Her leadership and strength makes our organization one that is emulated by many across this realm of higher education. Suzanne Healy has taken the reins of meetings, conventions, and education and is superior at providing direction and details for all our educational events. We would not be able to have such wonderful programs without her work and support.

The Education Committee, composed of representatives from each region, and the leadership of the Institute for Facilities Management and the Leadership Academy continue to be the best and hardest working committee at APPA. I am allowed to say that because they work with me. We have wonderful meetings; the commitment of each of the members brings vigor and freshness to the table each time we meet. Thank you Anita Bailey, ERAPPA; Dewey Yeatts, SRAPPA; Ralph Zia, MAPPA; Pat Apel, CAPPA; Polly Pinney, RMA; Mark Hunter, PCAPPA; Jay Klingel, Institute Chair; and Doug Christensen, Leadership Academy.

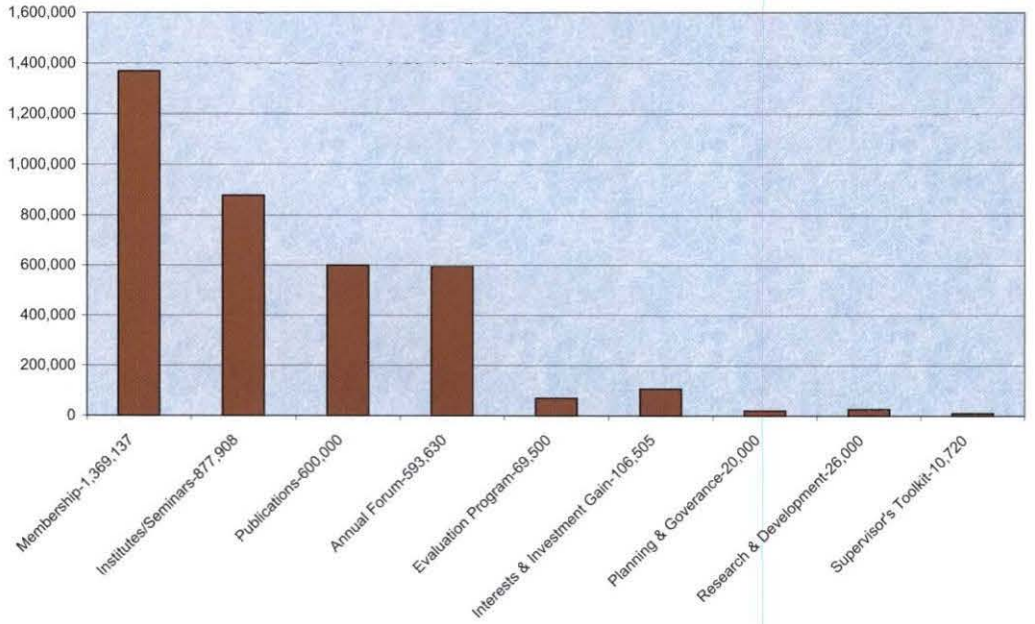
We are excited about the Educational Facilities Leadership Forum and its locations for the next three years—Washington, D.C., Orlando, and Hawaii. It doesn't get much better than that.

Our programs this year have be some of the best in recent memory. We continue to have an excellent attendance and participation with all our endeavors. This can be attributed

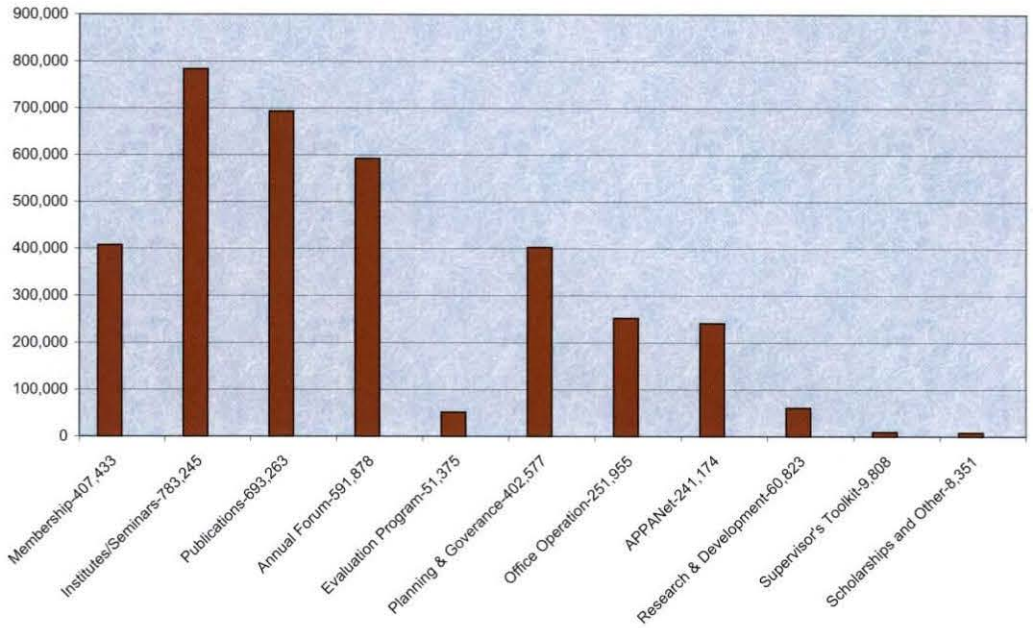
Graph 1. APPA's History of Revenues and Expenses



Graph 2. 2003-04 Sources of Funds (Revenues)—$3,673,400



Graph 3. 2003-04 Uses of Funds (Expenses)—$3,501,882



to the staff at the APPA office and the quality of our presenters.

We have addressed Competency, Collaborative Relationship Building, and Credibility. In all that we do, these desired outcomes are at the heart. This allows us to continue to follow the APPA Strategic Plan. We intend to continue to be viewed as the leader in education for facilities management.

2004 Educational Facilities Leadership Forum

At this writing, registration is under way and plans are solidly in place for an excellent meeting in Washington, D.C., July 25-27. The location is the Wardman Park Hotel across from the National Zoo. The educational programs are impressive. Following the leadership of President Brooks Baker, we are directing our efforts toward regulatory compliance and code advocacy. We will continue to provide different presentation styles, including round table discussions as well as different topics for your choosing. Special thanks go to all that are contributing to this event.

Institute for Facilities Management

This has been an excellent year for the Institute for Facilities Management. Jay Klingel from the University of Virginia continues to serve as our Institute chair and the Dean of the Maintenance and Operations section. We have a new Dean, Cheryl Gomez, also from the University of Virginia. She will be serving as our Dean of Energy and Utilities. That gives us a strong administration that continues to include Don Guckert from the University of Iowa heading up Planning, Design, and Construction, and Mary Vosevich from the University of New Mexico as our Dean for General Administration and Management. Mo Qayoumi, California State University, Northridge, has retired as Dean of Energy and Utilities after more than 20 years of service to APPA, and his retirement should not go without notice. He is a wonderful resource and provides tremendous talent that is openly shared with all his students.

This program continues to amaze me. It is by far the most popular program offered by APPA and registrations online have made it more efficient and even quicker to fill each session. We will continue to have excellent programs in the years to come.

Leadership Academy

We are in the fifth year of this program and this past June it was held in Ft. Lauderdale, Florida. The three programs within the Leadership Academy focus on building leadership skills in continuing steps. These steps include personal skills, organizational skills, and professional leadership skills. Our thanks continue to go to Doug Christensen who chairs the Leadership Academy. With the support of Bill Daigneau and Gary Reynolds, this program is recognized as leadership training for all education fields, not just facilities management.

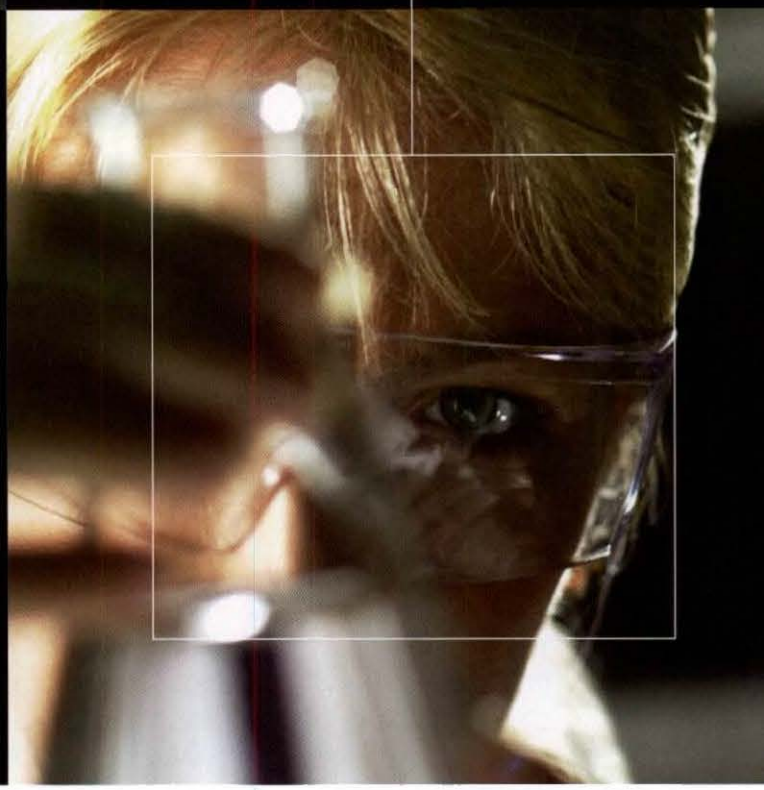
Continued on page 17

Are...

...we adequately tracking organizational occupancy and recovering indirect costs associated with funded research?

When...

...was the last PM performed on this equipment?



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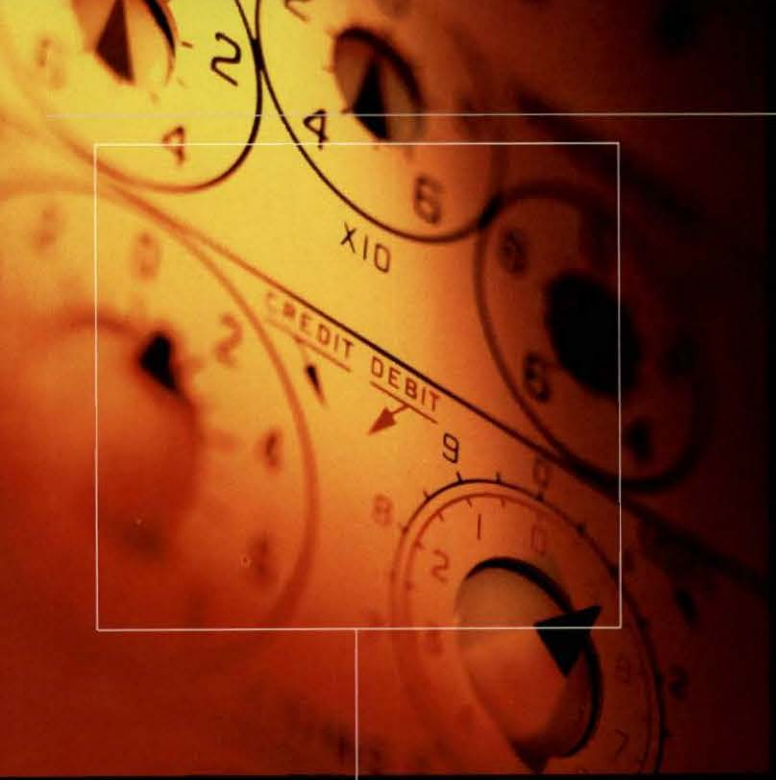
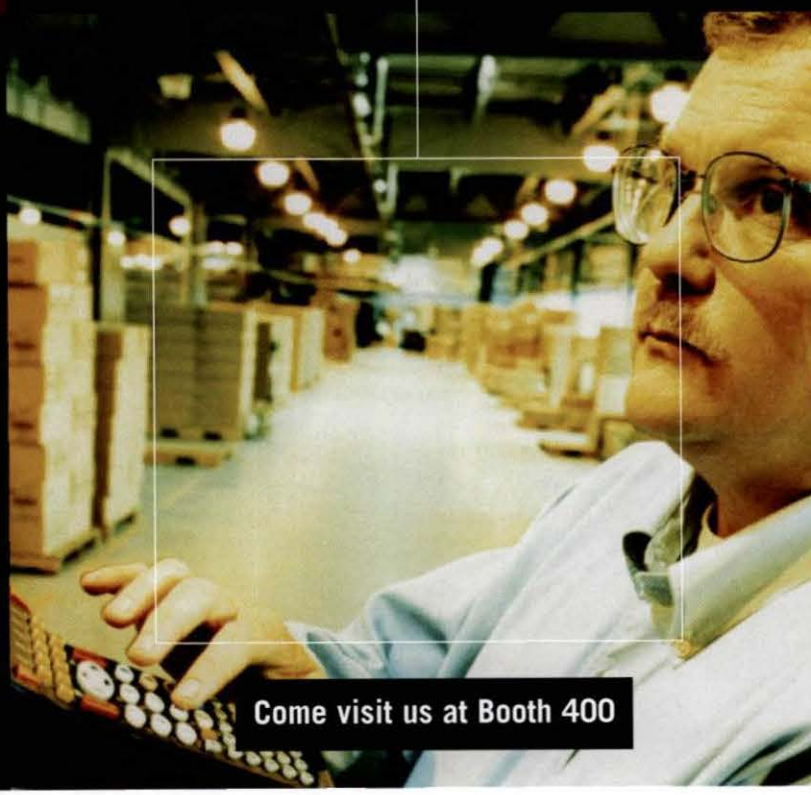


Where...

...is our inventory,
and do we have the right
materials on hand?

How...

...much are we spending on
utilities each month?



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Continued from page 13

Final Thoughts

Without a doubt, serving as the vice president responsible for educational programs for APPA has been one of my most rewarding professional experiences. In the past four years we have continued to provide some of the best programs available to facility professionals. I wish to thank the former APPA Presidents with whom I have served—John Harrod, Gary Reynolds, Phil Cox, and Brooks Baker. Each of these men has been supportive and encouraging while providing leadership and direction that will continue to reap benefits for many years to come. In 1988, then SRAPPA president Diane Kerby asked if I would serve on the SRAPPA Board as secretary treasurer. Little did I know that it would be a journey that would lead me to serve as an APPA Vice President. Thank you for your confidence and support. I look forward to the future of these programs under the leadership of Sam Polk. You are in excellent hands and I am convinced that his leadership will take APPA's Educational Programs toward an even brighter future.

Vice President for Information and Research

Vickie Younger

The Information and Research Committee has been working very hard this year to have a new survey tool available for the fall collection time. Laura Long of LTL Collaborative has been of tremendous help to us as we worked through format and definitions for the new tool.

Publications

This past year APPA introduced Web-based downloads of all 67 chapters of *Facilities Management: A Manual for Plant Administration, third edition*, published *The Building Commissioning Handbook, second edition*, by John Heinz and Rick Casault, and *Field Notes: Commentaries on Leadership and Facilities Management* by Jim Christenson.

Others publications planned are an anthology of articles on the topic of Customer Service pulled from *Facilities Manager* and Forum papers; an anthology of articles on the Quality Work Environment; an anthology of articles on Planning, Design, and Construction; and an outsourcing/privatization publication. Marketing is clearly tied to sales and we continue to promote all APPA publications.

Facilities Manager continues to be a foundation for communication with our membership and others. Much praise goes to the staff and contributors for making it such a quality publication. Topics and contributors are always welcome. Please consider making *your* contribution.

Website and Technology

Web usage continues to increase and various Web trends reports helped us determine the current level of activity. Among the points noted on these reports include: 111,953 visitors in a one-month period, with 15,529 unique visitors. The Resume Bank and Job Express were the top requested Web pages, followed by *Facilities Manager* and the education site. A site map will soon be present, as we continue to hear that some people do not find our site to be "friendly and easy to navigate." Printer-friendly pages will also soon be an option for users.

The APPAinfo discussion list now has 985 subscribers. The traffic indicates that this tool is appreciated and valued by our membership. We are going to further explore cleaning up this information to help get rid of some of the "garbage" that accompanies many messages.

CCAS/SAM/Other Data Collection

Participation in the CCAS and SAM surveys has declined in recent years, yet the need for quality facilities research is on the rise. Laura Long met with the committee and helped us through questions, trouble areas, and other information related to our next data collection. She presented a blueprint for a consolidated data collection process. This would mean that we would move away from submission of information just for CCAS or SAM or other specific report and provide information that is part of several "modules." Among these would be 1) general data about institutions; 2) operating cost data; 3) strategic financial data; 4) process data; staffing. Other modules would vary dependent upon research questions being raised and 5) customer satisfaction; 6) innovation and learning; and 7) process-level self-evaluation would cover SAM specific topics. A new kind of publication(s) would result with more focus on ability to compare to peer institutions. A personalized report with historical perspectives will be a valuable incentive for participating in the survey. Raw data with tools to manipulate them would be a great plus, as well as a PowerPoint presentation or Excel spreadsheet on the results.

The committee decided that many of the data points that we use are actually performance indicators and we wanted to give these points a name that will reflect both what they are and how they might be used. **Facilities Performance Indicators** will be the official title for these points.

Final Notes

We determined that we would focus on current and future data for information on the website, but after getting this together we will then add up the past five years of data and have

it roll off—maintaining just the current five years. If we hear from members and/or researchers that we need more or less, we will adjust.

As I complete my terms as Vice President for Information & Research, I want to thank the committee members who have been so supportive this year—Jerry Hill, ERAPPA; Randolph Hare, SRAPPA; Fred Plant, MAPPA; Scott Turley, CAPPA; Harvey Chace, RMA; Debbie Aquilar, PCAPPA; and Maggie Kinnaman, At-Large.

Vice President for Professional Affairs

Alan S. Bigger

The past year has been exciting, invigorating and a learning experience. Due to the incredible support of the APPA staff and the nurturing nature of the APPA Executive Committee, the transition from Mike Besspiata to the current vice president was relatively smooth and significant milestones were achieved throughout the year. It would be a grievous error if it was not noted for the record that the primary reasons for the effective transition were the hard work and detailed records of Mike Besspiata and the patience and professional assistance of Francine Moore of the APPA staff. The members of the Professional Affairs Committee (PAC) and the Awards and Recognition Committee (A&R) are hard working and dedicated and were a delight to work with throughout the year.

Facilities Management Evaluation Program(FMEP) E-Manual

The E-Manual is in the final stages and will be available for FMEP team members as of July 2004. It will be in a downloadable file format so that it can be readily accessed by future FMEP team members.

The facilities management training program will be launched in conjunction with the 2004 Forum. The concept of this training program is that members of FMEP teams would attend a training session before joining a site visit team. The E-Manual will be used as the training guide at the Forum and will also be used as a reference tool for team members prior to and during site visits. The objective of the training program and manual is to provide consistency in site visits, enhance the professionalism of the

team members, and prepare team members for such visits.

Strategic Partnerships

During the past year, the APPA executive staff and PAC have been working on developing strategic partnerships with two groups, the American Society for Healthcare Engineering (ASHE) and the International Sanitary Supply Association (ISSA). The plan is to bring recommendations to the APPA Board to move forward on finalizing strategic partnering agreements with both organizations. To continue to test the waters of such a partnership with ASHE, APPA trainers will present five management training sessions at the ASHE conference this summer. There will also be joint sharing of articles in the official magazines of each group. ASHE has already made a significant contribution to APPA by underwriting the participation of Doug Erickson with the APPA Board and PAC. The International Sanitary Supply Association has committed to sending three members of their staff to the 2004 Forum and has already sent one to the APPA Institute. On a test basis, ISSA has invited APPA to present the Supervisor's Toolkit training program at their national convention this fall in New Orleans. ISSA is providing a booth for APPA at this meeting where it is expected that 18,000 people will attend from around the world.

Code Advocacy

Thanks to the mentoring and tutoring of Brooks Baker, APPA President, and Doug Erickson, ASHE representative, mammoth strides have been made in the area of code advocacy. Introductory columns and articles have been or will be published in *Facilities Manager* and two code advocacy training sessions will be conducted at the 2004 Forum. Strengthening relationships with organizations such as ASHE and ISSA will increase the visibility and credibility of APPA.

Award Submissions

At the Forum last year, all Board members, regional presidents, and the general membership were encouraged to nominate persons for the various award categories. To date, the limited number of submissions indicate that more work needs to be done in soliciting quality nominations. The new APPA Fellow designation will be presented to three excellent candidates at the Forum, and we anticipate that the

numbers of persons to be awarded this honor will continue to grow.

Award for Excellence
- Emory University
- University of Memphis

Effective and Innovative Practices
- Brigham Young University
- Dallas Theological Seminary
- Illinois State University
- Penn State University
- Queensland University of Technology

Pacesetter Award
- Craig Bohn – RMA
- Kevin Folsom – CAPPA
- Paul Smith – RMA
- Al Stoverink – CAPPA

Meritorious Service Award
- Chris Ahoy – MAPPA
- Mo Qayoumi – PCAPPA
- Leo Yanda – CAPPA

APPA Fellow (First year)
- Doug Christensen
- Bill Daigneau
- Jack Hug

The awards programs of APPA are many and varied and with the emphasis on personal leadership, diversity, and membership growth, it behooves all of us to become aggressive ambassadors for these programs.

Online Award Submissions

This year most of the submissions were completed online. The members of PAC and A&R were able to transmit their scores for the awards to the Chair and then the Chair was able to bring consolidated score sheets to the meetings in the spring. This greatly assisted the committees by providing a discussion document for the awards meetings and expedited the decision-making process.

Action Items

A&R has proposed the following Bylaws change to the APPA Board and the APPA Executive Committee. The following statement would be added to Article III:

"Past recipients may not be re-nominated within 10 years. Eligible accomplishments and contributions will be evaluated on achievements since the award was last received."

This change will afford members that have continually served APPA for many years with an exceptional level of excellence to be recognized in a meaningful manner.

A Final Note

Much has been accomplished this year and the potential for growth in various areas is exciting. During the coming year, in addition to the normal functions of the committees, Professional Affairs—Joe Rubertone, ERAPPA; Mike Davis, SRAPPA; Greg Fichter, MAPPA; Bob Hutton, CAPPA; Eakle Barfield, RMA; Dan Johnson, PCAPPA; and David Cain, At-Large, and Awards & Recognition—Kenneth Bolig, ERAPPA; Gary Shumaker, MAPPA; Ron Brooks, SRAPPA; George Stumpf, RMA; and Darrel Meyer, CAPPA will need to concentrate on recruiting new members for the committees and developing a strategy to increase the visibility of the various awards programs.

Executive Vice President's Report

E. Lander Medlin

At this writing, it appears that the economic picture of both the federal and state governments is improving compared to the past three years. However, the tight financial grip on the higher education community remains unparalleled. Although many state government budgets are showing signs of revival and the stock market is on the upswing, the impact on college and university appropriations, endowments, and private philanthropy remains troublesome for both public and private institutions. Fortunately, APPA continues to hold its own as the "association of choice" by its members to meet their professional development needs.

One measure of that support is our financial stability. Our diverse portfolio of programs, products, and services continues to serve us well. We are pleased to report a year-end surplus of $108,418. These monies have been placed in our operating and building reserves funds representing 77 percent of our long-term, oard-directed cash reserves goal. We are also pleased to report that most categories of our conservative, yet focused, budget achieved or exceeded the targets set for revenue generation and expense minimization. Nevertheless, the Board and the staff have a sharp eye on the future and have established another lean budget for the coming year. The fragile financial state at our educational institutions and, correspondingly within the facilities departments weighs heavily on

our minds and remains an important factor in our decision making.

Our strategic plan remains a valuable and viable resource providing consistent and predictable guidance, direction, and focus during these turbulent times. And, we continue to make significant strides in achieving the strategic plan's three desired outcomes of competency, collaboration, and credibility.

Competency

The guidelines and standards established by your colleagues over the past several years remain invaluable tools for resource allocation and strategic planning. If your resource library does not include the *2001-2003 Comparative Costs and Staffing report/Strategic Assessment Model's* financial performance indicators, the trilogy of staffing guidelines for the custodial, trades, and grounds areas, and the *Environmental Compliance Assistance Guide for Colleges and Universities*, you should quickly ensure that it does.

In addition, I highly recommend the latest titles of *Planning and Managing the Campus Facilities Portfolio and the Building Commissioning Handbook, second edition*, along with the new monograph titled *Field Notes* by James Christenson. Jim's monograph represents an important primer on leadership and management. Further, the availability and flow of relevant information regularly occurs via APPA's bimonthly magazine, Facilities Manager; Inside APPA, our bi-weekly electronic newsletter; our website, www.appa.org; and the APPAinfo discussion list that boasts close to 1,000 subscribers.

CFaR, APPA's Center for Facilities Research, is resident on our website and fills a vital need by integrating the development, collection, and delivery of research in the education environment. Active participation in and involvement through CFaR by facilities professionals, allied associations and agencies, and other education community stakeholders is increasing the quality and quantity of credible data and information you need to make knowledgeable and informed decisions for your institutions. CFaR is designed to be a repository of edu-

cational facilities-related information. The research collected and sponsored by CFaR will provide compelling information to a number of key constituencies and educational stakeholders. We began the year with ten submitted research projects—four have been completed. In addition, APPA is sponsoring its own major research project that we have preliminarily titled the Strategic Investment Model (SIM). SIM is intended to demonstrate the importance of integrated resource planning and management for both capital development and renewal/maintenance of all facilities. The model should stimulate good decision making around capital development and maintenance/renewal.

The content and appeal of APPA's vast array of educational programs (Institute for Facilities Management, Leadership Academy, and the annual Educational Facilities Leadership Forum) continue to provide members with the professional and personal growth and development needed to compete and collaborate effectively in today's environment. Further, the group of dedicated facilities professionals/trainers mentioned last year completed an extensive development of a basic supervisory training program. We have now successfully launched the new Supervisor's Toolkit—a five-day program specifically focused on training for front-line supervisors in the trades, custodial, grounds, and general service areas of responsibility. Not only is this training program being offered internationally; it can be delivered at your own institution or at a nearby regional institution. To date, the program has been delivered eight times across the United States and Canada (from St. John's, Newfoundland to San Jose, California). Furthermore, interested individuals and/or trainers on your campus are welcome to take the five-day course along with a comprehensive facilitator enhancement session and become qualified to deliver the program regularly at your time and place of choice. Finally, visit our new "Online Learning Center" on the website and sign up for one or more of our electronically delivered short compliance courses. "Webinars" on specific hot topics have been planned for delivery this coming fall.

Collaboration

Increased collaboration and partnering continues to occur on a number of fronts to increase the depth and breadth of information and ultimately the value you receive as part of your membership. Most notable this past year was the co-location of the annual Forum with NACUBO (National Association of College & University Business Officers) at Opryland in Nashville, Tennessee. The evaluations received from Forum attendees reinforced the value of this initial collaborative effort. The only complaint was why we had not collaborated in the delivery of our annual meetings earlier. So remember, our 2006 annual Forum will consist of a joint meeting with NACUBO and SCUP (Society for College & University Planning) in Honolulu, Hawaii. We plan to deliver a seminal educational event you won't want to miss. This certainly represents the ultimate opportunity in collaboration and partnering!

In this resource tight environment, energy smart and environmentally sensitive tools and technical assistance remain invaluable to meet your ever changing, increasingly demanding energy and utilities requirements. These tools are available as a result of our strategic alliance with the Department of Energy/Rebuild America program (DOE/RBA) and the strong relationship we have formed with Environmental Protection Agency's (EPA) Energy Star program. Consider becoming a Rebuild America partner at your institution or in your community today.

In addition, this year we are introducing two new association relationships, thereby expanding the collaborative opportunities available to you. First is the American Society of Healthcare Engineers (ASHE) who will assist APPA in its effort to focus more comprehensively on a code advocacy program, and APPA will correspondingly assist ASHE with its effort to focus on the delivery of supervisory, managerial, and leadership educational programming. Secondly, the International Sanitary Supply Association (ISSA) will collaborate with APPA on developing a substantive research project for benchmarking data in the custodial arena.

These strategic alliances and partnerships help APPA leverage its resources to provide cost-effective, focused research, information, and educational programming, and at the same time ensure an increased information flow to its members.

Credibility

Environmental issues and concerns remain an important part of our alliance with American Council of Education (ACE), NACUBO, Council of Safety, Health, and Environmental Managers Association (CSHEMA), a division of the National Safety Council), Howard Hughes Medical Institute (HHMI), and Campus Consortium for Environmental Excellence (C2E2), and drive our effort to create and maintain a substantive dialogue with the EPA. Significant progress is being made regarding regulatory change in hazardous materials/waste compliance. In fact, an article appeared in The Chronicle this past June outlining our progress and EPA's response to this important piece of regulation. We are pleased with the dialogue and relationships that are forming with the EPA and its Office of Solid Waste around this important issue. In addition, EPA's College & University Sector Initiative and the recently established "compliance assistance center" are both notable and noteworthy in our quest for a meaningful and substantive dialogue with EPA. Visit our website for updates on progress and a link to this EPA initiative and the associated compliance assistance center.

I cannot emphasize enough the importance of APPA's primary role "to increase the awareness of the facilities profession with senior institutional officers." Having Dr. William E. (Brit) Kirwan, chancellor of the University of Maryland System and the elected chair of both ACE and NASULGC along with Dr. David Ward, president of ACE (and former Chancellor of the University of Wisconsin, Madison) provide the opening keynote for our 2004 Forum is key in helping shape our own thinking about the issues we face and the contributions we can make to their long-term resolution.

I must say that our competitive advantage in this rapidly changing and challenging world is the fact that you continue to choose to remain members of APPA, actively engage in our programs, and faithfully utilize our products and services. I know many of you are facing difficult economic times and the decisions you face and the priorities you make must be strategic. We appreciate the value you continue to place on your membership in APPA and in our training and development programs and publications. We understand that our efforts to focus on the grassroots of this organization must not only continue in the coming year, but increase appreciably to ensure that your needs and expectations are being heard and ultimately met. I firmly believe that it is through the vast array of educational offerings, print and electronic information, and publications that APPA can help you gain that competitive edge and enhance your professional image.

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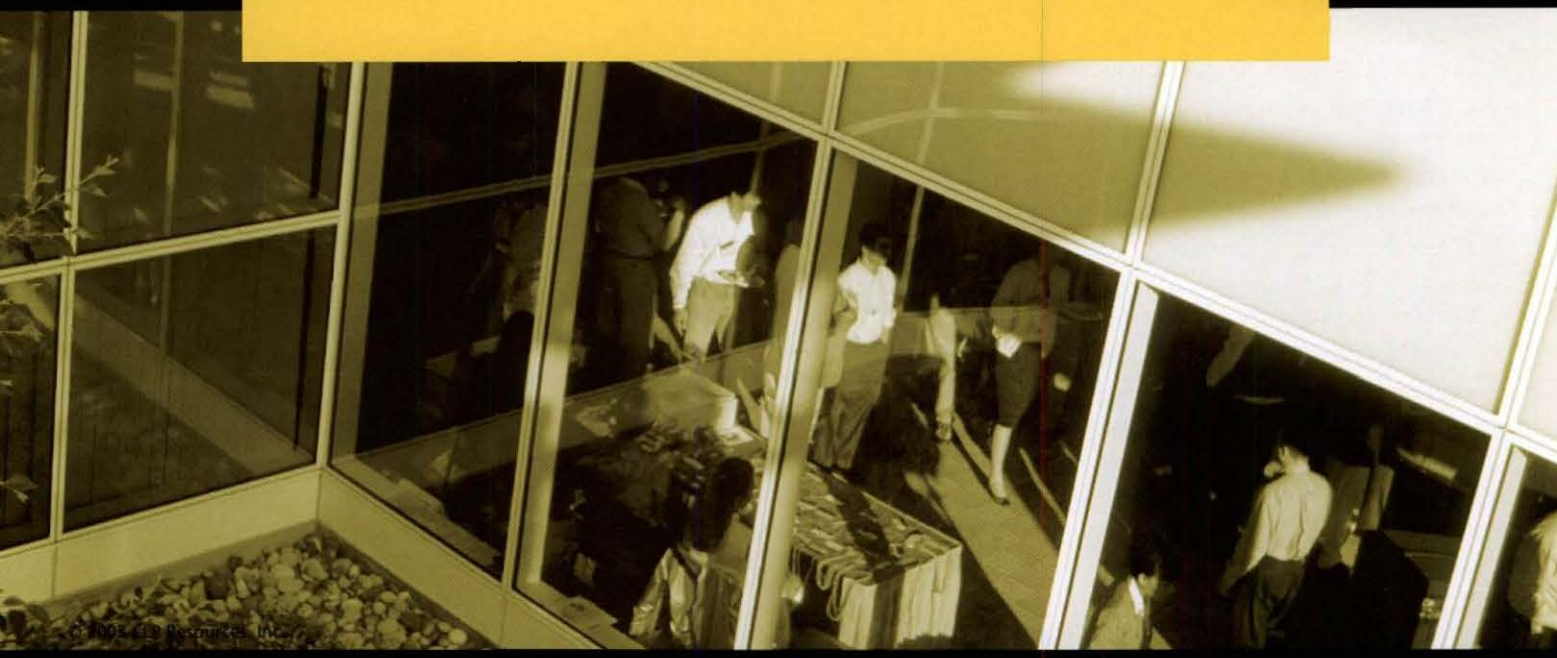

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Looking Back and Moving Forward

by Brooks H. Baker III

This will be my final article as President of APPA and it has been the most difficult to write. Perhaps it was the melancholy mood of knowing that this was my last article, or more likely, I just ran out of stuff to say. Many of you know that Brooks running out of something to say has never been a possibility. Let me take a moment to thank you, the members of APPA, for giving me the tremendous opportunity to serve in what must be one of the greatest volunteer positions anywhere. It was such a blessing to get to know so many of you at various APPA functions. The strength of APPA is truly at the regional level. The camaraderie and excitement among the regional members was quite impressive, and I look forward to seeing that same excitement and fellowship at the APPA Educational Facilities Leadership Forum again this year.

The last few years of involvement at the national level have given me a tremendous appreciation for the personal sacrifice that is made by so many to make this association the best on the planet. I am continually in awe of those volunteers who work on the Strategic Assessment Model (SAM), the Center for Facilities Research (CFaR), Supervisor's Toolkit, and the publications that continue to help us to become better facility managers. My hat is off to those individuals on the APPA permanent and standing committees who are willing

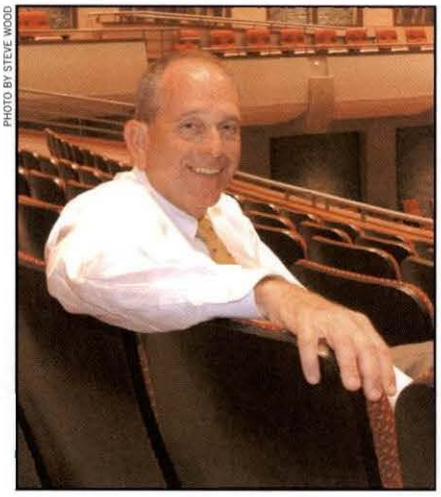


PHOTO BY STEVE WOOD

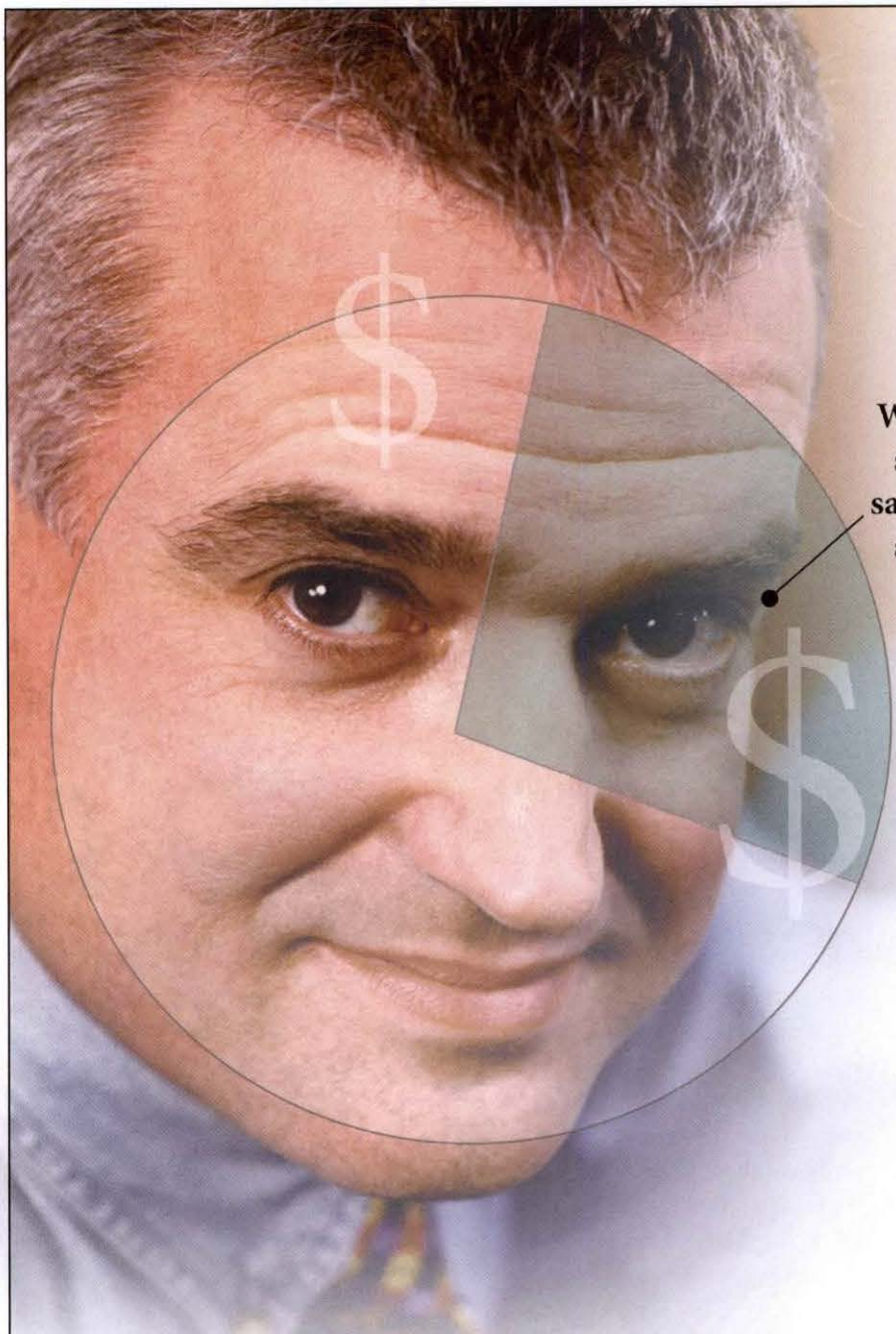
to spend days at a time away from their family and home doing the business of APPA so that our association can provide the tools that help us enhance the facilities to better educate our children. Of course we can't leave out all the personal investment in time that is given by that larger group of volunteers who make the regions viable, relevant, and meaningful to institutions of higher education of all sizes in their respective geographical areas. All these volunteers give back so much to their profession and to their fellow facility managers that they should be considered "APPA's Heros."

During the last couple of years it has also been rewarding to see how many different people in institutions have benefited and continue to benefit from the resources available from APPA. Just today, I was reading an APPA member's comments on *Facilities Management: A Manual for Plant Administration* and was reminded what a tremendous resource Bill Middleton put together with a lot of dedicated help. Just a few weeks ago, I was asked how to put together a facilities management organization and it was easy to point to APPA. Supervisor's Toolkit: Nuts and Bolts of Facilities Supervision, APPA's newest training program, comes up frequently in conversations with other physical plant folks and is creating a significant stir in the industry as the "latest and greatest" tool for developing new supervisors. We have created a pseudo library in our office with resource books of all descriptions and multiple sources. It has worked out well for me to be able to loan these books to members of our management team for them to be able to use as a reference when needed. Let me encourage you to build your library of APPA materials to the point where you can respond to questions regarding cost and staffing, deferred maintenance, financial management for facilities, and dozens of other topics available through our vast array of printed resources.

APPA membership has been an extremely valuable asset for a number of our facilities staff here at University of Alabama at Birmingham (UAB). The contacts with other facilities professionals that are made at the Forum and at the Institute along with the numerous resources that are made available continue to make us better. Our goal is continuous quality improvement and APPA is a valuable tool to get us there.

Once again, thank you so much for giving me the opportunity to serve you as President. I would also like to thank the facilities staff at UAB for covering for me on so many occasions when I had to be out of the office during critical times. The UAB facilities group is the finest anywhere, and I consider it a privilege to be a part of their organization. I am of all men most blessed, may God bless all of you richly.

Brooks Baker is the associate vice president for facilities at the University of Alabama at Birmingham and the 2003-04 APPA President. He can be reached at bbaker@fab.uab.edu.



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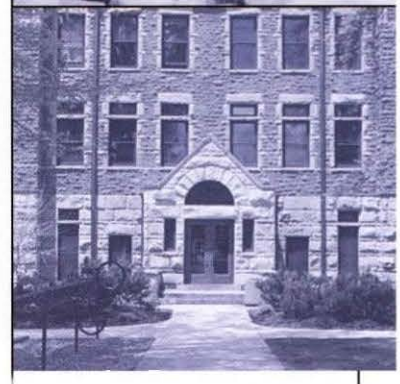

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Integrated Database Coming to APPA

by Randel Edwards

In May 2003, APPA unveiled a new public face to its website (www.appa.org). Member, staff, and professional input helped to create the new website design and layout. It was a step forward in terms of ease of use and accessibility. What you may not know is that the website is changing dramatically behind the scenes.

APPA has purchased Association Director—a single, integrated database system that interfaces with the website. Association Director will drive APPA's front-end website, as well as manage its relationships with its members and prospects. This system will enable us to provide to members more customized Web content, better membership update capabilities, additional support for online communities, and greater online purchasing capabilities. Furthermore, in Association Director, information is centralized and updated each time a member purchases a product, registers for an association event, or participates in an online community.

The new design and format that occurred in 2003 resulted in specific improvements of services. Members were able to post and edit job announcements placed on Job Express via the Web. The same was possible for the Calendar of Events. Now, as a result of the implementation of Association Director, APPA Business Partners will soon be able to post, revise, or add to their company profile and company contact information that resides on the APPA Business Partner Listing directly via the Web. Thus, changes will appear more quickly. We believe that members will appreciate being able to take this new, more active role in their membership.

As part of the new system, each member will create his or her own account consisting of his or her unique user name and password. Once that a new account is created, the system will recognize you and take you directly to the login. You will need to login each time you visit the registration area; this helps protect your information and allows APPA to be more responsive to your educational development needs. In addition, you will be able to use your account even if you are registering more than one individual from your institution. Furthermore, each member and/or user will have a unique ID number that will not be tied to an organization. Hence, if you move from one member organization to another member organization, you will not need to contact APPA to receive a new ID number.

Another benefit of Association Director will be improved customer service. APPA staff will now be able to respond to a wider variety of member requests in a more timely fashion. The integrated database, view rights, and levels of security will enable a much greater number of basic inquiries and requests to be resolved at your initial point of contact with APPA. In the past, APPA had several databases that restricted the staff's ability to handle certain requests. As a result, members were frequently transferred from one department to another. This kind of occurrence should be greatly reduced.

Association Director will provide APPA with the potential for greater customization of the website and greater customization for the individual member/user. In the future, after our data is organized in the new database, we will start linking the data, as well as adding new data. Members will be asked to complete a brief member interest survey. From the results of the survey, APPA will be able to respond to members in a personalized and appropriate manner. For example, if a member indicates an interest in regulatory issues, we will be able to notify the member of an article on regulatory issues that will be appearing in the upcoming issue of *Facilities Manager*.

Along with achieving greater customization, the new database will enable APPA to capture a more comprehensive picture of member participation. In one place, APPA will be able to house a member's interests, involvement (educational programming, committees, etc.), and purchases. In turn, this will help the association to develop products and services more in alignment with member needs and interests.

Since knowledge and data are critical to the role of educational facilities professionals, APPA has been building an online, searchable library that con-

Randel Edwards is APPA's director of member services. He can be reached at randel@appa.org.

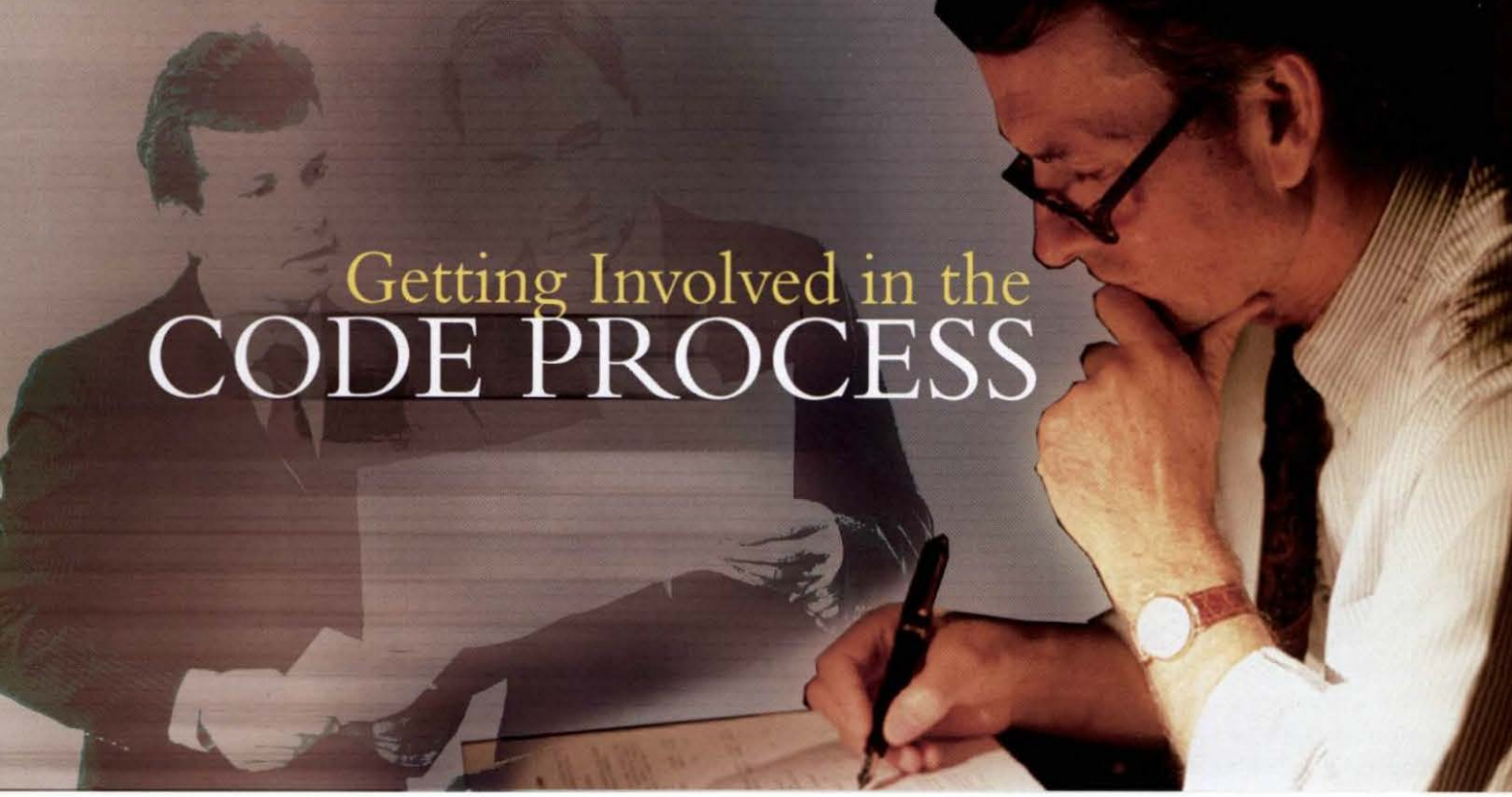
tains abstracts of approximately 2,500 articles and chapters from various APPA publications. Currently, you can search the online library by author and/or key word. In the future, APPA will select key abstracts and link them to the full text of the article or to the bookstore. This will save time and energy in your research and publications purchases.

In the past, APPA has collected data separately for the biannual Comparative Costs and Staffing survey (CCAS) and the Strategic Assessment Model (SAM). Association Director will enhance APPA's data collection abilities. In the fall of 2004, APPA will roll out its new annual data collection effort via the Web. The purpose of this effort will be to collect key facilities performance indicators from which APPA can extract the information previously captured separately on the CCAS survey, the SAM report, and other research efforts. Association Director will enable the prepopulation of certain fields which will increase the ease of completing the data collection, as well as encouraging greater participation by our member institutions.

As part of the new system, each member will create his or her own account consisting of his or her unique user name and password. Once that a new account is created, the system will recognize you and take you directly to the login.

Research is critical to any profession's process of development and improvement. Innovation spurs improvement and knowledge spurs innovation. Association Director will help collect, store, and disseminate knowledge useful to educational facilities professionals. Thus, the new integrated database will enhance the efforts of APPA's Center for Facilities Research (CFaR) to fill a vital need by integrating the development, collection, and delivery of research.

Association Director is part of APPA's ongoing efforts "to support educational excellence with quality leadership and professional management through education, research, and recognition." The right results cannot be achieved without the right tools. We believe that an integrated database is one more helpful tool in our toolbox and in yours.



Getting Involved in the CODE PROCESS

by Brooks H. Baker III

Nearly 25 years ago when I attended my first meeting of the National Fire Protection Association (NFPA), I was greeted by a group of fellow facilities professionals and welcomed to the "battle" of advocacy. At that time, I was working at the University Hospital at UAB and wanted to understand better how the code process worked. As I wandered the halls at the convention that year and visited the trade show, I was impressed with the number of vendors showing off their wares and the thousands of interested individuals looking at all the new gadgets that were being offered.

While attending this meeting I went to my first NFPA Section meeting and began to get a better feel of what was happening. I don't remember what the issues were that were being discussed by the Electrical Section of the NFPA, but the Health Care Section was in hot debate over proposed requirements to mandate expensive hospital-grade receptacles throughout all hospitals, requirements to have smoke detectors in every patient room, and numerous other proposed code requirements that would negatively impact the budgets of healthcare facilities while not improving the life safety of the facilities. The discussions in the section meetings were lively and contrarian views were proffered freely on every topic. All of this was quite new to me and the importance of what was going on was not readily apparent.

Brooks Baker is the associate vice president for facilities at the University of Alabama at Birmingham and the 2003-04 APPA President. He can be reached at bbaker@fab.uab.edu.

Later that week, we attended the NFPA Technical Sessions where all of the proposed additions and modifications to the various NFPA codes were voted on to determine whether they would become requirements. This had all of the appearances of a Democratic and Republican convention being held simultaneously in the same hall. Each issue and proposal brought to the floor of the meeting for a vote seemed to have proponents and opponents who voiced their feelings and opinions at length.

The process was difficult for a novice to follow, but my education in codes had begun. In those days of my involvement, the atmosphere was similar to a "battle" between factions. Over the years, relationships have changed and the work of the committees of NFPA takes on more of a cooperative spirit than a battle.

It was great to work for an institution that understood not only the educational value of attending meetings such as this one, but also the potential for impact and change that we could have. Membership on a technical committee was my next step in NFPA involvement, and some 20 years ago I became a principal member of one of the NFPA 72 committees.

NFPA 72 is now known as the National Fire Alarm Code and is responsible for the establishment of requirements for installation and maintenance of all fire detection devices and the resulting notification appliances. Most NFPA codes are on a three-year cycle, which means that once every three years the code is reviewed and modifications to the code are considered.

There are normally two or three meetings held by each committee during this three-year cycle, and there is some

reading and studying of the proposals required between these meetings. Some of the items we considered last cycle and which will undoubtedly be brought up again during this cycle are:

- This issue of qualifications of testing and maintenance personnel regularly surfaces as a proposal to our committee. Currently, the code does not require factory training and certification, but some would like for that to be the case. Many universities utilize in-house personnel who are trained and qualified to maintain their fire alarm systems. There are those who would like to see a requirement added that would make it mandatory for persons testing fire alarms systems to be "factory certified" on each brand of system. This would make it difficult and expensive to provide in-house maintenance and it could force us to use more expensive contracts for this service. We believe that logic will prevail and we will still be able to maintain our own systems when we have qualified personnel capable of doing this.
- New technology will likely be presented for addressable fire alarm systems.
- Intelligibility testing is a hot topic on our committee. As you are probably aware, voice annunciated systems are required in new buildings classified as high-rise applications. Intelligibility refers to "audible voice information that is distinguishable and understandable." In order to test the intelligibility of the system, it has been proposed that a device that can measure this in a quantitative fashion be required. This requirement would force us to hire contractors to periodically test system intelligibility or to purchase an expensive device made for this purpose and perform the test. So far we have been successful in allowing the use of more practical methods of testing whether the message is understandable, or "intelligible."

We don't always try to make the code requirements less restrictive, but sometimes advocate for what may be more restrictive testing because it just makes sense. At one time, smoke detectors in dormitories were tested like residential devices. The code now requires that dormitory smoke detectors be tested in the same way as system detectors. This requires a different type of maintenance than would be required for a residence, but it was a logical move in order to better protect our students in the dormitories.

Some other topics coming up now in other committees include a new item in NFPA 90A that would significantly increase the requirements for CAT 5 (communication wiring) insulation. This would require modifications to the jacketing material so that it would have a low-smoke density upon exposure to fire. This would be a very expensive requirement for us. See Doug Erickson's article in this issue; he discusses these changes that are proposed for NFPA 90A. Doug will also address the possibility that 90A may mandate combination smoke and fire dampers at all fire-rated partitions. What does this mean to your institution? Triple the initial cost and then significant maintenance costs forever to perform the required testing and verification of the proper operation of the damper.

One classic example of what can happen when we are not involved in the code process is a recent change to NFPA 20 and 25. As a result of these recent changes, we are now required to test run our fire pumps on a weekly basis instead of the more practical quarterly or semiannual basis. There is very little reason for an electric fire pump not to run when it is needed, but somehow these NFPA committees felt that these frequencies should be changed, and, as a result of our lack of involvement, they were successful. We are also now required by NFPA 25 to perform internal investigation of suppression system piping once every five years! This requirement appears to be onerous and of little value, and a representative of higher education on the committee may have had an impact that could save our industry significant maintenance dollars.

In addition to having an impact on codes, we can benefit from APPA involvement through education of our membership regarding code requirements and their application in higher education. Just a couple of examples which may help your institution:

- For sprinkler systems in our housing facilities of four stories or less, an NFPA 13R system may be permitted to be installed instead of a full-blown NFPA 13 system. The NFPA 13R system allows much less expensive installation

One classic example of what can happen when we are not involved in the code process is a recent change to NFPA 20 and 25. As a result of these recent changes, we are now required to test run our fire pumps on a weekly basis instead of the more practical quarterly or semiannual basis.

and still provides the protection we need for housing facilities.

- NFPA now allows "performance based design options." This is a plus in higher education because we often build unique monumental buildings such as libraries, arenas, and performing arts facilities that are not specifically addressed and which may qualify for savings if performance based design is used.

Examples such as these can save our institutions significant capital dollars and sometimes operational dollars, but we need to understand the codes and their applications to help our design consultants take advantage of lower cost options. Participation by our membership can assist in communicating information back to the rest of us.

We have only talked about NFPA codes so far, but there are a number of other codes or governmental agencies with which we can participate to add logic to their process. The International Building Code (IBC), Environmental Protection Agency (EPA), American National Standards Institute (ANSI), American Society of Mechanical Engineers (ASME), International Fire Codes (IFC), and numerous others need your involvement. APPA does not have the financial ability to provide funding for membership on these committees, but APPA can provide leadership in gaining access to membership on these committees for APPA members.

APPA's Professional Affairs Committee, under the leadership of Vice President Alan Bigger, have established guidelines that will help us to provide some basis on which APPA members can represent our industry. Using this framework, an APPA member can have the entire weight of the higher education community behind him as they speak in these committees or from the floor at major meetings. One person's involvement can literally have an impact of millions of dollars or may have the result of saving lives and preserving assets through a logical approach to establishment of codes.

We need your involvement and would welcome your help on any of the committees where higher education may be impacted and there are openings for new members. Contact Alan Bigger [574-631-6149; abigger@nd.edu] if you have an interest in participating. If you think you don't know enough about the code process to participate, don't let that be a deterrent. We will be glad to hold mentoring sessions to assist you in the process of getting started as a participant in the regulatory/code process.

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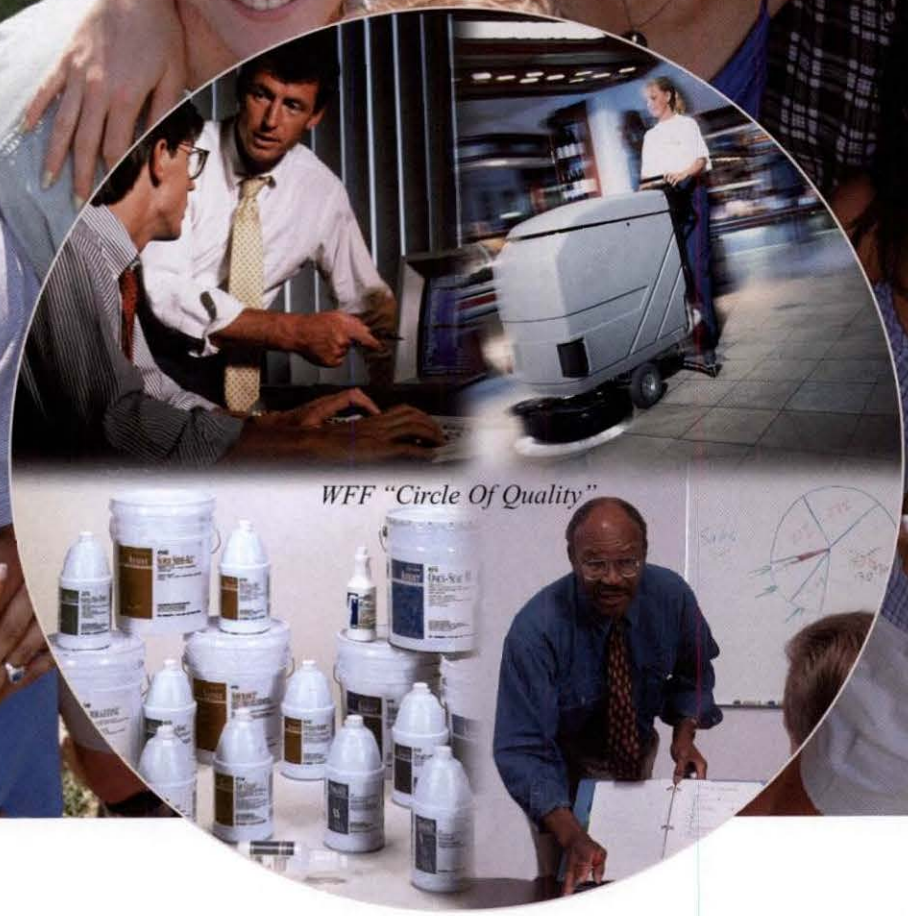

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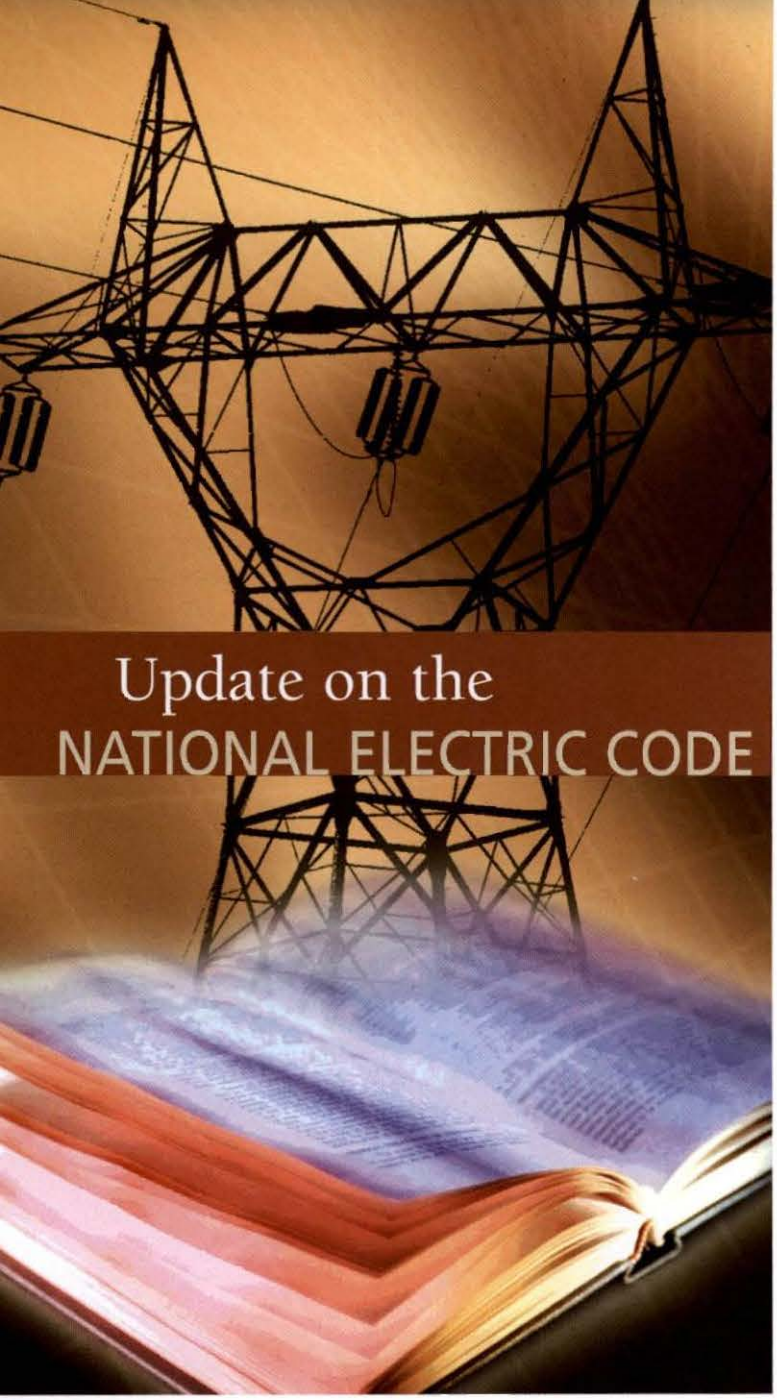


Update on the NATIONAL ELECTRIC CODE

By Michael A. Anthony, P.E.

When the 2005 edition of the National Electric Code is released later this year, it will be the first edition since the tragic and catastrophic events that occurred on September 11, 2001. It will also be the first update since August 14, 2003, when many colleges, universities, schools, and communities were affected by the worst power outage in U.S. history. The "lessons learned" from both events were on the mind of the technical committees that met over the past year in order to update the NEC.

A summary of noteworthy changes are as follows:

1. There will be modified language on the survivability of power systems during fires. The NEC is written, after all, under the auspices of the National Fire Protection Association, and the progressive way to fight fires is with the power on. Thus, for example, there will be clarifications in the language covering the locations of fire pump disconnecting means. Henceforth, fire pump disconnects shall not be located in emergency power distribution panelboards. There was a problem in some jurisdictions where physical space was at such a premium that when fire pumps were turned off, so went the entire emergency power distribution system.
2. Fuel cell systems that are specifically designed to be emergency systems shall be permitted to provide emergency power as long as they can meet full demand for emergency power for two hours. Fuel cells, like any other power source asset, are not allowed to be the normal and the emergency power source, however. It is noteworthy that the two-hour requirement is essentially a performance requirement, something that has been traditionally eschewed in the NEC.
3. Signal exchange with emergency power switchgear shall not be required for portable standby sources. It has been only recently that the NEC even covered portable sources of power. Some legacy provisions for the classical permanent installation remained in the NEC until now. It is obvious to the electrician operating the portable generator when the power to a building or event is not present; thus there is no point in requiring control signals between the exterior generator and interior switchgear even if such control circuitry exists.
4. Where an outdoor housed generator has its own disconnecting means located within sight of the building an additional disconnecting means shall not be required within the building. It makes sense that if you have a way to disconnect the generator—once at the generator itself and also within the interior service panel—you do not need a third device in between if the generator and the building it supports are in close proximity. This makes it less expensive to build code compliant on-site emergency generator systems in terms of dollars and interior space. Anytime the NEC reduces its requirements for wall space the better.

The foregoing is a short list of some of the least arcane amendments to the NEC that shall appear in the 2005 edition. In general, a substantial proportion of changes to the NEC are editorial in their nature and would fall below the radar of most facility managers in higher education. The writers of the NEC have stayed "on task" with respect to amending the NEC to reflect new safety realities without over-reaching in the stated purpose of providing "practical

***Mike Anthony is the senior electrical engineer for the University of Michigan, Ann Arbor, Michigan, and can be reached at maanthon@bf.umich.edu. He has served for several years as APPA's representative to the National Electric Code; this is his first article for* Facilities Manager.**

The stated purpose of the NEC, which has survived scrutiny for many code cycles now, does not allow the NEC to be used to justify providing emergency power to a handicapped student's dormitory respirator, or to a laboratory freezer where twenty years of research data is contained.

safeguarding of persons and property from the hazards arising from the use of electricity."

The stated purpose of the NEC, which has survived scrutiny for many code cycles now, does not allow the NEC to be used to justify providing emergency power to a handicapped student's dormitory respirator, or to a laboratory freezer where twenty years of research data is contained. The NEC can only be used as a guide to build a safe emergency power installation should you decide to build one.

5. In one of the NEC's sister publications, the Fire Alarm Code (NFPA-72), we shall see amendments that permit "backup control centers." Prior to 9/11 the NFPA had required campus-wide networks to terminate in a single supervisory control room to ensure a uniform response to fire alarms. Again, survivability is the operative word. If a control panel is either unattainable under certain conditions, or if it fails, there must be an alternate location from which to maintain operations. Safeguards will be built into such systems to prevent two control locations from being active at the same time.
6. Finally, NFPA 1600, the Standard on Disaster/Emergency Management and Business Continuity Programs has been accepted by the Department of Homeland Security but those looking for substantive requirements in order to fund security projects will find mostly a list of cross-references to other ANSI standards.

For many years, avoiding another "Blackout of 1965" inspired power engineers. I saw my power engineering professors, typically given little support within the electrical engineering departments, focused on the reliability of transmission level protective relaying, sub-synchronous oscillations across the North American grid and the economic practicality of dynamic var compensators. Then August 14th came and went with hardly a fatality that can be directly attributed to it. Maybe it was an extended late summer weekend; maybe it was the relative speed at which the system was stitched back together; maybe the preparation for Y2K paid off, after all.

In 1992, I recall speaking an engineer at the Port Authority of New York who was in charge of the power system at the World Trade Center (before the first bombing). I was involved in designing the power system for a high-rise elevator and I approached him thinking that if I could understand the elevator power system at the World Trade Center, I will be able to do a better job planning for power for a 16-story elevator on a university campus. He described several emergency power systems—two redundant life safety systems using both natural gas and diesel; and a third, optional system that could be "subscribed-to" by any tenant for a monthly fee. All of these systems were then backed up by a fourth system—two underwater cables that supplied power from a utility in New Jersey. Clearly, a "balanced portfolio" of emergency power options was on the minds of the power engineers at the Port Authority.

One of the key issues facility professionals need to manage going forward is the degree to which we consider natural gas an independent source; especially with the drive to make fuel cells more widely applied. I draw from my personal experience from a couple of summers in college, as an engineering student drafting "as built" drawings of the power system of a natural gas pipeline that extends from Louisiana to the upper Midwest. While it is true that there is substantial on site power for keeping pressure up at compressor stations along a seven-state path, the supply of natural gas is only good as long as the pipes themselves are in good working order. Like transmission lines; pipelines are vulnerable.

One of the key issues facility professionals need to manage going forward is the degree to which we consider natural gas an independent source; especially with the drive to make fuel cells more widely applied.

At this point the NEC, and its related standards, leaves the determination of the independence of fuel and power supplies up to the Authority Having Jurisdiction. The response of NFPA technical committees to the most recent catastrophes would lead us to conclude that traditional allowance for natural gas as an independent source for on site generation may last only as long as it does not work. There is no widely accepted method of verifying normal and emergency power system reliability that a typical electrical inspector can use. Alas, we must rely upon common sense.

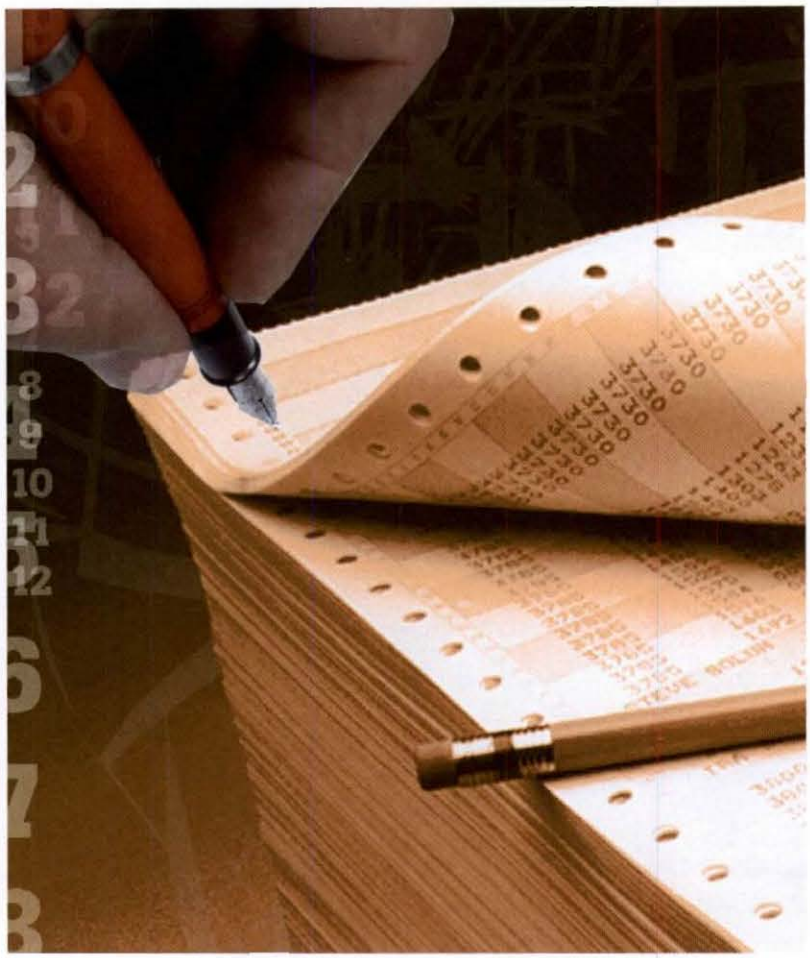
Some recommendations for educational facilities professionals are as follows:

- Consider a balanced portfolio of emergency power generating options—diesel as well as natural gas. If fuel cells gain in their acceptance as a source of normal power there will be limits to the degree to which natural gas can be relied upon to provide emergency power.
- Communication systems should also be balanced between wireless, satellite, and "wire-ful" old telephone service. There is widespread recognition that the copper wiring embedded in the old "Ma Bell" system served us well.
- Increase your coordinated emergency planning with your host communities. With city and county planners, look closely at the shared dependence upon water, natural gas, and electric power for opportunities to make emergency systems generate income as well as they provide security. The least expensive time to build an emergency power system is the day before the next outage.

My colleague at the World Trade Center was generous with his time in a way that power engineers may never be able to be again, and in a way that I shall never forget. What I took away from this conversation was the reminder that we write our own codes based upon the inherited wisdom we receive from those who preceded us and upon the shared experience of our own moment in history. The NEC, even after a hundred years as the most widely accepted standard on earth, is still mindful that in order to be relevant it must not be too rigorous. Yet no one is restrained from engineering and building a power system exceeding its minimum requirements.

NFPA 90A Revises Standards for HVAC Systems

By Douglas S. Erickson, FASHE



As APPA leadership embarks on a more active level of activity in codes and standards advocacy one of our main goals is the education of our membership in proposed new code requirements that may affect the manner in which we conduct our business. These new standards may be in the form of added requirements for new construction or renovation, increased frequency of maintenance activities, or retroactive requirements for upgrading existing equipment. As the old adage goes, "knowledge is power" and this article is meant as a membership alert on the activities of a standard that has an impact on every one of our facilities.

The National Fire Protection Association's Standard for the Installation of Air-Conditioning and Ventilating Systems (NFPA 90A) is in the middle of its revision cycle and the Technical Committee (TC) responsible for this standard has published its first report called the *Report on Proposals*. This public document is a full report of the TC's activity during the interim phase of producing the 2005 edition of the standard. Its purpose is to solicit public comments on the actions and activities of the TC during the proposal period. This is our opportunity as higher education facilities officers to direct comments back to the NFPA and give guidance or challenge the TC on decisions they rendered during the proposal period.

The TC for NFPA 90A has the primary responsibility for documents on the construction, installation, operation, and maintenance of systems for air conditioning, warm air heat-

Doug Erickson is the code and standards consultant for the American Society for Healthcare Engineering and serves as an At-Large Member of APPA's Board of Directors. He can be reached at derick@bigplanet.com.

Comments on NFPA Codes and Standards must be submitted on a special form provided by the NFPA. To download the form go to http://www.nfpa.org/Codes /index.asp and under the Resources text box click on Form for Comments on NFPA ROP.

ing, and ventilating including filters, ducts, and related equipment to protect life and property from fire, smoke, and gases resulting from fire or from conditions having manifestations similar to fire. This TC has a membership makeup from manufacturing, the enforcement community, special experts, users, insurance industry, and testing laboratories. NFPA uses the ANSI process so it must maintain a committee balance to keep one faction from dominating the activities of the TC. I am an alternate member on the TC; however, the opinions rendered in this article are my personal opinions and are not representative of the NFPA TC on Air Conditioning.

At its February 18 – 20, 2004 meeting the TC reviewed and processed 222 public proposals. The actions of the TC will be reported on July 23, 2004 in a document titled *Report on Proposal*, a public document that can be order in paper format or downloaded from the NFPA website (nfpa.org). This article will highlight the more controversial issues debated by the TC with many of them being recommendations for adding new requirements to the standard. The closing date for submitting comments is 5:00 pm EDT, October 1, 2004.

The issues that need to be studied by the APPA membership are listed below.

Smoke Dampers in Large HVAC Units

Smoke dampers that are currently required in large air-handling units are being deleted from the standard, as the claim is they are ineffective. In their place the TC is proposing to add a new requirement for smoke dampers to be installed in the air distribution system where it creates a passage for smoke movement between building spaces required to be separated by horizontal or vertical fire-resistive assemblies requiring opening protective devices, joint protective systems or firestopping systems.

This will effectively increase the number of smoke dampers and related smoke detectors being installed in our ductwork and air-handling units

Removal of Abandoned Cable

In plenum ceiling spaces and spaces above false ceilings all accessible abandoned materials shall be deemed to be storage

and shall therefore be removed. Where associated with the air distribution system, electrical wires and cables complying with the requirements of 4.3.10.2.3 and 4.3.10.2.6.1 shall be permitted.

This new text will require the removal of abandoned cabling when new cable is being pulled in these spaces. The only cable that can remain is a cable that is tagged for future use.

Combination Fire/Smoke Dampers

Fire/smoke dampers shall be installed at each direct or ducted opening into or out of shaft wall enclosures.

The TC has not justified the mandating of combination fire/smoke dampers at points where ducts penetrate shaft walls. The proposal has referenced an NFPA study that has as one of its goals, building evacuation enhancement by limiting the movement of smoke. No evidence has been submitted that the addition of combination fire/smoke dampers will effectively accomplish this goal. The cost of installing combination fire/smoke dampers versus fire dampers is significant and should not be imposed on building owners without clear technical justification.

Dampers in Smoke Partitions

Smoke dampers shall be installed at or adjacent to the point where air ducts pass through required smoke barriers or smoke partitions, but in no case shall a smoke damper be installed more than 0.6 m (2 ft) from the barrier, or after the first air duct inlet or outlet, whichever is closer to the smoke barrier or smoke partitions, unless otherwise permitted in the standard.

Smoke partitions are not intended to meet the same level of smoke resistance as smoke barriers. Smoke partitions are a new concept to NFPA standards and first appeared in the 2000 edition of NFPA 101. They are defined as membranes that "limit" the transfer of smoke while smoke barriers are defined as membranes that "restrict" the movement of smoke. Smoke partitions are not required to be continuous membranes through the interstitial space above a ceiling when a continuous membrane suspended ceiling is provided and the space above the ceiling is not used as a plenum. In such instances, ductwork will be passing above the smoke partition within the interstitial space.

Since no "wall" is being penetrated, these newly required dampers will have no wall opening to protect but will still need to be installed if the standard is written as proposed.

Smoke and Fire Damper Testing

Change the maintenance requirements for smoke and fire dampers from 4 years to at least annually.

Technical substantiation for quadrupling the frequency of damper maintenance has not been provided other than a statement that the task group could find no reason why these critical components are not tested annually. The task force simply stated that they "could find no justification for such an unusually long interval." Prior to 1993, 90A had no requirement to perform maintenance, and I have yet to see any data to show that maintenance on the current 4-year cycle is inadequate.

In order to make a significant difference in how this standard is finalized the NFPA TC on Air Conditioning needs to hear from the users of NFPA 90A. Comments on the need to modify or reject these proposed new requirements is essential so the committee can make knowledgeable decisions during the final processing of the document. Remember this is a consensus process and the input of APPA membership is necessary to assure that all voices are heard, not just those of the vendors, manufacturers, consultants, and special interest groups.

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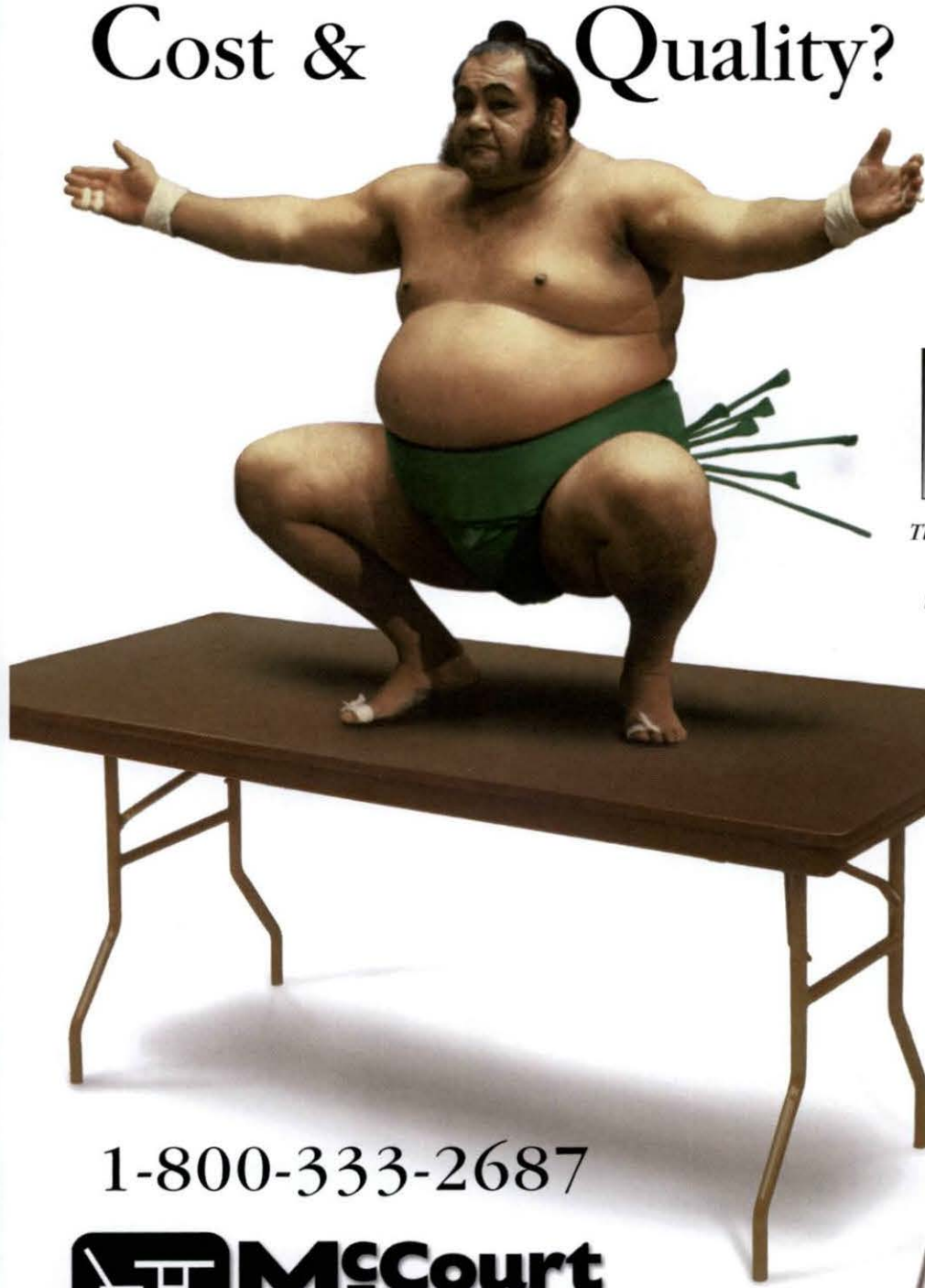

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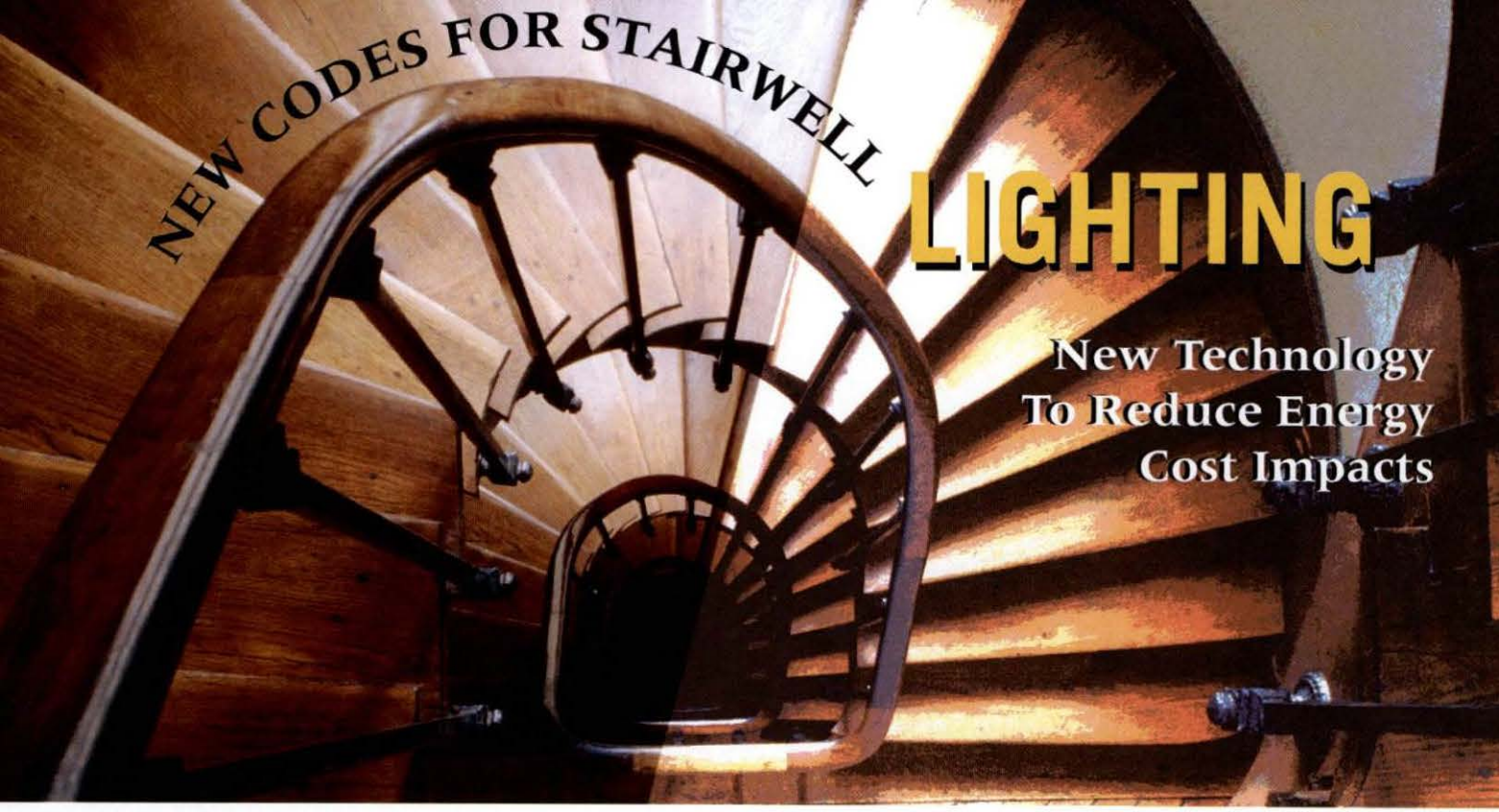


NEW CODES FOR STAIRWELL LIGHTING

New Technology To Reduce Energy Cost Impacts

by G. Kimball Hart

Facility managers, owners, or developers of proposed multi-story buildings need to be aware that a new standard for lighting exit stairways has been approved by the American National Standards Institute (ANSI), the Uniform Fire Code® (NFPA 1) and the Life Safety Code® (NFPA 101). Concerning the "illumination of paths of egress," the new code requires that "during conditions of stair use, the minimum illumination for new stairs shall be at least 108 lux (10 ft-candles), measured at the walking surfaces." This is a significant increase from the old code that was only one foot-candle.

Recognizing that this new standard could significantly increase lighting energy costs—because stairwell lights are on 24/7—the code writers have allowed for the use of new technology to help keep energy costs down. For example, section 7.8.1.2.2 of the Life Safety Code® says, "automatic, motion sensor-type lighting switches shall be permitted within the means of egress, provided that the switch controllers are equipped for fail-safe operation, the illumination timers are set for a minimum of 15-minute duration, and the motion sensor is activated by any occupant movement in the area served by the lighting units."

***Kim Hart is principal of Hart, McMurphy & Parks, Inc., Middleburg, Virginia and consultant to the California Energy Commission PIER Program. He can be reached at hmpi2000@ aol.com. This is his first article for* Facilities Manager.**

When Does the New Code Take Effect?

It is up to each local jurisdiction to decide when a new code takes effect. Most large cities and counties have highly routine processes for updating codes. The new code for exit stair lighting is contained in the 2003 Editions of the two NFPA codes. Many jurisdictions will be adopting these editions from now through 2005 or 2006. Note that the new code applies only to new stairs—either in new construction or in renovations significant enough that they must be brought up to current codes.

Stairwell safety has been a public health issue, a building code issue, and a fire code issue for decades, especially in emergency situations. Recently, however, because of the 1993 and 2001 attacks on the World Trade Center in New York City and a disastrous fire in a nightclub in Rhode Island, public attention has again been focused on the importance of stairwells that are typically out of sight and out of mind.

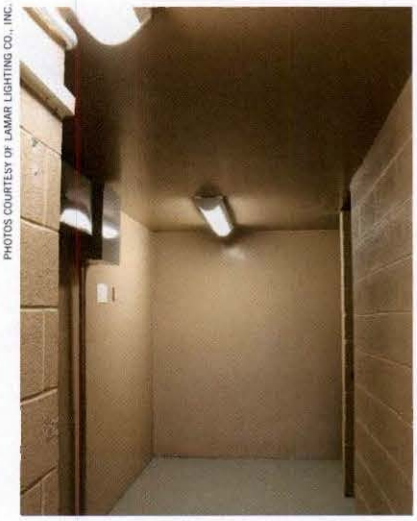
What is Motion Sensor Controlled Stairwell Lighting?

Recognizing the value of better-lighted stairwells but not wanting to increase energy demand more than necessary, both the New York State Energy Research and Development Authority (NYSERDA) and the California Public Interest Energy Research (PIER) Program have been sponsoring the development of new "bi-level" fluorescent fixtures that can be used in stairwells to meet the new code. The fixtures, which come in both 120V and 277V options, maintain a low level of light sufficient to meet the 1FC code requirement for unoccupied

periods. However, when an occupancy sensor detects motion in the stairwell, the fixture switches to full output in order to meet the 10FC requirement. The length of the fixture and number of lamps needed to meet the lighting requirement are a function of stairwell geometry and color.

In addition to the normal parameters, such as U.L. listing, warranty, and first cost, that any facility manager would consider, special features of this new technology to compare carefully include:

- *Motion sensor design and construction:* a motion sensor that is internally mounted is less subject to vandalism than an external one. Also, ultra-sonic sensors do a better job of detecting motion in the stairwell and on the landings above and below the one being entered.
- *Lamp conditioning circuit:* It significantly improves lamp life if the fluorescent lamps in the bi-level fixture can be "burned in" for 100 hours or so before they start dimming cycles. Note that in some bi-level fixtures, lamps are dimmed but not actually turned off. Keeping lamps on, though dimmed, instead of turning them off and on may actually extend lamp life over conventional fixtures.
- *Adjustable Dwell Time (On-Time):* Controllers should be adjustable to meet both occupant desires and to be sure that the unit meets the 15-minute on-time required by code.
- *Optional emergency Lighting:* Bi-level fixtures that can be fitted with battery packs and are U.L. certified as "emergency lighting and power equipment" can do double duty as emergency lighting and eliminate the need for additional "headlamp" battery packs.



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How Do Dimming and Stairwell Use Affect Energy Costs?

Both NYSERDA and PIER have spent significant research time looking into this issue. One of the monitoring sites testing the new bi-level fixtures is Evans Hall at the University of California, Berkeley. Here are some initial estimates from the two research organizations:

- 2-Lamp fixture with no dimming: If the facility manager used a standard 2-lamp fluorescent fixture (2F32T8S) to meet the new 10FC code, the fixture would use an average of 58 watts per hour 8760 hours per year (24x365). At 14 cents per kWh and no dimming, that would work out to an energy cost of about $71 per year per fixture.
- 2-Lamp fixture with 95 percent dimming: If the stairwell is secured with only an occasional occupant exiting all the way out (no inter-floor traffic), the fixture would be in dim mode about 95 percent of the time. Using a fixture in the dim mode (10% light), energy use would be 13 Watts for 8322 hours and full-on at 62 Watts for 438 hours. At 14 cents per kWh, this fixture would cost the facility only about $19 per year per fixture to meet code.
- 2-Lamp fixture with 60 percent dimming: It is still early in the monitoring process at Evans Hall, but preliminary indications are that in the case where exit stairs are used for inter-floor traffic, stairwell lights may be full-on about 40 percent of the time (they are dimmed most of the time during nights and weekends). Revising the calculations above to account for 40 percent time at 62

Watts and 60 percent time at 13 Watts, the annual cost of using this fixture to meet the 10FC code would be about $40 per year—clearly more that in the case of the secured stairwell but still significantly less than the standard fixture on all the time.

There is no doubt that bi-level fixtures are more expensive than standard fluorescent fixtures. It costs more to have a fixture with an occupancy sensor and a step-dimming ballast. Costs of these new fixtures vary widely so it pays to shop for them. But even at a significant incremental cost over standard commercial fixtures (as much as $150 or more), based on the savings described above, simple paybacks can be in the three-to-five-year range depending on electricity costs and the amount of stairwell use. Clearly this new technology is designed to take the sting out of applying new stairwell lighting codes.

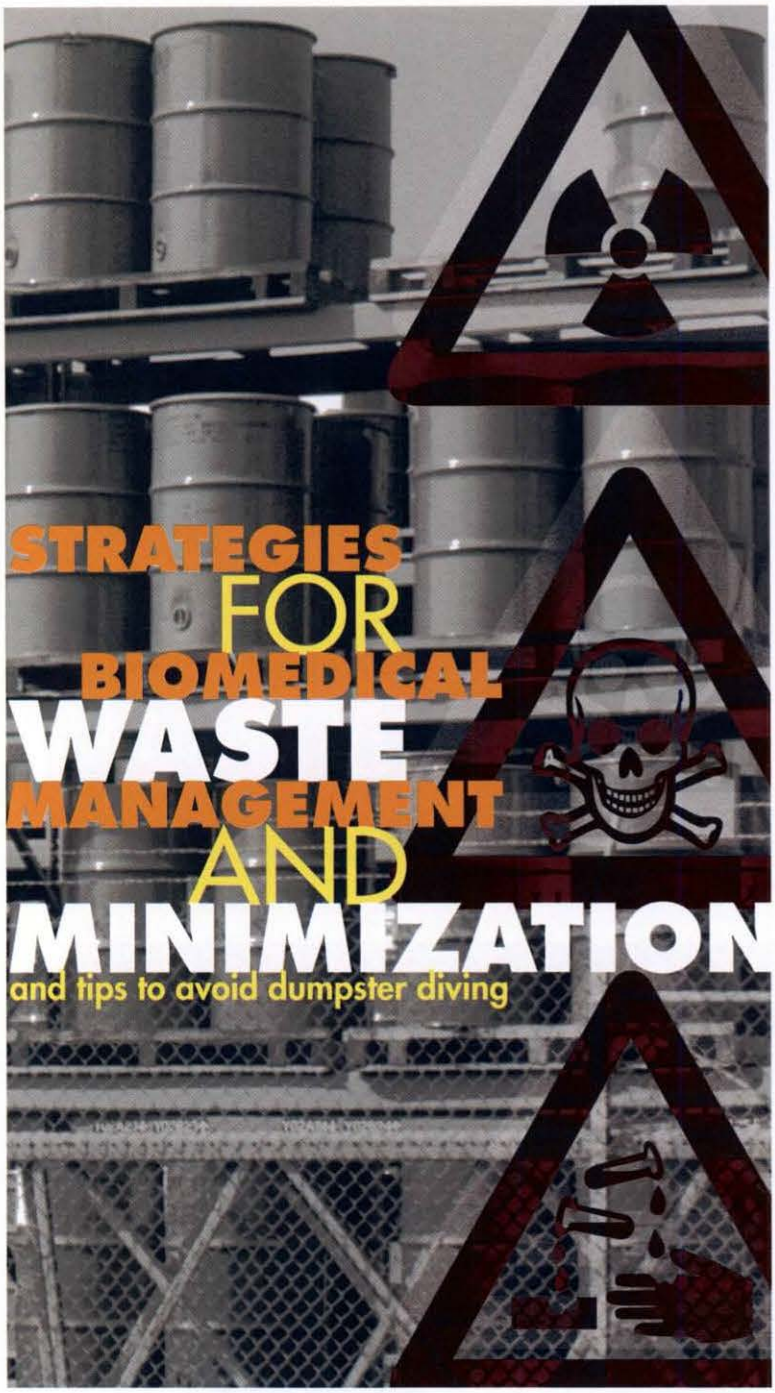
Websites of Interest

- Access Board
  —www.access-board.gov
- American National Standards Institute (ANSI)
  —www.ansi.org
- California Building Standards Commission (BSC)
  —www.bsc.ca.gov
- International Code Council (ICC)
  —www.iccsafe.org
- National Fire Protection Association (NFPA)
  —www.nfpa.org
- U.S. Department of Justice (for ADA)
  —www.usdoj.gov/crt/ada
- Western Fire Chiefs Association (WFCA)
  —www.wfca.org

Manufacturers

At least three manufacturers are currently making bi-level fixtures suitable for exit stair applications:

- Occu-Smart® by LaMar Lighting
  (www.occusmart.com)
- StairLite System by Cooper Lighting
  (www.cooperlighting.com)
- Stairwell Luminaire by Day-Brite® Lighting
  (www.daybritelighting.com)



STRATEGIES FOR BIOMEDICAL WASTE MANAGEMENT AND MINIMIZATION

and tips to avoid dumpster diving

by MaryKristin Ivanovich

Virtually all colleges and universities, regardless of size, generate at least small amounts of biomedical waste. Health clinics, athletic trainers, biology and chemistry labs, not to mention university hospitals and affiliated biomedical research facilities, generate sharps, redbags, and liquid waste streams that require proper management under federal, state, and local regulations. With increased restrictions on biomedical waste incineration and lack of space for landfills, biomedical waste disposal costs are on the rise and are anticipated to continue to increase for the foreseeable future.

Furthermore, state and local regulators have increased inspections of biomedical waste generation and disposal sites and have imposed fines against generators who improperly dispose of regulated waste. For example, recent inspection programs in Virginia and New York collectively resulted in close to 1,000 notices of violation and over $500,000 in fines.

In response, some biomedical waste generators have opted to redbag entire labs or departments to avoid mismanagement of biomedical waste, while others have chosen to inspect all regular solid waste leaving the facility either before or after the waste goes into the dumpster. Some facilities have gone as far as creating teams of "dumpster divers" who don personal protective equipment and examine representative samples of trash from a given day, looking for mismanaged waste. In order to battle high disposal costs, reduce risk of compliance violations, and avoid "dumpster diving," colleges and universities should develop facility-specific strategies for biomedical waste management and minimization.

History of Biomedical Waste Regulations

During the summer of 1988, needles, syringes, blood bags, bandages, and other used medical materials washed up on beaches along the Atlantic Seaboard. Beaches in Connecticut, New York, and New Jersey were closed and public concern over the health hazards and environmental degradation caused by improper management of medical waste was heightened. In response to public concern, Congress enacted the Medical Waste Tracking Act (MWTA), which established a "cradle to grave" system to track biomedical waste in the regions most impacted by biomedical waste management problems.

The MWTA required that a tracking form accompany shipments of biomedical waste, and a signed copy be retained by the generator, each transporter, transfer station, and the treatment/disposal facility that handled the waste. A copy of the signed tracking form was required to be returned to the generator certifying destruction of the waste. Generators were required to separate, package, label, mark, and track biomedical wastes according to the regulations. Transporters and disposal facilities were also subject to tracking, recordkeeping, and reporting requirements.

The MWTA rules expired June 21, 1999. Today, biomedical waste disposal is regulated at the state level, either by an Envi-

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ronmental Agency (DEP, DEC, DEQ) or by the Department of Public Health, or both. In addition, other agencies that regulate different aspects of biomedical waste management include:

- Department of Transportation (regulates biomedical waste transportation);
- Food and Drug Administration (regulates devices such as sharps containers);
- Nuclear Regulatory Commission (regulates certain radioactive biomedical waste);
- Occupational Safety and Health Administration (regulates medical waste in the workplace); and
- United States Postal Service (regulates medical waste in the postal system).

What is Biomedical Waste?

Most states define biomedical waste as solid waste that is generated during the diagnosis or treatment of human beings or animals, or in research, that poses a potential hazard to human health and the environment when improperly treated, stored, transported, or disposed. For a detailed listing of the categories of biomedical waste, see Figure 1.

In general, wastes that meet the definition of biomedical waste that have been treated onsite using an approved method are no longer considered biomedical waste (but may continue to have special handling and recordkeeping requirements). Likewise, human corpses, remains, or body parts that are intended for cremation or interment are not biomedical waste. Mixtures of biomedical waste and hazardous (chemical) waste must be managed first under the Resource Conservations Recovery Act (RCRA) regulations, and mixtures of radioactive and biomedical waste must first be managed as radioactive waste and handled by a special mixed waste hauler. However, mixtures of regular solid waste and biomedical waste must be managed in their entirety as biomedical waste.

Requirements for Biomedical Waste Management

Regulations for biomedical waste management vary slightly from state to state. In general, biomedical waste must be separated from other waste at the point of generation into sharps, liquids, and other biomedical wastes. Waste segregation is the initial and most critical point in the waste handling process, and generators should designate biomedical waste as soon as practical at the point of origin. Sharps must be placed in puncture-resistant containers, liquids into containers with tightly sealed covers (unless liquids may be drain disposed), and other biomedical waste into red biohazard bags ("redbags").

Biomedical waste containers should be clearly marked and immediately available in the area where the waste is generated. Full redbags, sharps and liquid containers should be placed into a rigid, leakproof secondary container (e.g., cardboard box) that can be sealed, labeled, and sent off site through a licensed waste hauler. Containers should be labeled immediately after packaging with the generator name and address, the transporter name and address, the international biohazard symbol, and the date.

If biomedical wastes are accumulated on site prior to transport, wastes should be stored in a designated area that restricts unauthorized personnel and is well ventilated, protected from the elements, impermeable to liquids, and protected from vermin and other vectors.

Finally, a Medical Waste Manifest or tracking form must accompany every waste shipment, and a copy of the signed form should be received by the generator from the destination facility and kept on file for the period specified by state regulations (typically three years). See Figure 2 for a Biomedical Waste Management process flow diagram. See Figure 3 for common biomedical waste management violations.

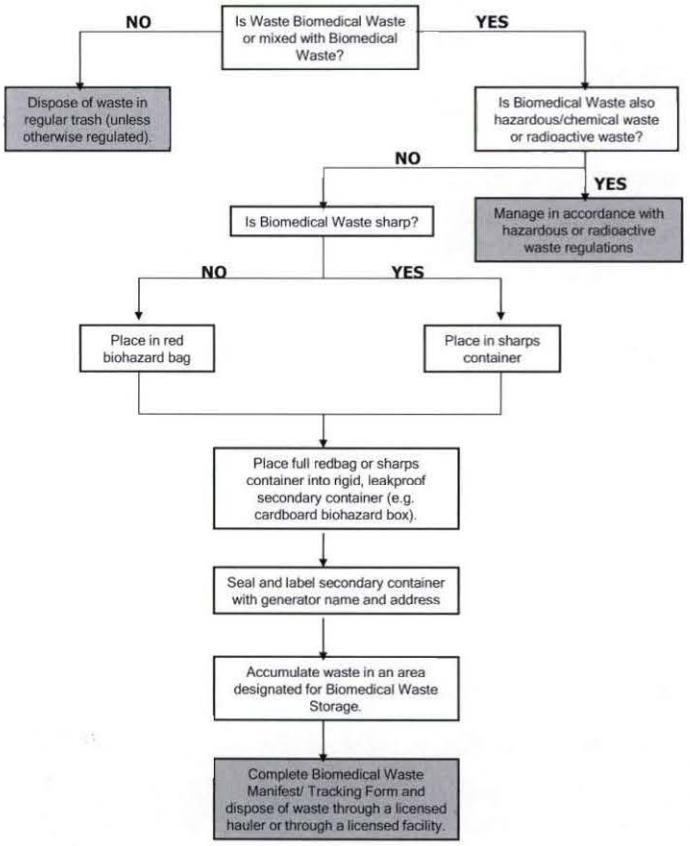
Challenges to Effective Biomedical Waste Management

Colleges and universities face a number of challenges to effective biomedical waste management. First, the decentral-

Figure 1: Basic Categories Biomedical Waste

- Cultures and stocks of infectious agents (usually considered materials Biosafety Level 2 and up);
- Human pathological wastes (e.g., tissues and body parts);
- Human blood and blood products, including items containing free-flowing blood and items saturated with blood;
- Sharps that were used in animal or patient care, in medical, research, or in industrial laboratories, including hypodermic needles, syringes, Pasteur pipettes, broken glass, and scalpel blades. Note that some states also regulate certain unused sharps, such as hypodermic needles, syringes, and scalpel blades;
- Contaminated animal carcasses, body parts, and bedding of animals that were exposed to infectious agents;
- Wastes from surgery or autopsy that were in contact with infectious agents, including soiled dressings, sponges, drapes, surgical gloves, etc.;
- Laboratory wastes that were in contact with infectious agents, including slides and cover slips, disposable gloves, laboratory coats, and aprons;
- Certain isolation wastes (i.e., wastes from patients with highly communicable diseases); and
- Other waste material that results from the administration of medical care that poses a threat to human health or the environment.

Figure 2: Biomedical Waste Determination, Separation, and Disposal



ized organization of most colleges and universities makes it difficult to identify all waste generators. Environmental Health & Safety staff is typically limited, and there may not be a staff member or members devoted to overseeing the management of biomedical waste. Moreover, biomedical wastes may be mixed with other wastes (hazardous, radioactive) making waste determinations and management approach more difficult. Research and health care facilities are regulated by multiple agencies, so keeping track of compliance requirements can be overwhelming.

There are also fundamental decisions that each campus needs to make regarding cost, risk management, and compliance. As noted above, many schools have a tendency to manage non-regulated waste as biomedical waste due to the fear that people on-site will mismanage regulated materials. For example, it is common to see gloves, paper towels, and other uncontaminated solid media inside a red bag in a biology lab even though they are not biomedical waste. Likewise, clean broken glass is often disposed of as a biomedical waste sharp rather than in broken glass containers thrown out as regular solid waste.

While this conservative approach to biomedical waste management decreases the likelihood of non-compliance for improper waste disposal, it increases disposal costs and the amount of waste generated, and adds regulatory burden to whoever manages the RMW. Alternatively, if a school attempts to minimize the amount of RMW generated, it must be more diligent in its training programs or it runs a greater risk of improperly disposing biomedical waste.

Considering the challenges colleges and universities face to effective biomedical waste management, it is important that a compliance strategy be developed that is appropriate for that type of facility and types of wastes generated.

Strategies for Effective Biomedical Waste Management

Once of the best ways to document a campus' policies for biomedical waste management is to develop a Biomedical Waste Management Plan, whether a Plan is required by applicable regulations or not. Biomedical Waste Management Plans should be specific to the facility, and should include:

- A description of applicable regulations;
- Department and individual responsibilities;
- Procedures for biomedical waste identification;
- A description of the biomedical waste handled by the facility;
- Procedures for waste minimization;
- Procedures for segregation, packaging, storage, treatment and transportation;
- Procedures for biomedical waste spill response; and
- A description of biomedical waste training programs.

Once a Biomedical Waste Management Plan is in place, colleges and universities should train staff who generate and/or manage biomedical waste in the proper waste identification and management procedures. Training of personnel who generate medical waste will help to ensure immediate and accurate segregation of wastes and safe and effective handling procedures. Training programs should include the following elements:

- Explanation of the waste management plan;
- Assignment of roles and responsibilities;
- Detailed description of the definition of biomedical waste, including examples;
- Proper handling procedures, including waste segregation, packaging, and storage; and
- Waste minimization techniques.

Figure 3:
Common Biomedical Waste Violations

- Biomedical wastes not managed separately from regular solid wastes
- Biomedical wastes not separated into sharps, liquids, and redbag wastes
- Overfilled sharps containers
- Biomedical waste containers not labeled with the generator name and address
- Biomedical wastes not stored in secure locations (e.g., in hallways, on open loading docks)
- Biomedical wastes treated onsite without a permit of without maintaining proper paperwork
- Autoclaves used for waste treatment not challenge tested as required
- Both initial and final copies of biomedical waste tracking forms not maintained on file at the facility

Training programs should be followed up by onsite biomedical waste inspections to ensure that staff in all areas understands the proper segregation and management procedures. Developing an internal biomedical waste auditing program can help identify waste management issues at the front end before mismanaged biomedical wastes make their way into the dumpster.

Biomedical Waste Minimization

Once a campus adopts a Biomedical Waste Management Plan and staff are trained in proper biomedical waste management techniques, the next step is to consider ways the biomedical waste stream may be reduced. In fact, proper biomedical waste management may automatically lead to waste minimization by eliminating non-biomedical wastes from the waste stream. However, if a facility does not know what their waste stream contains, waste minimization opportunities may not be optimized.

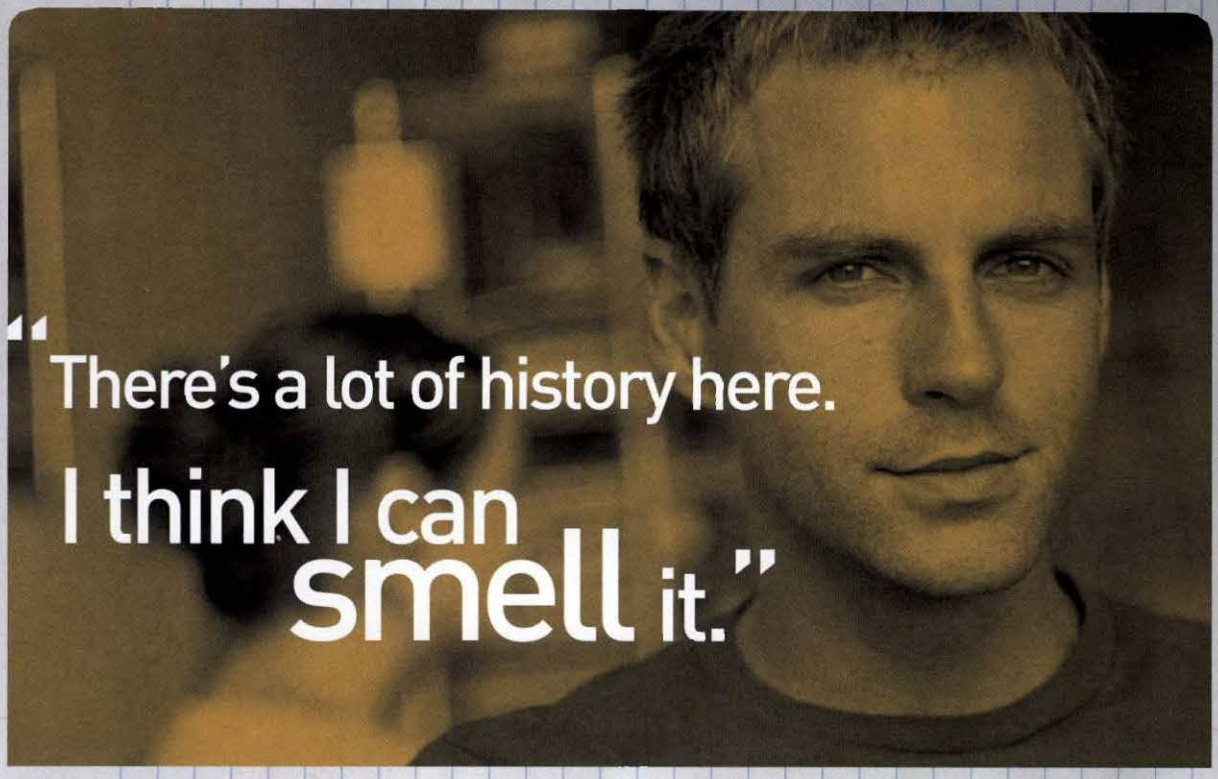
The best way for a campus to begin maximizing biomedical waste minimization is to understand what wastes are generated onsite. Campuses should analyze disposal costs by weight and volume, find out if any biomedical wastes can be treated onsite, and determine whether any non-biomedical waste is being disposed of in the biomedical waste stream. Once a campus determines the types of wastes that make up the biomedical waste stream, the appropriate size and number of biomedical waste containers (redbags, sharps containers) should be clearly labeled and placed in all areas on campus where biomedical wastes are generated. Regular trash cans should also be made available in areas where biomedical wastes are generated to reduce excess volume in the biomedical waste stream.

Another way facilities, especially large quantity biomedical waste generators, can reduce the volume of their biomedical waste stream is to treat waste onsite. Most states allow generators to treat waste at their facilities as long as they use approved equipment (e.g., autoclaves, chemical treatment units, tissue digesters) and follow the permitting, recordkeeping and reporting requirements of the regulating agency. Waste treatment units may require an initial capital investment, but the reduction in the biomedical waste stream can result in a significant cost savings over time.

Conclusions—and Tips to Avoid "Dumpster Diving"

Colleges and universities generate biomedical waste in many areas on campus, and proper management techniques may be poorly communicated or understood by people who are involved with the onsite handling and/or management of biomedical waste. Campuses must ensure that all biomedical waste is disposed of properly without over-regulating wastes that can be disposed of as regular trash. The key is to strike a balance between sufficient waste management and minimization, which can be accomplished in large part by understanding the wastes generated on campus, developing a comprehensive Biomedical Waste Management Plan and providing biomedical waste training to those involved with the onsite management of biomedical waste.

In addition, colleges and universities can prevent mismanagement of biomedical waste and avoid "dumpster diving" by providing and placing waste containers in such a way that makes waste management decisions easy, segregating waste immediately at the point of generation to avoid errors later on, using clear plastic bags for regular trash so it can be inspected, and conducting biomedical waste audits to identify issues and ensure ongoing compliance.



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The Charge of the Rate Brigade: A Rate Template for In-House Construction Labor

by Donald J. Guckert and Jeri Ripley King

One of the core services of most facilities management organizations in higher education is to provide minor improvements, alterations, and repairs that fall beyond the scope and funding of normal maintenance. These services range from simple "handyman" activities, such as installing bookshelves and repairing departmental equipment, to more ambitious endeavors like renovations of classrooms and laboratories. To maintain institutional quality and provide the necessary flexibility to work around the schedules of the customers, often the most cost-effective approach is to use in-house staff to deliver the services. These services are differentiated from maintenance services, and are commonly referred to as "in-house construction."

Thirty years ago, most in-house construction work was funded through annual operating budgets. As budgets tightened, this approach began to give way to charging a fee for services. Now, recharging for in-house construction labor is recognized necessary to protect maintenance and operations budgets from being eroded by the costs of elective improvements.

CFaR | Center for Facilities Research

Questions about how to establish recharge rates have surfaced at the APPA Institute for Facilities Management. During discussions about in-house construction, many of the institute's attendees have been surprised to discover that, despite having a recharge system in place, they are indirectly subsidizing in-house construction efforts with their maintenance and operations budgets by not capturing all of the costs associated with providing the services.

To try to eliminate the mystery surrounding rate determination, we set out to develop and explain a basic template that could be applied to all types of institutions and situations to ensure that all costs, direct and indirect, would be fully recovered. Institutions could then make informed decisions about the degree of cost recovery they are seeking.

Controlling for Apples and Oranges

We knew, from an existing survey conducted in 1999 by the University of Arkansas Physical Plant, that there was a wide range of hourly recharge rates. Over the years, we had heard many guesses about why the rates varied so much. These guesses included the economics associated with geographic locations, union versus non-union, private versus public, and small versus large institutions. Logic dictates that

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benchmarking actual costs from one institution to another has little value if the base wages vary significantly.

To avoid comparing apples to oranges, we needed to find a way to normalize the data. Rather than focusing on the specific dollar amount, we decided to look at the ratio of recharge rates to direct wages. For example, if the hourly rate charged to the customer is $40 and the hourly wage paid to a tradesperson is $20, the ratio is 2-to-1. By looking at the ratio, we would be able to isolate the mix of factors that influence the calculation of rates.

The Survey

To test our assumptions, we requested voluntary responses from APPA member institutions to a web-based survey instrument. We asked for recharge rates by trade; average annual billable hours; and elements included in the rates: fringe benefits; equipment and shop overhead; plant maintenance and operations costs; and other overhead expenses. In addition, we gathered information about geographical location, union versus non-union, private versus public, the institution size, type (doctoral/research, masters, etc.), approximate work volume, services offered (carpentry, masonry, electrical, plumbing, etc.), and where in-house construction resides within the organization to see whether there were any discernible trends that would have an impact on rates.

Understanding the Survey Responses

Thirty-three institutions responded to our Web-based survey in Spring 2003. The institutions ranged from the small, private, liberal arts baccalaureate college to the multi-campus, public, doctoral research extensive university. Twenty-four of the responses were from doctoral research institutions. Fourteen were from Big Ten and Big 12 schools. The majority of the responses were from public institutions.

Figure 1: Calculation of Billable Hours

The following is a sample rate calculation for an employee receiving nine holidays, five weeks of vacation, twelve sick days, 40 hours of training/meetings, and 24 hours of other time.

Annual Available Hours	***2080***
Less:	
Holidays	*72*
Funeral/Jury	*8*
Vacation	*200*
Sick Leave	*96*
Training and Meetings	*40*
Other	*24*
Total Billable Hours	***1642***

This average number of billable hours would target a 78% availability rate (1642 divided by 2080) per trades person.

When we looked at the ratios of rates to direct wages, we found that they ranged from 1-to-1 to 3.01-to-1. In other words, if the direct wage of a plumber is $20/hour, one institution would charge $20 for one hour of labor and another would charge $60.20. The enormous difference is because the charged rates do not cover the same things. In the case of the 1-to-1 ratio, the only costs recovered were the wages for that hour of labor, with no recovery for operational or administrative overhead. Those with greater ratios included some or all of the other overhead elements.

Billable Hours: Each full-time employee (FTE) is compensated for 2080 total hours per year. However, not all of these are "billable hours." Billable hours exclude the number of hours allowed for leave time such as vacation, sick leave, safety and other training, meetings, and an estimate of down time for departmental celebrations, employee recognition events, memorial services, general shop meetings, or other events.

If you are trying to recover all costs associated with the service provided, the rate needs to reflect a targeted number

Continued on page 55

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Figure 2: Sample Overhead Elements

Overhead includes all of the operating expenses, except direct labor and materials.

Fringe Benefits
Office Staff & Management Salaries/Wages
Training Expenses
Telephone
Supplies
Uniforms/Personal Protective Equipment
Shop Supplies/Tools
Vehicle Gas and Insurance
Equipment/Vehicle Maintenance and Repair
Equipment Depreciation
Computing Expense
Rent, Leasing/other Facilities Indirect Costs

Continued from page 53

of billable hours for each trade, or an average for each individual. Simply put, the more hours you have per employee to recover your annual costs, the lower the hourly rate will be; fewer billable hours per employee points to a higher rate.

Overhead: The rate survey asked about many categories of overhead, including fringe benefits; office support/supervision/management overhead; equipment and shop overhead; plant-maintenance/operation fees; and other miscellaneous costs. Full cost recovery considers each of these overhead expenses.

Significant rate subsidies may exist. This is especially true if fringe benefits are picked up from a centrally funded source.

A very common form of subsidy is not charging the unit for shop and office space or the cost of operations and maintenance for that space. Organizations that fully apportion overhead expenses in their rates have included costs for the facility, i.e., rent and utilities.

Other forms of subsidy include not recouping the costs of providing office support, supervision, or tools and equipment in the recharge rate. While having these costs outside the rates may sound good on the surface, it can hamper growth. If these overhead costs are supported by a static funding source, the growth and expansion of the operation will be limited when the demand for services outstrips the overhead structure needed to support the workforce. On the other hand, full recovery of support expenses in overhead allows the rates to absorb the addition of supervisory and support staff, and equipment commensurate with the demand for the services.

In our survey, the elements of overhead included in the rates varied greatly.

Figure 3: Calculating Average Recharge Rate

1. *TOTAL OPERATIONAL COST = Total Wages + All Overhead Costs (See Figure 2)*
2. *TOTAL BILLABLE HOURS = Billable Hours (See Figure 1) x Number of Billable FTE*
3. *HOURLY RECHARGE RATE = Total Operational Cost / Total Billable Hours*

Of the 33 responding institutions, only five indicated that their recharge rates included all of the elements listed in Figure 2; an additional seven institutions reported using most of the factors. This suggests that the majority of our surveyed institutions were providing some form of subsidy to their in-house construction services.

Since many overhead expenses are more or less fixed, we found that larger organizations were able to charge less. We were able to extrapolate that economies of scale appear to lower rates, simply because very large organizations have a higher number of billable trades people per office staff member (estimators, schedulers, accounting clerks, management, etc.), which can drive down hourly overhead costs. Very small organizations have a lower ratio of trades people per management or support staff, which can drive up overhead costs.

Figure 4: Calculating Individual or Trades Rates

1. TOTAL TRADE OR EMPLOYEE COST = Specific trade or employee wages + Specific Overhead Costs Apportioned to Specific Trade or Individual
2. DETERMINE BILLABLE HOURS BY SPECIFIC TRADE OR INDIVIDUAL
3. TRADE OR INDIVIDUAL HOURLY RECHARGE RATE = Total Trade or Employee Cost / Total Billable Hours

Profit/Loss and Break-Even Rate Structures: Adjustments for surpluses or deficits should be treated as operational overhead in the rate calculation. When institutional policy permits a balance to be carried forward, or divides a loss over several years, this can have an impact on the rates. It is important to recognize that, in a break-even environment, overages can reduce future rates, and losses can drive up future rates.

To illustrate this, consider a 20 FTE operation that bills 1650 hours per employee per year. The total billable time for the unit would be 33,000 hours (20 FTE x 1650 hours). If the unit had a loss of $33,000 in the previous year, the rates for each individual would need to be one dollar per hour higher in the following year in order to retire the debt. Conversely, if the operation needs to draw down a surplus, the result would be lower rates.

Only two of the respondents to our survey indicated that their rates included an over or under budget amount from the previous year.

The Generic Rate Template

To calculate whether your institution is recovering the full cost of providing in-house construction services, look to see whether the average hourly recharge rate is equal to the total operational cost divided by the total annual billable hours (Figure 3). The total operational cost represents all expenses necessary to run the in-house construction service. This includes salaries and wages, benefits, overhead, and adjustments for prior year losses or surpluses. The method used in Figure 3 will calculate a single recharge rate for all billable employees.

Rates can also be developed as an average by specific trade, or by individual within a trade. To calculate hourly rates by individuals or trades, the overhead is apportioned by billable hour. By doing the individual calculations, you can make allowances for those trades people who bill more or less time, need more or less training to meet requirements in a given year, or have differences in wage or benefit levels.

The approach to calculating the hourly rate by individual or by trade group (Figure 4) is fundamentally the same as outlined in Figure 3, with the following modifications:

1. Determine the wages by trade, employee classification within a trade or by individual.
2. Instead of averaging all overhead expenses together, apportion overhead among trades or individuals based upon their unique requirements for shop equipment, tools, vehicles, supervision and space.
3. Adjust billable hours by trade or individual. The billable hours will often vary between trades because some trades are more specialized and have higher annual training and certification needs. Senior employees earning more vacation time may drive differences between individuals within a trade.

Some Rules of Thumb

We found a few general rules of thumb for checking the calculated rate against full cost recovery. Normally, the hourly recharge rate for a given employee will be approximately twice their direct wage. For example, if you

were looking at a $20/hour wage, you could expect to find that the hourly recharge rate would be approximately $40.

The recharge rate for full cost recovery would include non-billable time, overhead and other adjustments. In our example, our $20/hour employee's hourly rate would include the $20 wage, about $5 for the cost of compensated time that is non-billable (based on an 80% availability rate), roughly $5 for benefits (25% of the hourly wage), and about $10 for overhead and adjustments. This adds up to a $40 hourly recharge rate, or a ratio rate-to-wage of 2-to-1.

If a ratio is significantly below two-times the direct wage, check to see whether billable time is overestimated, overhead is underestimated, or benefits were factored into the rate.

To Subsidize or Not?

It is important to recognize that your institution may not want a recharge rate that covers all costs. The ultimate goal of any in-house construction organization is to provide acceptable small construction projects at the lowest possible total cost. Determining what the rate would be for full cost recovery allows your institution to make decisions about certain elements that can influence the ability of the recharge organization to cover its targeted expenses.

Generalizing from our Spring 2003 survey data, most of the responding institutions appeared to be subsidizing their in-house construction rates in some way. This can occur by direct or indirect subsidization. Direct subsidization would include administrative or office salaries and wages, or benefit costs that are paid out of a central funding pool. Indirect subsidization occurs when organizations recharge services without recouping the cost of supervision, administrative support, vehicles, equipment, tools, training and other overhead expenses related to those services.

Summary

In order to address many of the questions that have surfaced about how to develop in-house construction rates, we conducted a rate survey that resulted in validating our assumptions, increased our understanding of the influence of the various elements of overhead, and helped us develop a generic rate template. Our rate survey showed that organizations that are fully recovering their costs are following the same basic approach to determining their rates.

Determining rates that permit full cost recovery for in-house construction can provide your organization with the information it needs to decide how to manage its funds. Full-cost recovery for in-house construction services may or may not be a goal of your institution. However, if less than full-cost recovery has not been an informed decision, facilities management organizations may be unwittingly losing budgetary ground by subsidizing elective improvements.

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Business Partners Seek "Strategic" Recognition

by Bill D. Bell

What started as a vision for APPA's Business Partner members in late 2000 will become a reality at the 2004 APPA Educational Facilities Leadership Forum in Washington D.C. That vision was to create a level of Business Partner recognition and exposure commensurate with a higher level of support given to the APPA organization on an international, national, regional, state, and local basis. Business Partners achieving this level of support each year would be recognized as a Strategic Business Partner at the Annual Forum and enjoy all the associated benefits for one year.

After two years of communication and planning between the APPA staff and a Business Partner committee, the Strategic Business Partner Program was introduced at the 2003 Annual Forum in Nashville. The point-based system, shown in the accompanying sidebar, provides Business Partner members with the opportunity to participate in any or all of the possible areas of APPA support to achieve or exceed the threshold required for Strategic Business Partner recognition. The program, enthusiastically received by those in attendance, began immediately following the 2003 Forum. The accumulation of points for 2004 continues through the Washington Forum, and the annual program will follow the same schedule in the future.

Bill Bell is the executive vice president for business development at Lerch Bates-Elevator Consulting, Littleton, Colorado, and has been an active participant in the development of APPA's Strategic Business Partner designation. This is his first article for* Facilities Manager, *and he can be reached at bbell@lerchbates.com.

The Strategic Business Partner program exemplifies the desired relationship between the APPA facilities professionals and the Business Partner members that support them as a "resource" and a "partner" in their everyday business, year in and year out. As a resource, they are there to assist in any way possible and to work toward the betterment of processes and products as "staff" to campus facilities management.

As a partner, they provide the highest level of ROI (Rate of Involvement) as teachers, presenters, writers, sponsors, exhibitors, advertisers, and willing participants on special projects or a task force. Their partnering at every level of the APPA organization allows the facilities professional to become more aware of the resources they have available to them and provide them with the avenue to utilize those resources for their personal development and for the good of their institution.

For those achieving the level of Strategic Business Partner, a higher ROI (Return on Investment) will be theirs all year long. They will be acknowledged at the Forum's Business Partner Reception and presented with a distinctive lapel pin and award designating the year of their recognition. They will be given distinctive recognition plaque they can display at any APPA event in that year to distinguish themselves to the APPA membership. They will be acknowledged verbally, in print, and in a slide show to be shown at all meal functions during the Forum.

For the remainder of their recognition year, the Strategic Business Partners will receive a complimentary sponsorship of the *Inside APPA* e-mail newsletter; a complimentary listing in *Facilities Manager* magazine; and a complimentary product

listing in *Facilities Manager* magazine's New Product showcase. All Strategic Business Partners will be honored with a separate listing and recognition "tab" in the annual Membership Directory and Resource Guide. They will have a Web link via their company logo on the APPA website and have unlimited listings in the APPA online Buyer's Guide. Last, but certainly not least, Strategic Business Partners will be afforded the opportunity to secure a "prime" booth location at any APPA national, regional, state or local function where exhibiting is planned.

Those who will be honored as Strategic Business Partners for 2004-2005 have worked hard to achieve this level of recognition. Congratulate them for their accomplishment and give a heartfelt THANKS for their support of APPA.

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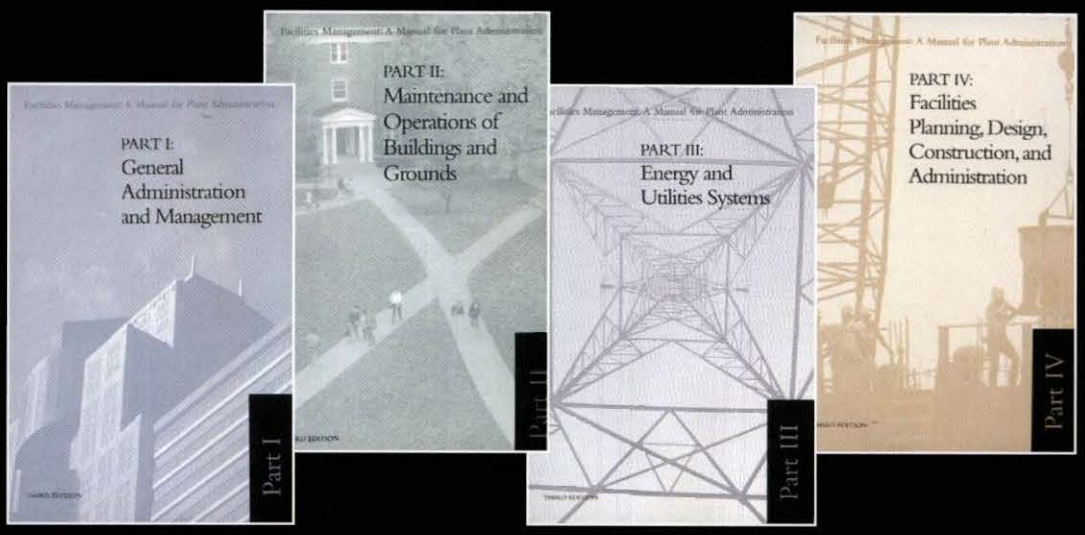

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Facility Management in Paradise

by Matt Adams, P .E.

What if every day at work was like a vacation? Every morning when you leave the house with your coffee and get into the car for work, the destination is a nearly perfect job. The facility development and support division of the Kamehameha Schools is one of the best places to work that I have ever visited. They have two new campuses and there is a talented, cohesive, and dedicated staff. The institution is more than financially sound. They share a lofty mission of educating ethnic Hawaiians and maintaining the profound culture of the islands. Finally, did I mention that they work in Hawaii?

The Kamehameha School (KS) was founded in 1887 by the descendant of King Kamehameha—Princess Bernice Pauahi. King Kamehameha consolidated the islands into one kingdom and by so doing created what would eventually become the Bishop Land Trust. This trust is the primary funding source for the school and includes many thousands of acres of both commercial as well as protected Hawaiian real estate.

It is said that some of the original land surveys are so old that they were based on only natural landmarks, such as the "pointed volcanic rock" or the "large Koa tree." These documents and other historical items are maintained in the campus archives and history museum located within the original Kapalama Campus on Oahu. Kamehameha School is highly respected in the islands; it is considered an honor to attend. Many of the islands' business leaders and politicians attended this school.

In 2000, KS began to execute a new strategic plan that included grand plans for expansion. The original Kapalama campus of just under 2-million gross square feet would be joined by two new campuses; one on the Big Island of Hawaii and one on the scenic island of Maui. Adding two new campuses of approximately half-a-million square feet is a monumental task for any modern facility department. And yet, the facility development and support division of KS is just now completing what was simultaneous construction of two campuses on two different islands! While admittedly one of the most exciting projects is his successful career, Yukio Takemora, the associate vice president of facilities and operations, "kept his eye on the prize" during this unique opportunity.

Takemora, a veteran of both senior state government administration as well as the University of Hawaii, had a vision for the two new campuses. Naturally, the Kamehameha School strategic plan as well as the original mission of the school imbued a vision to the new campuses. The unique vision of Takemora and his staff was to employ the industry-best practices to the construction project that many peers never have a chance to indulge.

Unlike most campus construction, the Hawaii and Maui campuses would be built at the same time. The five years of major project work appealed to the local architectural and general contracting community. As such, KS negotiated architectural and engineering fee schedules that were well below industry norms. The "carrot" was that one firm would get the entire project and that it would basically support their offices for five years.

In addition to reducing design fees, KS benefited from enhanced control of the design and more effective implementation of detailed campus-design standards. From this platform, the unique vision of the Facility Development and Support Division team was put in place. The visual design standards are 100 percent consistent within and between the new campuses. They have achieved an identifiable KS "look" to island community.

Not stopping with appearance, the vision included thoughtful selection and standardization of building systems. How many campuses have multiple vendors for controls, windows, roofs, floor finishes, and HVAC equipment? Kamehameha School has one for each. In addition, the staff negotiated hard with the KS name and its offer of economies of scale and got below industry average pricing from the vendors. The systems are all top-of-the-line, but within reason. Life-cycle cost was a consideration as was maintainability. This approach will benefit the school for many years in the form of superior performing buildings as well as reduced mainte-

Continued on page 64

Matt Adams is president of The Adams Consulting Group, Atlanta, Georgia. He can be reached at matt@adams-grp.com.

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Continued from page 62

nance costs. Everyone in our industry talks about this, but few actually do it!

The two general contractors, one per island, were also eager to have KS as a client for five straight years. The school negotiated with each general contractor in a similar manner and established more "win-win" partnerships. The school benefits from the knowledge that each general contractor has developed with respect to the quality and standardization that KS expects. In addition, everyone benefited from reduced costs for mobilization and the existing conditions.

Now that the construction phases are coming to a close, the central facility development and support division and the local campus physical plants are making plans for best practice facility stewardship. There is an awareness for all that the new campuses represent valuable assets to the school as well as for the islands. There is an implied imperative to guard these assets and keep them in top performing order for the students. This sense of purpose runs throughout the faculty, staff, and students. It is one of the many things that make KS unique. This sense of purpose makes a difference in facility management on a daily basis. There are so many decisions and actions required within the context of facility maintenance and management. A staff that is not a part of a higher purpose cannot excel in the everyday details that this motivated group can.

On the horizon, the individual campuses are using a zero-based budgeting process to determine the "real" costs associated with stewardship. These budgets, while executed locally by each campus physical plant, are based on high industry standards and metrics maintained by the facility development and support division. Some maintenance activities will be contracted based on a predefined set of business rules. The budgets, delivery vehicle, and performance measurement of facility stewardship of Kamehameha School are based on industry-best practices. The idea is to keep the vision going for many years to come.

While not as lofty as the original vision of Princess Pauahi, the vision of facility stewardship at KS is enviable and unique. Where else can you go to work where it is paradise outside of the office and inside too?

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The Bookshelf

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

Like the weather, facilities managers talk about energy availability and prices, but there's little they can do to control them. This month I review two books that look at fossil fuels (mostly oil and natural gas supplies) and the impending shortages (leading to none), with the hope of giving every reader the opportunity for an early warning about possible shortages and potential for a solution. Just as there are mandates, regulations, and compliance issues, impending changes in available energy sources will require facility officers to work differently. While the news is not good, I know that most facility officers have the determination, creativity, and skills to minimize the effects of tighter, more costly energy supplies.

* * *

Out of Gas, The End of the Age of Oil, David Goodstein, New York: W. W. Norton & Co., 2004. 123 pages, hardcover.

Hubbert's Peak: The Impending World Oil Shortage, Kenneth S. Deffeyes, Princeton, New Jersey: Princeton University Press, 2001. 190 pages, softcover.

One area of frustration for facility officers is with utilities, usually the largest budget category for a college or university after salaries. The consumption of energy is almost always out of their control, and while there are options to limit consumption or provide for some control over price fluctuations, usually facilities officers are at the mercy of the users (faculty and students) and the utility supplier. In recent years, a new mantra for facility officers has been sustainability. Sustainability is about more than just energy but these two books make clear that some sustainable energy source must be found, and soon.

Both *Out of Gas* and *Hubbert's Peak* discuss the 1956 prediction of M. King Hubbert, a Shell Oil Company researcher, that U.S. oil production would peak in the early 1970s.

Both *Out of Gas* and *Hubbert's Peak* discuss the 1956 prediction of M. King Hubbert, a Shell Oil Company researcher, that U.S. oil production would peak in the early 1970s. At the time the prediction was made, almost everyone looked at it as just another kooky prognostication made by a person with a Ph.D. who had too much time on his hands. (In fact, Shell Oil executives tried to keep Hubbert from releasing his prediction at an American Petroleum Institute meeting.) Fourteen years later, his predictions were shown to be pretty accurate; by 1976 we had the "oil crisis" when we waited in long lines to get gasoline at ever rising prices. So why have these books been published recently? Shouldn't they have been written over twenty years ago?

The faith our society holds in the belief that we will work our way out of a problem has gotten us far. In fact, there was an earlier oil crisis in 1967 that the United States was able to work through but only because oil was still being discovered and because there was excess capacity in west Texas. The order went out to increase production and the crisis disappeared. There was probably the belief that OPEC and good relations with Saudi Arabia would be enough to prevent another occurrence. However, both authors have applied Hubbert's techniques on world oil discoveries and supplies and have concluded that a world-wide peak in oil production may soon be upon us.

Both authors hold a Ph.D. and have had careers at prominent academic institutions. Goodstein is vice provost and a physicist at California Institute of Technology and Deffeyes is an emeritus geoscientist at Princeton University in New Jersey. Each author approaches the issues differently with the Deffeyes relating many of his personal experiences in the oil business and with dirty fingernails. There is a great deal of physics and geology presented in the two books, and both books provide refresher courses in their subject matter. Thermodynamics, geophysics, geology, chemistry, and biology are just some of the topics covered quickly but sufficiently for the overall presentation. The science is a vehicle to explain why the prob-

Ted Weidner is president of Facility Asset Consulting, Amherst, Massachusetts. He can be reached at ted@weidnerfac.com.

lem is real and why we need to get cracking on alternate strategies.

Both authors avoid detailed discussion about the future; they are scientists not philosophers. They are willing to extrapolate existing data but will not predict what will happen. They do present some scenarios about possible solutions; a return to nuclear power plant construction; renewed emphasis on coal which is still an abundant resource for the United States; and various forms of solar-based energy. But for the most part, the solutions are left to others.

Do I have a favorite book between the two? It's difficult to say. *Out of Gas* is shorter, more factual, and a pretty even read. *Hubbert's Peak* is longer, plenty factual, and with a smattering of anecdotes that make it a lighter read. They both have examples of the scientific concepts discussed and analogies to the subject. I don't think you will go wrong reading either or both books. Both are filled with notes and references so you can dig deeper if you want.

But why would I recommend these books at all? They are mostly for petroleum geologists and oil/gas investors. Well, I recommend them because our lives and careers depend on the successful management of resources, in this case, energy resources. We work in organizations that teach change but change slowly themselves. Recent experiences at the gas pump indicate that higher prices are possible; let's hope that the lines of the mid-70s don't reappear quickly. This combination of slow changes and high significance means we that need to start planning our next move quickly. If you haven't started your planning yet, these books should encourage you to begin.

But why would I recommend these books at all? They are mostly for petroleum geologists and oil/gas investors. Well, I recommend them because our lives and careers depend on the successful management of resources, in this case, energy resources.

Another book looking at this subject is Richard Heinberg's, *The Party's Over: Oil, War and the Fate of Industrial Societies*, Gabriola Island, BC, Canada: New Society Publishers, 2003. 242 pages, softcover. This book takes a socio-economic perspective of the energy problem, and, although I haven't gotten far enough into it to write a review, I find it worthy of mention.

New Products

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

Monterey Carpets, a broadloom commercial carpet manufacturer, recently introduced On Cue and Curtain Call, a timeless duo designed for the long-term needs of today's facilities. A grid overlaying a striated random accent yarn renders these styles architecturally significant. These DuPont Antron Legacy creations employ new yarn processing techniques that make their cool charisma a memorable statement. On Cue and Curtain Call are available in 36 running line colors. For additional information, please call Monterey Carpets at 770-414-4238.

Met-Tile, Inc. introduces its tile panel roofing system, now available in an aluminum substrate with an environmentally friendly Meadow Green finish. Though it looks like tile, this roofing system actually consists of the same popular profile as the standard Met-Tile system—long-length, 3-feet-wide panels that are applied vertically and secured with screw fasteners for wind and weather-tight performance. Because of aluminum's superior resistance to corrosion and wear, Met-Tile's roofing product is especially recommended for use in coastal and other corrosive environments. Request more information from Met-Tile, Inc. at 909-947-0311.

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Ceco Door Products announces the new StormPro 320, an in-swing, severe weather door that provides resistance to tornado-force winds. Designed to complement the StormPro 361, an out-swinging, severe weather door, the StormPro 320 is a commercial, in-swing door for use where the threat side of the door opening is on the outside of the room and the door swings into the room. Made of heavy-duty, 14-gauge cold-rolled steel with a 16-gauge steel stiffened core, these StormPro products are in compliance and have been tested with Homeland Security's Federal Emergency Management Association guidelines at the Texas Tech University's Wind Research Center. For additional details, log on to Ceco Door Products at www.cecodoor.com.

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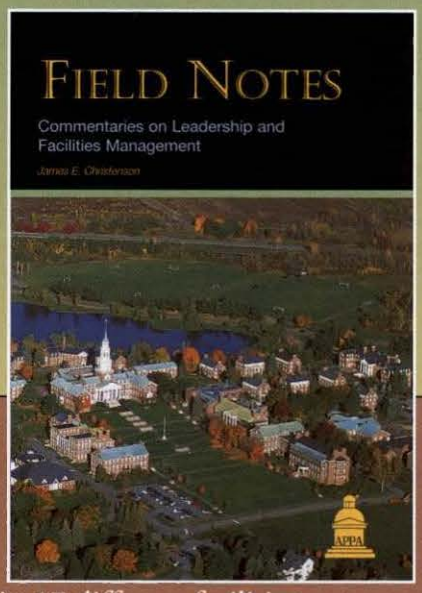

"The title of this book comes from my early experience as a surveying instructor and civil engineer. Field notes represent what has been observed and measured on the site. Field notes are not theoretical calculations of what might be or what we wish would be the case. They are intended to represent reality as closely as reality can be depicted on paper."
—The author

About the Author

James Christenson, a past recipient of APPA's Meritorious Service Award and Rex Dillow Award for Outstanding Article, has worked as a facilities professional for more than 40 years in 17 different facilities management positions. *Field Notes* provides an interesting read and plenty of useful ideas for the facilities professional or anyone involved in leading an organization to success.

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APPA Events - 2004

Jul 25-27—*Educational Facilities Leadership Forum.* Washington, D.C.

Sep 12-16—*Institute for Facilities Management.* Montreal, Canada.

Sep 12-16—*Supervisor's Toolkit: Nuts and Bolts of Facilities Supervision.* Montreal, Canada.

APPA Regional Meetings - 2004

Sep 18-21—*RMA Regional Meeting.* Jackson Hole, WY. Contact Mark Shively, 307-766-2537; e-mail mshively@uwyo.edu.

Sep 22-25—*PCAPPA Regional Meeting.* San Diego, CA. Contact Scott Burns, 619-594-6001; e-mail sburns@mail.sdsu.edu.

Sep 26-29—*ERAPPA Regional Meeting.* Syracuse, NY. Contact Robert Britton, 315-443-3529; e-mail rkbritto@syr.edu.

Oct 8-13—*CAPPA Regional Meeting.* Kansas City, MO. Contact Darrel Meyer, 816-759-1061; e-mail MeyerDA@ac.kcmetro.cc.mo.us.

Oct 28-Nov 2—*SRAPPA Regional Meeting.* New Orleans, LA. Contact Marion Bracy, 504-483-7507; e-mail mbracy@xula.edu.

Oct 31-Nov 3—*MAPPA Regional Meeting.* Cleveland, OH. Contact James Cesen, 216-368-6537; e-mail jac5@po.cwru.edu.

Other Events

Aug 2-4—*Fundamentals of Lighting.* Somerset, NJ. Contact Philips Lighting Company at 732-562-3600, www.lighting.philips.com /nam/ltc.

Aug 3-6—*National Collegiate CADD Conference.* Texas Tech University, Lubbock, TX. 806-742-1310, www.ncconf.org

Aug 30-Sep 1—*National Security Workshop II.* Clemson University, Clemson, SC. Contact Dave Stubblefield, dave@clemson.edu, www.clemson.edu/scies.

Sep 12-14—*CMAA's 2004 National Conference & Trade Show.* San Antonio, TX. Contact Construction Management Association of America, 703-356-2622, www.cmaanet.org.

Sep 13-14—*Soil Engineering for Non-Soil Engineers and Technicians.* Madison, WI. Contact. C. Allen Wortley 608-262-0577, wortley@engr.wisc.edu or visit http://epdweb.engr.wisc.edu/webF902.

Sep 15-16—*Geosynthetics for Beginners.* Madison, WI. Contact. C. Allen Wortley 608-262-0577, wortley@engr.wisc.edu or visit http://epdweb.engr.wisc.edu/webF901.

Sep 15-16—*Establishing an Effective Preventive/Predictive Maintenance Program.* Madison, WI. Contact Philip O'Leary 608-262-0493, oleary@engr.wisc.edu or visit http://epdweb.engr.wisc.edu/WEBF526.

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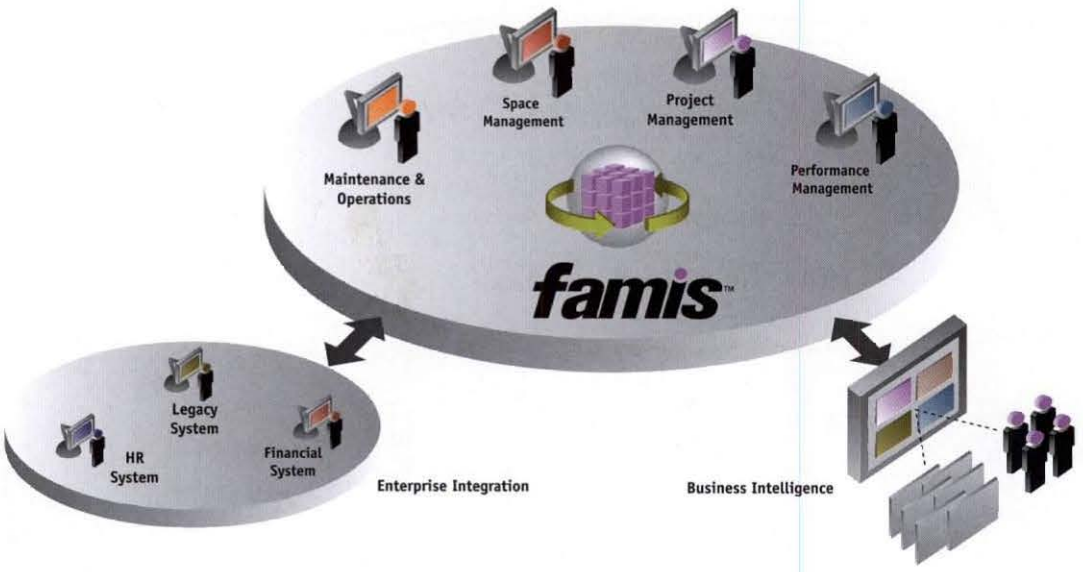

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