

May/June 1998

VOLUME 14

NUMBER 3

Facilities Manager

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

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

Of APPA's annual membership dues, \$40 pays for the subscription to **Facilities Manager**. Additional annual subscriptions cost \$48 (\$60 for non-U.S. addresses). For information on rates and deadlines for display advertising, telephone 847-562-8614 or 703-684-1446 ext. 236.

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

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

From the Editor

Steve Glazner

We have an insatiable need to compare ourselves and see where we stand in the scheme of things. How much are we spending? How well are we doing? Compared to what measures or criteria? Are we "better" or "worse" than our peer institutions? How can we improve?

In one of APPA's earliest surviving documents, the 1926 *Minutes of the Annual Meeting of the Association of Superintendents of Buildings and Grounds of the Central Western Colleges and Universities*, papers were presented on the cost of coal and other power plant costs, janitor service costs, and general B&G budget appropriations and expenditures. We continue our data collection and comparisons—albeit with more schools and in different formats—through our biennial *Comparative Costs and Staffing Report for College and University Facilities*. The 1995-96 data has just been published and is available now in computer disk format. In addition, APPA's Strategic Assessment Model is undergoing continued review, and we will provide an update in future months to the membership.

But going beyond these essential comparisons, organizations have sought to gather more and better data as they evaluate and revise their business practices for greater effectiveness. Facilities auditing, benchmarking studies, management evaluations, and other approaches have increased the tools we have available to us—if we have the needed resources—to assess our operations and develop signposts to follow for improvement.

Our three authors in this issue discuss various aspects of assessment and evaluation in the facilities environment. Dave Cain, who wrote his recent doctorate dissertation on facilities benchmarking, looks at "quality benchmarks" in his report on evaluat-

ing the effectiveness of the Office of Residential Life at Illinois State University. Next, Brian Yeoman and his coauthors write about the value of assessment in garnering significant utilities savings at their institution. And Steve Cripps, of the Calgary Board of Education, describes the process and outcomes of a successful application of APPA's Facilities Management Evaluation Program.

We want to remind you that APPA's 1998 Educational Conference and 85th Annual Meeting will be held August 2-4 in San Jose, California. Several educational sessions will deal specifically with aspects of assessment and evaluation:

- Baldrige: An Enabling Assessment and Planning Tool to Build Your "Pathway to the Future"
- Performance Dividends
- An Update of APPA's Strategic Assessment Model
- Measuring Up: Improving Service Quality by Linking Work Inspection, Customer Feedback, and Performance Reviews
- Designing and Implementing Campus Specific Grounds Standards
- Maintenance Staffing Guidelines for Zero Based Budgeting

Be watching for your preliminary program, which describes the entire San Jose meeting and includes keynote speakers, campus tours, session descriptions and speakers, and registration and forms. Or you may prefer to visit APPANet at www.appa.org, then click on the annual meeting banner at the top of our home page. Either way, we urge you to send in your registrations as soon as you can so that you will be assured of a space at the annual meeting.

We look forward to seeing you in San Jose! 🏠

President's Message

Wayne & Lander

by Pieter J. van der Have



APPA President Pete van der Have is director of plant operations at the University of Utah, Salt Lake City, Utah. He can be reached at pvanderhave@campplan.utah.edu.

The departure of APPA's executive vice president, Wayne Leroy, has already been announced in a

number of media. My comments are written more as a way to recognize Wayne and what he has done for APPA, and also to recognize his successor, Lander Medlin.

My challenge in writing this is to avoid making it sound like I'm speaking at a funeral. It is anything but that! I see this as a time to help Wayne celebrate his successes, and share with him the new opportunities and challenges facing him as you read this. Will we miss him? Doggone right we will!

I have known Wayne for practically as long as I have known APPA. When I visited the APPA offices in the early 1980s the very first time, Wayne was there. The EVP's office was empty at the time, and Rex Dillow was the acting

EVP. Wayne's office was located right across the corridor from Rex. My assignment was to work with the APPA staff to set up a personal computer, the very first one in the office. This was my first interaction with the APPA staff and management. Even then, I was impressed by the energy and enthusiasm in that office. I also remember talking with Wayne about his impressive collection of matchbooks from all over.

Much has happened since then. Rex Dillow was in his acting role for a few months when Walter Schaw was hired as the EVP. His style and personality required a specific type of personality and basket of skills in his associate vice president. Wayne filled that set of re-

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quirements perfectly. He did a marvelous job of running the shop, while providing strong support to the EVP in his wheelings and dealings with other associations, the Fed, APPA members, higher education officials, and others. Together, they brought growth and income to APPA.

Even at that time, many of us knew that if and when his predecessor decided to leave, Wayne would be in a prime position to assume the #1 paid position in APPA. When Walt left, the Board of Directors determined the best course of action was to promote Wayne to the position of EVP. Four years have now passed. Much has happened since then.

When the Board appointed Wayne, everyone knew that he would bring some unique talents to the table. Wayne has been in the association business for much of his life, even before he came to APPA. He thus understands how and why they exist, who they are intended to serve, and the qualities a successful association must possess in every sense of the word. He worked hard and with continuous success to lead APPA to the next level of achievement. Wayne displayed creativity, originality, and loyalty. Having known Wayne "behind the scenes," I recognized early on his ability to maintain that loyalty, even when I know that deep down he may not have agreed totally with whomever was calling the shots at the time.

During his tenure, Wayne has been able to negotiate on behalf of APPA significant grants. Only one example is the multi-year relationship set up with the Department of Energy in the Opportunity Assessment programs. He successfully negotiated a relationship with American Management Systems (AMS), which enabled us to start developing the conceptual model for a benchmarking tool, which was the precursor to APPA's Strategic Assessment Model. Wayne led the way in cementing solid partnerships with many groups, including PGMS, CSI, NACUBO, CHEMA, CUPA, ACE, and so on.

Probably one of Wayne's assets for which I will always remember him most is his ability to remember names and faces. He has the uncanny ability to know who is working where, or if so-and-so has moved to another institution, and who she or he replaced there, and where that person went. He can walk around an exhibit hall at our annual programs and greet countless participants by name, whether vendor or member. Is that a valuable asset? You bet your pajamas it is, in this business!

Wayne is a man-on-the-street kind of guy. He doesn't pretend to be what he isn't. What you see is what you get. He is a man who is comfortable with where he's been and where he's going. He's one of the few people I know who can say that, without hedging.

Wayne, we wish you well in all you do. You will always be with us, a permanent part of APPA. We thank you for all you have done with us, for us, and on our behalf. We will always think fondly of these days that have now come to a close.

Fortunately for APPA, Lander Medlin was available to accept the Board's invitation to become APPA's next EVP. Among the many successes we can celebrate with Wayne was the insight he had to hire Lander to fill his old position. Between her own abilities and energies, along with Wayne's mentoring, Lander had reached a level of competence to where the Board felt extremely comfortable extending to her this opportunity.

Lander is relatively new to the association business, at least at this level. Somewhere in her background, she had accumulated experiences with associations which made the leadership at APPA a few years ago comfortable with Wayne's intent to offer her the AVP job. At that time, as many of you might recall, she was an elected officer with APPA—the Vice President for Educational Programs. Many of you will recall that she was a veritable dynamo in that role. She had creative ideas and the energy to implement them. Moreover, she

had the personal skills to make others want to play on her team. Obviously, this quality did not go unnoticed.

Lander had previously been employed by the University of Maryland at College Park as assistant director for administrative services. She thus has a thorough understanding and appreciation of the facilities business, which have helped her with her past role in APPA and will further support her in her new role.

Lander brings to the table a set of tools that make her unique from both Walt and Wayne. Being the first female EVP of this mostly male association, Lander knows she will have to prove herself continually. She is not concerned about that challenge, especially since she knows she has the support of the Board, but more importantly, she has the support of the staff. This was made clear to me in a letter I received, signed by all the directors within the APPA office. She has had to earn that respect!

She has already relied heavily on her skills in bringing new and outside players to our playing field. In these days of decreasing cash flows and increased expectations, no quality could be more essential to the success of our association in the future. She has been intimately involved with most of APPA's major initiatives during the last three to four years, thus there is very little (if any) learning curve.

Is there more to say about either Wayne or Lander. Of course there is. I have waxed on long enough. Let me close by stating that just as life goes on for us individually, so it has to for APPA as an association. It is also a living organism. Just as volunteer officials will come and go after their moments in the sun, so do EVPs and other staff.

We appreciate Wayne for what he has done, and we anticipate Lander's achievements as well. With support from staff, the Board, and most importantly the members, this association will continue to grow with nary a bleep on the chart! 📈

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Election Results

The results are in, and Margaret P. (Maggie) Kinnaman has been elected APPA President-Elect for 1998-99. She will take office at the San Jose annual meeting, then will serve as APPA President during 1999-2000. Also elected in the recent APPA election are Gary L. Reynolds, The Colorado College, who ran unopposed as Vice President for Educational Programs, and Joseph D. Rubertone of Quinnipiac College as Vice President for Information Services. The proposed Bylaws change to allow Affiliate members to hold elected or appointed office passed.



Margaret Kinnaman



Gary L. Reynolds



Joseph D. Rubertone

Thanks to the Tally Committee for tabulating the ballots on April 16: Chair Al Stearns, Prince George's Community College; Patrick Andriuk, Episcopal High School; Al Guggolz, member emeritus; and Willy Suter, American University.

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Deferred Maintenance at Historic Black Colleges

It would cost about \$755 million to restore and preserve all of the historic buildings at traditionally black colleges and universities, the U.S. General Accounting Office reported.

Working with several groups—college officials, state historic preservation officers, and the Department of the Interior's National Park Service—the General Accounting Office surveyed 103 historically black colleges and universities. The colleges reported 712 historic properties—buildings, structures, sites, and objects—at 86 institutions, and estimated the cost of restoring them at just over \$755 million. In addition, the report shows that most of those properties, 95 percent of which are buildings, are concentrated at a small number of colleges. About two-thirds of the properties in need of restoration are at 28 institutions. This means that about 80 percent of the properties are on, or are eligible for, the National Park Service's National Register of Historic Places, and thus can qualify for federal grants.

The GAO report is available online at <http://www.gao.gov/new.items/rc98051.pdf> as an Acrobat file. Printed copies of the report are available from the General Accounting Office at P.O. Box 37050, Washington, D.C. 20013; 202-512-6000. Single copies are free; additional copies are \$2 each.

APPA Produces 1995-96 Comparative Costs and Staffing Report

The long-awaited 1995-96 Comparative Costs and Staffing Report for College and University Facilities is now available for purchase. The 1995-96 CCAS-on-Disk is a set of four disks that is

installed on your computer's hard drive before use. The disks include the full relational database in MS Access format, which is self-contained in the program. In other words, you don't need to have Access software installed in order to use CCAS-on-Disk; a runtime version of Access is already included.

Once installed, the user can review individual survey responses, preview

Addendum data collected in this survey.

The price of the CCAS-on-Disk is \$95 for APPA member institutions, \$150 for nonmembers, plus \$8 for delivery. Please contact Cotrenia Aytch, communication services manager, at 703-684-1446 ext. 235 for further ordering information.

APPA/CSI Symposium

Time is running out to join the APPA/Construction Specifications Institute Symposium, which will be held in conjunction with CSI's Convention and Exhibit, June 25-28, at the Baltimore Convention Center. The registration fee is \$95 for APPA/CSI members (on or before May 20), \$125 for APPA/CSI members after May 20, and \$150 for nonmembers throughout. The special fee includes the June 27 Symposium and Exhibit Hall, and the June 28 Closing Keynote Address. While at the Symposium, APPA members can take advantage of the opportunity to walk the exhibit hall with over 630 exhibitors on hand displaying the latest in technology, products, services,



and print about 90 different reports, download specific reports or the entire database to Excel or other spreadsheet or database programs, and compare his or her school with another using the special "peer-to-peer analysis" tool. Blank survey forms are included for review along with full definitions for each category. A special feature of this issue of the CCAS is the comprehensive Custodial

and materials available to the non-residential construction industry today. Plus Symposium attendees can see CSI's closing keynote speaker, Edward Barlow Jr., a leading futurist who helps industries, organizations, and professionals prepare for the world of tomorrow.

For registration and hotel information, contact CSI's Member Customer Service Department at 800-689-2900 or APPA's Education Department at 703-684-1446 ext. 230. 🏠

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What parents with young children having taken them on a trip that exceeds any distance greater than five miles haven't heard the question, "Are we there yet?" The vision of where we are at any given time while traveling the road on any journey usually depends upon the traveler's knowledge of the final destination. But moving a bit closer to home, as a facilities management profession, I too ask the question, "Are we there yet?" By "there" I mean have we matured to the point that we are ready for something more?

I noted with interest in the January/February issue of *Facilities Manager* the creation of a Professional Leadership Academy within APPA. My own personal belief is that this is a step in the right direction—to move beyond where we are to "become better leaders in our profession."

For years "facilities manager" was a job that had no name. Janitors did it and so did building supervisors, secretaries, and even human resource directors. Sometimes, real estate agents, architects, interior designers, and even finance officers handled the myriad responsibilities of the job.

Over the years professional associations were organized wherein the title of facilities manager was formalized. At one time, the job was even listed as one of the top 25 careers in the 1990s. We have definitely come a long way.

A facilities manager is anyone who coordinates the physical workplace with

the needs of its workers and of the organization. They're responsible for everything from the chairs people sit in to the air they breathe. They manage millions of dollars in assets such as buildings, equipment, furniture, acoustics, environmental issues, transportation, and the installation of everything from carpet to technical systems.

According to the International Facility Management Association (IFMA), there are well over 50,000 facilities managers in the United States and Canada. More than half—58 percent—work in the service sector, 29 percent in manufacturing and production, and 13 percent in government and education.

As in most professions, as it matures, develops, and grows, there's a need to foster the highest level of professionalism and competence for practitioners within the field. Leadership within APPA has recognized the need to expand and go beyond the current "status quo" and have developed and introduced the new Professional Leadership Center.

Are we as members of APPA ready to go even further? Are we willing to recognize that there are qualified and capable facilities managers outside the world of higher education? Are we mature enough to believe that we could learn something from them? And that they could learn something from us? I acknowledge that through the mutual cooperation of associations that much can be accomplished, but what about the cooperation between facilities managers themselves? Just think about the potential of what might be called a society of facilities managers, or facilities leaders if you will.

Every profession of any consequence has established its own society to pro-

mote professionalism and competence as well as to establish a network for the exchange of ideas and information. The nut growers have a society. The nuclear reactor operators have a society, as do transportation engineers, anatomists, genealogists, archeologists, anesthesiologists, herpetologists, foresters, and a host of others. Why not facilities leaders?

The dictionary defines a society to be: companionship or association with one's fellows; a voluntary association of individuals from common ends, especially an organized group working together or periodically meeting because of common interest, beliefs, or profession; and a broad grouping of people having common traditions, institutions, and collective activities and interests. A society is intended to focus more on individuals rather than institutions. Facilities managers could benefit from belonging to a society.


Such a society could have a creed or *credo* which means "I believe":

- PROFESSIONALISM All
- INTEGRITY is Non-Negotiable
- SERVICE is Paramount
- CAMARADERIE is Expected

Requirements for membership in the society could include, among others, the following:

- demonstrated competence in the field of facilities management
- a willingness to promote excellence within the profession
- commitment to share and build camaraderie with members
- commitment to regularly use the Internet to communicate with members

That's it. Perhaps this is an idea whose time has come. It may be worth discussing at our chapter, regional, or international meetings. We have nothing to lose and perhaps a whole lot to gain.

Are we there yet? 

Val Peterson is director of facilities management at Arizona State University, Tempe, Arizona, and a past APPA President. He can be reached at valpeterson@asu.edu.

Comparative Costs & Staffing Report

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On Disk

The Comparative Costs and Staffing Report is APPA's biannual survey of facilities costs at higher education institutions across the United States. This useful reference tool provides a baseline for comparing facilities costs—both operational and personnel-related—in higher education.

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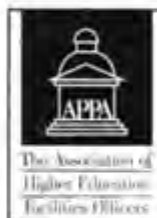
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Benchmarking the FCI at Illinois State's Residential Life

By David A. Cain, Ph.D.

University in the 1990s with deteriorating residence halls and a lack of funding to make necessary major repairs. Emergency maintenance and critical needs are being met, but major renovations and repairs have typically been deferred. Projects are continually planned and re-prioritized in the struggle to anticipate failures in system components (heating, electrical, air conditioning, plumbing, etc.) and to comply with new legal standards set by federal, state, and local governments. Compounding all these issues is the need to upgrade facilities to compete with other universities and private entities for students. Students today demand higher standards in their living environment, a greater variety of options, and higher quality services.

The university's executive administrators and administrators at the Office of Residential Life recognized the need for a facilities audit that would allow us to analyze and adjust the university's existing capital renewal plan and assist in the reprioritization of maintenance and operational needs. The audit would assist the Office of Residential Life to develop a formalized planning and budgeting model to serve as a long-term facilities management plan. To ensure that the audit would be effective, the university's executive administrators and Residential Life administrators developed a model based in part on international quality management practices.

In a definitive study of international quality management practices, four organizations (automotive, banking, computer, healthcare) were examined within four leading industrialized nations (Canada, Germany, Japan, and the United States). This comprehensive empirical research examined 945 management practices in over 580 organizations on three continents. This ambitious research included considerable international cooperation and was jointly conducted in 1992 by the American Quality Foundation and Ernst and Young. The results were titled *Best Practices Report: An Analysis of Management Practices that Impact Performance*.

The *Best Practices Report* suggests that the current quality knowledge base is more theoretical and contains anecdotal information with isolated proprietary studies. Furthermore,

The Office of Residential Life at Illinois State University is responsible for the maintenance of approximately 2.2 million of the university's 5.7 million square feet, including all student housing and food service areas. The oldest residence hall opened in 1950 and the newest in 1968, meaning that even the newest residence halls are 30 years old and the two oldest buildings are almost 50 years old. Since Illinois State University opened its first residence hall, the Office of Residential Life has never conducted a comprehensive facilities audit. As has been the case with most major universities nationwide, the building boom of the 1960s and 1970s has left Illinois State

Dave Cain is director, facilities superintendent, building maintenance, for the office of residential life at Illinois State University, Normal, Illinois. His 1997 doctoral dissertation, Analysis of Facilities Benchmarks as a Predictor of Institutional Quality, discussed at length APPA's Strategic Assessment Model, NACUBO's benchmarking project, and other benchmarking efforts.

the authors state that "little to no solid evidence is available." The rationale given to conduct such a study was based on the growing disenchantment in the business community. Enormous resources are being expended by organizations, including the business of higher education, in search of improved operational, financial, and market performance.

Over the past ten years or so, the quality movement has been in the forefront of the performance improvement ef-

fort. According to the *Best Practices Report*, the basic axiom of that movement has been "Improve quality, and the overall performance improvement will follow." Additional consideration given to conduct the study was based on the belief that many corporate business leaders questioned the actual results these quality initiatives reported to produce. A general consensus was that companies experienced mixed results after implementing the latest new management practices that were reputed to improve quality and overall performance.

This study challenges the older assumption that quality efforts, regardless of current performance, can benefit from the widespread adoption of management practices. Simply put and contrary to prevailing wisdom, universal quality effort does not work for all levels of an organization. This study rejects the underlying premise that the same set of management practices can be effective for all organizations. This hypothesis is supported by the analysis of the *Best Practices Report*, but the results are not illustrated solely as statistics.

The findings were studied for more than a year by two independent researchers who cited two separate viewpoints. One assessed the impact of individual management practices on three dimensions: profitability, productivity, and quality. The second focused on the theoretical perspective and developed a causal model to look at the interaction of practices that create a critical path for quality improvement.

Not surprisingly, a general quality model did emerge from the study. The following is a recommended list of six universally beneficial sets of practices that can be incorporated in any of the four organizations studied.

1. Focusing on teams as the basic structure of work
2. Empowering everyone in the workforce
3. Making heavy use of the standard "quality tools"

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Beyond the general findings of the study are specific recommendations presented for three performance categories: lower, medium, and higher performance companies. In each of the subsections, the results are organized around the fundamental activities such as managing people, process and strategy, and technology.

The *Best Practice Report* is considered a landmark effort that responds to the quality challenge facing business and industry globally. The study concludes that quality should be better defined, measured, tracked, and managed across the organizational board.

This *Best Practice Report* should serve as a model for public higher education. The broad scope of management practices discussed in the *Best Practice Report* is also found in higher education. The purpose of the study undertaken by the director of facilities was to determine the applicability of financial benchmarking to institutions of higher education and whether the financial benchmarks are related to institutional quality.

Some studies of quality management practices relating directly to higher education have been conducted recently. A *Foundation to Uphold* (1996) examines facilities conditions at U.S. colleges and universities and is a collaborative effort of the APPA, the National Association of College and University Business Officers (NACUBO), and the Sallie Mae consultant group. This study was done as a follow-up to *The Decaying American Campus: A Ticking Time Bomb* (1989), which drew national attention to the tremendous backlog of capital investment and accumulated deferred maintenance (ADM) needs on our nation's college campuses.

This research reveals that deferred maintenance levels have actually increased by \$5.5 billion since the original study in 1988. The gap has also widened between capital funds and both deferred maintenance and capital renewal. The study suggests that the backlog of deferred maintenance will continue to grow unless adequate funding resources become available for facilities reinvestment and steps are taken to ensure facilities are safe, functional, and meet state and federal compliance. Furthermore, the study recognizes that both the funding issue and the deferred maintenance



problem represent a threat to the capability of higher education facilities to support the missions of the universities and colleges.

APPA conservatively estimates that \$26 billion in 1996 dollars is needed to eliminate deferred maintenance backlogs for colleges and universities by today's standards. Interestingly, the study reveals that public colleges typically have more deferred maintenance than their private counterparts.

The 1996 *Foundation to Uphold* study analyzed data from nine college types and computed financial benchmarks for comparisons using the Facilities Condition Index (FCI). These comparative benchmarks are represented as a baseline of current

conditions to analyze year-to-date changes in campus deferred maintenance. The FCI is expressed as a ratio of the accumulated deferred maintenance divided by the current replacement value (CRV) of the physical plant. The FCI method was developed by Applied Management Engineering of Virginia Beach, Virginia, and published in 1991 by NACUBO in *Managing the Facilities Portfolio*.

The FCI uses empirical data to benchmark the relative measures of conditions on campuses. The following is a suggested guideline for comparative conditions: FCI < 5% (.05) = good condition; FCI 5-10% (.05 - .10) = fair condition; FCI > 10% (.10) = poor condition. The cost for correcting deferred maintenance obtained from a good facilities audit and a calculation of the CRV allows a facilities manager to model the variables for annual funding needs as well as to prioritize the deferred maintenance.

Another useful fundamental concept cited in this study is the rule of thumb that the annual reinvestment rate of 1.5 to 3.0 percent of the CRV be used to prevent further accumulation of the deferred maintenance backlog.

Finally, in *A Foundation to Uphold*, the survey identified five possible policy issues that have the greatest impact for change and influence regarding accumulated deferred maintenance. Eighty percent felt that the single most important factor was developing an understanding of the issue of deferred maintenance and obtaining the support from executive administrators. It was felt that unless campus leadership commits itself to address the deferred maintenance problem and establishes it as a priority, current unsatisfactory facilities conditions will continue to prevail.

Next in importance to the commitment of campus leadership is gaining the support of the trustees and the state legislators (73%), followed by the campus budgetary process

and financial strategies (59%). The fourth policy implication is knowing the institution's financial condition (46%) and the fifth issue refers to the funding level from state appropriations (24%).

After their review of studies concerning quality management practices and financial benchmarking in both business and industry and university settings, administrators at Illinois State University's Office of Residential Life recognized the need for a facilities audit based on the criteria established in those studies. The audit should allow them to analyze and adjust the university's existing capital renewal plan and assist in the reprioritization of maintenance and operational needs and assist the Office of Residential Life in developing a formalized planning and budgeting model to serve as a long-term facilities' management plan. To be effective, the model should be based on a collaborative effort between experts, both external and internal. The audit would also help the university gather independent data to verify that current funding levels were inadequate for maintaining or replacing existing building components that were at the end of their life cycles. Further, the audit would develop a financial baseline of current facilities conditions for comparative benchmarking against itself and other public institutions within its class.

The selection of a facilities audit firm was an important first step in the process and was based on the following criteria:

- Verifiable experience with previous comprehensive facilities' audits
- A staff of experts in the various components of the infrastructure (see Figure 1)
- Familiarity with the university environment and ability to communicate effectively with university staff
- Diverse staff members reflecting a commitment to, and understanding of, diversity issues

As a public entity, the university is required to publicize their search for a firm to conduct a facilities audit and run statewide newspaper advertisements. Those responding to the advertisements were required to submit detailed information about their firms, allowing the university to determine which firms most closely conformed to the selection criteria above. A short list of firms was invited to interviews with university administrators. After the formal interviews, the university selected a consulting firm with five design offices in Illinois and Iowa.

The consulting firm's first step in the audit procedure was to establish exactly what the university expected and how they wanted it to be presented. After numerous discussions with university staff, both in meetings and individually with key members, the consulting engineers recommended that the university utilize a computerized database. This database would need to be powerful enough to generate the variety of reports required, but also easy to use so the entire staff at both the consulting firm and the university could have access to the information. In addition the software would need to have the capability to operate in a network environment providing maximum security and system integrity.

With the input of the university staff and the firm's consultants, a relational database called Paradox was selected as

the platform for this audit. It was powerful enough and had the required network compatibility. It also was software that the university was licensed to use. However, other databases could be used effectively.

The university indicated a need for a prioritized list of the items requiring work, including a cost estimate and a recommended year of action. The final result was a 20-year road map of prioritized projects (0-300) and a polished ten-year capital renewal plan.

After the consulting firm's survey team gathered the required information, they generated an initial draft of the report on the first campus and presented it to the university for review and comment. The con-

sulting firm and Illinois State University staff scheduled a round table discussion to analyze the information presented and to make suggestions for modifications.

As a result of these meetings between staff members at the consulting firm and Illinois State University, several major changes were instituted as to the level of detail and organization of the materials. The consulting firm's staff revised the report accordingly and reissued it for review prior to proceeding with the remaining campuses.

The consulting firm's first step in conducting the audit was to break down each campus into individual buildings. The five campuses ended up having 13 separate buildings. Each building was then evaluated in 11 major components: ADA compliance, civil/site, conveying systems, electrical systems, exterior envelope, HVAC systems, interior finishes, plumbing systems, trash removal, structural components, and fire protection (Figure 1).

The primary source of information on the condition of the components was the current university staff and trades.

Major Components Audited
ADA Compliance
Civil/Site
Conveying Systems
Electrical Systems
Exterior Envelope
Fire Protection
HVAC Systems
Interior Finishes
Plumbing Systems
Structural Components
Trash Removal/Incineration

Figure 1

They are in the facilities daily and generally know what systems were performing adequately and which were substandard. The consulting firm's team of engineers interviewed the entire range of university staff members to get a good list of the perceived problems. Many of the university staff members were organized in disciplines which correlated well with the experience of the survey team (i.e., electrical, plumbing, mechanical, etc.).

Staff from the consulting firm also reviewed the historical files and documentation on the buildings. Where available, they also reviewed original design documents and the files that Illinois State University kept on subsequent improvements. These files were useful in pinpointing the age of some of the systems. Review of these documents also helped point out the systems that were having reoccurring problems.

The final information item was a physical inspection of the items in the audit. This generally confirmed the information supplied previously.

After the consulting firm's survey team gathered information on the condition of the items currently in place, they evaluated the condition of each item and assigned a recommended year of replacement. This was typically based upon the anticipated life of the item, its current condition, and the survey crew's opinion on remaining life.

Staff at the consulting firm then generated cost opinions for items that required repair or replacement. Where possible, Means Construction Cost data was used. The consulting firm's staff also contacted contractors and vendors for specialty items. Where no other sources were available, staff generated their own opinion of construction costs. The firm's engineers then assigned priorities based upon a combination of condition and consequences of failure.

During the course of the consulting firm's survey, the Office of Residential Life asked them to prepare presentation boards to document some of the deteriorated conditions that they had observed. Initially these presentation boards were used to help convince the administrative staff and the student body of Illinois State University of the need for infrastructure improvements.

Staff members at the consulting firm prepared a presentation board for each individual campus and for the facilities as a whole. Each board had photographs of deteriorated elements and dollar totals for the required improvements. When the survey was complete, the consulting firm prepared a Powerpoint slide presentation, with appropriate handouts, to

present the results of the survey to the senior level staff of the Office of Residential Life. Portions of this presentation were used by the author and his staff for additional presentations to the executive administration.

Financing needed repairs through increasing board and room fees in the residence halls would make the cost of living in the halls prohibitive for many students. However, the audit made it clear that the current level of funding would fall far short of what would be needed to complete necessary renovations in the residence halls. This realization led the university community to propose a referendum to increase student fees to finance needed infrastructure repairs. The referendum, called the Campus Facilities Enhancement Project, proposed \$42 million in campus improvements, \$25 million of which was dedicated to infrastructure work in the residence halls. Publicity in the campus newspaper, the *Daily Vidette*, and presentations to student leaders and university administrators, based on information provided by the audit, emphasized that although the residence halls appeared to be in acceptable condition, they were "falling apart from the inside out." By the time the Campus Facilities Enhancement Project was voted on by the general student



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body on February 13, 1996, support for it was strong and it passed by an 83 percent majority.

Under the terms of the referendum, a \$55 per semester "construction/renovation" fee will be charged to all university students for ten years beginning in the 1998 fall semester when work covered under the Campus Facilities Enhancement Project is scheduled to begin. At the end of the ten years, the enhancement fee will be discontinued but subject to review.

Now that funding was secured, it became the task of the university staff, with assistance from the consulting firm, to prepare a ten-year renovation plan. All of the items in the report were reevaluated and ranked based strictly on need. Items that logically belonged together were then reorganized and combined into projects. These projects were assigned a budgetary year of action that took into account the need, the programming impact, and the budgetary guidelines.

What has emerged is a needs driven, ten year plan for improvement of the infrastructure of the residence halls facilities. The university now has a road map into the future.

The results of the facilities audit conducted at Illinois State University of residence hall buildings and infrastructure with 2.2 million gross square footage (GSF) revealed an \$80 million deferred maintenance backlog. At an average CRV of \$100/GSF (\$230 million), the FCI is .3478, indicating that the condition of the residence halls was poor.

The facilities audit concluded:

- That the infrastructure improvements required totaled in excess of \$80 million in 1996 dollars.
- That several essential building elements are on the verge of failure. If left unattended, failure would cause major disruptions for student housing and activities.
- That increasing the level of spending on infrastructure improvements to over \$4.5 million annually over the next five years should relieve the current urgent and high priority items.

The infrastructure facilities audit process has been very beneficial to the university. Not only does the university staff have a clear understanding of the condition of their facilities at this time, they have a computerized management system that will become a "living document." As the university replaces or renovates an item, they revise the entry on the computerized database and they will have current data on their facility at all times. 📌

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Assessment and Utilities Savings at UT Houston

by Brian K. Yeoman, Manivannan M. Palani, and John C. McKee

Every model of the budgetary or policy development cycle prescribes an assessment or evaluation process stage. Moreover, we spend considerable time and effort in the planning, programming, and budgeting portions of our fiscal, capital, and maintenance initiatives, but we then devote considerably less time and resources to the evaluation or assessment of the end results of our efforts. This is unfortunate since the assessment/evaluation stage offers critical information and feedback that ideally informs future decision making.

This process allows us to learn from past successes and failures and incorporate this information into current and future policy decisions. By ignoring, bypassing, or giving short-shrift to the assessment stage, we end up, in most cases, with information that is missing, faulty, or not applied in an optimal manner. Often, the only assessment or evaluation conducted is done in a reactive manner, usually under the guise of an internal control audit.

Most facilities management professionals would like to engage in this process at a higher level, but the truth is that most of us simply do not have the resources to devote to even partial assessments, much less comprehensive evaluations of our facilities operation. Funding is perpetually tight, personnel are already stretched thin, and engaging consultants can be cost-prohibitive. What follows is a story of how one institution took advantage of an innovative internship

program to conduct an assessment of the utilities operations. The programmatic recommendations emerging from the process were then incorporated into the operations of the department, resulting in substantial resource and financial savings.

Utilities expenditures represent, for most institutions, a substantial percentage of the institutional facilities budget. The oil crisis of the late 1970s and early 1980s sensitized us to the need for more efficient utilities operations. The belt-tightening and general transformation of the fiscal environment of higher education during the 1990s have brought this issue front and center once again. However, the majority of state educational facilities were not built with energy conservation in mind. The University of Texas is no exception.

Like most institutions, the university owns a wide variety of facilities, with equally varied uses and applications as well as a broad distribution of ages and dates of construction. Our particular component institution, the University of Texas-Houston Health Science Center is a comprehensive health care higher education institution located in the heart of the Texas Medical Center in Houston, Texas. The spatial layout encompasses 2.7 million gross square feet across nine buildings. These facilities were, for the most part, built during the early seventies, just prior to the scarcity imposed wave of energy consciousness. The largest of these, the Medical School Building (MSB), had the dubious distinction of being the second most energy inefficient, on a square foot basis, public building in the state of Texas.

During the summer of 1993, the university applied for and received an internship sponsored by the Texas Gover-

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nor's Energy Office. The Energy Office was created during the Arab Oil Embargo in 1973 and was charged with promoting both energy conservation in state facilities as well as providing exposure to engineering students interested in careers in energy management. During the year of our participation, the program received over 100 applications for only 20 positions, making for a highly competitive selection process. The criteria used in selecting the interns included grades, prior experience, and career orientation.

The state agencies developed requests that included specific projects and scope of work descriptions. The agencies

themselves are in competition as the assignment of interns will be partially based on need as well as by the ability of the agency to provide a positive learning experience. This program has compiled an impressive record: between 1989 and 1993, the program's interns saved state agencies \$16 million dollars in utility savings.

The development of the application and the internship plan forced us to seriously consider what we wanted to get out of the internship. Yes, we were interested in providing a stimulating experience for an aspiring energy manager, but we also saw this as an opportunity to have something of

value emerge from the summer of work. Given the fact that we had a building with conspicuously high energy costs as well as being faced with a \$1.6 million dollar shortfall in the utilities budget, we felt that an assessment of the utilities operations at the Medical School Buildings made perfect sense.

The student we were fortunate enough to host, a Ph.D. candidate in mechanical engineering from Texas A&M University, was thus able to receive a clear charge from our facilities management team. The plan provided a clear set of expectations as well as a framework within which the intern could perform. The intern then took this set of expectations and delivered upon them. The activities undertaken during the summer included an assessment of our energy conservation plan, an evaluation of our physical installation, and a comprehensive review of our billing records and operational procedures. Based on this summer-long evaluation, the intern produced a report which detailed his recommendations on a host of operational issues. The primary focus of his recommendation was devoted to our HVAC operations in the MSB. Most importantly, in retrospect, the internship report contained the outline of an innovative energy conservation program.

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involved continuous monitoring of outside conditions, the temperature and humidity on any given day; monitoring of indoor conditions, the indoor temperature and humidity and their deviation from our target ranges; and then adjusting the consumption of chilled water and steam accordingly. The recommendations called for a relatively modest investment in the purchase and installation of sensing equipment, a limited amount of training, and was integrated into our ongoing capital projects initiatives. This was a substantially lower cost approach that would, however, require much behavioral change. This change would involve both the building tenants, in terms of expectations as to temperature and humidity within the building, as well as on the part of the facilities management personnel in terms of how we have conducted our utilities operations in the past. It represented a gamble but one we chose to take.

To begin the implementation of the internship assessment recommendations, we assembled a team composed of building tenants and facilities management personnel. Under the auspices of the university's continuous quality improvement program, this group met and examined the problem, communicated the nature of the problem to their coworkers in the facility, and provided a forum for communicating the problem and our approach to the facility tenants. The role of this team in the communication and behavioral change process was critical. This forum allowed us to convey the nature of the operational changes as well as to hear from the research community as to the possible impact on research.

During these deliberations, we made a commitment to minimize the impact of energy conservation on building operations, specifically wet lab research and classroom education. But frankly, we really did not know how our need to reduce energy consumption would impact the usability of the facility during Houston's long hot summer.

The Results

The gamble paid off. The Hot and Cold Deck Optimization approach worked beyond our ex-

Table 1

1. Close monitoring of outside temperature and humidity
2. Close monitoring of inside temperature and humidity
3. Based upon the outside conditions and the inside requirements, reset the temperature of the hot and cold decks in order to optimize the consumption of steam and chilled water.
4. Continue to monitor indoor conditions
5. Continue to modify settings in response to indoor conditions

questions we continually asked during the preliminary investigation was: Why, in a hot and humid city like Houston, were we consuming what appeared to be a substantial amount of steam? Especially during the summer months. The question pointed us in the direction of the real consumption and dollar savings. We then joined our initial

expectations. The approach proved flexible enough to allow for immediate response to customer concerns as to humidity and temperature conditions, while being rigorous enough to yield significant energy consumption savings. Further, the focus of the approach was to optimize steam consumption during the entire year, and minimize chilled water consumption only during the winter months.

It is here that our intuition and the work of the intern paid dividends. One of the

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intuition with the extensive assessment provided by the intern with the Hot and Cold Deck Optimization approach. This allowed us to meet our customer commitment while also addressing our projected budgetary shortfall.

Figure 1, shows the chilled water (ton/hrs) time series of monthly consumption readings from September 1993 through August 1997. The blocked line represents the average consumption level for the periods before and after the implementation of the Hot And Cold Deck Optimization program. The two thin horizontal lines represent a one standard deviation control interval. The chart graphically represents the modest decline in the average consumption of chilled water after the implementation the program. This decline, as shown by the curve of actual consumption, was largely concentrated during the winter months. This is shown by the increased depth of the trough in the actual consumption curve. This shows that the consumption of chilled water during the winter months was reduced while retaining the ability to address the cooling needs of the facility during the extreme heat of a southeast Texas summer. However, the savings achieved in the chilled water were minimal when compared to the declines in steam consumption.

Figure 2 shows where the real savings were achieved. The graph is the monthly steam consumption (Lbs) from September 1993 through August 1997. The average and standard deviation line are the same as in the chilled water series. The graph readily demonstrates the substantial reduction in the post-intervention average, below even the

Figure 1

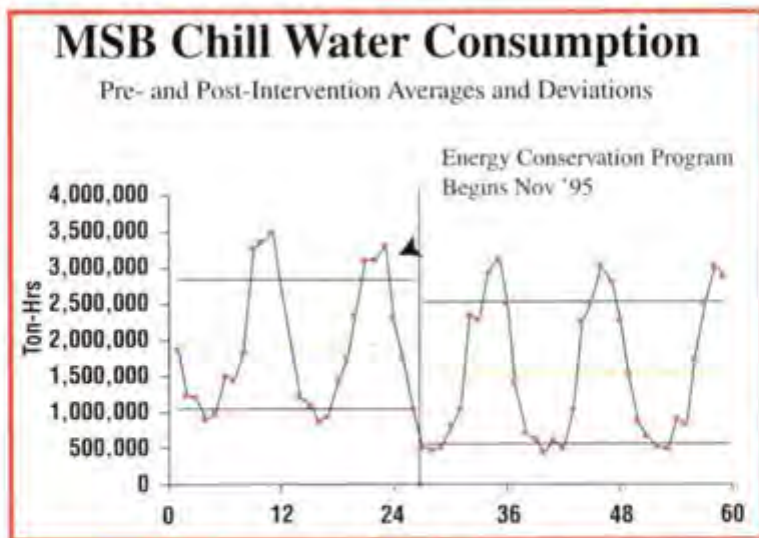
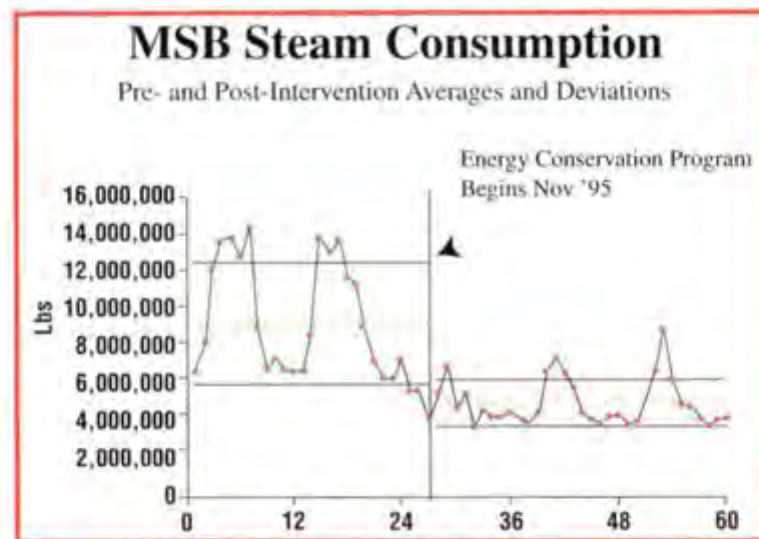


Figure 2



possibility for substantial resource and financial savings by optimizing the use of steam in the reheat cycle. By implementing this approach at the operational level we were indeed able to achieve considerable savings.

The approach was successful for various reasons. One was the support of upper institutional leadership as well as the participation and support of the research community in the facility. Secondly, was the dedication of the personnel involved. The leadership of the facilities management organization was crucial in adopting this methodology in the face of criticism and doubt from both within and outside the organization. Finally, the methodology was flexible enough and involved a sufficiently low capital cost that we were able

pre-intervention lower control limit. Further, the one standard deviation control interval is significantly narrowed, indicating a reduction in the process variability. Finally, the summertime use of steam is minimized while retaining the capacity to respond to outside temperature exigencies as needed. This is demonstrated by the peaks in steam consumption during the winter months. However, only one of these peaks approaches the pre-intervention average.

The pattern of steam consumption, especially in the summertime, was one of the eye opening elements of the internship evaluation. We knew the level of steam consumption and had always had a suspicion that it was too high, especially during the Houston summer. The assessment of our operations conducted during the internship revealed the

continued on page 22

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to implement quickly and in an environment of scarce fiscal resources.

Did it work? The first year, we achieved combined cost avoidance and cash savings of \$3 million dollars. A portion of these funds were reinvested into energy sensing equipment and capital projects. While diminishing in its returns, this methodology has continued to provide energy resource conservation as well as provided fiscal savings to the university. These savings have aided us in addressing our capital needs as well further our energy conservation initiatives.

Conclusion

What does this story have to do with evaluation and assessment? First, evaluation is often painful. Many facilities professionals have invested their careers at a given institution; an assessment of their operations often seems to be a

Table 2

Year	Savings and Cost Avoidance (Millions)
Fiscal Year 95	3.0
Fiscal Year 96	1.4
Fiscal Year 97	.85
Total	5.25

superb, the analysis thorough, and the recommendations unassailable.

Second, assessments and evaluations can often lead to new approaches, new ideas, and hopefully, new results. The intern that served with us brought with him a host of new ideas, and more importantly, a lack of allegiance to any established order or dictated procedure. We had struggled mightily with our energy consumption problem. Our approach had been one characterized an adherence to established ideas. Unfortunately, our context did not allow us the luxury of sticking to known territory. We had to sail into unknown waters, and the intern provided us the vehicle for doing so.

Third, assessment requires the sustained attention of someone with the requisite training, knowledge, and background to be successful. As we wrote earlier, sustained attention to any single issue by busy managers is often difficult to achieve. Interns, when chosen properly through an appropriate program, provide just this type of resource. They possess the training, they have the time, and they are focused on a defined goal.

Finally, we, as the facility stewards at our institutions of higher education, have a unique access to a source of expertise. How often have you linked with the engineering or business management department at your institution or neighboring university to provide a forum for exchange of ideas and internship opportunities? This is an invaluable source of talent that can assist modern facilities management leadership by conducting facilities assessments and then feeding these results back into the policy cycle. 🏢

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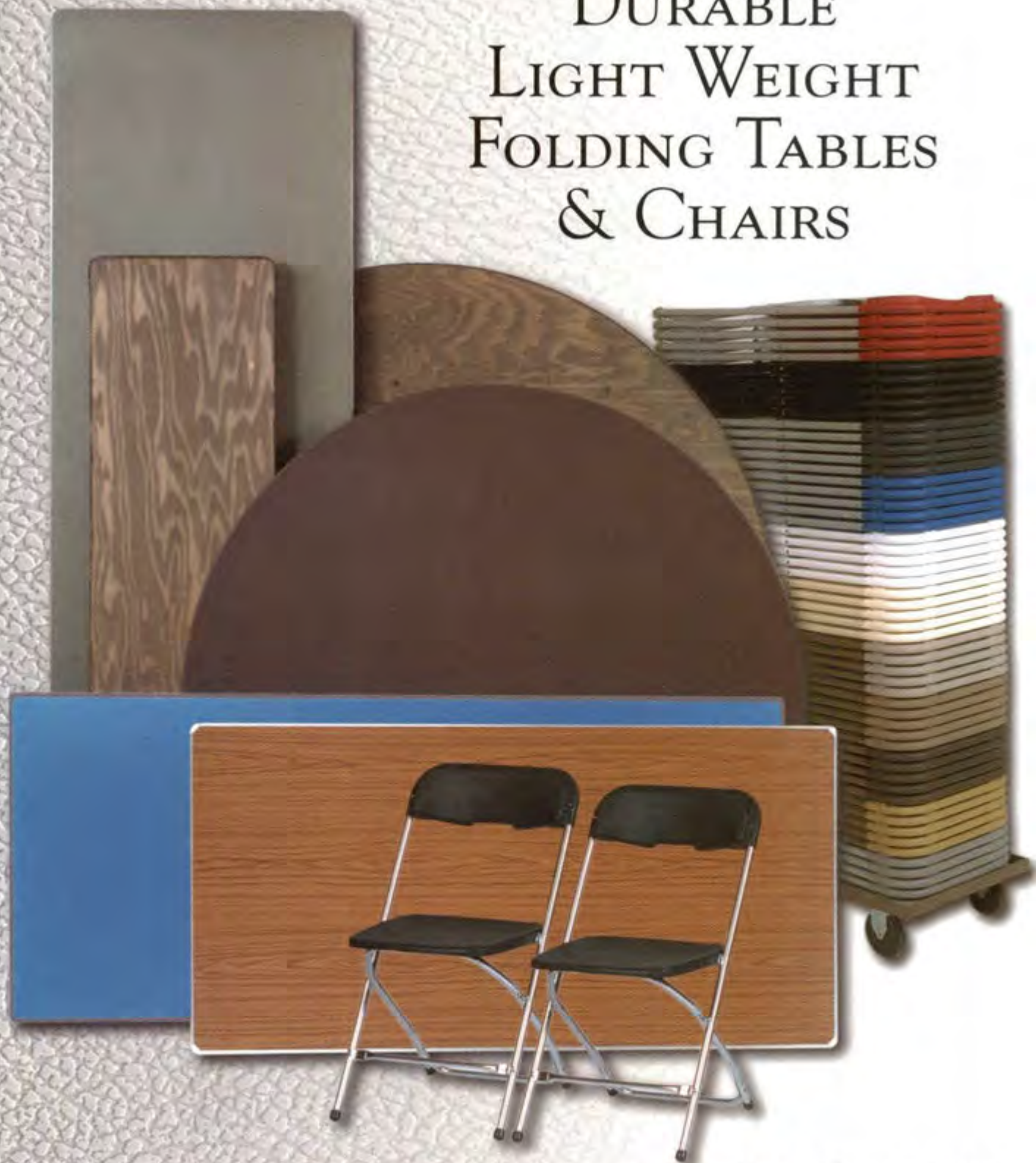
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Calgary K-12 District Benefits from the Facilities Management Evaluation Program

by Steve Cripps



Traditionally, managers have looked to the efficiency and effectiveness of the front-line workforce as the beginning and, often (unfortunately), the ending of a business improvement initiative. Somehow the perception was that inefficiencies rested with the person with the tools. Enlightened organizations now begin improvement initiatives within the management structure. The philosophy is that if the processes and procedures are the best they can be, then the front-line workforce, in turn, will be the best they can be. Management has the responsibility in collaboration with the front-line workforce to study, analyze, and ultimately design processes that enrich the workplace and create opportunities for success, not failure. It is too easy to place blame on those who are most distant from the front office. An attitude of continuous improvement begins with an aptitude for team work. If we are successful, we share the praise; if we don't succeed, we share the responsibility.

APPA recognizes this principle of management accountability, and through the FMEP (Facilities Management Evaluation Program) provides an opportunity to put into action an improvement process that begins with management level business process evaluation.

The Calgary Board of Education embarked on this path in the fall of 1996. We are a school district of 224 facilities encompassing in excess of 13 million square feet of built area. Schools span 90 years of age, creating challenges for our

workforce to keep abreast of many styles of buildings from multistory sandstone structures to steel structures with a myriad of ancient to modern operating systems. Several years prior to calling APPA to inquire about the FMEP, we had realized the need to audit our built environment, but it wasn't until later that we realized part of the formula for success also included a management audit.

In the fall of 1994 the maintenance department launched a comprehensive three-year facility management business plan. With the assistance of consultants, our department spent 16 months formulating a business strategy that was not intended to be a "flavor of the month" proposal. Rather, it was intended to be a cornerstone in a dramatic cultural shift for provision of customer focused, employee centered maintenance services.

The first page of our business plan contains a list of the 200-plus staff of the maintenance department who all contributed to this new vision for the future. Each of our business processes was evaluated, each of our position descriptions reviewed, all of our stakeholders consulted and finally after many months of introspection and strategic thinking our plan was published and put into action.

Improved results were immediately evident. Staff morale improved, they were valued not just for what they were (professional trades people) but also for who they were—people capable of contributing significantly to long-range thinking, planning, and strategizing. Many new initiatives were prepared by self-empowered teams focused on marketing services to our customers, business process improvements, awards and recognition, quality initiatives, core staffing, communication, budgeting, and training.

Steve Cripps is director of maintenance services for the Calgary Board of Education, Calgary, Alberta, Canada. He is a member of APPA's K-12 Task Force.

Not content to sit back, our culture of continuous improvement propelled us forward. The momentum that was building seemed to be leading us in the right direction, but we wanted to be sure that we were meeting our internal goals and our external customer expectations. We believed an "outside looking in" approach would best serve our needs. We wanted the answer to three questions:

1. What are we doing right?
2. What are we doing wrong?
3. What can we do about it?

It was at this point that we approached APPA and contracted with them to conduct an FMEP study. To say this was a contract would be doing APPA a disservice. What we really had was a partnership. APPA and the FMEP team were interested in our future success, and they did not bring their own agenda to Calgary and try to impose it on us.



Utilizing the Stephen Covey principle of "beginning with the end in mind," we shared with the FMEP team our expectations for outcomes for their study. These outcomes focused on the following categories: quality assurance, accountability, customer service, employee centeredness, efficiency, effectiveness, alignment with corporate vision/purpose, industry best practices, and strategic business thinking.

The FMEP can be utilized in several ways. It can be used to evaluate a management program which has high need for new thinking; to evaluate the assumptions of an ongoing redesign initiative; to critique a mature management system; or to provide analyses of long-term renewal strategies. Whatever your need, it must be well defined to provide a focus for the FMEP team. Our department had two underlying purposes. First, to evaluate our management system after two years of working within our business planning initiative. Second, to provide direction for the development of the next three-year phase of our business plan.

Any study must have clearly defined outcomes which can be filtered through corporate values to validate their usefulness.

Outcomes in a building project take on a physical form and are predetermined by detailed, precise specifications contained in bid documents. Outcomes in a FMEP study are not achieved through precise specifications but rather through a process of discovery, a journey. The outcomes are defined through a communication process involving internal and external customer interviews.

FMEP outcomes have a causal relationship with customer expectations and departmental goals. They will:

- Cause you to look at your organization in a variety of operational categories:

What are our core competencies?

Who are our customers?

What is our vision, mission, purpose?

- Cause the staff in your organization to examine their current level of activity, dedication, and in some cases, real contributions:

What are we doing?

Why are we doing it?

Are we contributing to the core values of our school district or campus?

How well are we doing?

- Cause your customers to view you as a service delivery unit that is more effective and efficient:

Are we doing the right things?

Are we doing the right things right?

- Cause senior leadership/management to know where their department has been, where it is today, and where it should be tomorrow:

What is our past?

What is our present?

What will be our future?

- Cause your campus/school district to see that you are working to a preferred future which will contribute to student excellence:

Are our services aligned with customer expectations?

Are our services aligned with corporate beliefs/values?

Are our services contributing to quality of teaching/learning environments?

- Cause your staff to feel "connected":

To departmental vision, mission, purpose

To their customers

To the success of the department

- Cause a sense of accountability:

Are we managing our time efficiently (services delivered in a timely way)?

Are we good stewards of our budget?

Are we effectively utilizing our workforce to reinforce our goals and customer expectations?

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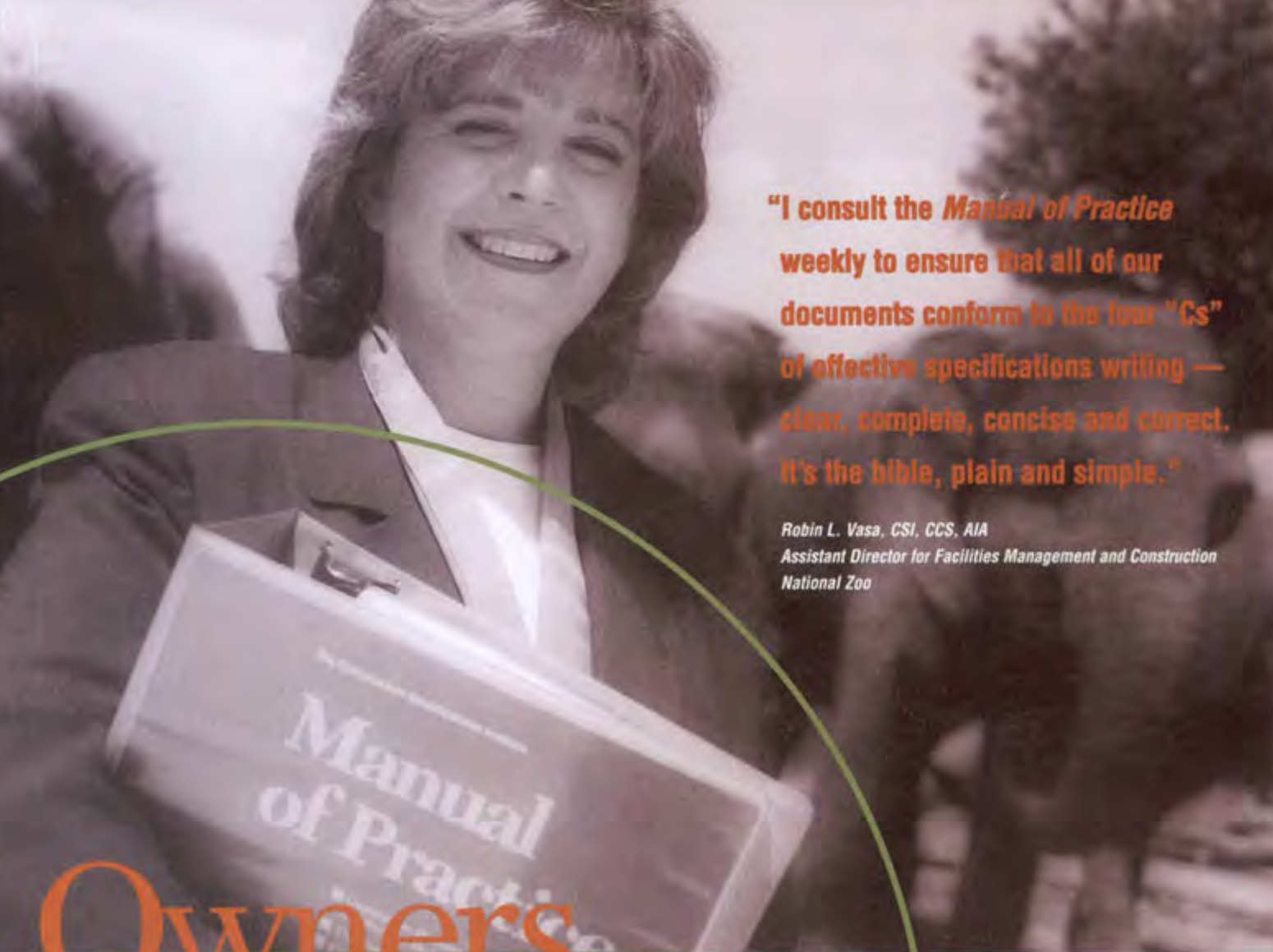
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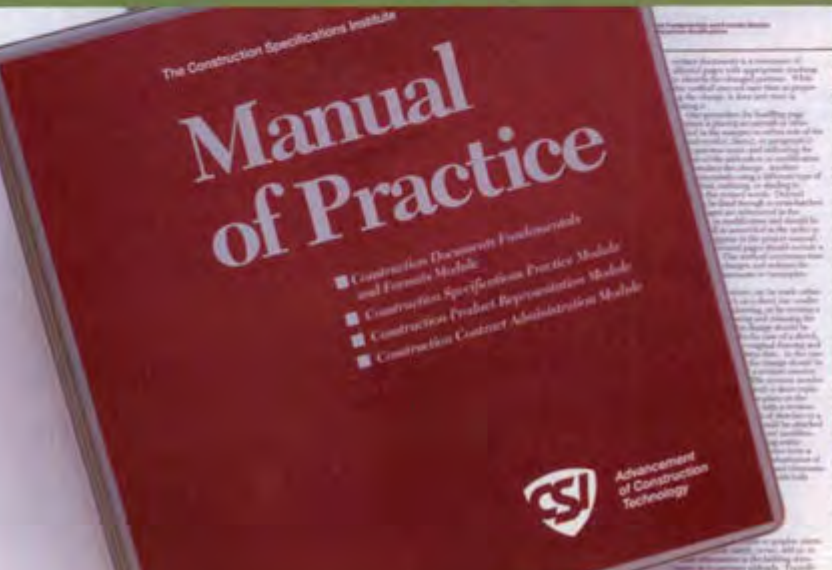
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It was important that not only the FMEP team be familiar with these expected outcomes but also the department staff. Full disclosure with the workforce of the outcomes or evaluation criteria is essential to the success of the FMEP. In today's climate of outsourcing the workforce is very critical of any outside evaluation of their work environment. The FMEP initiative was clearly communicated to the workforce in advance of the team's arrival in Calgary. Our goals did not include downsizing of staff. The evaluation team continually reinforced this throughout the evaluation process.

Openness about the focus and expected outcomes paved the way for a meaningful process by eliminating suspicions or fears from the workforce.

The FMEP process begins long before the arrival of the team. A self analysis tool must be completed and forwarded to the team four weeks prior to the scheduled visit. The self analysis is an objective statement of conditions as seen by members of the department, managers, and front-line workforce alike. The following categories are used to formulate a response: purpose and goals; organization and resources; policies, procedures, processes; personnel training and development; fiscal planning and management; facilities condition and appearance; and communication and quality of relationships. We designed a chart to facilitate the recording of our self analysis. This chart enabled us to communicate to the FMEP team objectively and supply comments justifying our analyses.

The host department is responsible for arranging the itinerary for the duration of the evaluation. The FMEP team leader will advise on what blocks of time are necessary and who they want to meet with. In Calgary the team met with the district's elected trustees, the CEO, members of the front-line workforce, management, supervisors, union representatives, and various other stakeholders. A broad spectrum of customers were also interviewed to validate the conclusions reached.

Once on site the FMEP team took complete responsibility for the process. It was an intensive five-day process with long hours. Typically the team was at our office by 7:30 a.m. and didn't leave till early evening. After a supper break the team would reassemble to compile notes and prepare for the next day.

One key objective of the site evaluation is to debrief the host organization on the final afternoon of the evaluation. The four members of the team was each responsible for several categories. Often the team worked individually to maximize their exposure to the stakeholders. Our final

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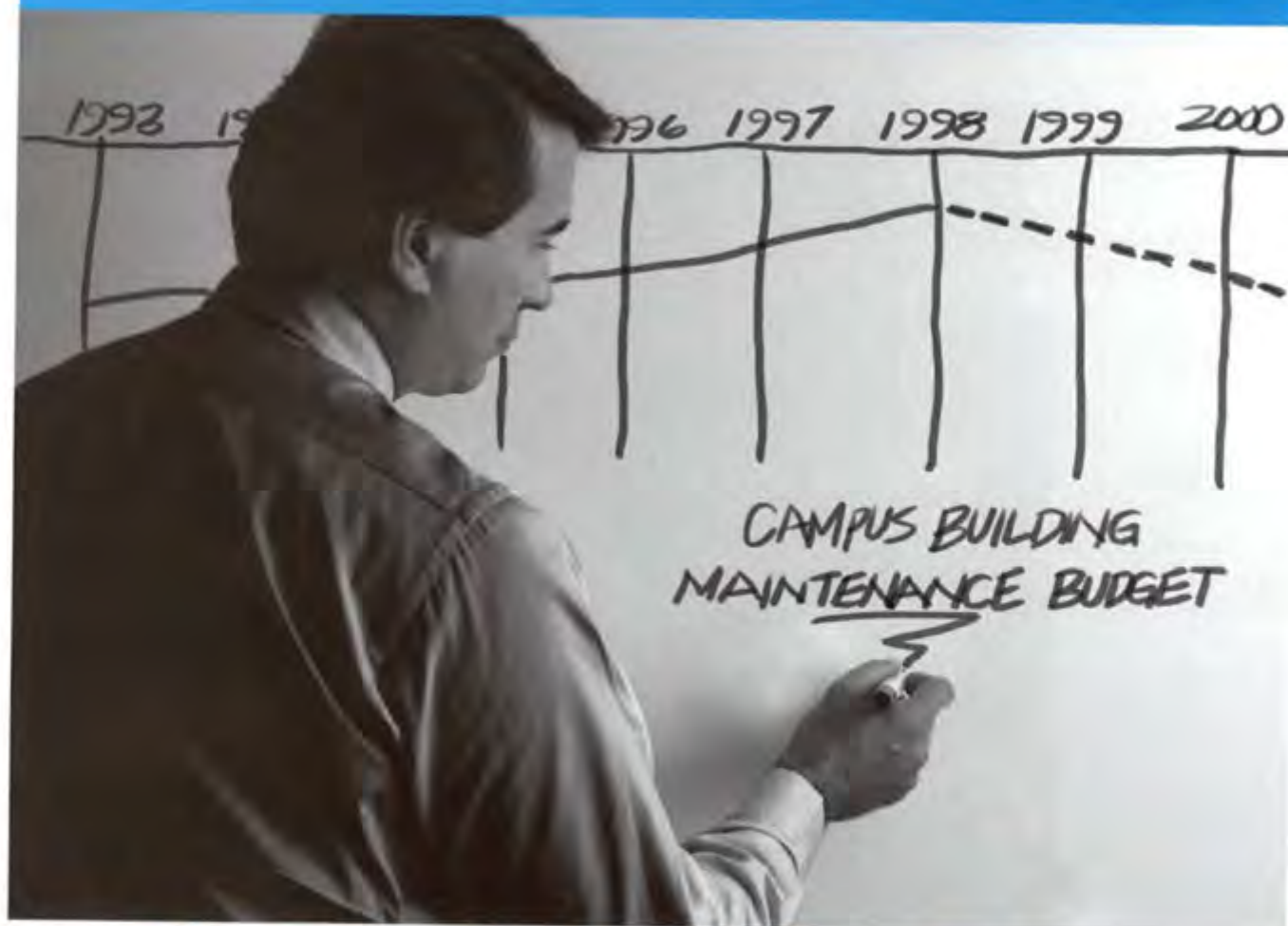
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afternoon briefing impressed us with the quality and quantity of information. The insights shared illustrated the competency and professionalism of the team. Members of the team had a combined experience of more than 100 years. Rumor has it that the team leader (current APPA President Pete van der Have) accounted for over half the service years all by himself!

Once home the FMEP team each took responsibility for a section of the final report. The team leader compiled each of the individual reports and prepared a comprehensive draft. The draft was sent to us for comment on correctness of detail (not content). In a 12-week period we had experienced the process from self analysis to final team report. Very impressive.

The value of an FMEP can be illustrated in many ways. One of the questions you probably will ask when considering an FMEP is, "Can I afford it?" In my experience with the Calgary evaluation I estimate that a minimum of 260 hours were spent by the four evaluators on advance preparation, site investigation, and report preparation. Given the project costs of approximately \$14,000 and the quality of the results, this is the best deal in town.

Let me illustrate. In the business world, projects are evaluated on the basis of their ROI (return on investment). If I spend \$14,000 on an FMEP, can I expect to recoup my investment? How long will it take? A reasonable assumption would be that the evaluation could result in a 1 percent annual improvement in efficiency. For the Calgary Board of Education this would mean a savings of approximately \$140,000 over a 12-month period, or an ROI of one month or less. By anyone's standards, that is an excellent investment.

The value of a FMEP extends well beyond a monetary payback. The following list serves to illustrate other significant values:


- Improved communication
- Action strategy (plan)
- Credible, implementable recommendations
- Ability to set bold goals
- Accountability to customers
- Staff buy-in
- Competitive advantage
- Delineation of responsibilities
- Well-defined vision/purpose

There are many other values, but these will illustrate enough to validate the FMEP process. The study left us with much food for thought. Having received the report and accompanying 59 recommendations, it was now up to us to capitalize on the rich source of information. Our assessment led us to develop seven strategic cat-

egories and 47 strategic initiatives to support these categories. Now we had the basis for development of the second phase of our business plan.

Developing an action plan was the next piece of work. The 59 recommendations were prioritized, responsibility matrix developed, budget prepared, and a time line committed to. The action plan was published and formed an effective communication tool for both internal staff and external customers. The action plan also made us accountable for results. If you involve stakeholders in the information gathering phase, you had better involve them in the action plan phase.

Eighteen months have passed since the FMEP team arrived. Life has not been the same. The recommendations reached deep into our department. Some took much courage to implement others were popular and enthusiastically implemented. We are now completing the redesign of our office to accommodate a new customer service center (some may call it a resource management center). Completion of the center will mean we have responded meaningfully to all 59 of the original recommendations.

Our journey has helped us to become customer focused, employee centered, and able to work within efficient/effective business processes. Our core business processes are aligned with customer expectations. We know where we've been, where we are now, and where we need to be. 

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Facility Asset Management

Stewardship from a School District President's POV

by Matthew C. Adams, P.E.

As big or bigger than almost any college in the United States, the Atlanta City School District is a massive institution that continues to grow hand-in-hand with one of the fastest growing metropolitan areas in the country. It is projected that the population of Atlanta will double by the year 2010. Coupled with the realities of the "bubble" of students working their way through primary education, the Atlanta City School District is faced with no small task. Now charged with educating over 60,000 students with a \$420 million annual budget and currently \$125 million in capital expenditures, it appears that "bigger is better."

However, this is not the case. The president of the Atlanta School Board, Dr. Norman Johnson, (also assistant to the provost at Georgia Tech) is more concerned with maintaining the stock of schools now and for future students rather than building more schools. Dr. Johnson states that "the challenge isn't getting buildings built, but doing it in a way that the public will maintain the open spigot of funds for renewal...if this is not achieved, the next generation of kids will suffer



from a substandard learning environment."

Dr. Johnson understands facilities issues. Prior to his election as President of the School Board, he served as chair of the Facilities Committee. In those days (the late eighties and early nineties), Atlanta's schools had operated for 20 straight years without a significant capital renewal effort. "Things were desperate," recounts Dr. Johnson.

Nevertheless a bond referendum in the late eighties was defeated. Out of desperation, the Facilities Committee adopted a move that other districts have utilized called "certificates of participation." Essentially a second mortgage on the buildings themselves, this stop-gap measure allowed the district to mount an organized initiative to raise meaningful funds for facility renewal.

The use of facility audits in determining an accurate capital renewal budget is widespread in both colleges as well as school districts. However, the mixing of engineered data with political reality creates a hybrid capital plan for school districts. In other words, the audit is timed to coincide or even follow the total capital budget

published by the district. It would seem that this is a case of the tail wagging the dog, but it is in fact simple pragmatism.

In Atlanta, the school board struggled to determine a capital target that would "sell." It was widely felt that the electorate would not pass more than a \$100 million bond referendum. In that sense, real needs of the school buildings were secondary to the political reality of the day. Ultimately, the board settled on a figure of \$93 million. Frankly, the audit was almost needless (it suggested a need of \$250 million). The numbers speak for themselves. At the time, Atlanta maintained 116 independent school sites. Of those, more than 60 percent were constructed prior to 1970. No major renewal had taken place for 20 years. In simple terms, the bond issue afforded at most \$800,000 per site. The real value was much less. Once again political reality takes its toll. As Dr. Johnson put it: "In order to move forward with this, everyone has to get something. However, it was spread so thin that everyone got almost nothing."

Upon closer inspection, the Facilities Committee recognized the inadequacy of the renewal program. In some cases the funds were spread so thin as to allow only some walls to be repainted while adjacent ones were not. In addition, some windows were replaced while identical units nearby were not. It was clear that the capital renewal funding was far too little.

Recognizing the need for additional capital renewal, the board moved to sell a Special Local Option Sales Tax or "SPLOST" as it is called by insiders. This initiative is a 1 percent sales tax

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Matt Adams is president of The Adams Consulting Group, a management/engineering consulting firm located in Atlanta, Georgia, specializing in the facility maintenance and management within higher education, school districts, and other institutions. He is the author of the recent APPA book, Successful Funding Strategies for Facility Renewal. He can be reached at mc.adams@facinet.com.

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for the city that will last for five years. Passed by voters in 1997, the SPLOST will raise \$481.7 million for the district. Hired last year to manage the capital effort, Deputy Superintendent Clara Axam plans to complete the renovation of 77 of the districts now 99 sites by the year 2000. The SPLOST funds will be used for payment of the certificates of participation, the previous bond issue, and more of the current facility needs facing the district. The overall value and performance of the districts facility stock will increase dramatically as a result of this program.

Despite the apparent financial windfall of the sales tax, the board and its leaders like Dr. Johnson know all too well that newly renovated schools do not last forever. The same structural impediments that caused the past financial crisis are still in place. For example says Johnson, the district still maintains operations that operate on a break-even basis only with the acceptance of deferred maintenance. Specifically, the district-wide food service operation can only break even annually by deferring all capital maintenance. Should any one major steam operated dishwasher or cooking oven fail, the food service operation will suffer a large capital loss.

Dr. Johnson feels strongly that the only way that the district can operate effectively is to draw upon the experiences and resources of the Atlanta business community. For example, says Johnson, "The Centennial School located in downtown Atlanta near the major corporate headquarters like Coca-Cola, Nationsbank, and institutions like Georgia Tech shares nothing with those industry leaders. Among our neighbors, only the Centennial School and the Varsity Fast Food Restaurant have in-house food service operations. Something is wrong with this picture."

In addition to political and operational difficulties faced by the district,

the basic portfolio of buildings owned and operated by the school board has issues. More than half of the district's facilities were built during the racially charged years of the fifties, sixties, and early seventies. During those years there existed an overriding concern by the constituents to keep black and white students segregated and later to provide "separate but equal" facilities. This faulted philosophy has left a wasteful legacy for Atlanta. Rather than optimizing construction dollars, many facilities are either redundant or too small to accommodate the student population efficiently. In many cases, two small schools were constructed within a small geographic area to accommodate political interests. Now many families have become accustomed to the close proximity of smaller schools. As a result, the practical idea of having fewer more efficient facilities is met with resistance from some constituents.



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It becomes clear while hearing the insiders point of view that public school administration is more about real devotion to the kids rather than professional satisfaction. The life-cycle of major change is too long for most people to endure. In fact, there are basic structural elements of school district administration that will never change. The system is structurally incapable of providing consistent stewardship of its facility assets. There will always be the politics of too many competing priorities and not enough engineered decisions. Moreover, facility renewal is always a hard-sell according to Johnson because its not glitzy. "Property management is not one of our core competencies," says Johnson. "There may be a time when we simply get out of the property management business and buy those services from the experts."

As if stewardship of the facilities were not enough of a concern, the

continual technological deficit of the classrooms seems insurmountable. Once again drawing from the lessons of the business world, Dr. Johnson uses the decision of General Motors to buy EDS as a "make/buy" analysis paradigm. He further suggests that "if Jack Welch of G.E. publicly admitted that his company had a 'C' grade in its use of technology and information systems, then what is our school districts' grade in the use of technology?"

Nevertheless, only small changes can add up to make big changes. To that end, the district is learning from its peers and neighbors. Last year all of the district's 500-plus custodians were provided technical training for the first time ever. "We spent over \$1 million on custodial training last year, and I wish we could do it every year." Similar to capital renewal, the decision to spend money on training is intellectually obvious but politically boring. It must be tempting to always participate in glamorous initiatives while in the public eye.

The parents of the bubble students are moving through the district and on to college. As the parents of this large group of kids vote, it must be tempting to look only at the short-term. By the year 2000 most of Atlanta's schools will be renovated and in much better shape. However, what happens to the kids who enter the system in 10 to 15 years? In the current funding cycle, these kids will suffer from prematurely aged facilities. Its not fair, but it is reality.

Even as administrators like Dr. Johnson know all too well what should be done in terms of policy, change is slow in coming and the structural realities of school administration are always present. As Dr. Johnson put it: "You have to have a long-term love affair with the school system. Quick changes or 'pops' along the way won't help anybody." 📌

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As the world's second oldest profession, the third if you count morticians, facilities management has more than its fair share of tradition. For example, facility people traditionally tend to measure their success and define their world in terms of "wrench-time."

If the impact of computers in physical plant operation were a 100-mile journey, we have completed the first 10 feet.

When asked to define their role, most mechanics and supervisors respond, with sincerity, "To keep the buildings warm in the winter, cool in the summer, and safe year round." Noble, but shortsighted. Why? Because your customers come from Venus and your mechanics come from Mars.

On Venus, education is a business; its stock in trade is intellectual enrichment. Have you, like most facilities managers, yet to bridge the galactic

Howard Millman operates the Data System Services Group, a problem-solving consultancy group based in Croton, New York that helps universities and university hospitals automate their facility management process. He can be reached at 914-271-6883 or by e-mail at hmillman@ibm.net.

gap and successfully persuade staff and coworkers that their mission consists of more than repairing pumps, mowing grass, and changing filters? Have you convinced them that their job embodies a more global purpose that includes helping the school attract students, grants, and status, and make at least enough money to care for and feed itself?

In education, especially higher education, tradition decrees that the concepts of profitability, revenue streams, or return on investment do not apply. That education is somehow exempt from the laws of economics. Maybe that's one reason why universities stagger under a multi-billion dollar burden of deferred maintenance?

Despite your best efforts, you will probably never seriously impact that entrenched wrench-time mindset. At least until the profession's old-timers, (ancient in thinking, if not in years) are replaced by people who see the entire forest, not merely one tree.

You and your department reside in Marshall McLuhan's "global village." Client/server and Web-based software, such as CMMS systems, Lotus Notes, e-mail, and calendaring have provided the technical foundation to improve the speed of communications. You now face the challenge to improve the value, quality, and return of investment of those communication systems.

Rodney Dangerfield's famous comic line, "I don't get no respect," had the nation laughing with him. A lack of respect for you and your staff, however, is not funny. If you want respect, you have to earn it.

Begin by attenuating the traditional pique and rivalries that obstruct effective communication between mechanics and between your administrators and your customers. If you succeed, the personal and professional

Henry Ford said, "You can do anything if you have enthusiasm. Enthusiasm is the irresistible surge of your will and your energy to execute your ideas. With it, comes accomplishment. Without it comes only alibis."

Someday, hopefully soon, this will be a really nice world. A global village that benefits from shared goals and ideas. A great place to live and work—if its maintenance department ever gets it finished. Considering the time they have spent tinkering with it, from the Beginning, wrench-time alone can't get the job done. Better communication might. Try it.

rewards will far surpass the effort. Cooperation and communication are two elements that mark the difference



Share the *Benefits* of APPA Membership

New members provide fresh perspectives and new ideas, and they expand the circle of professional peers. This month, APPA kicks off Share the Benefits, our new Institutional member recruitment campaign, and we need your help. We're asking you to reach out to your facilities colleagues at nonmember colleges and universities in your region and invite them to join APPA as Institutional members. You will be well rewarded for your efforts—read on for more details!

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5. Opportunities to get together with your peers at annual meetings and other events.
6. Recognition of your accomplishments.
7. A forum to demonstrate your professional knowledge through speaking and writing opportunities.
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10. Inside information on career opportunities.

What's in it for you?

In addition to the warm glow you'll get from helping a colleague get connected to a great professional organization, APPA will reward your efforts with a generous thank-you. Check out these prizes:

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2 new members

One free registration to the Institute for Facilities Management for your institution (A \$700 value!)

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All you need to do is contact your local colleagues and give them the attached application form. Ask them to fill your name and institution on the application under "referred by." When we receive their application and payment, we'll notify you.

Not sure who in your area is not a member? Call APPA at 703-684-1446 ext. 232 or 227 and we can provide you with a list of prospects. But hurry! This campaign ends December 1!

Application

Dues Matrix

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FTE	Dues	Assoc. Members	Dues	Assoc. Members	Dues	Assoc. Members	Dues	Assoc. Members	Dues	Assoc. Members	Dues	Assoc. Members	Dues	Assoc. Members
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1,000-1,999	\$280	0	\$325	0	\$390	0	\$445	0	\$535	0	\$650	1	\$785	1
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3,000-4,999	\$410	1	\$475	1	\$530	1	\$585	1	\$665	1	\$770	1	\$885	1
5,000-11,999	\$520	2	\$560	2	\$610	2	\$710	3	\$790	3	\$890	3	\$1,020	3
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How often do you hear some variation of the phrase, "The globalization of business?" How can you globalize your mission? No, not as one humorist responded, "Go to Italy to buy our marble," but by speaking the same language as the university's management—the people in finance, university planning, and the registrar's office. Strive to get on an equal footing with the vice presidents, directors, or managers of those departments.

Many facility people know how to survive in their own gated world. Unfortunately, they may not have a clue about how the financial, planning, or recruitment operations work. Any contributions they make to the well being of the entire campus result more from coincidence, not planning.

Accept the role of an ambassador. Learn the language and customs of other groups. As you succeed at better understanding what they do, demonstrate how quality maintenance complements their efforts. And emphasize that facility maintenance is a strategic asset.

So go ahead, tap into the benefits of effective networking. Not the 10BaseT Teflon covered cable kind of networking, but the kind that plugs you into the real pulse of the entire operation. You need to know what's coming down the road so you don't get mousetrapped.

I keep a sign on my desk that says: "If you wish to prosper here, never surprise me." To me, and I hope to you, all surprises are unpleasant, because if someone can surprise you then you don't know what's going on!

The computer revolution that swept the facilities arena, as well as every other aspect of your life, enables you to do things faster. It's up to you to find ways to do them better. 🏠

Q

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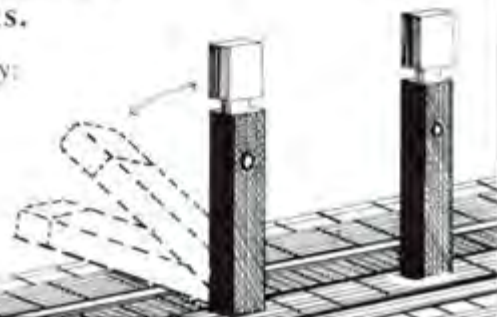
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The Facilities Management Library. New York: UPWORD Publishing, 1996. Ten volumes, hardcover.

Handbooks and manuals are staples of modern living. Each profession, occupation, hobby, or sport has books that summarize and explain that particular enterprise. In the world of facilities management, at least two important sets of manuals are available for APPA members. One set is APPA's own *Facilities Management: A Manual for Plant Administration*, and another is *The Facilities Management Library* by UPWORD Publishing Company. This column will review the latter set, using APPA's more familiar *Manual* as a conceptual benchmark.

APPA's own George Weber edited the first comprehensive book on management of higher education facilities in the United States in 1974. His book, *A Basic Manual for Physical Plant Administration*, was jointly sponsored by APPA and The National Association of College and University Business Officers (NACUBO). The book also was partially funded by a grant from the United States Department of Education and was intended for use as a basic text for a management institute for small institutions and historically black colleges and universities. Significantly, Weber, of the University of Maryland at College Park, was APPA President in the era

when the organization established a headquarters office at One Dupont Circle in Washington, D.C. Paul Knapp was subsequently selected as APPA's first full-time executive director. Knapp's experience as the former editor of *Buildings* magazine helped Weber and the small staff publish *A Basic Manual* in record time.

In 1981, APPA's Professional Affairs Committee voted to prepare a new manual, and in 1984 the first edition of *Facilities Management: A Manual for Plant Administration* was published. This book was intended to be used as a basic text for APPA's Institute for Facilities Management, and was edited by Rex Dillow of the University of Missouri-Columbia. Dillow was not a president of APPA, but he was a strong advocate of the APPA office presence in Washington as a member of the higher education "establishment." Dillow also served as interim executive director in 1985 until Walter Schaw was selected as the successor to Paul Knapp. Dillow also served as editor-in-chief of the second edition of the *Facilities Management* manual, which was published in 1989. This second edition offered expanded information concerning the rapidly evolving complexity of higher education facilities, especially regarding the deferred maintenance dilemma which threatened the entire academy.

Recently, APPA released its four-volume third edition of *Facilities Management: A Manual for Plant Administration*. This work, with William Middleton, formerly of the University of Virginia as editor-in-chief, is a tour-de-force on plant management for educational institutions; it features 67 chapters written by 74 authors cover-

ing 1,750 pages. Middleton served as APPA President in 1990, and, like Weber and Dillow before him, has spent countless hours helping APPA fulfill its mission to support the higher education community through professionalism in facilities management.

In late 1996, UPWORD Company published a ten-volume set titled *The Facilities Management Library*. While not specifically aimed at higher education facilities managers, *The Library* does target facilities professionals and should have merit for members of the academy. *The Library* differs from most generic manuals on facilities management (several of which have been reviewed in *The Bookshelf* in the past two years) in that it is a multi-volume set written by many authors. Because *The Library*, comprising over 3,000 total pages, more nearly resembles APPA's *Manual*, this review will discuss each volume separately, and then compare the entire package to APPA's recent third edition.

The Library is composed of ten monographs covering ten specific topics: indoor air quality, environmental management, fire protection, water quality/systems, lighting upgrades, electrical systems, intelligent buildings, interiors management, safety management, and disaster and recovery management. Each work is subtitled "A Guide for Facility Managers." Two of the books are authored or edited by APPA members; Joseph Kish of Northeastern Illinois University acted as editorial advisor on *Indoor Air Quality*, while Dr. Mo Qayoumi of the University of Missouri-Rolla wrote *Electrical Systems*. A third writer, Kreon Cyrus of Massachusetts Institute of Technology, acted as editor of

John Casey is manager of the engineering department of the physical plant division at the University of Georgia, Athens, Georgia. If you are interested in reviewing a book for The Bookshelf, contact Casey at jcaseypc@uga.cc.uga.edu.

Lighting Upgrades. The remaining authors, while not directly connected with higher education, represent trade publications and corporate facilities management perspectives. These books are reviewed below, in no particular order.

Indoor Air Quality, by Ed Bas, with Joseph P. Kish as editorial advisor. 323 pages.

Ed Bas is associate editor for *The Air Conditioning, Heating, and Refrigeration News*, one of the best trade publications available for the residential and commercial environmental systems market. His discussion of indoor air quality (IAQ) is very thorough, covering "sick buildings," common hazards, basic HVAC systems, ventilation, filtration, humidity and moisture control, duct cleaning, and the establishment of an IAQ program. The book also includes a complete set of forms, prepared by the U.S. Environmental Protection Agency, which are suggested for use in implementing the IAQ program.

The author's emphasis on the need for HVAC system commissioning and implementing a practical IAQ program are right on target, as is most of the rest of the book. His emphasis on duct cleaning as a method for improving IAQ, however, must be considered very carefully, especially in large building HVAC systems where access to ductwork is often severely limited, in order to avoid exacerbating the problem rather than solving it. Bas' book is an excellent resource for facilities managers to help improve building environments.

Environmental Management by Regina Clarke, with William Gregory as editorial advisor and Larry Seigel as technical advisor. 281 pages.

The advisors for this book add credence to the guide's claim to discuss all the environmental issues that impact the successful operation of facilities in the United States. William

Gregory is a past president of the International Facility Management Association (IFMA), and Larry Seigel of the Trane Company, a leader in promoting non-CFC alternate refrigerants, supervised the first commercial conversion of a large chiller to non-CFCs in the United States. Both are well versed in the "green" approach to managing the environment of large buildings, a perspective on the problem which is well articulated by the author.

This book is divided into seven chapters and reviews the definition of environmental management, federal regulations, environmental assessments and audits, hazardous substances, energy management, and "green" buildings. An entire chapter is spent on CFC management, a topic which may be overemphasized now due to recent improvements in retrofit and recycling techniques for CFC machines. The book is important for the spin put on environmental management from the "green" building mind set, which correctly identifies construction methods and materials that can be both competitive and environmentally friendly.

Fire Protection by David H. Wagner, with Ira A. Marcus as editorial advisor, and Bob Wagner and Daniel Fraker as technical advisors. 350 pages.

Fire protection in modern facilities, especially in high-rise and high-tech buildings, is especially difficult to manage. The fire protection professional is concerned with prevention, protection and prompt response to fire emergencies, and these factors often produce conditions which cause problems for building occupants and facilities managers. The "fire people" are often perceived as the nay sayers or ticket writers who insist on imposing regulations (i.e., additional costs) on all facilities management-related projects.

This book, written by a professional fire fighter from the Los Angeles Fire

Department, describes the problems associated with fire protection in lay terms. The book covers the entire spectrum of fire protection management, including basic fire chemistry/physics, designing fire-safe buildings, various fire protection systems including special agent extinguishing systems, and portable extinguishers. Special attention and emphasis is placed on both renovation/retrofits and alarm/detection devices, and the author reviews all specific occupancies including historic buildings. Reading this book will give facilities management professionals a new cooperative outlook on a problem which in the past may have been reviewed in an adversarial light with fire safety professionals.

Water Quality and Systems, by Robert N. Reid. 288 pages.

This book features discussions of water supply, storm water, and waste water systems in straight-forward and non-technical language, and is an ideal reference for facility managers. It is not a pure design manual, nor is it intended as a course text. Rather, it deals with all water systems by describing the basic elements of each type, explaining how the various components operate. Topics of particular interest cover new water regulations, minimizing operational costs without compromising safety, and proper testing methods.

Reid has produced a solid primer on general plumbing systems, and somewhere in the 16 chapters of the book is the answer, or directions to the answer, to most water/water quality questions. *Water Quality and Systems* can be used effectively to prepare executive summaries for review by non-technical and/or very busy administrators. The book is an excellent overview of plumbing systems for all institutions, regardless of size.

Lighting Upgrades by Damon Wood, with Kreon Cyrus as editorial adviser,

and Doug Townsley and Craig DiLouie as technical advisers. 421 pages.

As a consultant, Damon Wood developed and managed the technical support functions of the U.S. Environmental Protection Agency (EPA) Green Lights program, authored EPA's *Lighting Upgrade Manual*, and established the Green Lights Lighting Upgrade Workshops. With the support of MIT's Cyros, lighting

contractor Townsley and editor of Architectural Lighting DiLouie, Wood has compiled an impressive monograph on the pros and cons of lighting system upgrades for both interior and outdoor applications.

The 21 chapters cover virtually all the aspects of lighting, starting with the fundamentals of lighting quality and efficiency, with a complete explanation of the various types of light

sources and control systems. Specific applications are reviewed, including office, industrial and outdoor lighting designs. The book closes with suggestions on financial analyses, performance measurement and lighting maintenance, with an appendix which contains an excellent five-page bibliography of references and handbooks. Good and efficient lighting is not only a key ingredient of comfort and safety in an environment, but also plays a major role in utility costs. This book will help managers control comfort, safety and costs through well designed lighting upgrade projects.

Electrical Systems by Mohammad H. Qayoumi, with Craig DiLouie as editor. 250 pages.

Dr. Mo Qayoumi is a prolific writer and strong supporter of APPA, as evidenced by his participation in APPA's third edition of the *Manual*: he wrote four chapters (three on electrical issues and one on financial analysis and control), and coordinated *Energy and Utility Systems*, the third volume of the four volume *Manual* set. In *Electrical Systems*, he presents the topic on two levels, the technical and the practical. Each chapter includes a special "Management Aspects" section that condenses the specific subject matter into reference material for quick retrieval by management personnel. The book is divided into seven chapters, covering electrical system design and management, power generation and distribution, power and communication wiring, power quality, operational problems, and rate structures.

The appendix contains a 23-page section on fundamentals of electricity, which should prove helpful to busy managers looking for concise basic information on the electrical crisis of the day. *Electrical Systems* is a solid management-oriented primer on electrical systems written by a professional higher education facilities manager.

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Intelligent Buildings by Carter Myers, with Cynthia Samuelson as editorial advisor and Craig DiLouie as editor. 316 pages.

To Carter Myers, an intelligent building is one that gains optimum benefits from a complete building automation system, producing high productivity levels and low energy costs. The author indicates that the key to an intelligent building involves the integration of various systems which formerly operated as separate components with no communication or interaction between them.

To explain this concept, Myers presents the book in four parts, first reviewing the current literature to support the need and desirability for such buildings. Myers follows with a discussion on each component or building block of an intelligent building, including HVAC, lighting, fire, security and communication systems, and then melds the various blocks together through various retrofit, management and integration strategies.

The final section reviews the preparation of proposals to justify the installation of a complete building automation system, in order to reach the building, space and business management goals of an intelligent building. This book does explain the latest networking and cabling systems, and mounts a strong conceptual argument for coordinating various building systems. However, it does not appear to cover any new ground when reviewing computer-aided facilities management, HVAC, and energy management systems.

Interiors Management by Maggie Smith, with Anne Fallucchi as editorial advisor, and Marianne Berkey, Jim Cope, Lori Copsey, Eileen Mc Morrow, and Steve Tony as technical advisors.

Smith has, with the help of an excellent group of advisors, produced a readable review of facilities management from the interior designer

perspective. As buildings have become more complicated, interior designers have been forced to take a multi-disciplinary approach to the workplace, integrating sound, lighting, color and ergonomic considerations into a cohesive design concept. Most architectural firms now rely on these interior designers to help bring together the many requirements of sophisticated building occupants and changing workplace environments.

Interiors Management is divided into six chapters, and discusses linkages between worker and workplace, innovative space allocation, redefining the workplace in the information age, interior design strategies, ergonomics to promote comfort and productivity, and legislation in the workplace. All facilities managers need to take advantage of the expertise of a discipline which has proved in recent years to be able to promote more productive and visually pleasing spaces for teaching and working.

Safety Management by Joseph F. Gustin, with Mert Ljvingstone as chief editorial advisor, and Joel Gecht, Robert Kaplan, David Rosenberg, and Stephanie Trudeau as technical advisors. 239 pages.

Safety Management is written to help facilities managers provide a safe and accessible environment for all facility occupants, and focuses on managing an effective safety program. The book has 12 chapters, beginning with a discussion on the elements considered by the Occupational Safety and Health Administration (OSHA) to be essential to the development of such a program. The balance of the chapters review safety regulations and liability, the Americans with Disabilities Act (ADA), ergonomics and productivity, violence in the workplace, safety assessment, developing and implementing a written safety program, record keeping, and

the preparation for the dreaded OSHA inspection.

The book concludes with a directory of safety-related resources and a discussion of successful safety programs. Also included in the appendix is a compilation of self-inspection checklists, taken from OSHA literature. Author Gustin has, with the help of his advisors who are occupational health and safety mavens with impressive credentials, developed a thoughtful and readable primer on safety management, which stresses not only the promotion of safety in the workplace, but also the need to thoroughly document a safety plan to comply with the requirements of the law. Each APPA institution without a written safety plan and undocumented safety activities should have this book.

Disaster & Recovery Planning by Joseph F. Gustin, with Jonathan Parries as technical advisor.

Earthquakes, hurricanes, fires, floods and, tornadoes happen. When these problems affect educational institutions, facilities managers have to be prepared to respond effectively to save lives, reduce damage, and allow the work of the academy to continue. Such disasters occur everywhere, and are equal opportunity crises regardless of institution size or sponsorship. The state of Georgia has recently witnessed a great flood that completely devastated Albany State University, and the tragic dam failure that snuffed out many lives at tiny Toccoa Falls Bible College. California State University at Northridge was a casualty of an earthquake on the west coast, and Midwest flooding caused damage at Iowa State University recently.

While it is impossible to be completely prepared for such cataclysmic events, Gustin's *Disaster and Recovery Planning* can help facilities managers increase the odds for success under these extreme circumstances. The author reviews all the elements of

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disaster planning and recovery, including regulatory influences, emergency preparedness, fire and life safety, bomb threats, evacuations, earthquakes, computer and data protection, standby power systems, loss prevention, crisis planning and damage control, plan implementation, and managing the disaster and recovery effort. Like Gustin's other book *Safety Management, Disaster and Recovery Planning* should be used as a reference by institutions which have not developed a formal disaster plan.

UPWORD Publishing's *Facilities Management Library* is generally well written and very informative. Each volume complements the basic information included in APPA's four-volume *Facilities Management* manual, always adding width and breadth to the particular topic under discussion. APPA's *Manual* delivers a complete general overview of higher education facilities management, covering general administration and management, maintenance and operations, energy and utility systems, and facilities planning, design, and construction. UPWORD's *Library* delivers specific information on ten very important topics, written by professional facility managers in both corporate and educational environments. APPA members should review each *Library* monograph topic, and decide whether additional information on some or all subjects are needed by their institutions. Good books are like good restaurants; the world can always use more of each. UPWORD's *Library* has ten such good books, and the purchase of several or all of these should be considered carefully by all facilities managers.

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Managing Higher Education as a Business, by Robert L. Lenington. Phoenix, Arizona: American Council on Education and The Oryx Press, 1996.

This book presents the observations of a veteran business officer, with 16 years experience in higher education and 24 years in private industry. Robert Lenington believes that many institutions of higher education are facing a fiscal health crisis and prescribes a dose of private-industry-business-practices as the cure.

Why are books about business so boring? I do not know. Lenington at least provides a small book, which is one of its virtues. Being a small book about a large subject made the author condense his presentation and this removed the dross that weighs the eyelids and puts many inquisitive minds to sleep.

It is important for facility officers to understand the basic operation of the institution's business affairs. This understanding helps the daily interface with other support departments, and aids in effective strategic planning. This book provides that basic understanding through chapters on the role of the chief officer, the operating budget, costing and pricing, marketing, revenue sources, fund raising, investment management, faculty, financial aid, and the physical plant.

Lenington believes that higher education's fiscal ills are due to faculty tenure, reduced teaching loads, increases in research, and a lack of strategic planning. He offers his opinions as to how these elements can be controlled. His basic solution is to focus on the "student cost per seat" in the same way that a factory owner would focus on cost per item.

People should debate whether the same process used to produce a "tickle-me-Elmo" and ten thousand other things, can be used to educate students. Those debates should focus on the core missions of colleges and universities: education, research, and community service. The facility department, though, is not at the core of the mission of higher education. It is a supporting business activity. As such, it can be

managed like a business. There is not much to debate concerning this issue.

Unfortunately, Lenington does not give much direct guidance in facilities management. It is on the menu, but nothing is served. He notes that, behind salaries and benefits, "the second largest cost of running an institution is the acquisition, construction and upkeep of the physical plant." Then he strangely omits the physical plant from a strategic place within the institution. The short chapter devoted to the physical plant is dusty and worm-eaten.

Maybe the reason that Lenington has difficulty with the chapter on the physical plant is that it is uncommon for private business to operate facilities as inexpensively as colleges and universities. Compare your facility's operating costs against those published by BOMA, IFMA, and Tradeline Inc. Maybe the majority of colleges and universities have already adopted the practices of private industry. After all, they are not arcane.

Construction and remodeling, however, is a different issue. Here is where we usually get beat by private industry. Here is where we can save time and money. However, here is also where we are often constrained by the culture of higher education—a culture of committees, shared governance, and inclusiveness that Lenington believes is causing the fiscal ills in higher education.

I would recommend reading this book. The description of business services is excellent. Although I wanted more from the chapter on the physical plant, descriptions of pertinent business practices, are found in other chapters. Some practices of note are "full costing," and regular accounting of expense and revenue by category. In closing, it is a small book.

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Aug 2-4—1998 Educational Conference & 85th Annual Meeting. San Jose, CA.

Sep 20-25—Institute for Facilities Management. Portland, OR.

Nov 15-20—Leadership Academy: Professional Leadership Skills. Harvard University, Cambridge, MA.

Jan 17-22, 1999—Institute for Facilities Management. Reno, NV.

Mar 1999—Leadership Academy: Individual Effectiveness Skills. Stanford University, Stanford, CA.

Apr 1999—Leadership Academy: Organizational Leadership Skills. University of Notre Dame, Notre Dame, IN.

Jul 25-27, 1999—1999 Educational Conference & 86th Annual Meeting. Cincinnati, OH.

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Oct 2-6—CAPPA regional meeting. Little Rock, Arkansas. Contact host Jerrel N. Fielder Sr., University of Central Arkansas, 501-450-3196.

Oct 4-7—MAPPA regional meeting. St. Paul, MN. Contact Thomas Dale, University of St. Thomas, 612-962-6530.

Oct 4-8—PCAPPA regional meeting. Palm Springs, CA. Contact James Hansen, California State University/San Bernardino, 909-880-7206.

Oct 16-20—SRAPPA regional meeting. Birmingham, AL. Contact: Brooks Baker, University of Alabama/Birmingham, 205-934-4427.

Nov 1-4—ERAPPA regional meeting. Providence, RI. Contact Norman Young, University of Hartford, 860-768-7924.

Other Events

Jun 1-3—Gas Turbine Technology. San Francisco, CA. Contact the Center for Professional Advancement, 732-613-4535.

Jun 2-4—Telecommunications Infrastructure Planning. Albuquerque, NM. Contact Kalista Bernardi, Washington State University Conferences, 800-942-4978.

Jun 2-5—Build USA. Chicago, IL. Contact Build USA, 800-451-1196.

Jun 4-5—Fundamentals of Energy Management. Branson, MO. Contact the Association of Energy Engineers, 770-925-9633.

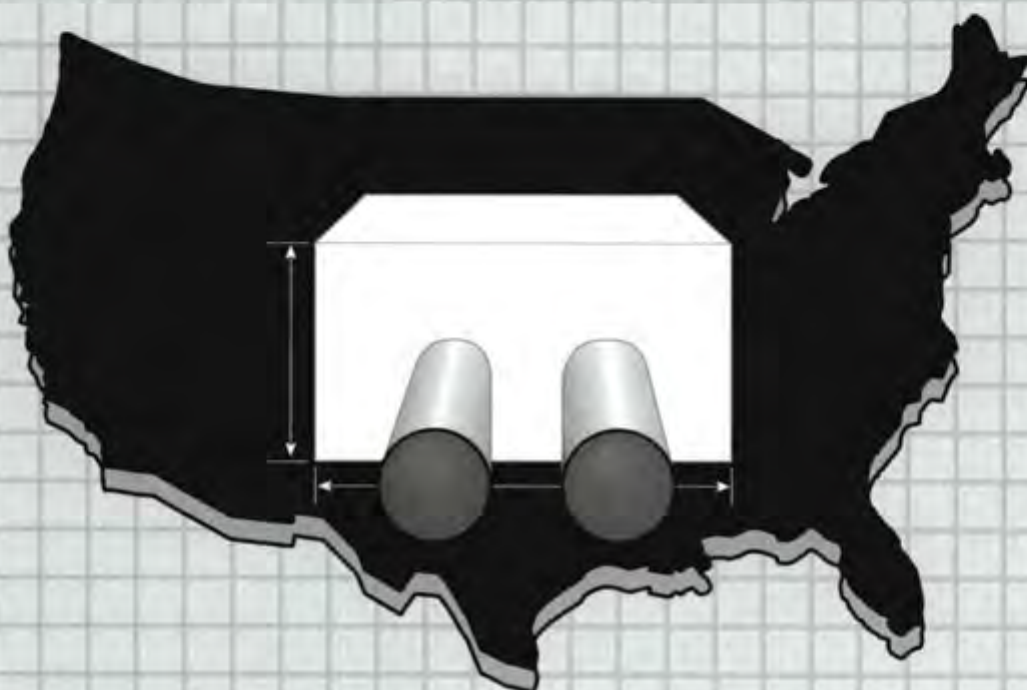
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