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NUMBER 6

Facilities Manager

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

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THIS ISSUE'S TOPIC:

FOCUS ON K-12 FACILITIES

Facilities Manager

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

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Columns

Facilities Manager

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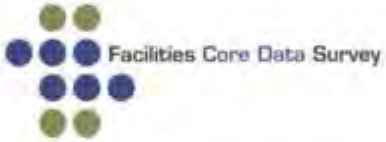
Global Partner in Learning

From the Editor

by Steve Glazner

APPA's annual Facilities Core Data Survey is well underway at this time, and we invite all educational institutions to complete the survey for the 2004-05 fiscal year. You do not have to be a member institution of APPA to participate.

Developed by APPA's Information & Research Committee, the Facilities Core Data Survey contains 12 modules that collect data on strategic financial measures, costs per square foot for several facilities functions, building age and space use, personnel costs and staffing levels, and much more.



The Facilities Core Data Survey evolved from APPA's long-running Comparative Costs and Staffing Survey and the more recent Strategic Assessment Model Survey. The new survey, conducted on an annual basis, incorporates the questions and measures of those two previous data collection efforts, and the resulting reports, published as *Facilities Performance Indicators*, include both costs-per-square-foot comparisons as well as Balanced Scorecard strategic measures.

The format of the Facilities Core Data Survey allows you to complete as many or as few of the modules as you wish, depending upon your interest or institutional need or strategy. This important data raises awareness of current facilities conditions and encourages careful and judicious planning for future capital needs and spending. With solid data from the Facilities Core Data Survey, you will be better equipped to tell your story to campus decision makers and to budget and plan more effectively.

Upon completion of several modules you will have access to a number of instant reports based upon your responses. When all the data has been analyzed, all participating institutions will receive a customized report showing comparisons of their data to other participants.

To participate in the survey, visit http://www.appa.org/applications/fcds/login.cfm.

* * *

On behalf of President Jack Colby and Executive Vice President Lander Medlin, we sincerely thank the many participants in the recently conducted Strategic Direction Research Study. This quantitative Web-based study, supplemented with selective qualitative telephone interviews, was conducted at APPA's instigation by an independent third-party research firm for the purpose of assessing perceptions of institutional members and former institutional members regarding APPA and our key educational offerings.

We are extremely pleased to report that we received 942 total responses to the survey, which shows a healthy rate of response of 24.3 percent.

APPA's Executive Committee met November 11-12 to discuss the initial findings of the research study and to recommend future strategic direction for APPA. The full APPA Board of Directors will continue discussion at its February meeting.

Thanks again to all who participated in the study; we greatly appreciate your willingness to respond and share your thoughtful opinions and beliefs.

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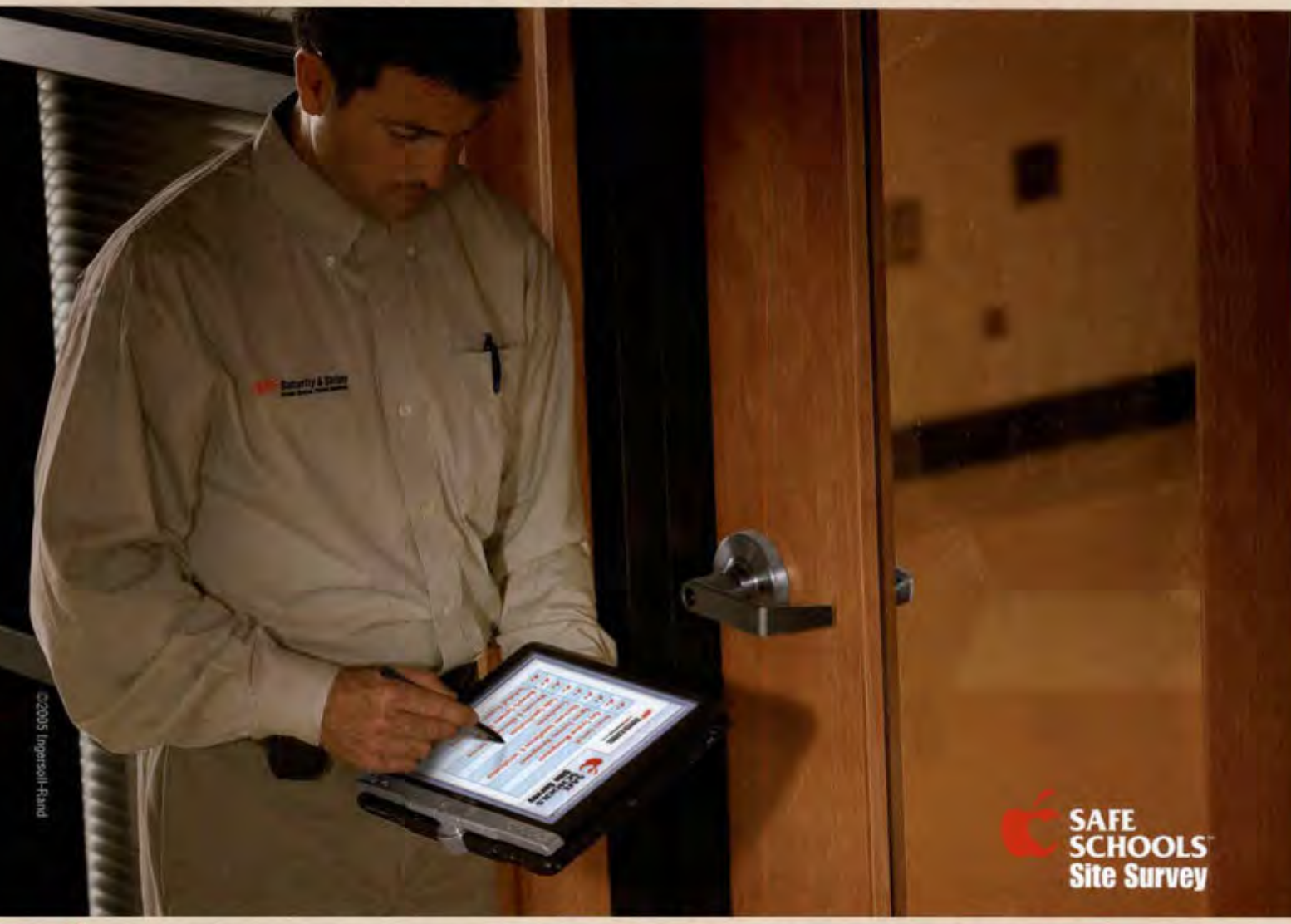

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by Julie Ecker

In Memoriam

APPA Emeritus Member Lieutenant Colonel Mario Frank Laudieri passed away on June 4, 2005. He was 89 years old. Frank retired from the military in 1966 and became the Director of Physical Plant at his college alma mater, University of Connecticut's main campus in Storrs, CT, as well as all facilities at the five branches of UConn. He retired from university service in 1978 and he and his wife Margaret (Dink) moved to Mystic. There he worked for several years in real estate. They moved to Chester in 2000. Frank was a model of integrity, skill, and compassion to those who knew and loved him.

New Study Released on Work-Related Illness and Death

According to a new report prepared by the United Nations' International Labour Office (ILO), an estimated 2.2 million people worldwide die of work-related accidents and occupational diseases each year. The report, "Decent Work—Safe Work," says the 2.2 million figure may be vastly underestimated due to poor reporting and differing recording criteria from country to country.

From 2001 through 2003, the U.S. workforce grew +1.7%, and the number of work injury deaths and total recordable cases declined -3.6% and -16.3%, respectively. While the number of work-related illnesses and deaths has lessened somewhat in the industrialized countries, the ILO report said the number of accidents—especially fatal—appear to be increasing, particularly in some Asian countries, due to rapid development and the strong competitive pressures of globalization.

The full report is available at www.ilo.org/public/english/protection/safework/wdcongrs17/intrep.pdf.

Hurricane Relief for Higher Education

The *Natural Disaster Student Aid Fairness Act* (H.R. 3863) bill, passed by the House of Representatives in September, gives additional federal support to colleges and universities in the Gulf Coast region that were impacted by hurricanes Katrina and Rita. The bill covers those institutions around the country that have been assisting with displaced students from the devastated area, which stretches from Alabama to Texas. It also gives the Department of Education an additional year to reallocate the excess funding it receives every year from overpayments made to some institutions participating in Federal Work Study, Perkins Loans, and Supplemental Educational Opportunity Grants. In addition, the legislation gives the Secretary of Education the authority to waive "matching requirements" for funding for these institutions.

Johnson Controls Grants

Johnson Controls, Inc. has recently donated a total of $250,000 to schools and colleges across the U.S. as part of the company's Educational Achievement Giving Program. The contributions are the result of grant requests made directly by the schools and colleges.

Schools, colleges, and universities submit grant requests for needs based on customer satisfaction, integrity of employees, improvement and innovation, safety and environment, and community involvement.

Following is a list of this year's Educational Achievement Giving Program recipients:

- Belding Area Schools in Michigan
- Big Rapids Public Schools in Michigan
- Bowie State University in Maryland
- CalTech in California
- Dundee-Crown High School in Illinois
- Dutchess Community College in New York
- Faulkton School District in South Carolina
- Fayetteville-Manlius Schools in New York
- Harmony Elementary School, Oldham County Schools in Kentucky
- Laurel School District in Pennsylvania
- North Carolina A&T State University
- Northern Alberta Institute of Technology in Alberta, Canada
- Robinwood Lane Elementary School, Boardman School District in Ohio
- Rockwood Elementary School, Oklahoma City Schools in Oklahoma
- South Colonie Central School District in New York
- University of the District of Columbia in Washington, D.C.
- University of Massachusetts
- University of South Carolina, American Society of Mechanical Engineers
- University of Wisconsin-Oshkosh
- Virginia State University
- Youngstown School District in Ohio

EDUCAUSE Honors IT Achievements

The EDUCAUSE annual awards recognize exemplary achievement in six areas of higher education information technology: leadership, professional writing, administrative information systems, information technology solutions, networking, and teaching and learning. Recipients of the 2005 awards were honored before more than 6,000 of their higher education colleagues at the association's annual conference in October. To learn more about the winners, visit www.educause.edu/pressreleases/1175&ID=1224.

ACUTA's 2005 Excellence Awards

The University of Texas at Austin and Bryant University in Rhode Island are the winners of the Institutional Excellence in Communications Technology Award, given annually by the Association for Communications Technology Professionals in Higher Education (ACUTA). In addition, the University of Kansas earned an honorable mention from ACUTA, the only national association dedicated to serving the needs of higher education communications technology professionals, representing nearly 2,000 individuals at 825 institutions.

This is the 13th year for ACUTA's Institutional Excellence awards, which are determined by a peer review committee. For more information, visit www. acuta.org.

Chlorpyrifos Products Phase Out

As of December 31, 2005, chlorpyrifos products may no longer be distributed, sold, or used for pre-construction termite control. On August 30, the Environmental Protection Agency (EPA) released a notice to distributors, retailers, and pest control operators, reminding them of this deadline and providing an exit strategy for chlorpyrifos pre-construction termite control products.

EPA's goal in issuing the notice is to identify companies or individuals who anticipate having remaining stocks after December 31, 2005, and to work with them and their state pesticide regulatory officials sooner rather than later to develop strategies for lawfully depleting these stocks. For more information, visit www.epa.gov/oppsrrd1/op/chlorpyrifos.htm.

"Green" Building Practices Growing

Facility management professionals report a continued increase in the use of green building practices, according to findings from the 2005 Sustainability Study released by the International Facility Management Association (IFMA). The vast majority, 70 percent of those responding

to the online survey, reported implementing green concepts within their organization's facility.

The aim of green or sustainable building is to minimize the disturbance and improve the function of ecosystems during a building's construction and service life. The data for this study was based on 341 respondents to a Web-based questionnaire sent to 3,510 U.S. and Canadian professional members of IFMA in May 2005. Full results of the study can be viewed at IFMA's website, www.ifma.org.

IFMA Selects Fellows

The International Facility Management Association (IFMA) has selected five members for its 2005 Class of IFMA Fellows. This year's members include Jeffery L. Campbell, Ph.D.; Christopher P. Hodges, CFM, PE, RRC, LEED AP; Guy Thatcher, CMC; Meredith Thatcher, CFM, CFMJ; and Frederick P. Weiss, CFM. This brings the number of IFMA Fellows to 65. For more information, visit www.ifma.org.

Changes to CADD Conference

The board of directors for the National Collegiate CADD Conference (NCCC) recently announced that they are changing the name of the conference to the *National Collegiate FM Technology Conference*. The name change is meant to enable the conference to expand its service to its constituents well into the future as technologies continue to emerge and mature. The next CADD Conference will be held August 2006 at the University of Missouri, Columbia. For more information about the conference, visit www.ncfmtc.org or www.nccconf.org.

Campus of the Future

Coming in 2006! **The Campus of the Future: A Meeting of the Minds** is a first-of-its-kind joint conference of three leading associations that serve higher education: APPA, NACUBO, and SCUP. This collaboration will result in enhanced educational and networking opportunities for everyone involved.

The conference will provide an opportunity to explore a vision of the trends, challenges, and advancements anticipated for the Campus of the Future; enable access to high-quality, joint educational programming that will address the top issues to higher education; provide an opportunity for cross-collaborative campus teams to attend one conference that meets all their needs; offer a single educational event for individuals who wear many hats on the job; and enhance opportunities to build synergy across the higher education community.

Registration is now open! Visit www.campusofthefuture.org for more information and to register for this important event!

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Developing an Engaged Workforce

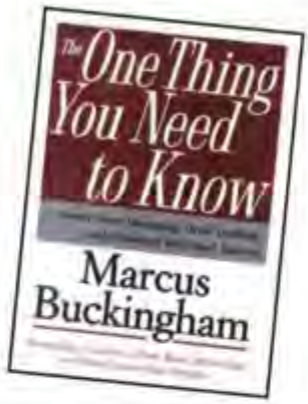
by E. Lander Medlin

Frankly, without good people, it's practically impossible to ensure good facilities. Yet the labor statistics/projections and impending rash of retirements in our profession will dramatically affect our ability to perform the functions and responsibilities required to design, construct, and maintain our campus' educational facilities.

Considered one of the top ten critical facilities management issues, "workforce issues" are a looming concern given the present difficulty in recruiting and retaining qualified technical staff; the predicted labor shortage in the skilled trades and building services personnel; the impact of generational differences on worker engagement, productivity, and service delivery; the increased need for workforce training and development; and, the importance of good hiring and selection skills and techniques.

To create an engaged workforce requires an intense focus on three areas fundamental to professional activity: manager, leader, and individual performer. Simply put, an engaged workforce gives you a sustainable, competitive edge. Hence, you become the employer of choice. Why is this so important? The research data suggests that an "engaged" employee is more productive; experiences greater job satisfaction; is less likely to leave the organization (anytime soon); is more creative and innovative; is more efficient and effective; and, positively impacts the bottom line to a greater extent than their counterparts. These employee outcomes translate to organizational benefits such as reduced turnover, increased overall employee satisfaction, reduced formal grievance actions, fewer accidents, and positively impacts the financial bottom line.

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



Therefore, it makes good business sense to be the employer of choice and to focus on improvement in the three areas that comprise an engaged workforce—employees who are competent (hire slowly and train/develop them continuously), focused (they know what is expected of them and how success is measured), and confident (they understand the organization's direction and believe in their collective ability to achieve it).

Marcus Buckingham, author of the book, *The One Thing You Need To Know*, has done a remarkable job outlining the one thing you need to know in each of these three fundamental areas: to be a better manager, to be a better leader, and to sustain individual success. Buckingham uses authoritative data and research to simply and eloquently get to the core—what matters most—to achieve sustained organizational achievement and individual success by focusing on the three roles of manager, leader, and individual performer.

Great Managing

"To get the best performance from your staff you have to be able to select people effectively, set expectations by clearly defining the outcomes you want, and motivate people by focusing on their strengths and managing around their weaknesses." In essence, you have to act as a catalyst to turn each person's talents, gifts, and strengths into performance. People become an end unto themselves. So the one compelling, core insight great managers understand and do so effectively time and time again is: "Find what is unique in each individual, and capitalize on it." To find that uniqueness you must:

- *Identify their strengths and weaknesses*—maximizing the use of their strengths and minimizing the impact of their weaknesses to challenge them to bring out their best.
- *Trip their triggers*—focusing on the things that uniquely motivate that individual.
- *Understand their learning style*—whether it is that of an analyzer, a doer, or an imitator, you must train in this manner accordingly.

Buckingham identifies five questions that are enormously useful and powerful for great managers to find the strengths in their staff:

- What was the best day at work you've had in the last three months?
- What was your worst day at work in the last three months?
- What was the best relationship with a manager you've ever had?
- What was the best praise or recognition you've ever received?
- When in your career do you think you were learning the most?

Great Leading

Although there are many different styles and approaches of effective leaders, each of them experiences great success in rallying people toward a better future. They possess deep

optimism, self-confidence, a passionate belief in that future, are innately inquisitive, have a driving need to be at the helm, and can see and describe their future clearly and distinctly. Therefore, the one compelling, core insight about great leaders is: "Find out what is universal and capitalize on it". In essence, the great leader is an alchemist turning our fears of change and anxieties of the unknown into confidence about the future. Clarity is considered the antidote to employee fears and anxiety. Therefore, Buckingham points out the need for great leaders to provide clarity around the following points:

- Who do we serve?
- What is our core strength?
- What is our core score?
- What actions can we take today?

Sustained Individual Success

"During the course of your life you will inevitably be exposed to all manner of options, opportunities, and pressures. The key to sustaining success is to be able to filter all these possibilities and fasten on to those few that will allow you to express the best of yourself." Therefore, the one compelling, core insight about sustained individual success oddly enough is this: "Discover what you don't like doing and stop doing it." In other words, you must discover your own strengths and cultivate them without getting sidetracked, drained, or frustrated by the irritants that derail you from your strengths' path. The longer you put up with aspects of your work you don't like, the less successful you will be and the less effective and productive you will be for your organization.

As Buckingham says, we all yearn for short, clear answers to complex problems. Remember the book, and now movie, *The Hitchhiker's Guide to the Galaxy*, when Deep Thought (the supercomputer) is asked for the one Answer to the meaning of life, the universe, and everything. Deep Thought's answer was "forty-two." Certainly this is the ultimate satirical response to anyone trying to find the one Answer. However, the desire for clear answers serves a vital function, one that helps us focus on and take decisive action. Clearly, I have just touched the surface of what Marcus Buckingham's powerful book, *The One Thing You Need To Know*, has to offer in your study of management, leadership, and sustained individual success. Certainly, this book is worthy of your own critical inquiry, discovery, and engagement.

Ben Franklin said, "People should not be treated like sundials in the shade." Our staff deserves our focused attention providing great management, great leadership, and an environment where their best individual contributions will not only be sustained, but can flourish.

Guidelines for Managing Regulatory Requirements

by John Bowers

Regulatory requirements are based on public laws either directly or indirectly and are administrated by national agencies such as the Environmental Protection Agency (EPA) and Occupational Safety and Health Administration (OSHA). Local states, in most cases, have a public act with administrative rules that are based on the national regulatory requirements. There are also local and state rules that could deal with requirements that are unique to your location. Rules do not have penalties and fines, but may have legal, health, and safety ramifications. Standards, on the other hand, are a guideline rather than a mandatory rule. Most requirements have penalties, fines, and enforcements associated with them.

Interpreting the requirements and determining the most appropriate course of action for your school entity, meeting the ongoing monitoring, reporting, and training requirements is what makes the management of regulatory requirements so complex.

There are a significant number of regulatory requirements and standards that have a direct impact on schools, which include:

- Americans with Disabilities Act (ADA)
- Asbestos Hazard Emergency Response Act (AHERA)
- Bloodborne Pathogens
- Chloro-fluorocarbons (CFC) (Refrigeration)
- Clean Air Act (CAA)
- Cross-Connection Control (Backflow Prevention)
- Elevator Code
- Ergonomics Program
- Fire Code
- Hazard Communications Program (Employee Right-to-Know)
- Hazardous Energy Sources (Lockout/Tagout)
- Hazardous Waste, Resource Conservation and Recovery Act (RCRA)
- Hazardous Waste Operations and Emergency Response (Hazardous Materials Release Plan)
- Indoor Air Quality (IAQ)
- Integrated Pest Management (IPM)
- Lead-Based Paint
- Lead in Drinking Water
- Mercury Prevention
- Mold
- National Pollutant Discharge Elimination System (NPDES) (Storm Water)
- Permit-Required Confined Spaces
- Personal Protective Equipment (PPE)
- Playground Safety
- Radon
- Safe Drinking Water Act (SDWA)
- Underground Storage Tanks (USTs), Resource Conservation and Recovery Act (RCRA)

It's a daunting job to review each regulatory requirement every time there is an issue and to stay in compliance with the paperwork and training. Therefore, you may want to develop a checklist to assist with the day-to-day operations.

By using the list provided above as a starting point of reference you can extract the needed information to assemble a checklist that can be used to help you stay in compliance. Now that you're armed with a list, research the local, state, and federal regulatory requirements and standards for the information for the required actions, recommendations, and enforcements. After completing that task, condense the information into a checklist that can be used as a reference and training tool.

Your checklist should be one to two pages for each requirement. Each regulatory requirement starts with the local, state, and national rule and standard numbers. To help you get started, the following is a suggested checklist:

✓ **Include a brief overview of the rule or standard.**

✓ **Required actions:**

- ☐ Write program, review and update annually.
- ☐ Some programs require an audit, inspection, and testing.
- ☐ Assign administrator.
- ☐ Most programs require some kind of assessment.
- ☐ Conduct initial training.
- ☐ Conduct new employee training.
- ☐ Conduct yearly ongoing training.
- ☐ Establish timelines.
- ☐ Notify the public, employees, and contractors.
- ☐ Posting of the program and action taken.
- ☐ Document thoroughly.
- ☐ Find out what steps need to be completed by your department in order to comply.
- ☐ Find out what the deficiency could cost the school if they didn't comply.
- ☐ Manage supporting documents, all the standards and regulations your state and national federal register and any publications that may pertain (electronic form if possible).

It is difficult to manage all the data that you will assemble from this project; therefore, you may want to use a computerized maintenance management system for storage and work orders that will record your actions. At the end of this article, you'll read an example for Personal Protective Equipment (PPE), which will help

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you to gain insight for how useful a checklist can be.

For additional assistance, the following websites may be helpful:

- APPA www.appa.org
- Association of School Business Officials, International (ASBO) www.asbointl.org
- Occupational Safety and Health Administration (OSHA) www.osha.gov
- Environmental Protection Agency (EPA) www.epa.gov
- National Clearinghouse for Educational Facilities www.edfacilities.org
- SchoolDude.com www.schooldude.com

Undertaking a project of this magnitude is not a job for the faint of heart. If you lack the time and knowledge, you may want to consider finding a consultant to help; it could be worth the money it will cost you. However, keeping informed about current requirements will enable your school to be in compliance, avoid costly penalties, and ensure the health and safety of students and staff.

EXAMPLE: Personal Protective Equipment (PPE)
Your State Rule: (Insert Rule)
OSHA Standard: 29 CFR 1910.134

Overview: Requires employers to conduct an assessment of the workplace in order to determine if any hazards are present to which employees are exposed, that necessitates the use of some type of protective equipment.

Required Action:

- Requires employers to determine all exposures to hazards in their workplace and determine if PPE should be used to protect their workers.
- Provide a written program to evaluate hazards, indicate appropriate control measures, train employees in their effective use and maintain vigilance of the program.
- Employers are required to provide employees and to pay for PPE required by the school to perform their duties.

Recommendations:

- Prepare written program.
- Provide effective initial training and retraining as necessary and must certify that such training has been given to all employees covered by the standard, containing each employee's name and dates of training.
- Hold yearly inspections and review of procedures to determine the program's effectiveness in preventing employee injury or illness.

Enforcement: A deficiency in the employer's program that could contribute to a potential exposure capable of producing serious physical harm or death and failure to train employees as required can be penalized or cited. Citations can carry monetary penalties and will contain time requirements for correcting the violations.

Supporting Documents:

- Your State Regulations
  OSHA - Personal Protective Equipment #3077
  OSHA - Non-mandatory Compliance Guidelines for Hazard Assessment and Personal Protective Equipment Selection—1910SubpartIAppB
  OSHA - Personal Protective Equipment Program Federal Register—PPE for General Industry.

K-12 Conversations: No Smoking, No Drugs, No Alcohol

by Randel Edwards

APPA's membership represents approximately 1,500 institutions in 21 countries. Among this large and diverse membership are more than 80 K-12 organizations. Several APPA members that currently work in K-12 settings agreed to share their thoughts and comments related to K-12, the facilities management profession, and APPA. Their remarks offer us an interesting window into the K-12 educational facilities community.

Randel Edwards: *How did you become involved in facilities management?*

Welch: Through municipal government positions where I was the director of parks and recreation and maintained numerous buildings and grounds. Also, as a grounds specialist I maintained roads, parking lots, and parking garages as well as turf. It was through these early positions that I found project management and discovered my love of building things.

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

Patrick B. Andriuk (Episcopal High School, pba@episcopalhighschool.org); Anita Bailey (Phillips Exeter Academy, abailey@exeter.edu); Fred Errigo (Darlington School, ferrigo@darlingtonschool.org); C.R. Lyons (Arlington County [VA] Schools, crlyons@arlington.k12.va.us); and Paula Welch (Choate Rosemary Hall, pwelch@choate.edu).

Patrick B. Andriuk

Anita Bailey

Fred Errigo

C.R. Lyons

Paula Welch

Errigo: While working with the Department of Defense 25 years ago, I made the transition from the trades (A/C & refrigeration) to a management analyst position in the facilities department. I was promoted to office space manager, later to data center site manager, and finally to facility director.

Bailey: After being a part-time art teacher in the public school system for a period of time, I decided to pursue something full time that would be related to my art background. I took evening drafting, design, and construction classes. Eventually I applied for a facilities management position as a draftsperson and architectural designer.

Lyons: I always had my heart set on becoming an industrial education teacher. Once I graduated and started teaching, I quickly became aware it was expected that I would manage and supervise the "all teacher" summer work crew. Floor replacement, roofing, and shelf construction quickly ate away at my summer vacation. From that very early experience, I never turned back. I taught high school and worked summers for several years prior to making the total change to administration and district wide facilities management.

Andriuk: While earning my bachelors degree, I did a one-year work study program with the General Services Administration (GSA) in Norfolk, Virginia. That was my first exposure to facilities management. After graduating college, I accepted a three-year presidential training program with GSA in the National Capital Region, Washington, D.C. This was a very comprehensive commercial facilities management internship program where I earned a professional designation as a real property administrator

(RPA) with BOMA and had an opportunity to work at some very interesting and high profile government facilities and projects, including the White House, Pentagon, Union Station, and Old Post Office Pavilion.

RE: *When did you start working in a K-12 setting?*

Errigo: I was recruited for K-12 in 1994 while managing bank buildings and real estate in downtown Philadelphia, Pennsylvania.
Bailey: Aside from my K-12 teaching experience, I first started at the same place I currently work, in the facilities management department at Phillips Exeter Academy, a private secondary boarding school, in 1985.
Andriuk: I left the government and worked in private sector facilities management (Class A Mixed-Use Space) for a few years before joining Episcopal High School, where I have worked for the past 14 years. Episcopal High School is very similar to a small college campus, with over 130 urban acres and over 60 buildings.
Lyons: I began my teaching career in the late 1960s and moved into the management of facilities with the acceptance of the position of assistant superintendent overseeing several areas, one of which was facilities administration.
Welch: After working in a university setting for ten years I decided to move to Choate Rosemary Hall in 2000 as director of facility services.

RE: *What do you think is important for our readers to understand about K-12 organizations and the facilities management practiced there?*

Welch: In the private boarding school sector, there are many similarities in management practices.
Bailey: Every school, consisting of one building or many, requires people who can maintain and plan for the future of that school. We all face similar challenges in our everyday work,

One really important thing: it is difficult, if not impossible, to be successful in K-12 facilities unless you are involved in the school community.

whether we divide those challenges up among a large facilities staff, or have a handful of people wearing multiple hats attending to those needs.
Errigo: One really important thing: it is difficult, if not impossible, to be successful in K-12 facilities unless you are involved in the school community. There must be a constant flow of communication between the customers (faculty, staff, students, and administrators) and the facilities department. Much of the communication can be done through the official channels; however, to get the real pulse, one must get out of the office and talk with the teachers, students, and staff. We went through a management style a few years ago called "management by walking around." It' s still a very successful technique in K-12.
Lyons: The day in and day out of basic facilities management at the K-12 level is totally the same as any other educational facility. Having made the travels of K-12, community college, university, private university, and back to K-12, I believe I can honestly say that facilities management at the K-12 level is the most difficult and at the same time most rewarding. The parent /student/political factor, plus the multiple locations, definitely adds to the every day facility management challenges.
RE: *What are some of the similarities between K-12 organizations and colleges and universities?*

Lyons: A chiller plant is a chiller plant. Housekeeping services are housekeeping services. Trades services are trades services and good facilities management is essential to all educational environments.
Andriuk: We all share the same mission—to provide safe, healthy, and inspiring environments for education. We serve our customers well—students, faculty, and staff, etc. We reach out and contribute to our communities. We try to be good stewards of our environment (recycling programs, open space, etc.). We provide jobs (both in-house and contract) and so many other things.
Bailey: Just as there are many different types of colleges and universities, there too are many types of schools that fall into the K-12 category. Phillips Exeter Academy, as a private boarding school for high school students, consists of a campus with many similarities to a small college campus. Our facilities management department consists of over 120 employees, which includes safety-security, operations, as well as planning, design, and construction. Our diverse student population represents 46 states and 25 foreign countries. Speaking more generically, K-12 schools still must face issues surrounding aging buildings, technology, utility infrastructure, regulatory compliance, parking, managing people, and budget. There are probably more similarities than there are differences.
Errigo: Except for size, I see few differences. My present organization has only two campuses, 49 buildings on 500 acres and, of the 1000 students, only 200 are boarding. However, we all search for the most economical and efficient ways of operating our facilities. We all have a short duration where we scramble to get as much retrofit as time will allow. Some of us have more deferred maintenance than others, but I am sure we all pitch to our boards to finance our capital budgets. We all parallel our facility mission with that of our institution's. And we all are the first to feel the

Within the K-12 system, a facilities department must support preschool students and the advanced educational offerings at the high school levels.

budget crunches when student numbers come up short. Also, as everywhere, it is very difficult to please all! Hot and cold calls outweigh others—sound familiar?

RE: *How is your K-12 organization different from the regular institutional membership (colleges and universities)?*

Welch: Our students are obviously much younger, therefore they require 24/7 supervision by faculty. The faculty here is housed in the dorms with the students and is major clients of facilities. With this closer supervision, there is less resulting damage to the dorms on an annual basis.
Bailey: Here on our campus, 80 percent or more of our students are boarding students and are not allowed to have cars on campus, so our parking issues differ from those on a large college campus (although ask anyone here, and they would still tell you that we have parking issues). The policy of no cigarettes, alcohol, or drugs is strictly enforced. High school aged students require a higher level of adult involvement and supervision in their lives. The flip side to that is they have fewer freedoms. For example, they have curfews, and must sign in and out when leaving from and returning to campus. They are easier on the facilities than their older counterparts at the college level. They don't have fraternities or sororities, and class attendance and participation is mandatory.
Lyons: All systems have students, parents, teachers, administrators, and support staff. Where they differ the most is within the areas of politics and facilities inventory. At the K-12 level parents play a daily role within the school and through participation in PTA and other school-based organizations. Within the K-12 system, a facilities department must support preschool students and the advanced educational offerings at the high school levels. Many systems offer advanced career educational opportunities at stand alone vocational education centers and many times the technology equals university offerings. Radio and television studios, advanced machine shops, and computer labs are very much in today's K-12 facilities. In addition, a difference is that we must provide the service at all of our 40 sites equally every day. We do not have one or two central plants. We do have one or two plants at each of our 40 sites. We basically have one of every type and make of every piece of mechanical equipment ever made. The versatility of the technicians must be considered when employment opportunities are available. The size of the workforce is larger and mobility becomes a factor. Supervision becomes a challenge as the travel distances and mechanical systems differences change from site to site. Often several power suppliers provide service that complicates energy management, utility tracking, and service during time of need.

RE: *What is the most rewarding aspect of your work?*

Welch: Meeting and exceeding the expectations of our customers.
Andriuk: I would have to say that working with such a diverse group of people is the most rewarding, and often the most demanding, aspect of my work. I also enjoy seeing the finished product. It's very rewarding when you can work on a project from the inception of an idea and see it through to the physical completion. That's an accomplishment!
Bailey: For me personally, it's being involved with a school that is over 200 years old, with a rich history, beautiful buildings (some dating back to the 1700s, and landscaping that elicits positive reactions from visitors. I have taken an interest in the history of the campus and the town. It helps me view the decisions that impact our buildings and campus with more reverence.
Errigo: Facilities management is a rewarding job anyway. The focus always changes; you are never bored and always challenged. You can be working on the strategic plan one day and the next coordinating the centennial celebration for your institution.
Lyons: I can honestly say that daily visits to the early grades will always put a smile on anyone's face. Most of all, being a valuable team member respected for your contributions to the overall process is priceless.

RE: *How did you become a member of APPA and did anything prompt you to join?*

Andriuk: I was an active member of BOMA and IFMA, but was searching for an organization more attuned to institutional campus environments and related issues.
Bailey: In 1987, Don Briselden, an enthusiastic supporter of APPA at all levels, became the facilities director at my school. He encouraged me to attend one of our chapter meetings that same year, and continued to encourage me to get involved at all levels of the organization. I immediately met great people who were dealing with many of the same facilities issues that we were. It became a way to network with people who share common interests.
Welch: The university was a member of APPA and I joined at the encouragement of other local university members. I quickly became active

in the local chapter and eventually became a board member.

Lyons: I was directed to APPA by my first K-12 superintendent who strongly believed in open communication with peers and continual education by experience.

Errigo: It didn't take long to realize that APPA was the preeminent organization dealing with the school campus environment. I attended a GAPPA conference and discovered how much I had in common with the other attendees. I always thought facilities were facilities no matter where your concentration was, but making the transition from the business world and experiencing the uniqueness of campus-based education was, at times, humbling. The APPA organization helped make this transition seamless.

RE: *From your perspective as a K-12 organization, how do you benefit from APPA membership?*

Andriuk: I would have to say that the overused term "networking" would be appropriate. I have developed many wonderful relationships—both personal and professional—over the years through my association with APPA. Also, the various publications, the APPAinfo listserv, and other available resources have been invaluable.

Lyons: My participation in APPA has provided a continual education with endless opportunities to address my strengths and my weaknesses. It continues to be there throughout the travels of my career. I have experienced facilities management at all levels of the educational ladder. My APPA membership has provided stability, understanding, and professional growth at all levels of my journey.

Welch: The frequent update of professional literature, *Facilities Manager* magazine, and training for my staff at the management and supervisory levels.

Bailey: I have been able to gain information and insight from others on issues that have been on our plates as well. In addition, what I have learned through educational conferences, the Institute, and the Leadership Academy is information that helps me to better contribute at my school.

Errigo: Without organizations such as APPA, we as physical plant managers would be on an island shut off from the rest of the world. We might "evolve" to be very efficient, but chances are better that we would be barely adequate to our organizations. Very few of us survive in our positions by being mediocre. Facilities management is an ever-dynamic field. Technology evolves constantly. The 80,000-square-foot data center I managed 20 years ago can be contained in a desktop computer today.

RE: *What are the pressing challenges on your campus or within your organization today?*

Andriuk: Tackling our deferred maintenance is still a major challenge, especially for a campus with some buildings dating back to the late 1700s. Maintaining appropriate staffing levels is another pressing challenge, as well as outsourcing.
Lyons: Being located near Washington, D.C. and its quickly expanding need for skilled trades presents a tremendous hiring challenge due to the shortage of highly skilled technicians.
Welch: Funding the deferred maintenance backlog of capital projects, funding financial aid at appropriate levels, and the need for new dormitories.
Errigo: Our most pressing challenge at this time is keeping our talented staff. With limited operating budgets, we are not able to retain the most experienced personnel. We have become a training center for local industry. Armed with a market salary survey and benchmark data, we will approach the board with the same passion as our deferred maintenance issues of years past.
Bailey: Ensuring compliance with the growing number of regulatory issues; getting our hands around all the information that flows through facilities, from post-project information to our facilities assets. Much of it is in digital format, which we need to be able to continue to access it as technology evolves; being able to maintain increasingly complex building systems, focal landscaping areas, etc. without increasing staff or operating budgets; maintaining the right level of communication amongst our facilities staff; the impact of the cost of fuel; and of course, keeping our faculty happy.

I have met some warm and welcoming people by becoming more involved. That does not happen as easily if you only come as a spectator to learn and take away. It's best if you come to share and give back.

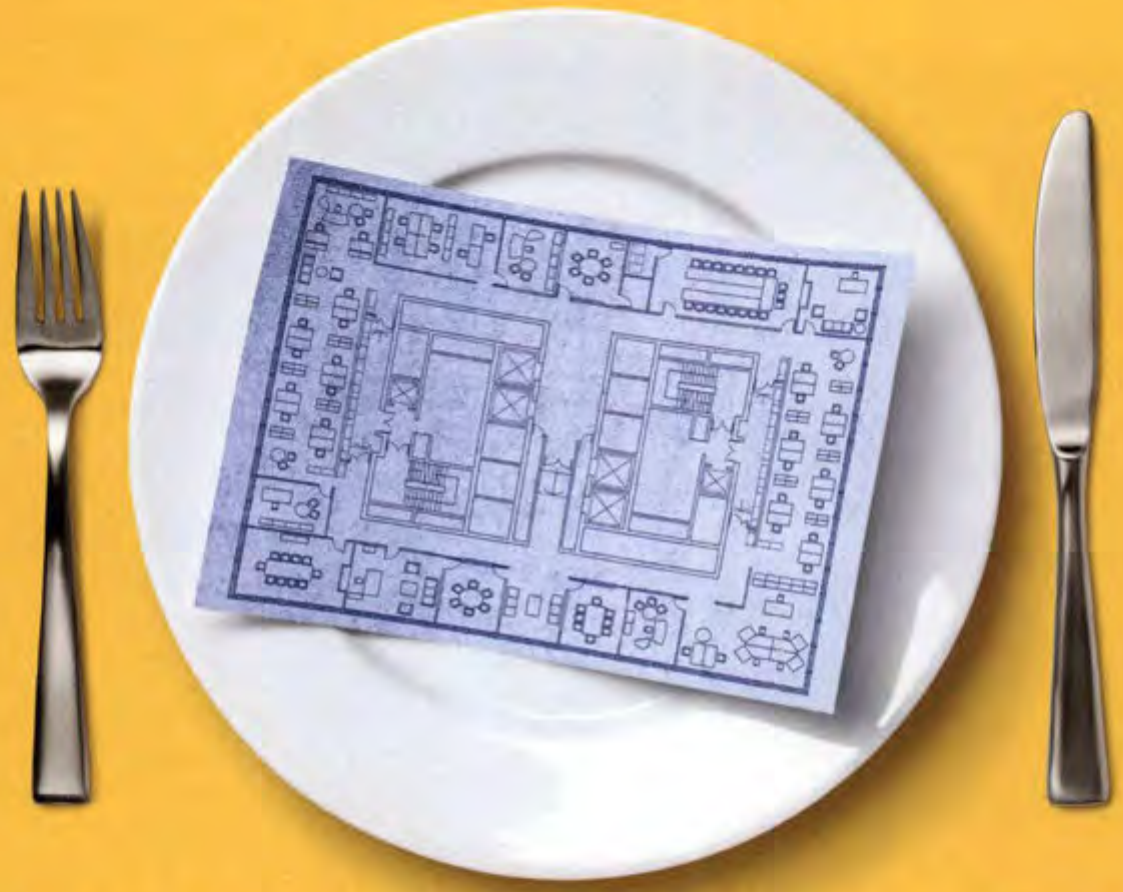
RE: *When you look back on your involvement in APPA, what do you remember?*

Lyons: APPA has provided many memorable moments throughout my career. During my early years, APPA was there to teach, guide, mentor, and help set higher goals for achievement. The mid and later years have allowed me to become involved at the regional and national level through participation with the Information and Research Committee, the K-12 Task Force, and various discussion groups. Most of all I remember my first visit to an annual conference and instantly becoming a part of this organization that continues to provide support and knowledge regardless of my needs.
Welch: Serving on my local chapter as a board member then as president as well as attending the Leadership Academy, which is an excellent program offered by APPA.
Bailey: I have met some warm and welcoming people by becoming more involved. That does not happen as easily if you only come as a spectator to learn and take away. It's best if you come to share and give back.
Errigo: I see an ever-evolving field and organization. We are probably one of the most professional organizations now. There are master programs now dedicated to our profession. APPA has been instrumental in

Continued on page 20

1. Most walls inside schools are made of paper-faced drywall.

2. Mold eats paper.



3. If you eliminate the paper you reduce the chances for mold.

4. Georgia-Pacific introduces DensArmor® Plus paperless drywall.

For schools, our revolutionary paperless drywall provides moisture and mold resistance. For free literature on DensArmor Plus, call 1-800-BUILD GP. For technical information, call 1-800-225-6119 or go to www.densarmorplus.com.

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

Continued from page 18

moving the profession in a positive direction.

Andriuk: The people. Enough said.

RF: *Looking ahead, what are your thoughts regarding facilities management in the K-12 setting?*

Bailey: We must always remember the value of our workforce and try to provide as positive a work environment as we can. That can come from treating each other with respect, providing the tools and training needed to be better workers, being open to sharing information, and listening to what our colleagues have to say. Everyone knows a piece of the whole, but no individual has all of the answers. We will be challenged with retaining a productive staff from a younger workforce that feels fewer ties to long-term employment than their predecessors. We need to give people a reason to feel good about coming to work every day.

Errigo: APPA should recognize the K-12 setting for what it is: education! There are a lot of dynamic managers in K-12 and opening up the membership would bring innovative ideas and help raise the bar in the organization.

Lyons: Management at this level is definitely as complex and technical as in any other level of management. The significant difference is the parent/student/political factor. Facilities management interaction at the K-12 level is scarce and seems to not be available in many states. Looking ahead, I would like to believe organizations like APPA will embrace the K-12 facilities personnel as equal working partners. It truly is a win for all. I have always believed facilities management is facilities management and good facilities management takes place at all levels of education.

Andriuk: Facilities management will always play a significant role in any setting. Facilities are the centerpiece in which nearly everything takes place. To have a great school, you need good facilities. I believe facilities management will continue to evolve to provide the best service possible to the customers as efficiently as possible. I think that larger institutions will want to decentralize their facilities management or find other ways to benefit the customer, even if it means paying a little more. Excellent service and stewardship costs more initially, but it clearly provides the best return on investment in the long run.

THE PRIORITIES AND CHALLENGES FOR K-12 FACILITIES

by Alan Dessoff

With their budgets already tight because of shifting spending priorities, and facing severe increases in energy costs, facilities administrators at K-12 schools and districts are girding for a tough winter. In public school districts and on private school campuses, facilities managers and business officers agree that they will have to do more with less, and it will be difficult.

"Money is always an issue here," says Edward Collins, facilities director for the Middletown (RI) Public Schools. "Do we have the money to do everything? Absolutely not. Nobody does," asserts Douglas Eaton, director of facilities management and construction in the Little Rock (AR) School District.

"There's never been enough money to take care of all our needs," agrees Roger Young, assistant superintendent for finance and facilities in the Manchester Essex (MA) Regional School District. He also chairs the School Facilities Management Committee of the Association of School Business Officials International (ASBO International) in Reston, Virginia.

Bob Carlson, director of management services for the Council of the Great City Schools (CGCS), a Washington, D.C.-based coalition of 65 of the largest urban U.S. public school systems, suggests that the underfunding for facilities management for public schools stems from pressures on states and municipalities created by the federal No Child Left Behind law.

The law's requirements for stepped-up achievement by students in the classroom have caused state education agencies, local school boards, and administrators to put more money into the instructional side of their budgets, Carlson says. "No one is faulting that, but it's the core business of the schools where the pressure is," he declares.

But without matching revenue increases, the additional funding for instruction comes from cuts in support services, including facilities management, Carlson says. "All the operations sides of school systems are being required to suck it up and do more with less," he states.

Young, citing documentation by the National Center for Education Statistics in the U.S. Department of Education, says there has been "a general deterioration" of school facilities. When budgets are tight, he says, "school districts want to preserve what is happening in the classroom, and the maintenance budget suffers. People say, 'Well, we can delay putting on a roof or replacing those windows or ceiling tiles, or we'll cut back the custodial staff and only clean every other day.' School districts generally look at maintenance as a place to cut and help balance the budget."

Dean Henrick's experience as supervisor of buildings and grounds in the Ketchikan Gateway Borough (AK) School District is typical of what facilities officers report. He received no extra funding to maintain two additional schools that opened in his district this year.

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Little Rock Central Hill School, site of the historic 1957 integration effort

"The way I look at it, that's a cut," he says. "So I'll be cutting back on normal maintenance, preventive and reactive, throughout the rest of the district so those two schools can operate. We won't have custodial staff in one of the schools and there's work we just won't undertake."

Young argues that maintaining facilities in proper order is as important to students' academic achievement as what happens in their classrooms. "If you have a poor facility that isn't well heated, or is leaking, it is going to detract from the educational process, and students will not achieve as well," Young declares.

"If you have a poor facility that isn't well heated, or is leaking, it is going to detract from the educational process, and students will not achieve as well"

According to ASBO International, school facility maintenance also is the area that school districts are most commonly cutting first to meet rising healthcare costs. While school district revenues increased 2 percent this year, their health insurance premiums grew 10 percent, ASBO International reports from a survey of its members.

Meanwhile, facilities officers are trying to address other rising costs in their areas, principally for fuel. "Oil drives everything. When oil goes up, gas and electricity go up and everything spikes after that," says Collins. "It's not like buying basketballs, when you need ten but can do with five. We need fuel for buildings to function."

Rising Fuel Costs Affect Education

Ordinarily, fuel is "a secondary issue; it's part of your budget and it's no big deal," says Ian Smith, director of facilities at the Emma Willard School, a private college preparatory boarding and day school in Troy, New York.

But now it is quite a big deal. "We've just had a huge price shock on natural gas, and a lot of people in the markets on both the purchasing and supply sides have no idea where it is going to go. We're going to run over on our heating bill, but we operate on a fixed budget and at this institution we don't run over budget. So what do we do?"

What he will have to do, Smith says, is cut back on reducing deferred maintenance while focusing on "keeping the lights on and the buildings warm enough in the winter as efficiently as possible without impacting program."

Money for capital renewal and deferred maintenance is an issue also facing Don Kingman, director of operations at Concord Academy, an independent college prep school in Concord, Massachusetts. It takes on a unique twist in his case, he says, because his 24-acre campus is in the middle of an historic town where most buildings, including the schools, are of wood frame construction.

"So my repair costs might be higher because I don't have good durable finishes," Kingman explains. "It's not the way you would build a new school today, out of bricks and mortar."

Young says that if schools fail to properly maintain their facilities, they run into environmental issues, like air quality, mold, and mildew, that can cause other problems. He recalls that during the major energy crisis of the 1970s, many school districts plugged out the unit ventilators outside their buildings to reduce the amount of fresh air entering the structures.

"They thought they were saving money, and they were, but they created an indoor air quality problem. We're in the middle of an energy crisis now, and there is a tendency in some districts to do that again. But staff and parents are more aware now of the importance of indoor air quality, so it's going to put more of a strain on everybody's budget," Young says.

Meanwhile, Young's own district has implemented a cost-effective strategic plan for maintaining its three schools and dealing with environmental and other issues. In one move to save money, five people from the business office staff painted the schools and performed miscellaneous repairs over the summer. "When everyone came back in September, they saw what had been done and it created a good feeling for the district," Young reports.

While using internal staff for the painting paid off, Young outsources for grounds maintenance, because he says that is less expensive than buying and maintaining the equipment the district would need.

The Impact of Technology

Other facilities officers report additional issues. Collins cites computers. "If you go back about 15 years, the idea was to have computers in the school library, but now they are

Middletown (RI) High School

needed in every classroom, and you need servers and switchboards to handle all that stuff. Maintenance is a big thing," he says.

But in other ways, technology can help cut costs, he continues, as in sensors that automatically turn off lights in rooms when nobody is there and monitors that similarly regulate heating and cooling systems when buildings are occupied and when they are not.

Young agrees that technology can help school districts manage many aspects of their facilities, from work orders to utilities. He cites private companies that provide online tools for management of educational facilities.

But computerized management systems are expensive and have to be maintained themselves. "If they are not, we know what the consequences are. They become dated, or can crash," says Carlson of the CGCS. "I don't think enough resources have been allocated to technology to help move schools into the 21st century."

Setting the Priorities

In Little Rock, with 50 schools, Eaton says, "We are on a path to use what resources we do have and use our abilities to reorganize to meet our remaining needs." Through "prudent planning" by the local school board and superintendent, Little Rock is closing some schools, "redistributing assets," and using temporary portable classrooms to meet population shifts, Eaton explains.

"By consolidating schools and closing some schools, they were able to achieve some better efficiencies and also increase salaries and benefits for teachers. So there have been some positives," he says.

J.F. Kennedy Elementary School, Middletown Rhode Island

But maintenance needs remain. In addition to normal daily maintenance, the district has needs for roof repairs, electrical upgrades, parking lot repavements, painting and replastering, as well as additions to some schools, Eaton says.

Little Rock has applied for a special bond issue to fund replacement of aging air conditioning units in schools. Also, "We had to relamp our schools, because we had antiquated fixtures for which parts were no longer available, and they

Forest Avenue Elementary School, Middletown, Rhode Island

were not providing the best environment in the classrooms," Eaton says.

Little Rock's funding for facilities management is complicated by a case underway in state courts that has to do with how state funds are allocated for school facilities and other functions. At present, Little Rock is the only district among

Concord Academy

the 300 in Arkansas that must raise its own money from local property taxes and bond issues to apply to facilities needs.

The Human Resource

Some facilities administrators say that retraining and retaining qualified workers is another issue they face. "We pay on a par with public schools in our area, although not necessarily with some private colleges, and we have pretty decent benefits," says Smith at Emma Willard. "But with a small budget and small staff, how do you send somebody away for training?"

Smith has a staff of five for buildings and three for grounds on the 137-acre campus. "If a grounds person is out for training for a week and while he's out one of the others gets sick, that means we have a one-person grounds department," Smith says. Nevertheless, he adds, "you have to be willing to make the investment in training and development."

Young suggests that facilities officers read "Planning Guide for Maintaining School Facilities," developed by ASBO International and the National Forum on Education Statistics. It was widely distributed in 2003 to school business officials and organizations of superintendents and other administrative leaders. Among other things, it offers tips and techniques to help facilities officers make the case for the budgets they need. Read the guide at http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2003347.

"It has been tough for a lot of facilities people and business officers to articulate at the school board level the importance of facilities management and how they go about it. They have to be able to advocate and show the bigger picture"

"It has been tough for a lot of facilities people and business officers to articulate at the school board level the importance of facilities management and how they go about it. They have to be able to advocate and show the bigger picture," Young says.

The guide became the foundation for a facilities maintenance award program that ASBO International announced at its annual meeting in October. The program is designed to award school districts that have demonstrated exemplary facilities maintenance practices in several areas.

Thinking about awards might be a stretch for some facilities officers who are scrambling just to find the funds to help them do their jobs and avoid the consequences of cutting back. "It's the economic principle of scarcity. We have unlimited demands but limited resources, so we have to allocate the best we can," says Young.

Concludes Henrick in Alaska: "It all boils down to money. You can't do things if you don't have the money."

Discovering Unseen and Overlooked Energy Inefficiencies

by Lawrence V. Schoff

As the Civil War ended, the cost of crude oil in the United States (in 2004 dollars) was over $72 a barrel. The first oil embargo of 1973 saw the price of crude at about $11 (in 2004 dollars), with gasoline at $1.35. After the second embargo, the price was about $65 a barrel with gasoline $1.96 per gallon. When the 21st century began, the crude oil price was $21 and gasoline was $1.61/gallon (in 2004 dollars). And as the flags were raised and bells rang on educational campuses at the beginning of the 2005-06 school year, the price of crude rose to over $70 dollars a barrel and gasoline hit over $3.00/gallon.

This increase in crude oil impacts everything a school uses, from paper to paper clips and from flour to floor wax. In addition, the unit cost of electricity, natural gas, fuel oil, and coal are closely influenced by the price of crude oil. The price of natural gas on the whole market has jumped over 100 percent in the last year. This surge in prices only adds to the problems facing school administrators when dealing with increased accountability and instructional needs and shrinking operating budgets.

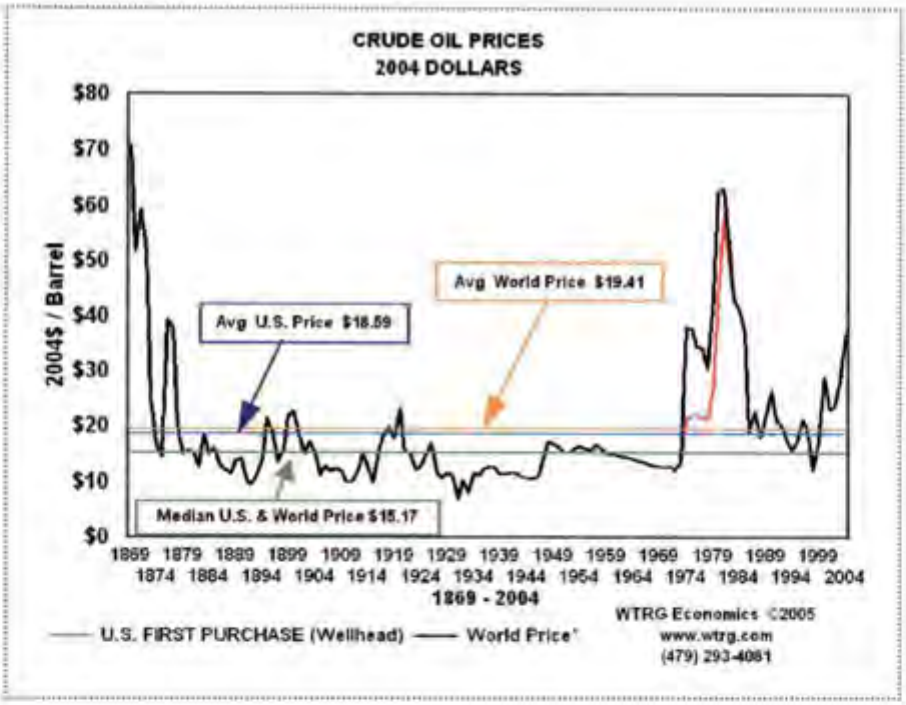
Larry Schoff works with Energy Efficient Solutions and is based in Blacksburg, Virginia. He was a member of APPA's K-12 Task Force and until recently worked with the U.S. Department of Energy's Rebuild America program. He can be reached at lschoff@rev.net.

The 21st century began with schools facing the same problems that existed in the 20th century, but with ever-increasing use of technology and more complex learning and teaching environments and expectations. The last half of the 20th century saw major changes in educational programs and an increase in outside forces impacting the operations and maintenance of our schools: oil embargos, the transistor and silicon chips, audiotapes and MP3 players, videotapes and DVDs, satellite TV, computers, war against terror, natural disasters, improving world economy, and the World Wide Web.

Unfortunately, design, operation, and maintenance of school facilities has not adopted the technological changes or made the needed improvements to facilities during the last half of the 20th century that were needed to reduce energy use and maintenance costs. The systems, materials, and tools for reducing these costs and improving the overall teaching and learning environment were available, yet were little used.

Change has been slow because emphasis has been placed on "first cost" and not on "life cycle cost," and there has been a reluctance among federal, state, and local governments to integrate capital and operating budgets.

To reduce energy use during the oil embargos of 1973 and 1979, educational administrators adopted energy conservation as a means to reducing energy use. "Energy conservation" meant turning the temperature down in the winter and up in the summer, turning systems on and off and making changes to the building envelope without any thought to



their impact on the students and staff and the educational process, i.e., closing up window openings and reducing natural light. Unfortunately, the response to the current skyrocketing gas prices seems to be much of what we saw 20 to 30 years ago.

Finding little energy inefficiencies and generating big energy savings is a benefit of energy management. The following outlines the process and concepts involved to reduce energy consumption.

What is Energy Management?

Energy management is a process in which schools and school districts obtain an understanding of how their buildings are being utilitized, how energy is being consumed, types of the energy systems installed, and the implementation of products, systems, services, and education to reduce energy usage. The target is to improve the overall energy efficiency of existing facilities and their systems.

The ultimate goal of energy management is to improve the learning and teaching environment for students and teachers. Energy management can include the use of computer-based controllers to determine the operational characteristics of equipment, as well as an assessment of the processes that track actual usage in the quest for maximum energy efficiency. The success of energy management lies in education of all segments of the school community—decision makers, administration, instructional and support personnel, and most importantly, the students. The first step in development of a successful energy management program is the adoption of an energy policy by the governing body.

Why is Energy Management Important?

American schools, both public and private, provide education to more than 54 million students daily in over 118,000 facilities costing over $7.8 billion in energy annually and climbing. This means the average annual cost per student is over $145 for energy utilities including fuel for pupil transportation costs. Energy cost is a very small portion of the total school budget, 2 to 3 percent, when compared to personnel and personnel related costs, 80 to 85 percent.

Energy and utilities is the second largest element of most school budgets, and it is the only true manageable budget element. The policies and actions of decision-makers, occupants, and students can have an impact on energy consumption and be measured. With school decision makers having little influence on energy rates, these actions and policies can result in reduced energy use and costs. These are immediate savings that can be sustained through policy and continuous energy awareness training and have an impact on the overall operating budget.

Management of energy usage will not only have a positive affect on the school energy budget, it will also impact the environment by requiring less fuel and producing less harmful emissions. Effective energy management can identify those inefficient energy systems and replace them with more energy efficient ones.

Energy management can benefit not only the budget and the environment, but also the students, teachers, and the community. These benefits include changes in the energy consumption in the homes and businesses, adoption of energy policies by local governments and businesses, and the inclusion of energy efficient technologies in future community building projects.

What is Needed in an Energy Management Plan?

In establishing an energy management plan or program for a school district, a foundation must be laid. This foundation rests in a School Board "energy policy." This policy must be developed and approved before any Energy Management plan/program can be implemented. This policy should be a short document including a statement of purpose such as: "*...provide leadership in developing a realistic energy ethic in the operation of its facilities to improve the learning and teaching environment ...*" And a statement of policy: "*...success is the joint responsibility of the board members, administrators, teachers, students, and support personnel and is based on their cooperation.*" The policy should also include the fact that the CEO/Superintendent is responsible to implement it and building administrators will be evaluated on the success in their facilities.

With a district energy policy adopted, the implementation of the policy will be in the establishment of both an Energy Management Plan/program and district administrative directives. Before determination of the goals of an Energy Management plan, information and data must be gathered to determine the current baseline on which to establish goals and targets.

Knowledge of utility consumption for each facility is essential to the success of any energy management program. How do you manage something if you do not know how much you use? Some questions to ask: Who reviews and approves the utility bills? Is that individual knowledgeable of the operations of the systems in schools? Have we established a baseline for each utility in our schools?

Providing the answers to the above questions can reveal the following and assist in the management of energy use in the school: 1) Errors in billing by utility companies; 2) potential operational problems with energy systems; 3) changes in personnel and personal habits in a particular school; and, 4) leaks in waterlines to a school or internal piping associated with HVAC systems, just to name a few.

The answer to the question "Should utilities be managed?" is a simple "Yes" and is key to energy management for your district.

1. ***Energy consumption by utility and school*—2 or 3 past years**
   i. Input into Energy Star Portfolio program and determine an energy baseline and Energy Star rating for each school facility: Go to www.energystar.gov/index.cfm?c=evaluate_performance.bus_portfoliomanager.
   ii. With an Energy Baseline and Energy Star rating determined, select a desired Energy Star Rating for each facility and determine the energy saving potential that exists.

To accomplish energy management in your schools, tools are needed to assist you in handling and analyzing the data. EPA/DOE has developed a program under its Energy Star program as section on Energy Star for K-12 Schools and more specifically Portfolio Manager. Portfolio Manager evaluates utility usages and measures it against a national standard and incorporates the impact of weather at your location. This results in a baseline for each school to serve as the basis for improving energy efficient systems and knowledge of the building by its occupants. The result of Portfolio Manager is a "Score" 0 to 100. A score above 75 initially qualifies the facility for an Energy Star school. Tools exist to assist you with the management of utilities consumed by each facility that is metered or measured and provides information to all segments of the school community in both statistical and graphic displays. These online tools exist to assist with the management of utilities and a key element in the overall energy management program.

Before determination of the goals of an Energy Management plan, information and data must be gathered to determine the current baseline on which to establish goals and targets.

2. ***Building occupancy profiles for each facility*—**Determine the areas of the school are occupied both by time of day and type of occupants. This will help better determine the operation of the mechanical and electrical systems to maximize both energy and space efficiency.
3. ***Building characteristics and systems*—**Inventory the existing building and its systems: building orientation, building envelope, roofing system, lighting systems used, ventilation system, heating system, and cooling system.

All the information gathered above will result in the development of an energy audit for each facility. This information will have an impact on the determination of energy goals and specific targets of the energy management plan. The energy management plan should contain the following elements:

1. Based on the Board Policy, establish a goal for the program and establish objectives.

2. Designate a responsible individual and means of implementing the program—Energy Management Team.
3. Establish checklist for administrators, instructional personnel, and operators.
4. Obtain an energy education program or materials for use by instructional personnel in the day-to-day program to the students.
5. Establish energy awareness training for all school personnel.
6. Establish an evaluation program and means of celebrating success.

Once an Energy Management Plan is developed, the next step is to implement, and that will serve as the basis for evaluation and revision of the plan.

Energy Management Tools

There are tools available to assist with the accomplishment of an energy management plan: 1) Building Management Systems (BMS) and 2) Utility Management programs. BMS first were known as energy management controls systems (EMCS), controlling the HVAC systems in a building with varied degrees of complexity—turning units on and off at preset times and/or temperatures, to measuring conditions both inside and outside the building and using logic, making adjustment of temperatures, run times, and other controlling factors. Today's BMS not only control the HVAC systems, but now can control lighting systems in the building along with other energy consuming systems.

Utility Management programs in schools have been available since the mid-1980s with the emphasis being placed on establishment of baselines and finding trends in energy use. Analysis of the data available has resulted in reaction to a need that may be several months old. The data is entered and analysis done after the bills are received and input into the program. With the technology today for utility meters and sub-meter systems and software, instantaneous input can be obtained, analyzed, and corrected to improve an inefficient system or operation and reduce overall energy use and expense for the schools.

Unseen and Overlooked Energy Inefficiencies

In the process of developing your energy management plan and accomplishing an energy audit of your facilities, facilities and energy managers should be aware of the many unseen and overlooked energy inefficiencies that account for a significant amount of wasted energy. The U.S. Department of Energy has determined that at least 25 percent of all energy consumed in a school facility is due to energy inefficiency. The following items add to this 25 percent inefficiency: 1) dry transformers; 2) location of light switches; 3) hallway lights; 4) plug loads and personal appliance policy; 5) phantom loads; and 6) dark school concept.




Energy Efficient Dry Transformers—Schools built or remodeled since the late 1960s probably have several dry transformers that transform the 480/277 volts entering the building from the utility transformer to the 120/208 volt power using in outlets throughout the building. These transformers range in size from 15 KVA to over 300 KVA and are placed in either mechanical rooms or electrical closets behind closed doors. The U.S. DOE estimates that approximately 40 million dry transformers exist in all building types in the United States.

A typical 75 KVA transformer uses around 880 watts to energize the coil. The U.S. DOE is establishing standards for energy efficient transformers that should reduce that wattage to energize the coil down to 180 watts, saving 700 watts per hour. This means that one energy-saving transformer in a school could save over 300,000 kWh in 50 years. If dry trans-

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formers were replaced with energy-saving transformers the energy saved would be more than 60- to 80-billion kWhs, a cost savings of between $3 billion to $4 billion. This amounts to about nine days of electrical generation nationwide.

A typical high school has between 12 to 20 dry transformers dependent on design. This means that about 110,000 to 160,000 kWh is wasted annually. The question is simple for one to ask. Which would you rather operate for 50 years, 24 hours a day, every day of the year: eight 100 watt bulbs or one 100 watt bulb? The answer is a no-brainer.

... personal items can account for up to 25 percent or more of the total plug load.

The DOE's proposed new standard for energy efficient transformers will have an efficiency of 98.6 percent and have energy losses 30 percent more than the current standard known at TP-1. The new designation for the energy saving transformer will be CSL-3.

Light Switches and Hall Lights—The 21st century standard is to specify T-8 fluorescent light fixtures with T-5 fluorescent light fixtures having increased applications. The placement of light switches are at the entry door in classroom and other areas where multi-light circuits are designed. Placing all switches at the door ensures that all switches will be turned on when someone enters. Only one light switch should be placed at the door with the others placed diagonally from the door entrance.

In most schools, hallway lights run from 12 to 18 hours a day. The hallway lights consume about 15 to 20 percent of the electrical energy used for lighting. The hallways have students or staff in the hallways probably less than five hours a day when full lighting is necessary. Most hallways have several of the fixtures on a 24/7 circuit for emergency lighting. When halls are not fully occupied these fixtures can provide adequate lighting. It is recommended that, in each segment of hallway, occupancy sensors be placed on those fixtures not on a 24/7 circuit. Doing this could reduce energy consumption from 50 to 60 percent or more.

Dark School Concept—Why are these lights needed when a building security systems is engaged in the evening? Having these lights turned off when the building is secured not only saves energy, but will also increase security. If a break-in occurs, the lights in the school are turned on and indicate there is a problem. Placing a contactor in the 24/7 lighting circuit that is activated when the security system is set turns off the lights and can save more than 20 percent of the hall lighting energy use. A high school in Nevada reduced the load by 10s of kW at night using this concept.

The dark school concept can be extended to outside lighting and reduce energy use as well. Outside lighting remaining on after the building is secured serves to attract individuals. Keep the lights off until someone needs to go into the building after it is secured and needs to have their own lighting. Turning off these lights has reduced vandalism and has resulted in an electrical energy reduction of more 5 percent.

Plug and Phantom Loads—With the introduction of computers into the classrooms in the 1990s, the avalanche of plug loads in schools began and continues to grow daily. Plug loads account for up to 25 percent of the electrical energy consumed in an educational facility. Plug loads include educational tools and delivery systems like TVs, VCR/DVD players, computers, printers, scanners, projectors, and office equipment, but also includes personal items brought into the classroom or school such as coffee makers, microwaves, personal refrigerators, heaters, popcorn poppers, toaster ovens, and task lighting. These personal items can account for up to 25 percent or more of the total plug load. Reduction in personal plug load can best be controlled through the approval of a school board policy.

Any electronic equipment plugged into outlets that have an instant-on feature, a digital or LED clock, or a small transformer to provide Direct Current (DC) power to operate, contain a *phantom energy load*. These devices consume between 1 to 25 watts/hour for every hour they are plugged in and not in use. With thousands of devices in a school district, thousands of kWh of electricity is being consumed without educational benefit. Use power strips to connect phantom load devices to the power source and the device can be disconnected with ease, eliminating the phantom load.

For example, the VCR placed into a classroom has been flashing "12:00 am" since it was installed four years ago. The only time it has not been flashing is when a power outage occurred last winter. This is a prime example of an electronic device in today's classrooms that consumes energy—the phantom load—when the switch indicates it is off. What has been the cost for flashing these four years? $11. How many of these do you have in your schools?

Education and Energy Awareness—A simple statement should always be remembered when addressing energy use in buildings whether an educational facility or your home: "Buildings do not operate themselves—people do." Based on this simple statement of personal and organizational responsibility, energy awareness education is key to ensuring that buildings operate efficiently. This energy awareness education should address all segments of the school community—school board members, administrators, instructional and support personnel, the general community, and probably the most important of all, the students.

What segment of the school community poses the best avenue for sustainability of energy programs in the future? The answer is the students. Integrating energy facts and efficiency issues into the presentation of every subject taught will provide the students the background and understanding of the importance of energy efficiency and its impact on their daily lives.

Education and energy awareness training for an energy management program is like the mortar used to bind the bricks and blocks together in an educational building. Without it, the program has no foundation and the program's success is questionable. Education is key to the success of the program and for the well-being of the students, teachers, and staff.

Get Started

Building, maintaining, and operating energy-efficient schools today are essential for the future of our nations, communities, and students. If you do not begin today with an energy management program, you are mortgaging the future of your children and your grandchildren. If you do not start now, when will you start?

References:

1. *Federal Register* dated July 29, 2004, 10CFR Part 430, Proposed US DOE Transformer Efficiency Rules, DOE/EERE.

2. DOE/EERE document, *How to Buy Products with Low Standby Power*—June 2004, http://www.eere.energy.gov/femp/pdfs/standby_power.pdf and http://www.eere.energy.gov/femp/technologies/eep_standby_power.cfm.

3. Dark Campus Program Reduces Vandalism and Saves Money 12/97, http://www.darksky.org/infoshts/is054.html

4. Crude Oil Prices 2004 Dollars—www.wtrg.com/oil_graph/oilprice1869.gif.

5. Table 5.24—Retail Motor Gasoline and On-Highway Diesel Fuel Prices, 1949-2004. DOE Energy Information Administration/Annual Energy Review 2004.

6. U.S. Department of Energy's Rebuild America/EnergySmart School Program www.rebuild.org.

COPING WITH CRISIS: Members Respond to HURRICANE Aftermath

by Ruth E. Thaler-Carter

Campus facilities managers have been proving their worth and showing their stripes over the past few months, as they continue to respond to a hugely disorienting swath of weather-inflicted damage at member campuses across the U.S. Gulf Coast.

We are relieved to report that, at press time for this issue of *Facilities Manager,* APPA has not heard of any members who have been seriously injured or killed as a result of Hurricanes Katrina, Rita, or Wilma. However, several campuses have been greatly damaged and will not recover until at least the first 2006 semester, if not longer. APPA members affected by these terrible events have been responding with great courage, as well as laudable creativity. Here are some of their stories, and some resources for those needing assistance or wishing to help.

Ruth Thaler-Carter is a freelance writer/editor based in Rochester, New York and a regular contributor to* Facilities Manager. *She can be reached at ruth@ writerruth.com. She interviewed President Jack Colby in the September/October issue.

Xavier University of Louisiana during Hurricane Katrina

Tales of Terror

Almost as soon as Hurricane Katrina first hit the New Orleans area, APPA's network of colleagues was in touch with members. The Southeastern Region set up a special listserv in response to the disaster, giving concerned colleagues a way to check on affected members and those in the eye of the storm a way to communicate with each other whenever possible.

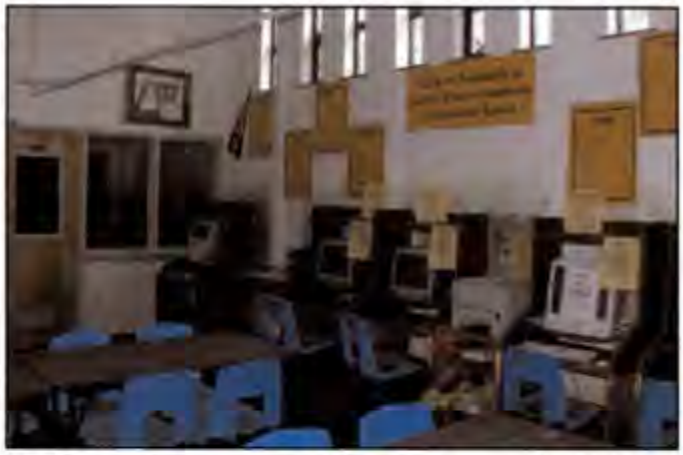
Marion Bracy, director of facilities at Xavier University in the heart of New Orleans and now president of the APPA's Southeastern Region, had to leave New Orleans and take refuge with his brother in Dallas, Texas, with his wife and two daughters when Hurricane Katrina struck. That was not until he made sure that students on his campus were safe though.

"We had already started classes," he recalled. "Finding kids proved to be difficult—we didn't have a good count. We got as many buses as we could to get people out (Grambling State and Southern universities provided buses), but there were 250 to 300 students who didn't find out about that service, so I brought in staff—including my wife—and we just buckled down. We were rescued by boat, and then we were constantly at the Student Center. We would take gigantic cans of food to the nuns nearby, who had power and warmed up the food for us. Then we'd go back to the dorms by boat with the hot food, so our students had at least one hot meal every day."

For Karen Henley, director of facilities maintenance at Tulane University, Hurricane Katrina was a textbook exercise in crisis control—and a moving reminder of the importance of networking with colleagues. She was evacuated twice—to Jackson, Mississippi, and to Houston, Texas. She returned to her campus at the end of September. Sylvester Johnson, associate vice president of facilities services at Tulane, has been "on the ground" in New Orleans throughout most of the chaos.

"It's been incredible, but we're all OK," Henley said. "We set up 1-800 numbers and a website to find our employees.

The Xavier campus after flood waters receded. Parts of the campus were under 8 feet of water.



Mold overtakes a computer lab at Xavier; note the high-water mark.

We were able to locate most of our people. Our Nextel radios were lifesavers."

Inspiring colleagues throughout the hurricane and related weather were Tulane's senior management, Henley noted. "We had people who stayed through the hurricane, including our president and CIO, at a command post. Some left, but came back. We had to get them helicoptered out eventually—we hired a private company for that. Just getting people to safety was a challenge."

Evacuating had its own challenges: "There were four days without cable, so we had no idea how bad things were in New Orleans," she said. Like several other schools in the region, Tulane already had students on campus when the bad weather hit. "On August 27, we had freshman opening day," Henley said. "We were saying, 'Welcome—and leave.' The president met with parents to ask them to take their students back if they could."

Byron Patterson, director of physical plant at Southeastern Louisiana University/Hammond, went to his office and slept on the floor there at some points, because "we didn't have any air conditioning at home" and parts of his campus at least had generator power. He "went out, drove around and found our people in their homes," he recalled. "I had them take radios home so we could communicate."

Many emotional moments were experienced through the SRAPPA listserv including:

- Mike Durham, Louisiana State University/Baton Rouge: "LSU at Baton Rouge came through the hurricane without any damage. We are hosting a special needs shelter, and temporary medical triage/transfer activities. Our assembly center has been turned into a 250-bed temporary hospital. We have all available housing being used to support FEMA, Homeland Security, FBI, Public Health Service, and other agencies. Our track stadium has been turned into a helicopter landing site, operating 24 hours to bring refugees out of the affected area. Our fieldhouse is now a special needs shelter full of very sick people. Between 300 and 400 patients. We operated a hospital and a med school/research facility in New Orleans. We have students whose families have moved in with them in the dorms and apartments. This is naturally causing some new and interesting 'problems,' especially in coed dorms. I spent the day on the water in New Orleans in my old boat (with at least one rat for company) along with a volunteer. The area I was searching was covered in water. It has given new meaning to the old song, 'Do you know what it is to miss New Orleans.' Everyone is doing all they can to save lives and take care of people."
- Rawn Davis, Xavier University: "I was able to move to Baldwin, Louisiana, with my wife, mother, and son. We thank you all for your prayers and support and ask you to keep all of the people in the N.O. area in your prayers. We have a true friend in the SRAPPA and APPA Community."
- Byron Patterson, SLU/Hammond: "I am very proud of my team. We brought (the) campus back and have a lot of stories about tremendous people who have kept this campus running. Our structure is very fragile at this point. I have just a skeleton staff here since a lot of people have lost their homes. Let's talk about being blessed ... about the quality of people that I work for: The president's wife washed my clothes for me because we have been working around the clock. I do not think there is another president's wife who would do that."

Coping with the Damage

Hurricane damage was one thing, and bad enough; after-effects are another, and in some places, even worse.

"We're right in the heart of New Orleans, and had some wind damage to a number of buildings, but the real problem is that 95 percent of our buildings had flood water that stayed there for 10 to 14 days—we're just now pumping the water out and starting remediation," said Xavier's Bracy. "We could have coped with the exterior damage, but the water did us in. Mold has covered everything—the water got to at least the first floor of every building. It's ridiculous. The waters reached the third floor of our new University Center. The library is badly affected—we will lose a lot of books." Some buildings were under eight feet of water.

One heartbreaking aspect for Xavier, Bracy noted, is that "we were close to setting a record for number of students on

campus this year, because of our new dorm building. We had to tell kids to go home."

Even getting insurance adjusters to the campus to assess damage and start the process of paying for repairs and remediation has been a challenge because "everyone is affected," Bracy said, so the demand for onsite assessments is competitive.

In early October, Xavier still had no water or power; Bracy and his staff were using generators "where we can" and lots of manual labor to tear out soggy carpet, pull down sodden wallpaper, clear fallen trees and anything else they could tackle on their own.

At press time, Bracy was still going back and forth from Dallas, with other staff operating from Houston, Atlanta, and communities around New Orleans. "People can't really go back yet—there's nowhere to stay, nowhere to eat, nowhere to get a flat tire fixed," he said. "There are still problems with the 504 area code—you still can't receive phone calls much of the time. And we've all taken a battery of shots—tetanus, hepatitis, etc. We still have to do testing on the soil all over campus. Our goal is to reopen in January of 2006, although we're leaving some of that up to the academics. It's a difficult situation, but I'm proud of our crew and I'm sure we'll meet our goal."

Tulane has been in the headlines extensively, but the facilities stance on the hurricane is unique. "Our first call was to APPA's Mike White at Miami University" said Henley. "Our connections in APPA have been great—APPA members have been our lifeline throughout this crisis."

Having more than one location has worked in Tulane's favor. "We have several different campuses, so we plan to hold our second semester by using those resources, but our whole first semester is gone," said Henley. "We should be reopening in Biloxi, Mississippi, in October, for mini-semesters there, and some of our New Orleans off sites should be functional. Our football team is still playing games—they usually play in the Super Dome, so they're playing all away games. We're not using the word 'normal' any more, but we're trying to keep a sense of order."

Tulane is using "a lot of generators" and was fortunate to have a cogen plant "which helped," when the city still had no power. "We had wind damage at one or two buildings, but no major structural damage."

One important factor in Tulane's favor was an existing, functional emergency plan. "We keep a core team on campus and have had dress rehearsals for a crisis," said Henley. "We have buses available through a charter company, with a plan to evacuate to Jackson, Mississippi; we have a wonderful relationship with Jackson State, too. We have an away team—we moved them to our executive MBA program and campus in Houston. Contractors actually met with us there, so we could start repairs." That did not last long though. "Then we had to leave Houston—we started calling ourselves 'Tulane—the roaming university!'"

At Southeastern, "we had a significant amount of damage – but we have an incredible team who worked on it, putting in 12 to 14 hours a day starting the night after Katrina hit," Patterson said. "We were without power for several days, but kept everything running with generators—the food center, a command center. Finding diesel (for the generators) was difficult, but we offered to trade the National Guard hot meals for fuel. There was an amazing amount of bartering going on!"

Just getting on and around campus was difficult. "About 60 oak and pine trees came down across the roads, so you couldn't even get around. We had a team come in to do cutting and hauling."

In addition to physical damage and debris, "roof panels flew off, doors blew in." Patterson had about 300 students who remained on campus, along with faculty and essential personnel, all needing shelter and supplies. One thing worked in their favor: "We had two unused dorm buildings we were going to tear down, because we had built new ones, so we put about 1,200 people in there, including tree-cutters, electricity workers, etc.," he said. The campus ended up hosting about 350 Homeland Security people along with 300 to 600 National Guard members; FEMA also showed up. Every detail was tricky. "We had to replace our contractors and shuffle food around." But there was another positive aspect: "We were blessed—we had water and natural gas throughout."

Even moments of progress created drawbacks. Once things seemed to start quieting down, "We got about 100 trucks and dedicated ourselves to getting power back," Patterson said. "At one point, we had the campus back up and we were the only place in the area with power, so we had a lot of people migrating to the campus. There was some vandalizing, so we had to up the police presence."

Just as the power aspect seemed to be under control, "the power company phased a lot of equipment and we blew an underground loop in the electrical system. We had to find the problem and reroute everything," said Patterson. The campus cooling towers ended up "chockfull of trash and debris, so we had to strip those down."

Things are looking much better at Southeastern by now. "We started school back a week after the hurricane hit, and had a football game," Patterson said. "We're trying to get people's minds off their troubles and back to normalcy. The campus is up and operational. We expect 1,500 to 2,000 additional students from other schools, and we'll handle them."

All in all, "it was a remarkable effort," Patterson said. "I'm so proud of our people. The president and administration have been amazing, too. It's been an extraordinary time. And it's proof that you can throw us facilities managers in an alligator pit and we'll have 'em sorted by size, shape, and color by the end of the day!"

An Object Lesson

Among the object lessons to be learned from these experiences is to make every effort to have insurance in place, as

nature makes it increasingly clear that no facility is immune from its wrath.

Just as many observers saw the hurricane effects as dismaying evidence of the gap between the "haves" and "have-nots," some found similar concerns within higher education. The *New York Times* reported that smaller and historically black colleges and universities hit by the hurricanes are experiencing "the parable of race and inequality left behind by the floodwaters," lacking not only large endowments to draw upon after a crisis but even adequate, much less extensive, insurance: "While Tulane, for instance, is hoping to receive insurance reimbursement both for storm damage and for some of the revenue it lost when it had to shut down, neither Xavier nor Dillard could afford business interruption insurance. Tulane's endowment is about $745 million. Xavier and Dillard both have around $50 million, almost all of it restricted to designated purposes. Insurance will cover wind damage but not most of the damage, from the flooding, which did the most harm."

Proving Our Worth

Coping with and responding to the hurricane chaos has had one positive outcome for Henley and her colleagues: "It's been a bonding experience," she said. "We've all been together with the deans and academics. It's so crucial and critical to the recovery of our university that everyone has been so involved, and that everyone has seen what Facilities really does. This new relationship will be to our advantage for years to come, because whatever is planned for next semester simply can't be done without us."

Valuable Resources

- The American Council on Education (ACE) and National Association of College and University Business Officers (NACUBO) have sponsored an excellent website that lists the status of affected colleges and universities: www.campusrelief.org.
- Some financial help may be available from the U.S. Department of Education, which plans to distribute $90 million in student aid to 31 colleges and universities affected by the hurricanes—part of $227 million in storm aid for higher education. The United Negro College Fund is lobbying for more federal aid and hopes to raise money for its member institutions from alumni, private donors, and foundations.
- The U.S. Department of Health and Human Services has set up a Web page to help people identify and mobilize relief workers, including facility managers: https://volunteer.ccrf.hhs.gov/.
- FEMA disaster area county maps are available for download at https:.www.slashtmp.iu.edu/public/download.php?FILE=dodpears/34601mgLtz
- Garth Anderson, University of Virginia, has offered to help colleagues save and restore collections of material such as architectural and engineering drawings, specifications, reports, and studies for facilities. "If anyone's collection has been damaged and they had digitized the material to TIFF or PDF files which are now accessible, I would be happy to organize an effort to print the collection. ... we could each undertake a portion of the digitized material and ship it down when conditions improve." He can be reached at 434-982-5367, garth@ virginia.edu.
- IFMA launched a "Prepare and Recover" website to share joint intelligence with colleagues and save them from reinventing the wheel: www.ifma.org. It includes a Resource Locator for employment, recovery issues, temporary housing, office space, office furnishings and needed resources. Other information covers charitable donations, news releases, postal-service information, emergency preparedness, publications about business recovery, and links to 15 other information sources. There also is a listserv to facilitate discussions among colleagues that is being updated regularly. IFMA also is interested in obtaining information about facilities recovery efforts that might be of value to its members.
- The National Association for Equal Opportunity in Higher Education (NAFEO) has launched a Visiting Student-Evacuee Program to help black colleges and universities enroll almost 10,000 displaced students (www.nafeo.org).
- The Department of Labor has established a Katrina Recovery Job Connection (www.jobsearch.org/katrinajobs) to connect jobseekers with employers interested in hiring them for new, permanent employment or jobs related to cleanup, recovery and rebuilding in areas affected by the hurricanes. Anyone who experiences technical difficulties may contact the New York Service Center, 800-833-3000, option 2.
- The American Institute of Architects (AIA) is providing information and topic experts to address the massive rebuilding effort for New Orleans and the Gulf area. AIA also has a Disaster Assistance Program. For details, go to www.aia.org.

HISTORY *and the* FUTURE

by Wallace G. Glasscock

"Supervisor's Toolkit was a big success in our department and helped with team building and general tools to help our supervisors succeed. One thing that I would do in the future is involve the area managers alongside the supervisors. The front-line supervisors felt that there were lessons to be learned that their manager should be employing as well."

—Robert Quirk, Director of Facilities Management, California State University Long Beach

When APPA asked seven volunteers to meet and form a committee in July 2001 in Montreal, Canada to discuss the development of a facility-based training and development program for supervisors, no one could have predicted the impact it would have. The results of the final product continue to be felt in many colleges and universities today and will be a positive influence in the future. The initial group included facility directors, front-line supervisors, training managers, and human resource personnel. Each brought his or her own ideas of what should be included in a training and development program for facility supervisors.

Many hours of discussion and work were invested before the final product, *Supervisor's Toolkit: Nuts and Bolts of Facilities Supervision*, was introduced to the APPA membership. Prior to introducing the Toolkit as a professional training program, three pilot programs were conducted at three colleges and universities to evaluate the content and presentation style of the program. Members of the committee conducted the field tests, and that experience, coupled with the written evaluations, helped us accomplish a final rewrite of the Toolkit before it was presented to the APPA organization. The first official training program was conducted in Indian Wells, California in tandem with the APPA Institute for Facilities Management on September 14-18, 2003.

The Toolkit committee members and APPA staff continued to evaluate the program, rewrote portions, added new and creative material, and eliminated those parts of the program that did not work as originally intended. The revised program changes were being introduced and evaluated at the APPA

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Institute in Norfolk, Virginia in September 2005, as well as at the International Sanitary Supply Association conference in Las Vegas, Nevada in October. The final changes to the program will be added to the Toolkit in January 2006. (Please see the May/June 2003 issue of *Facilities Manager* for all the information on the development, testing, and publication of the Toolkit program.)

The Product

Supervisor's Toolkit has surpassed the goals that were originally set by all who were involved in its development. Sam Polk, director of facilities management at Tennessee State University and APPA's Vice President for Educational Programs, offered the following comment about Toolkit:

"You can't expect maintenance staff and maintenance supervisors to be effective without having appropriate hand and power tools. Likewise, they won't be effective leaders without the knowledge contained in the Supervisor's Toolkit. Along with the proper craftsman's tools, the Supervisor's Toolkit provides the nuts and bolts the supervisor needs. As Vice President for Educational Programs, I am delighted that many APPA institutions and regions are taking advantage of this outstanding program."

Supervisor's Toolkit

Nuts and Bolts of Facilities Supervision

Although originally designed for front-line supervisors, Toolkit has enjoyed high ratings from managers who have attended the program. It has developed into a "must attend" for anyone in a leadership role in a facilities organization. Most of those who have attended the weeklong program will testify that they not only understand their position in facilities with more clarity but also relate to the responsibilities of all levels of management in facilities. Newly acquired skills have made their job easier and they have become more productive in the process. The uniqueness of the program, when compared to some of the "traditional" management training programs, is that Toolkit is about facilities and the issues, challenges, and opportunities that exist in every facility organization.

The Master Trainers selected by APPA to lead Toolkit training brought many years of training experience to the program. All were involved in facilities and could relate to the issues that are present in a facility organization. These Trainers teach at every APPA Institute and conducted all of the programs during the introduction of Toolkit. Each of these individuals was involved in the writing, development, and testing of Toolkit. All continue to be involved in the program. The Toolkit Master Trainers are Michelle Estep-Frederick, Wally Glasscock, Carol Trexler, and Nancy Yeroshefsky.

Colleges, universities, and other educational organizations can also certify individuals in their facilities to become Certified Trainers for Toolkit. The facility trainers must attend a Toolkit training program conducted by two Master Trainers. They would participate in the program and observe how Toolkit is presented. The facility would apply to APPA for a license to conduct Toolkit and the trainer(s) would submit a resume for evaluation. Once the resume and license are approved, the facility can move forward with dates for training. A leader's guide, workbooks for participants, a disk including PowerPoint presentation, and additional training materials will be sent to the facility. A representative of APPA will travel to the campus and observe at least one day of the first program conducted. The trainers, now certified to teach Toolkit, can conduct future Toolkit programs at their facility. Policies and procedures on how to become a Certified Trainer can be obtained by contacting APPA.

The program has been successful, but like all programs, constant evaluation is necessary to assure continued success. Although recent modifications will be noticeable at the January 2006 Toolkit offering, the basic program will remain the same. The modules will be similar to the original Toolkit.

Module 1:	Supervision, What is it?
Module 2:	It's More than Administration
Module 3:	Communication, Let's Talk
Module 4:	If It Weren't for the People (relationship with others)
Module 5:	Motivation and Performance
Module 6:	Customer Service Triangle
Module 7:	Supervisors as Leaders
Module 8:	Synthesis—Teams and Tools (putting it all together)

Several colleges and universities have sent their department trainers to a Toolkit program conducted by Master Trainers. Ohio State University has taken this approach and has certified three trainers. They conducted Toolkit for the third time in late 2005. James E. Dertinger, coordinator of education and safety programs at Ohio State, offered the following about Toolkit:

"Our team has presented Toolkit two times at Ohio State and we continue to receive very positive feedback, from not only our Physical Facilities participants, but also from several other university departments that participate in our program."

Purdue University, due to a large staff, also certified three trainers to conduct Toolkit. They recently offered Toolkit for the second time. They have included other departments in the

Continued on page 41

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Continued from page 39

training such as the Campus Police. Bob Beck, Purdue's training manager for physical facilities, stated:

> "Feedback on Toolkit was very positive, especially considering it was the first time the program had been delivered at Purdue. Based on the feedback and the quality of the content we will be offering it again in late October and early November for another 24 of our supervisors. Current plans are to continue the series as long as demand exists."

One advantage to the approach taken by Purdue and Ohio State is that training time can be expanded to accommodate the work schedule of the supervisors. This allows development of a training schedule with the flexibility to schedule one or two modules a week.

More than a dozen trainers have attended a Toolkit training program conducted by Master Trainers, and they have completed the steps necessary to become a Certified Trainer for Toolkit. Several additional trainers have request information indicating an interest in becoming Certified Trainers.

While some of the larger facility organizations continue to conduct Toolkit a second or third time, others have hosted programs to allow training of smaller staffs. One of these, Bernie Beyer, operations manager at John Carroll University, Cleveland Ohio, hosted two Toolkit training programs. These have been conducted at John Carroll's campus during spring break at his campus the last two years. Beyer sent out flyers to facility directors within driving distance of his campus and recruited individual from those campuses. This worked well and allowed sharing of many campuses experience with his supervisory personnel during the weeks of training.

San Diego State University, the University of Nevada Reno, as well as many schools in the Central and Rocky Mountain regions have followed a similar format by opening up Toolkit to facilities from other colleges and universities in their area. This has allowed colleges and universities with smaller staffs to participate in Toolkit and provide professional development for their supervisory personnel.

APPA's Rocky Mountain and Central regions selected trainers from their region and provided the opportunity for them to become certified to conduct Toolkit. These Certified Trainers travel to various locations in the region to conduct the Toolkit program. This has provided the opportunity for facility directors, who are members of APPA, an avenue to train and develop their supervisory staff. Plans are to continue this training program into the future. The trainers are supported by their administration with the time and expenses to offer the training. This approach has been well received in both regions and feedback on the training has been positive.

Training

When a facility department makes the decision to bring Toolkit to their campus, two Master Trainers conduct the training. The program is scheduled for five days and involves training time of 34 to 36 hours. Some have scheduled training during down time around holidays or spring break. In some situations, as at John Carroll University, training has been scheduled on two occasions, allowing all supervisors to attend.

Adjustments can always be made to accommodate the facility organization. An excellent example of this is the schedule worked out for Memorial University, St. Johns Newfoundland. Training started at 8:30 a.m. and an extra 30 minutes was taken at lunch to allow supervisors time to check their shops before training started and check again at lunchtime. St. John's established this schedule to allow all of their supervisors to attend training.

Evaluations

Every session of Toolkit is evaluated at the end of the week of training. All evaluations have rated well above average, with some programs ranking above 90 percent. These evaluations, many of which offered positive critique about the program, have been included in the modification of Toolkit for 2006. Some comments are listed below from participants that have attended Toolkit.

Each time Toolkit is conducted the evaluations are sent to the APPA office for review. The evaluations are summarized and sent to the trainers that were responsible for conducting Toolkit and the information is shared with the Master Trainers as well as the APPA staff. Sponsors of each program receive the final evaluation report, and the evaluation forms are returned to the host for his or her information.

Selected comments offered by participants:

- By Friday afternoon, I felt that the training provided some practical tools for me to use everyday.
- I have attended other supervisory seminars that have given me some ideas & suggestions on how to improve; this was by far the best one that I have attended.
- Thank you for the information you gave us this week; This is one of the most participative groups I have ever worked with, excellent group of individuals, enjoyed my entire week.
- I came away with a better understanding of my job, lots of knowledge and humor and respect for each of us.
- Great experience, thanks for being helpful to me, you made the time interesting and informational.
- The week was informative and gave us some very good tools to handle most of the people—most of the time.
- For front-line supervisors the information is great—provides a basis for communication.
- Comprehensive, informative, fun, and interesting—excellent seminar/course.
- Program covered mostly everything—lots of very good information that supervisors can use during work—great program, lots of information.
- Very good program even for leader underneath supervisor in any institution.

- Hopefully, we can all leave with the positive attitude that was built this week.
- Excellent communication tool—it opened my eyes to a lot of things/practices I should change and ideas on how to go about it.
- Recommended for all new supervisors, very good program—I'm bringing back so many things on being an effective supervisor.
- Happy that I was given this opportunity for this program—I believe the entire package was very appropriate and helpful.
- Excellent program for frontline supervisors and group leaders.
- Great to have facilitators that speak our language—would make all supervisors understand their role as management.

Many comments have been offered about Toolkit, but the one positive comment that is heard most often is: "*Toolkit is different from other training programs as it relates directly to facilities. It reflects on everything we do daily. The exercises, language, and group work in the program are the same situations faced on the job by all supervisors and managers.*"

Toolkit offers training that is related to the world of work in a facility organization. This includes language, discipline, planning, organizing, directing, and controlling the daily workload, including the all-too-often communication breakdowns.

Attendance

As of October 2005, approximately 825 supervisors and managers have attended Toolkit training. If the field test participants are included, more than 900 facility personnel have attended a Toolkit program. These have been conducted by Master Trainers representing APPA or by Certified Trainers, authorized by APPA. The training has included five APPA Institutes and over 18 programs conducted by Master Trainers or Certified Trainers. In addition to these programs, Toolkit training was conducted at the International Sanitary Supply Association (ISSA/INTERCLEAN) conference in New Orleans in 2004 and again in Las Vegas, Nevada in October 2005. And the program continues to be offered on numerous college campuses.

The Future

In the introduction to the Supervisor's Toolkit program, supervision is defined as: "The process of working with and through people to achieve organizational objectives by means of effective decision making and coordination of available resources." To achieve this in a training process Toolkit offers:

- A value-driven format, which offers a powerful development tool for the improvement of service quality and productivity.
- An ideal forum for transmitting organizational goals and objectives to the workforce.
- An environment designed to enable participants to formulate action plans for both practice and assignments and future on-the-job improvements.

Since its inception, Toolkit has become an integral part of APPA's training and development programs. It is anticipated that many will take advantage of the program in the years ahead. It has proven to be successful and as such, has become a required program for facility organizations. With the changes that occur in today's workforce, seemingly daily, Toolkit will be revised in the years ahead. This will be necessary to just stay even with the changes and challenges that are in the future of facilities.

For more information on Supervisor's Toolkit: Nuts and Bolts of Facilities Supervision, visit www.appa.org/education/supervisors toolkit/index.cfm or contact Holly Judd at the APPA office, 703-684-1446 ext. 234 or toolkit@appa.org.

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Our House:

The Alma College Community Builds a Residence Hall

by Jerry L. Scoby and Nicholas A. Piccolo

Jerry L. Scoby is vice president for finance and administration (e-mail scoby@alma.edu) and Nicholas A. Piccolo is vice president of student life (e-mail piccolo@alma.edu) at Alma College, Alma, Michigan. *This article, their first for* **Facilities Manager**, *is reprinted with permission from the October 2005 issue of* **Business Officer**, *published by the National Association of College and University Business Officers.*

Residential students spend ample time in campus living spaces—and pay considerable room and board during the course of their campus stays. So, in some sense, shouldn't students "own" the house? By the time Alma College in Michigan officially opened the doors of its newly constructed, environmentally friendly apartment-style residence hall in January 2005, the entire campus felt ownership. That's because Wright Hall was built on the shared input of a diverse constituency.

In keeping with our underlying goal of sustainability—meeting the needs of the present generation without compromising the ability to meet future generations' needs—our institution invited the ideas and opinions of current as well as former students to ensure shared ownership of the process and outcomes of this project. We also established multidiscipline partnerships that went well beyond the typical construction planning team. For example, the partnership between our finance and administration and student life sectors proved critical in conceiving and balancing program and facility needs throughout the design and construction phases. The project planning team included representatives from residence life, student life, finance and administration, the physical plant, students, and faculty.

Our intentional efforts to involve all stakeholders in all aspects of planning and design have produced a living-learning space that is not only a comfortable, efficient facility, but is also a welcoming home to many classes of students to come.

Giving Students a Strong Say

We decided early on to take student involvement beyond the norm, doing so in a couple of ways. Our institution sponsors an annual contest that challenges participants in teams of three or more students across disciplines to offer a solution to a predetermined project or issue. The challenge for the 2003 Kapp Honors Day prize: create a design for new student housing. To reward an excellent concept, we gave the chair of the winning team a seat on the project planning team.

We also added the president of the residence hall association to the project planning team, along with two current students and a prospective student. We weighted the student voices more heavily than those of the rest of the team in the selection of paint color, carpet design, and furniture upholstery. How? In the selection of interior finishes, nonstudent planning team members cast one vote for various scenarios, and the student members of the planning team cast two votes each, ensuring that a student vote counted twice as much as any other individual's vote. Similarly, when it came time to select furniture fabrics, a group of students selected the color for the sofas and soft seating in the individual apartments and community spaces in the laundry room.

Pushing student involvement even further, we created a partnership between the physical plant department and the head football coach to use members of the football team to unload the semi-trucks of furniture and move the new pieces of furniture to the individual spaces within the building.

Instead of paying the shipping company an extra fee for furniture handling, we made a contribution to the football program's budget.

The input of the advancement and alumni partners helped to link the design elements to the heritage of the institution and to build for the future. This interaction influenced the physical placement of the building and design elements. For example, alumni suggested ideas for the front porch and the dormer style rooflines that are reminiscent of a similar beloved housing unit that was located on that site and had been torn down in 1976.

Designing for Sustainability

To guide the design of this project, we used a portion of the institution's mission statement: "...to prepare graduates who think critically, serve generously, lead purposefully, and live responsibly as stewards of the world they bequeath to future generations." During the design phase, we included some of the sustainable components because of the general commitment to the mission, some for planned educational purposes, and others for pure economics. Following are the primary design elements of sustainability.

- Geothermal wells for heating and cooling
- Building orientation for active and passive solar purposes
- Three solar panels for a small part of the domestic hot water
- Products with recycled content (lobby furniture fabric 100 percent recycled content)
- Carpet with up to 75 percent recycled content
- Lower-flow showerheads
- Dual-flush-valve toilets in lobby restrooms
- High-efficiency frontload washers
- Electric eye and computer board on vending machines to save energy
- Glass to maximize the amount of natural lighting
- Space for recycling containers
- Operable windows for air quality and air flow
- Low-emission paints
- Carpet tiles rather than rolled products to allow for partial replacement
- Native plants in landscaping
- Existing plant materials maintained wherever possible
- Trees planted on the west side of the building for shade

While we have used items such as low-flow showerheads for years, we went well beyond the traditional and conventional items to include geothermal well systems for heating and cooling the facility, dual-flush valve toilets with separate flush valves for disposing of liquid waste (as opposed to solid waste), and active solar heating tied to the domestic hot water system.

While taking advantage of the obvious small things, we made a larger financial commitment to include a geothermal well system that would be friendly to the environment and would minimize the consumption of natural gas. The solar heating system, while not driven by economics due to the northern location of the campus, was included to complement other items in the building design that will be useful in the education program delivered in the building.

Planning With Education in Mind

Our student life and academic affairs offices were instrumental in incorporating educational programming in Wright Hall. During the design phase, we planned spaces for faculty- or student-led seminars in the building. For example, the facility design included two seminar rooms off the main entrance to encourage faculty to teach seminar courses in the building. One seminar room was also equipped with "Internet2," a leading-edge network for advanced applications that is about 1,000 times faster than the speed of most local area networks.

Student-led educational components are under way. A residence assistant program will extend the education about various sustainability parts of the building to the residents and guests in the new Wright Hall. The installation of new meters for electrical, gas, and water consumption allowed for fun, interfacility contests, such as a water-usage competition. Still under development is the computerized display for the lobby kiosk in Wright Hall to educate building

Searching for More on Sustainable Practices?

To learn more about sustainable business models, don't miss the Campus of the Future: A Meeting of the Minds, July 8–11, 2006, in Honolulu, a joint conference hosted by APPA, NACUBO, and SCUP. A track dedicated to sustainable business models will be included in a program featuring more than 150 concurrent sessions. The conference will provide enhanced education and networking opportunities for all campus administrators, encompassing both business and academic spheres. The program will offer an inventive look at the future and the opportunity to envision it together by hearing what the experts are saying, what campus leaders are doing, and how campus administrators can work together for creative solutions. For more information and to register, visit **www.campusofthefuture.org.**

We wanted a residence hall that would feel like home and be based on a sense of shared ownership among all dwellers and users.

residents and guests about consumption of multiple energy sources.

More Than a Place to Sleep

From the outset, we wanted and expected more from this facility than someplace for students to sleep. We wanted a residence hall that would feel like home and be based on a sense of shared ownership among all dwellers and users. We attribute the successful completion of Wright Hall in large part to the strong partnerships established among our institution's various sectors and their subsequent planning, as well as with the architect and general contractor.

The excitement for such a facility was evident. Most of the funds for this $4 million facility were raised during a one-year window, which allowed our institution to delay borrowing. We also remained on track with construction, completing the hall in less than ten months. At the end of December 2004, when final preparations were being made for the building's opening on January 2, 2005, the project had only a $750,000 negative cash flow.

On the heels of our success with Wright Hall, we are now engaging in other sustainable living awareness raising through efforts such as our "ugly bike" program. Our plan for this program is to tie in a sustainability message beyond Wright Hall by promoting wellness and reducing point-to-point vehicle traffic on campus. Students and the administration will partner to provide bicycles that will be gaudily painted (i.e., easily identifiable) that anyone can ride—from residence hall to classroom to any other venue—and then leave anywhere on campus for another person's later use. The focus on shared ownership of ideas and outcomes that we incorporated in the planning and design of Wright Hall will likewise allow Alma College to pursue other projects and programs that center on a key message of sustainability: involvement by all stakeholders.

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Preventing Ice Dams on Roofs

By Alan E. Burnett, P.E

When a roof leaks, facility managers inevitably receive complaints from building occupants. If it is winter, ice dams are often the cause of this leakage.

Ice dams are ridges of ice that occur along eaves with overhangs (Photo 1). This water and ice buildup can cause leakage and damage to the underlying interior space and possibly result in safety concerns such as structural collapse, mold growth, and falling ice. Ice dams result in millions of dollars in damage and insurance claims each year.

Ice Dam Formation

Accumulated snow on roofs acts as an insulation layer. If the underlying roof surface exceeds the freezing temperature of water (i.e., roofs over heated spaces), the underside of the snow layer will melt. Sources that melt the snow include heat from the underlying conditioned space, ambient heat, and solar radiation. The melt water will run down the roof toward the eaves. When it reaches cold, uninsulated overhangs, it freezes and forms a layer of ice. As this process continues, the ice height increases, creating a dam that retains melt water. This ponded water backs up and flows past the dry laps in the underlayment, resulting in interior leakage and subsequent damage (Figure 1). The damage is most severe in areas with frequent freeze-thaw cycles. Water that overflows the dam also creates icicles along the eave (Photo 2).

Photo 1.

Alan Burnett is an associate and West Coast regional manager of Gale Associates, Inc., Mountain View, California. Gale specializes in evaluation, design, and construction phase services for new and existing building envelopes. This is the author's first article for* Facilities Manager*; he can be reached at aeb@gainc.com.

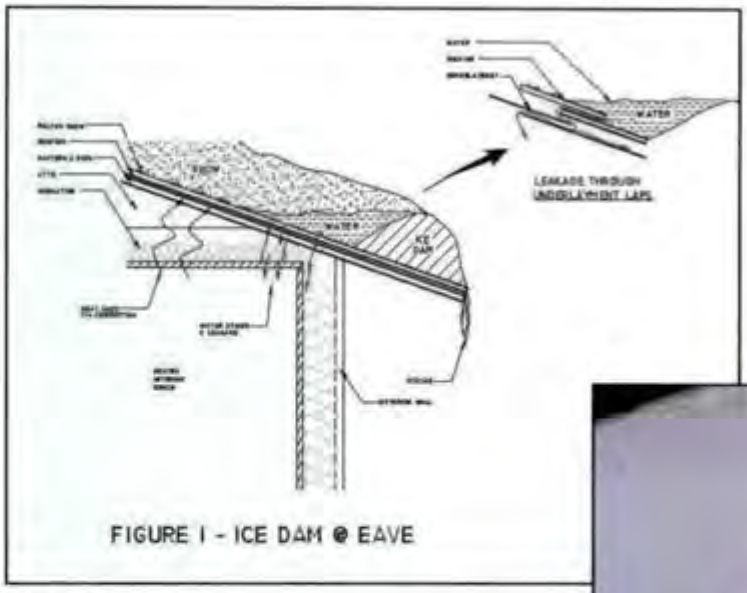

Figure 1.

Photo 2.

Methods of Prevention

There are several methods of preventing ice dams and subsequent damage including:

- Insulating the ceiling line to keep attic space cold.
- Ventilating the attic space or roof framing cavity to keep the attic cold.
- Specifying appropriate materials at possible ice dam locations to prevent leakage through roof underlayment laps.
- Heating portions of the roof that could be susceptible to ice dam formation.
- Performing preventive maintenance prior to and during the winter.

Insulated ceilings and ventilated attics that create a cold roof surface are the best methods to prevent ice dams.

Insulation

Insulation should be placed in the attic to retard the conductive heat flow from the conditioned space to the exterior. Areas that leak heat, such as exhaust fans, ducts, chimneys, attic hatches, and pipe penetrations through the ceiling need to be sealed. Since living space contains warm moist air and the attic space above insulation contains dry colder air during the winter, a vapor barrier is placed on the warm side of the insulation to stop moisture transfer to the attic. The vapor barrier, typically a 4 mil to 6 mil thick polyethylene sheet, is placed between the interior finish and insulation/framing.

Ventilation

Ventilating the attic space or roof framing cavity will help keep the roof surface cold during the winter and remove moisture from the attic space. The two forces that provide ventilation for attics and framing cavities are convection and wind. Cold air enters at low vents (at eaves) and forces warmer air to exit at high vents (at ridges). As wind (air) flows over a building, it creates positive and negative pressures. Positive pressure forces air into the attic and negative pressure draws air out of the attic.

Convection or natural flow is used for ventilation design. Nature or mechanical equipment can provide ventilation. A natural system relies on convection for ventilation. A mechanical system is designed to circulate a certain amount of air change per unit time. For both system types, intake vents are placed along the eaves and exhaust vents are placed along the ridge. A clear continuous path is needed between the intake and exhaust vents. The required amount of attic ventilation is stated in the building code and is a function of attic horizontal area.

Most codes (Uniform Building Code, BOCA) require one square foot of ventilation for every 150 square feet of attic floor area. The reduction of vent area due to vent covers needs to be included when calculating the required vent area. The Code ventilation requirement does not directly address ice dams.

The Cold Regions Research Engineering Laboratory (CRREL) performed studies on several buildings with varying degrees of ice dams at Fort Drum, New York. This study consisted of placing instruments in the attics of buildings with histories of minor to severe ice damming. The CRREL study

found that to avoid ice dams, the attic ventilation systems, natural or mechanical, should be sized to keep the roof surface below freezing when the outside temperature is 22°F. When the outside temperature is below 22°F, the outside air will circulate the attic air easily. When above 22°F, it is unlikely that the melt water will refreeze at the eave. Fifty-seven buildings at Fort Drum were modified according to these guidelines, and the previous chronic ice dams were eliminated.

Materials

Conventional roofing materials, such as shingles, wood shakes, and metal panels are used for steep-sloped roofs in cold regions. Specifying the appropriate underlayment at locations susceptible to ice dam formation is an important design consideration. For example, an impermeable underlayment is needed at areas susceptible to ice damming (e.g., overhangs). The underlayment should be installed over the length of the overhang and extend past the exterior wall into the conditioned space; about three feet is recommended at severe icing locations.

Heated Roof Products

Products that control or eliminate ice dams by heating the roof surface in areas susceptible to ice dam formation range from an exposed wire on top of the roof to heating elements incorporated into the roofing material. The simplest, an exposed wire on top of the roof, creates tunnels in the snow and ice that direct water toward the eave. This system does not stop ice dam formation; it creates drainage outlets for the melt water. It is susceptible to weathering and can be a fire hazard. This type of product has a short warranty (typically one year) and a short service life ranging from three to five years.

Direct ice removal with hammers, chisels, and shovels is not recommended due to the high probability of roof damage. The best method is to let it melt naturally.

More extensive options include roof products that integrate the heat element into the roofing. Products are available for metal roofing, shingles, and shake and have five-year warranties. The heating roof product can be attached to a timer or temperature/snow sensor for activation in remote or partially habited locations. These heated shingles are placed at locations susceptible to ice dams. While functioning, the heated roof surface prevents ice and snow formation.

Although these systems can be less expensive and extensive in scope of work than improving the attic insulation and ventilation characteristics, they rely on electrical power to function properly.

Preventive Maintenance

Preventive maintenance can reduce the chances of ice dam development. Inspecting and removing leaves, sticks, and other debris from gutters and downspouts in the fall will allow water to flow through the gutter and downspout systems as intended. During the winter, keep the snow load to a minimum on the roof, especially along eaves and overhangs. A roof rake (a long-handled tool) allows a ground-based user to pull the snow off the roof. Care is required so that the roof is not damaged during snow removal. In addition, gutters and downspouts should be kept free of snow and ice formations, allowing a path for melted snow to exit the roof.

Ice accumulation can be removed by artificial heat (e.g., steam, electric heaters). Direct ice removal with hammers, chisels, and shovels is not recommended due to the high probability of roof damage. The best method is to let it melt naturally.

Investigation Techniques

For buildings with ice dam problems, an evaluation should be performed to determine the cause of the ice dams and the appropriate scope of repairs prior to the start of work. Typical repairs usually consist of improving the attic ventilation and/or ceiling insulation/vapor barrier. Buildings with complicated roof framing or extensive mechanical systems in the attic make these types of repairs labor intensive, difficult to perform, and expensive. A less expensive option is heated roof surfaces at ice dam locations.

A typical investigation sequence includes the following elements:

- Review available drawings and other ice dam-related documents.
- Observe site conditions (visual observations and destructive exploratory testing).
- Surveying and testing, as required.
- Develop repair recommendations.

Observations

The following conditions should be observed: ice dam locations, existing intake and exhaust roof venting, roof/ceiling construction, and penetrations in the ceilings. Exploratory probing entails removing sections of finishes to expose the underlying conditions. This provides information regarding the as-built conditions but it is expensive and not performed on all projects.

Survey

An infrared thermographic (IR) survey identifies heat leak locations in the ceiling assembly. As the temperature rises, infrared radiation gains in intensity. An IR camera will graphically show areas and locations of heat leaks, aiding in focusing the repair scope of work. IR surveys should be performed at night when the temperature contrast is the greatest.

Testing

Air infiltration tests can determine large sources of air leakages; small air leaks are difficult to locate during this test. Typically, a fan creates a lower pressure in the room/living space to be tested. Wall openings are sealed with tape so as not to influence the testing. The ceiling is then inspected for air leaks that can be detected by touch or sound.

Summary

- Ice dams, ridges of ice that occur along eaves with overhangs, can result in interior leakage and safety concerns.
- Keeping the roof surface cold with insulated ceilings and adequate attic ventilation is the best method to prevent ice dams. In addition, specifying the appropriate roofing materials in areas susceptible to ice damming to prevent leakage at underlayment laps is also important.
- Ice dam remediation ranges from heating the roof surface to increasing ceiling insulation and attic ventilation.
- Preventive maintenance, such as ensuring the roof drainage system functions properly and minimizing snow accumulation on the roof, reduces the effects of ice dams.
- Infrared thermographic surveys and air infiltration testing can assist in locating sources of heat leakage and focusing the repairs on these locations.

Maintenance Contracts for 11th Graders

by Matt Adams, P.E.

Really, it's not just for the 11th graders. We should be fair and have it for all of the kids, and the physical plant staff too. The two groups do have some similarities. There is a parallel between the time-management skills faced by an 11th grader and those of the plant staff. For the kids, homework should come first and then any time remaining is left for the extracurricular activities. These time management priorities are long-standing and make sense.

On the other hand, the maintenance staff has long-standing time management priorities, but do they make sense? For the plant staff, extracurricular activities come first and then any remaining time is given to planned maintenance. In this case, the extracurricular demands are work and not recreation. More importantly, they are the daily myriad of support tasks that school district plant staff performs in order keep "the place running." Only they are qualified to do this. For many districts, contractors can help with the second priority tasks.

Many people in our industry still prefer to "make" maintenance services versus "buying" them. I am a fence sitter on the practice, myself. However, no one will disagree that there are an increasing number of specialized roles for contracting in our industry. Survey after survey proves this. Published APPA research that I have participated in illustrates that the total volume of contracted services continues to rise and has every indication of continuing that trend. More specifically, individual trades or specialty contracts are the growth area, not the wholesale department-wide contracts. I have always interpreted this statistical fact as demonstration of an increase in awareness and utilization by physical plant directors of the proactive utility of contracting within their existing organizational structure instead of in place of it. So what does this have to do with 11th graders?

The vast majority of school districts in this country operate within financial and operational scrutiny that would humble most university plant directors. We as taxpayers are highly suspect about any property tax increases. The average voter sees no difference between the bond funds used to build a new school or renovation versus that of an operation levy. At the corner diner you can always hear someone say, "Why do they want more money?", or "They just spent $5 million on that new wing for the high school!" We in the biz know the difference between capital and operational dollars, but many do not, and we don't have the time or resources to change the dogmatic beliefs of the whole community before the next referendum.

Unfortunately, this scrutiny translates into financial planning activity within our school districts that is more akin to sensitivity analysis as opposed to a budgeting process. This is a reality. Most districts that need additional staff, particularly non-teaching, are very reticent to ask for new bodies or the actual total FTE needed for fear of blow-back from the local voters. This fact sets the stage for operation and maintenance constraints that are nearly unworkable. If we were the 11th graders, we would have only enough time to do our homework with no time left for our extracurricular activities. Or as maintenance staff, we only have time for the daily goodwill support activities at school with little or no time left for the hardcore, planned extracurricular maintenance activities. Naturally, this is not good for the facilities.

The personal contact and support that the maintenance staff provides our schools is invaluable. There can be too much of a good thing, but for the most part this is a fundamental element of the school district community way of life. Given this demand for time, coupled with the unfortunate realities of our budgeting process (or lack thereof), how can we get our maintenance completed? There are simply not enough bodies to get the work done.

Of the total scope of maintenance responsibilities for a facility or district, some are easy candidates for purchased services. "Now wait a minute," some might say. We don't outsource in this county and we don't want to lose jobs or tax dollars in the community! To this I say Amen! We don't lose jobs or local tax dollars. In fact, if we are wise, the net

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sum is a gain for dollars and jobs in the local community. How does this work?

We must assume that it is more difficult to ask for and keep new, non-teaching, positions at our district.

Even when we get new positions, it is less than we really need. Given this, we will never have enough and so we must swallow our medicine and make adjustments. Easier to get than new positions are smaller, incremental increases in operations dollars. Even better is the proposed ear-marking of new funds for a maintenance contract that has a high and lofty purpose, like protecting life or energy, a.k.a. HVAC controls, fire systems, back flow prevention devices, security, and other systems that are complicated to maintain, yet critical. While we are at it, perhaps we can negotiate full-service contracts that offer replacement of the system components and execution of the low-frequency, high-cost planned maintenance activities that always wreck our annual maintenance budgets. The built in insurance against unplanned, high-cost failures will be a help too.

By better utilizing the incremental funding we find or win along the way to new hires, we are increasing, sooner, the money spent on local businesses and, therefore, jobs in the community.

The fact is that contracts are completely flexible and can be specified to meet the service needs or available funding of the district. That is to say, if we can only carve out $5,000 in new funds from the existing budget and/or the new levy, we can still make it work for us. On the contrary, that is not enough for another funded position. One could say that contracts can keep our plant staff making progress in between the new funding events that allow for new trade hires. This makes sense. The contract further allows the existing staff to refocus efforts in a more concentrated and planned way while keeping up with maintenance requirements until that time, if ever, when new positions are fully funded.

Finally, does the "smell test" to the local community pass? This strategy won't reduce jobs in the community. In fact, by better utilizing the incremental funding we find or win along the way to new hires, we are increasing, sooner, the money spent on local businesses and, therefore, jobs in the community. Don't forget, the success of our maintenance program goes up as well. Now if 11th graders could only contract out their homework, we would solve everything!

The Bookshelf

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

Every now and again facilities officers need to get a big picture look at the education industry. This month we look at higher education from 40,000 feet to see the overall history, environment, and future challenges. We need to look at what others, including our bosses, are seeing so we can do our jobs and 'proact' rather than react to our environment.

At the end my fifth year of providing book reviews to fellow members, I'm looking to make some changes that reflect what members want. I'll always be open to suggestions and unsolicited reviews. Don't forget that APPA members benefit from sharing thoughts, insights, and expertise; a book review provides an opportunity to accomplish at least two of those benefits. Anyone can submit a book review, long or short. Even if it's only an idea and a paragraph or two about why you've taken the time to read and recommend the book, your recommendation will be recognized here, in print.

* * *

Old Main: Small Colleges in Twenty-First Century America, by Sam Schuman, 2005.

With costs of education rising and funds shrinking, colleges and universities of every size are struggling to make stronger cases for

themselves. The challenge may be greater for America's 900 or so small colleges—mostly private, liberal arts schools often with high tuitions, small facilities, and limited resources.

In *Old Main* Sam Schuman lays out a defense of small colleges. The argument goes something like this: Students at small colleges have greater involvement in campus life and a more integrated learning experience than at large institutions. They experience a greater sense of community. They receive more one-on-one attention from faculty and staff. They are more likely to graduate and to become civically engaged citizens afterwards.

Although this argument may sound quite a bit like a marketing pitch from a college recruiting brochure, Schuman does a good job of keeping it fresh and bringing it to life. His data reassure us that the rationale for the small college experience is largely true. For instance, on the National Survey of Student Engagement, students at baccalaureate, liberal arts colleges report more than average that they have asked questions in class, worked on research projects with faculty, and participated in independent study. Their level of satisfaction with the college experience is also slightly higher than average.

Schuman's countless stories and examples illustrate how small college life generates a sense of community. Staff, students, and faculty tend to feel more accountable to the college's shared mission. At Southwestern University, for example, housekeepers know student schedules and prod them to go to class. Students at small colleges are often on a first-name basis with administrators. A Warren Wilson student reports to Schuman, "I do love that I know Doug [Orr, the president] and... that I can call Louise (our dean of students) around midnight and be invited to her home for a chat."

Small colleges are subject to tremendous idiosyncrasy, and this is a strength, Schuman says. Each campus meets a particular need. Westmont College, an evangelical school in California, argues that it provides "academic freedom" for faculty and students to integrate religion into their studies—something that might not be encouraged at a non-sectarian campus. Northland College in Wisconsin focuses on environmental studies. Oglala-Lakota College in South Dakota serves American Indians and teaches Lakota culture. Gallaudet in Washington, D.C. provides the only independent, liberal arts college for the deaf.

Schuman reflects on the threats facing small campuses, including perpetual lack of funding, and more recently, difficulty in recruiting high-quality faculty. Small colleges, on the losing end of "economies of scale," also struggle to pay for high-tech facilities and computing resources.

But if you're looking for a concrete how-to on fixing your small campus's problems, you won't find it here. Schuman's answers to the nagging questions that face university administrators is, *it depends*. Each campus warrants a different approach—although Schuman does suggest that participating in networks

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or consortia might help small institutions pool resources and share costs.

By the end of the book, Schuman has constructed not merely a pitch for small colleges, but a philosophy of small-scale institutions in general. Drawing from a body of literature on the benefits of smallness—primarily from Wendell Berry, Theodore Roszak's *Small Is Beautiful*, and Sarah Susanka's *The Not So Big House*—Schuman suggests that small colleges, like small towns and small houses, have "preserved a unique reservoir of values and relationships that remained precious within the large, impersonal world of urban mass culture."

In other words, small colleges give students a face instead of number, and by fostering closer and more personal interactions and greater participation in campus life, small colleges have a better chance of reinforcing basic human decency and integrity than larger institutions.

The author does note that large institutions have their strengths, and in several places he insists apologetically that small institutions are not better than large ones—just different. He also discusses how both have tried to capture the strengths of the other. Large institutions, for instance, have established on-campus, integrated honors programs, aimed at creating a sense of community. However, Schuman says such endeavors have limitations. In the end, a large college cannot capture the "smallness" of a small college.

Overall, the book may not chart any clear course for a small college administrator, but it does help illuminate the role and mission of small colleges in American culture for anyone concerned about the future of higher education.

—Reviewed by Madeline Ostrander
Freelance writer living in Seattle, Washington. Ostrander specializes in environmental and water resources issues.

Remaking the American University: Market-Smart and Mission-Centered, by Robert Zemsky, Gregory R. Wegner, and William F. Massey. New Brunswick, NJ: Rutgers University Press, 2005. $24.95, hardbound.

The golden years

of higher education have passed, the 'baby bust' is over, and now higher education is faced with the baby echo and helicopter parents. What does this mean to the operational and survival of higher education? Zemsky, Wegner, and Massey combined their years of research, observations, and roundtables to write *Remaking the American University*. The authors are frequent contributors to higher education studies and analyses. They have combined their various works and the work of others to present an overall, gloomy vision, of where higher education is today and what it needs to do to get out of the mess it created.

Remaking touches on the roots of higher education, many small institutions focused on a liberal arts education, learning for learning's sake; transformed by the GI Bill into a common man's road to success; then the mandatory ticket to a job and the American dream. Students from all walks of life are trying to get into colleges and universities and facing a bewildering array of costs, discounts, grants, loans, and other financial variations to make a degree possible. Simultaneously, colleges and universities have created an economy of inelastic prices, regularly raised to impart the impression of exclusivity and value.

Faculties, focused on their research interests, are involved less and less in the development of their students' lives and learning. Elaborate marketing and retention infrastructures have been created to feed the beast with sufficient numbers of new, tuition-

paying customers and to keep them attending and paying.

The list of challenges seems almost endless. Academic publishing feeds on itself as the producer and customer while private publishing houses charge increasing amounts for access to 'free' information. Sports teams are nurtured despite their lack of centrality to the educational mission and high cost (at most institutions). For public institutions, dwindling state resources force ever greater burdens on students because their voices are not heard over the clamor for tax relief. And the demand for educational outcomes from parents, other educators, and businesses continue to increase. There aren't many solutions.

Some of the solutions tried in the past have not worked as planned. E-learning has failed in most institutions that tried it. Distance learning has similar challenges. Marketing to non-traditional learners and those seeking job advancement has failed to overcome the customer-focus of the for-profit institutions. The elite institutions survive because they are elite and exclusive.

It is interesting to reflect, in the chapter titled "Making Educational Quality Job One" that very few institutions have identified what it takes to identify what quality means, how to measure it, and how to measure progress toward it. APPA is well ahead of the overall academic enterprise in this effort with its Strategic Assessment Model, Facilities Performance Indicators, and other quality initiatives. So where will higher education be in the future? There are several recommendations which appear simple but will challenge the most persuasive academic leader because of academic resistance.

This book is not an easy read. It is filled with interesting information and commentary and several examples of institutions that got part of the mission correct. Unfortunately, it isn't clear that more institutions will get it correct. It does, from my perspective, suggest that APPA has it right in being more like a business and developing strategic plans and tools for success. The facilities officer who has implemented many of APPA's tools will be a valuable asset in future because he or she has gotten the message and figured out how to respond to market demands and change. If you are interested in the big picture and in finding ways to respond to your campus's needs, you will find this book helpful in getting the long view.

New Products

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

Lyon Workspace Products has developed a new, patent pending locker latching system that utilizes nano (miniature) roller technology to provide up to ten times the resistance to break-ins compared to existing locker latching systems. The actual nano roller is made of powdered metal—the same high tech metal used in automotive transmission gears—for unmatched resistance to wear. Also, a new nylon lockbar guide ensures proper lockbar alignment for smooth operation, while reducing overall noise by eliminating metal-to-metal contact. For more information contact Lyon Workspace Products at 800-323-0096.

Friedrich Air Conditioning Company announces the launch of a new digital PTAC for 2005. The new Friedrich ultimate PTAC is up to 10 percent quieter than previous models and has improved overall sound quality. Plus, it has smart features like "Quiet Start/Stop Fan Delay," muffles transitional compressor start-up noise. The new PTAC is feature rich with top-of-the-line engineered capabilities like one-touch operation, internal diagnostics, remote thermostat operation, wireless remote control (ready), emergency heat override, electronic defrost control, room freeze protection, electronic temperature limiting, service error code storage, and filtered fresh air intake, just to name a few. For additional information contact Friedrich Air Conditioning Company at 800-399-PTAC.

Weldcraft introduces specifications for CS 300/300V GTAW (TIG) welding torches. The patent pending air-cooled CS 300/300V eliminates the need for complex water-cooled components making this product ideal for field applications. The CS 300/300V also increases cost efficiency by handling higher amperages (up to 300 amps) for longer periods of time without overheating; offering High Flex cable assembly to reduce operator fatigue; and using replacement parts from the WP-26 series torch. For more detailed information call Weldcraft at 800-752-7620.

Betlou'j presents the Whiteboard "ImageSaver"™, a simple and low-cost solution that minimizes cleaning and maintenance needs, and extends the life of whiteboards. The ImageSaver enables whiteboard user to quickly and conveniently remove, save and keep any erasable marker images that they write on the board. This eliminates the usual cause of whiteboard staining and ghosting; which is marks that are left on whiteboards for extended periods of time. The ImageSaver is "manually" operated, so electricity, software or hardware is not required. Get a free sample and details from Betlou'j at www.TheImageSaver.com.

Bartlett Tree Experts announces Root-Rx Root Invigoration, a new method for promoting root growth. A scientific breakthrough was needed to effectively combat the culprits responsible for more than 80 percent of tree and shrub losses—root and soil disorders. As the result of extensive research and testing a new process was developed using Air Spade™ to break up compacted soil and then mixing in nutrients and organic matter to promote root growth, without damaging the roots or digging trenches in the landscape. In fact, Bartlett Tree Experts process is so innovative that it became the only patented maintenance process in all of arboriculture earlier this year. For more information call Bartlett Tree Experts at 203-323-1131.

ExceLine has recently introduced its new family of fixtures the GeoMatrixx Series. Designed for accent, façade, parking, roadway, security, and sign applications, the GeoMatrixx Series includes Architectural Area Lights, Architectural Flood Lights, and Architectural WallPacks. All are available in small, medium, and large sizes. With designs including integral cable to permit easy, hands-free wiring, each light in the new series is available in a variety of colors, comprised of die-cast aluminum construction and features stainless steel coverings on exposed hardware. For full details visit ExceLine online at www.exceline.com.

APPA Institute & Supervisor's Toolkit *Visits Norfolk*

The APPA educational staff recently returned from another outstanding session of the Institute for Facilities Management, which took place in Norfolk, Virginia, September 18-22, 2005. Facilities professionals numbering 340 participated alongside the co-located Supervisor's Toolkit, adding 38 more facilities colleagues to a week of networking opportunities. Attendees also had the opportunity to visit nearby Virginia Beach, historic Williamsburg, and the naval shipyard just minutes from the Waterside Marriott Hotel.

This September session marked a near record high with an overall attendance of around 380. Within that number we welcomed more than 75 new attendees. Among this group we also welcomed APPA's newest member of the education staff, Xenia Murphy. She and Holly Judd, Cotrenia Aytch, and Suzanne Healy assisted the attendees, faculty, and trainers through a work-filled week.

A special thanks goes to the entire Institute faculty. Year after year the number of participants grows, and we know that this is made possible by the quality of the program. This quality can only be achieved by the dedication and commitment that is shown by our faculty.

We ended our week on Thursday night with the banquet, which is always a high point, as the Institute graduates are recognized and receive their certificates. We had 67 graduates in Norfolk, with Texas leading the states for the second year running, boasting seven graduates.

We'll look forward to seeing many of you in January 2006 as the Institute returns to Fort Worth, Texas, the city "where the west begins." **Register online for the January Institute on the APPA website at www.appa.org/education.**

List of Graduates

Eric Albert • University of Michigan
Chris Anderson • Colonial Williamsburg Foundation
Jason Aultman • Georgia Southern University
Erin Babson • Grand Valley State University
Ramesh Bahl • The Ohio State University
Elcainey Bake • Furman University
Daniel Bedard • Woodward Academy
John Burns • University of Texas
Kathy Chalupsky • University of Minnesota/Duluth
Mark Conner • University of Virginia
James S. Davis • Florida International University
Sharon Davis • University of Connecticut
Thomas Doody • Saint Paul College
Susan Drew • Cornell University
Francina Dubose • University of Central Florida
Chad R. Duke • Salt Lake Community College
Charles J. Duncan • University of Missouri-Rolla
James Farrington • Saint Michael's College
Alex Ferrance • Rice University
Brian H. Gafford • Tennessee State University
Robert Garman • University of New Mexico
Brian Gerberich • Dallas Theological Seminary
David L. Gould • Maine School Administrative District 9
Jimmie Grutzmacher • Utah State University
Jean Wilson Hale • Sinclair Community College
Chris Hardesty • Embry-Riddle Aeronautical University
K.C. Harris • Macon State College
Kathi Hart • University of Arizona
Edward Hartless • Virginia Commonwealth University
Linda Hathorn • Dartmouth College
Robert Hatker • Santa Fe Community College
Gary Hearn • Eastfield College
James Heckemeyer • University of Missouri-Columbia
Albert Herrera • Pima Community College
Matthew Hicks • University of Michigan
Gregory Justice • Indiana Univ-Purdue U./Fort Wayne
Todd Kadjan • Arizona State University
Laurie Kianka • University of the South
Kurt Knievel • University of New Mexico
Michael Kukawa • Slippery Rock University
Brian LaPlante • Skidmore College
Randolph Larate • Middlesex County College
Joseph M. Laster • Texas Christian University
Vincent M. LeMond • The University of Texas in Austin
Steve Long • Furman University
Ken McKnight • IUPUI
Scott Metcalf • Punahou School
Glenn Monro • Dallas Theological Seminary
Vanessa I. Myers • University of Guelph
Everett Neal • Kenyon College
Teresa Pelanne • University of Texas/M.D. Anderson Cancer Center
Ernest Peters • HACC Lancaster Campus
Sharon Register • Arizona Western College
Angel Rey • University of Miami
Glenn R. Rinehart • Harrisburg Area Community College
Richard Rivera • Joliet Junior College
Daniel Rodecker • Skidmore College
Keith Ronalter Phillips • Exeter Academy
Mindy Rorabacher • St. Mary's College of Maryland
Pat Sanchez • University of Houston
Albert Scott • North Carolina State University
Greg L. Silkman • University of Missouri-Kansas City
Douglas Spengel • The George Washington University
Tom H. Sternberg • University of Alaska/Anchorage
Ryan A. Stock • Central Oregon Community College
Muhammed Sam Sulaimon • Rider University
Tim Ward • Wake Forest University
Montel Watson • University of Central Florida
James Willingham • Cedar Valley College/DCCC
John Wiltenmuth • University of Mary Washington
Robert Woodruff • Sinclair Community College

Coming Events

Coming Events

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

APPA Events - 2005

Nov 3-4—*Smart & Sustainable Campuses Conference.* College Park, MD. Visit http://www.appa.org.

APPA Events - 2006

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

Jun (TBD)—*Leadership Academy.* Tucson, AZ.

Jul 8-11—*Campus of the Future: A Meeting of the Minds.* Honolulu, HI. Joint conference by APPA, NACUBO, and SCUP. Visit www.campusofthefuture.org for more information or to register

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

APPA Regions - 2006

Sep 20-23—*PCAPPA 2006 Annual Meeting.* San Jose, CA.

Sep 30-Oct 4—*CAPPA 2006 Annual Meeting.* San Antonio, TX.

Oct 1-4—*MAPPA 2006 Annual Meeting.* Indianapolis, IN.

Oct 12-17—*SRAPPA 2006 Annual Meeting.* Durham, NC.

Oct 15-18—*ERAPPA 2006 Annual Meeting.* Mystic Seaport, CT.

Oct 18-22—*RMA 2006 Annual Meeting.* Billings, MT.

Other Events - 2005

Nov 8-10—*Building on the Promise: Successfully Implementing Integrated Projects.* Las Vegas, NV. Visit www.designbuildexpo.com.

Nov 13-16—*NACAS Annual Conference.* San Antonio, TX. Visit www.nacas.org.

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

Nov 30-Dec 2—*Construct Canada.* Toronto, ON, Canada. Visit www.constructcanada.com.

Other Events - 2006

Jun 25-27—*ACUHO-I 58th International Conference.* Atlanta, GA. Contact Jennie Long, jennie@acuho-i.org.

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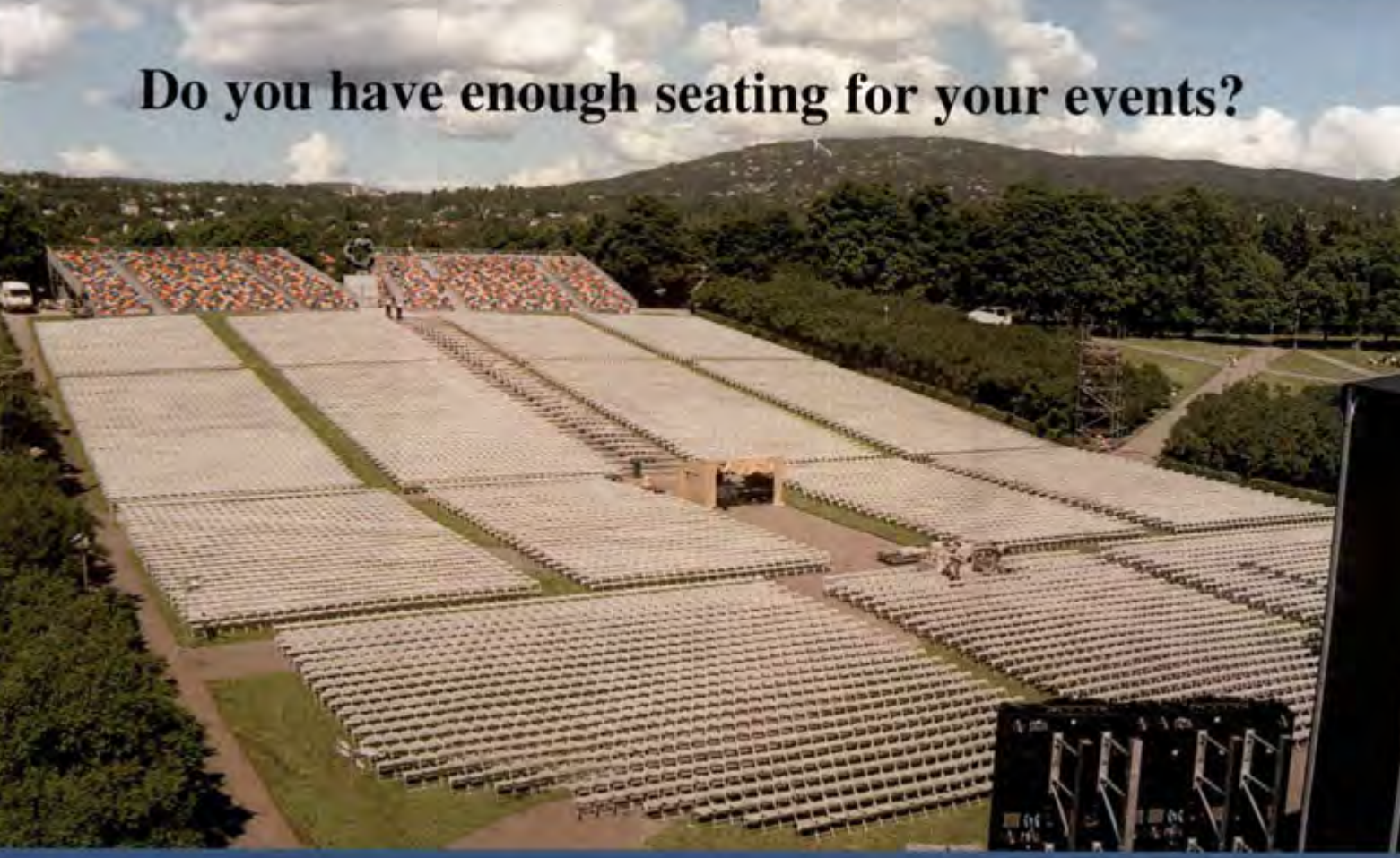

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