

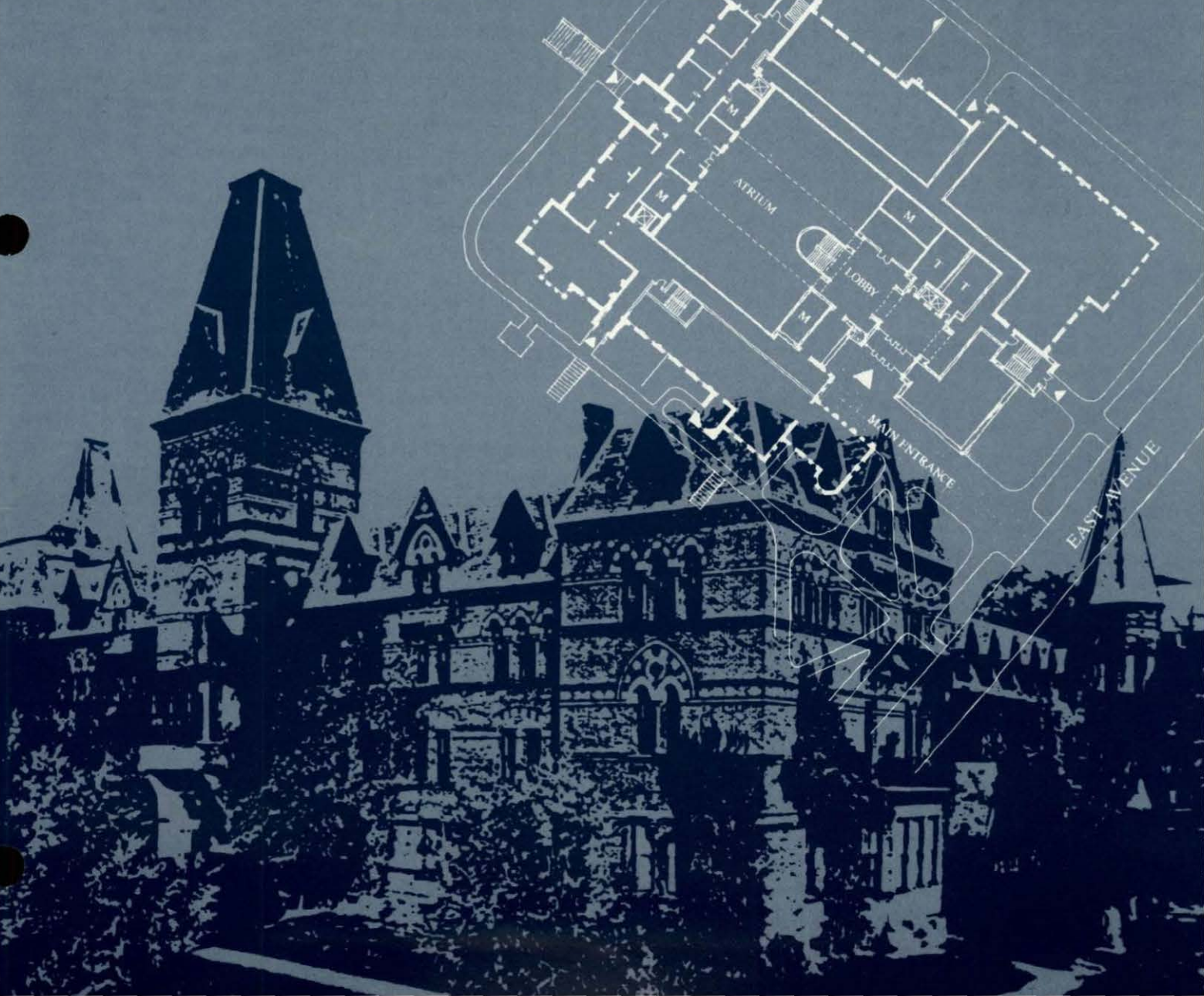
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# Facilities Manager


Volume 8 Number 1

Winter 1992

## Adapting Old Buildings for New Uses







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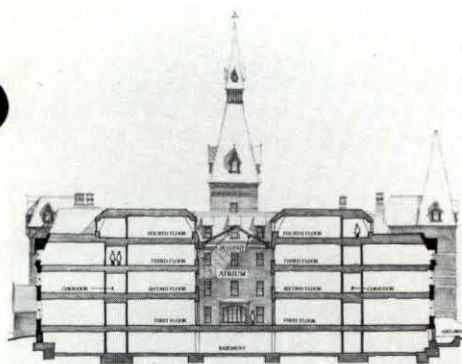


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by Steven Einhorn and  
Jim McKinney

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The official  
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Higher Education  
Facilities Officers

# Facilities Manager

VOLUME 8 NUMBER 1

WINTER 1992

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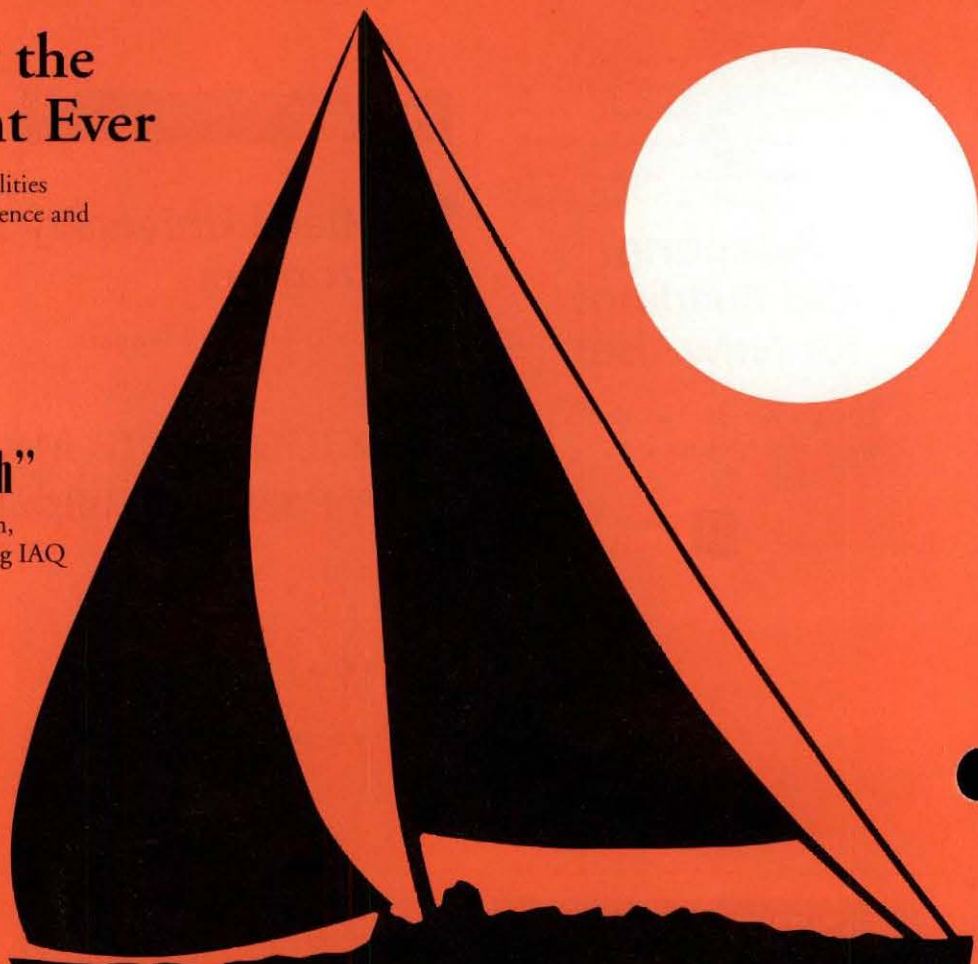
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## APPA News

### APPA's Theological Study Attracts Widespread Media Interest

After months of extensive research and information gathering on the condition of facilities at theological institutions, results of *Today's Challenge to Tomorrow's Vision* were announced at a news conference on December 3 in Washington, D.C. The briefing was led by APPA Executive Vice President Walter Schaw and featured Craig Dykstra, vice president for religion from the Lilly Endowment, Robert E. Cooley, president of the Association of Theological Schools, and Norman E. Dewire president of the Methodist Theological School in Ohio. The briefing outlined survey statistics

and fully integrated the components of APPA's model for stewardship for schools of theology facilities with the needs of other higher education facilities.

Media interest in the briefing was impressive, with a dozen broadcast and print reporters in attendance. Many others requested the report and information kits and indicated their intention to develop stories about the study.

Coverage of the APPA/Lilly Endowment study began prior to the briefing, with the publication of a favorable *New York Times* article on November 30. Since then, more than twenty-five interviews conducted with briefing speakers and representatives of participating theological institutions have resulted in radio segments on the Missouri News Network, the Virginia News Network, several Cincinnati and Chattanooga stations, KMBZ-AM (Kansas City), and the nationally syndicated CBS radio program "World of Religion."

Considerable print coverage of the study also is scheduled. Articles will appear in the *Chronicle of Philanthropy*, *Cincinnati Enquirer*, *Columbus Dispatch*, *Contra Costa Times* (San Francisco Bay area), *Nation's Building News*, *San Francisco Examiner*, and *Washington Times*.

### APPA Challenges Vision of Facilities Conditions

APPA released *Today's Challenge to Tomorrow's Vision: A Study of Facilities Conditions at Schools of Theology* at its December 3 press conference in Washington, D.C. This 96-page book assesses the condition of campus facilities at 202 schools of theology in the United States and Canada. It is the culmination of a

#### TODAY'S CHALLENGE TO TOMORROW'S VISION

A STUDY OF FACILITIES  
CONDITIONS AT  
SCHOOLS OF THEOLOGY

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Facilities Officers  
&  
Lilly Endowment, Inc.

joint project conducted by APPA and sponsored by the Lilly Endowment, Inc.

The first three chapters include the research results from the first phase of this project: assessments of facilities operations at forty-one schools, workshops attended by presidents, business officers, and facilities managers, and an on-site evaluation of conditions and operations by APPA member experts who issued formal reports.

Chapters 4-6 cover financial perspectives for renewal and replacement of facilities, the challenges posed by deferred maintenance and its connections to stewardship, and how trustees can offer leadership and expertise in support of the institution's mission.

Chapters 7-11 are case studies gathered from some of the participating institutions.

*Today's Challenge to Tomorrow's Vision* costs \$25 for APPA members, \$35 for all others; add \$8 for shipping and handling. Send checks to APPA Publications, Dept. TCNL, P.O. Box 1201, Alexandria, VA 22313-1201. Prepayment is required.



More than 100 people attended the APPA/Lilly press conference on December 3 in Washington, D.C.



Norman Dewire, Methodist Theological School in Ohio



Robert Cooley, Gordon-Conwell Theological Seminary



Craig Dykstra, Lilly Endowment, Inc.



## Midyear Report From The President-Elect

by Don Mackel  
University of New Mexico



With the changes approved to the APPA bylaws last April, the office of President-Elect has become President-Elect and Senior Vice President for Programs. This reflects but one of the important changes designed by the APPA Board of Directors to spread the work load of those elected to the top offices of APPA over the three years in which they move through the presidential chairs. This change also establishes responsibility for oversight of the elected vice presidents and their programs with the President-Elect. Additionally, the President-Elect chairs the Planning Committee and serves as a member of the Finance Committee.

A portion of the work load being shared in this restructuring is the visiting of the regions. Sharon and I have thoroughly enjoyed attending four regional meetings this year (RMAPP, PCAPP, MAPPA, and SRAPP). We have renewed many friendships and made many new acquaintances that I'm confident will endure. We have been treated in a very special way by each of our hosts, and this has served to intensify our desire to visit and strike up new friendships in those regions we were unable to visit this year. We look forward with great pleasure to the regional meetings next year.

In a recent article printed in *Association Trends*, networking and education are cited as the two main reasons peo-

ple join associations. They are also perceived as the principal benefits of association membership. Reflecting the dismal state of fiscal health across most of higher education, attendance at each of the regional meetings was lower than in previous years. Be that as it may, I would observe from the excellent quality of educational programs, intense interest and participation in the peer-group sessions, and genuine interest in the vendor exhibit sessions, that this group of professionals is as committed as ever to carrying on the work of managing their campus' facilities. I would also observe that fellowship among these professionals ranks a close second.

In addition to reporting to the membership the status of the various APPA programs, I had the following four goals while visiting the regions:

1. Yes, to renew old acquaintances and make new friends, but more important, to meet the membership.
2. To learn from the members their sense of priority with regard to the issues expressed in the long-range planning document entitled "Toward the Twenty-first Century."

This comprehensive plan enumerates issues of major concern expressed by the membership relative to our profession as facilities managers and to our professional association. I have requested each of the vice presidents as well as the regional senior and junior

representatives to be particularly sensitive to membership feedback. There's a lot on our plates and, as with the limited resources we experience on our campuses, we cannot take care of all of it at once. We are, however, making excellent progress, and each of you is encouraged to review the plan and communicate your needs to your regional representatives. We will begin to crystallize the 1992-93 Operating Plan at the midyear board meeting in February, so you can see that time is running short.

3. To get an expression of interest from members to serve the association. In APPA, as in any volunteer organization, the organization can suffer from inbreeding, work overload, over/under commitment, and burnout. New ideas, fresh ways of thinking about association problems and membership services are healthy. Another of the duties assigned to the President-Elect is that of making committee appointments for the upcoming year (1992-93). How would you like to serve your association?

4. To visit with some of the vendors at the exhibit sessions to learn from our Subscribing Members how we might explore and improve the opportunities for access and successful exchange of information, goods, and services as we become more sensitive to the customer service aspects of our roles.

Your responses to the survey on the issue of professional certification have been tabulated, and it remains for us to carry out the wishes of the association. There will be one more area in which we are asking for help. The Comparative Costs and Staffing Report will be coming out in its new format. Please take the time to complete it and help us to make this a useful and usable document.

Let me thank you for the confidence you have expressed in me by having me serve as your President-Elect, and following that, your President. I am moved by this opportunity and excited about the challenges that lay ahead. ■

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# 1991 APPA Regional Meeting Highlights

## Eastern

The setting of the 41st ERAPPA Annual Meeting, held October 6-9, was historic Annapolis, Maryland. The meeting was hosted by the Maryland/Washington, D.C. Chapter; chair Al Stearns and his committee did an outstanding job of organizing a memorable learning and social experience. A total of 219 attendees enjoyed the conference.

The highlights for delegates of the conference this year included a tour of the Smithsonian National Air and Space Museum with a buffet dinner, and a harbor cruise on the Chesapeake Bay complete with delicious Maryland crabs. The spouse/guest program included a walking tour of Annapolis and a visit to the Londontown Publick House and Garden.

"Achieving Facilities Equilibrium" was the theme carried out through sessions on a variety of technical and administrative topics, including energy conservation through retrofits, reducing fuel costs through alternative sources, cultural diversity in the workplace, and strategies for people who do too much.

Spearheaded by ERAPPA President Norm Bedell and the Board, a bylaws update and revision was proposed and approved by the delegates at the annual business meeting. One of the major changes was allowing for three elected officers each year; another strengthens the coordination between the region and the chapters by having the Second Vice President act as chapter liaison. Establishing a computerized training network where member institutions could share training resources and references through a phone call was proposed.

Bedell turned the gavel over to the new president Frederick Klee at the closing banquet reception. An award for Meritorious Service was given to Richard M. Engle of Rutgers University for videotape program support.

The membership is looking forward to ERAPPA 1992 in Portland, Maine, to be hosted by Northern New England.

— Carol Trexler  
ERAPPA Newsletter Editor  
Facilities Personnel and Training  
Coordinator  
Rutgers University (NJ)

## Southeastern

The 40th Annual Meeting of the SRAPPA was held November 2-6 at the Hyatt Regency Hotel in Hilton Head, South Carolina and was hosted by Clemson University. The theme of this year's meeting was "Legal Alternatives: How They Affect Facilities Management." There were some excellent educational sessions involving the legal issues for physical plant administrators.

The meeting opened with a golf tournament on Sunday at one of the outstanding Hilton Head golf courses and included a low country sunset cruise along the South Carolina coast aboard an old paddle wheel steamer. The meeting concluded with the installation of new officers and the annual awards banquet on Tuesday evening.

Even though many states in the region were faced with severe budget cuts, the meeting still attracted more than 130 members and approximately fifty spouses. More than fifty vendor exhibits were also set up. A "well-done" goes to Michael Faires, Myra Cato, Patricia Finley, and the rest of the Clemson staff for their hard work in putting on an outstanding and successful program.

— L.E. McMenamin  
SRAPPA Newsletter Editor  
Director of Physical Plant  
George Mason University (VA)

## Midwest

If you missed the meeting in St. Paul, Minnesota, you missed the boat (twice). Approximately 135 members and spouses attended the 1991 Midwest APPA meeting in St. Paul. Many of the attendees participated in the Sunday afternoon cruise up the Mississippi River, which was an excellent opportunity to renew old friendships and make new acquaintances, such as APPA President-Elect Don Mackel of the University of New Mexico and his wife Sharon. Walt Schaw, executive vice president of APPA, also joined us on Monday.

Keynote speaker Robert Erickson, vice president of the University of Minnesota, was particularly enlightening as to the major changes underway at that institution.

Many favorable comments have been received regarding the programs, especially the one presented by Jack Zenger of Zenger-Miller.

The St. Paul Radisson worked out extremely well with the room arrangement and sizes for the various meals and meetings; there were many favorable comments regarding the quality of service and food. The Host Committee — Kirk Campbell, University of Minnesota; Dale Haack, Gustavus Adolphus College; Craig Hjelle, Bethel College; Peter Sandberg, St. Olaf College; and Jim Weninger, Augsburg College — should be justifiably proud of this fine event.

Participants of the spouse tour have rated Barb Haack's itinerary as one of the best, if not the best, outing at any MAPPA or APPA conference!

— Ron Flinn  
MAPPA President  
Assistant Vice President, Physical Plant  
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## Central

CAPPA held its annual meeting September 21-25, in St. Louis, Missouri at the Sheraton West Port Inn. The meeting was attended by 122 registrants, fifty-nine spouse/guests, five emeritus members, and forty-three vendors.

The meeting opened Saturday with two technical seminars. One was on grounds maintenance presented by Outdoor Equipment Company of St. Louis. It was attended by eighteen members. The seminar on mechanical controls was presented by McGrath and Lilly Company of St. Louis and was attended by twenty-two members.

The actual meeting got underway Sunday with registration and vendor exhibitions and hospitality get-togethers. The evening featured a Hobo dinner. The dinner was scheduled for the St. Louis National Museum of Transportation, but had to be moved to the Maryville campus due to extensive rain in the area.

Monday opened with breakfast and a keynote address by Dr. Larry Hays. The full day featured technical sessions, seminars, and educational programs. All attendees were treated to a very rewarding experience. Monday evening the group attended a picnic at the St. Louis Cardinal ballgame with the Montreal Expos.

Tuesday continued the educational programs and provided the attendees with a full range of technical programs. Tuesday night included the annual awards banquet. At the banquet, Tom Jones was presented with the Distinguished Member Award for 1991. Certificates of Meritorious Service were presented to Donna Apel for years of service to CAPPA and to Glenn and Jo Grippe for their work in hosting the 1990 annual meeting.

CAPPA also honored Tom Young with the Hillyard Company, Lee Newman with Ceramic Cooling Tower Company, Dennis Ahrenhoerster-baeumer with the Western Group, and Jim Payne with Dexter Mogul Company with Certificates of Meritorious Service. CAPPA wishes to recognize the above for the service provided to the organization and for long-standing contributions to the profession.

The meeting concluded with a general business session at which time the 1992 meeting was set for the University of North Dakota in Grand Forks, hosted by LeRoy Sondrel. The 1993 meeting was scheduled for Dallas, Texas and

will be hosted by Kirby Vahle and the University of Texas Southwestern Medical Center.

—John D. Rulfs

CAPPA Newsletter Editor  
Associate Director of Physical Plant  
Stephen F. Austin State University (TX)

## Rocky Mountain

This year's RMAPPA annual meeting held September 11-14, carried the program theme of "Management Rendezvous." The meeting was hosted by the University of Wyoming. The Jackson Lodge, which is situated within Grand Teton National Park and thirty-six miles north of Jackson, Wyoming, was rendezvous headquarters. The lodge offered spectacular views across Jackson Lake to the magnificent Teton range that is dominated by the Grand Teton (13,770-foot elevation) and Mount Moran (12,604-foot elevation). Dr. George Krell and his staff from the University of Wyoming promised a great time, and attendees were not disappointed.

Although rain soaked the area prior to the start of the meeting, the elements cooperated as if under the direct control of Krell and crew to provide near perfect fall weather. Rainfall at the lodge on Friday night provided additional spectacular views of snow covered peaks on Saturday morning as the meeting concluded. The setting of beautiful scenery and the delightful weather combined to make a memorable experience.

Education programs were timely and provided in-depth information in interpersonal communications, quality management principles (TQM), legally acceptable hiring practices, and regulatory compliance.

Not only did the meeting include an excellent educational program, but the pre-meeting activities, post-meeting tours, and social activities were equally enjoyable. The scenic lake cruise and Elk Island steak fry offered an unforgettable experience.

Remarks at the annual banquet by former U.S. Secretary of the Interior, James Watt, called for a return to the value system that made America great. His comments were timely and insightful.

APPA was represented at the meeting by President Joe Estill, President-Elect Don Mackel, former President Jack Hug, and Executive Vice President

Walt Schaw. Bill Humble, representing the Australasian Section, was also in attendance.

It is always enjoyable to renew acquaintances at the annual meeting and to participate in informal discussions outside the scheduled activities. Many times problems are solved or good ideas obtained through this network of facilities management professionals. One good idea obtained at the meeting can more than offset the cost of attendance.

—H. Val Peterson

Immediate Past RMAPPA  
Newsletter Editor  
Director of Physical Plant  
Arizona State University

## Pacific Coast

Coeur d'Alene, Idaho was the site of the 40th annual meeting of the Pacific Coast Region of APPA, held September 22-25. More than 100 registrants joined sixteen exhibitors at the world famous resort located on the alpine lake of the same name for several days of relaxation and education.

The conference theme, "Reflections on Excellence in Facilities Management," served as a springboard for each of the presentations and panel discussions.

In addition to a full educational agenda, the conference offered several unique recreational opportunities, including a golf tournament at the resort's lakeside golf course that features the world's only floating green (complete with water taxi), a ride on the world's longest gondola to a mountain-top barbecue, and a sunset dinner cruise on the lake.

The highlight of the annual installation and awards banquet was an enthusiastic roast of Hod Wells, APPA secretary and former PCAPPA secretary-treasurer, who has recently "jumped ship" and joined the Eastern Region.

All credit for a very successful conference go to Joe Spoonemore and the Washington State University staff, as well as other host committee members who agreed to cross state lines in order to take advantage of an incomparable meeting location.

—Chris Christofferson

PCAPPA Newsletter Editor  
Director of Physical Plant  
California State Polytechnic University/  
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# 1991-92 Regional Officers



Klee

## EASTERN

**President** — Frederick Klee, Ursinus College (PA); **President-Elect** — Carl Day, Technical University of Nova Scotia; **Secretary** — Richard McFalls, American College (PA); **Treasurer** — H. Allen Stearns, Prince George's Community College (MD); **First Vice President** — Philip Cox, Cornell University (NY); **Second Vice President** — Joseph D. Ruberton, Quinnipiac College (CT); **Senior Representative** — Donald Hedrick, Allegany Community College (MD); **Junior Representative** — Norman Bedell, Pennsylvania State University; **Director** — Margaret Kinnaman, University of Maryland/Baltimore; **Newsletter Editor** — Carol Trexler, Rutgers University (NJ).

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## 1992 Regional Meetings

### EASTERN

October 18-21  
Portland, Maine  
David Early, University of  
Southern Maine

### SOUTHEASTERN

September 26-30  
New Orleans, Louisiana  
Allen Perry, Tulane  
University

### MIDWEST

October 11-14 (tentative)  
Iowa City, Iowa  
Bob Brooks, University of  
Iowa

### CENTRAL

September 19-21  
Grand Forks, North Dakota  
LeRoy Sondrol, University of  
North Dakota

### ROCKY MOUNTAIN

September 26-30  
Provo, Utah  
Doug Christensen, Brigham  
Young University

### PACIFIC COAST

September 26-30  
City of Industry, California  
Chris Christofferson, California  
State Polytechnic University/  
Pomona

## MAINTENANCE WAREHOUSE

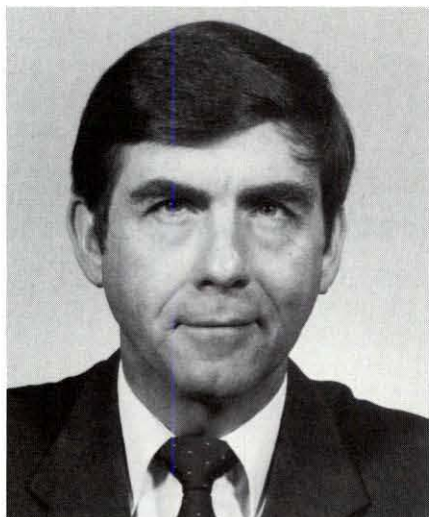
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Flinn

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Apel

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Krell

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**President** — George Krell, University of Wyoming; **First Vice President** — Douglas Christensen, Brigham Young University (UT); **Second Vice President** — Gordon A. Bulat, University of Alberta; **Third Vice President** — Paul Tabolt, University of Colorado/Boulder; **Secretary/Treasurer** — Dean Wolf, Auraria Higher Education Center (CO); **Senior Representative** — Philip G. Rector, Colorado College; **Junior Representative** — Pieter van der Have, University of Utah; **Newsletter Editor** — William Rose, Montana State University.

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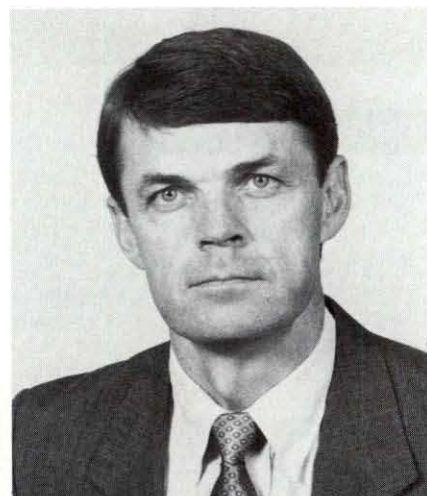
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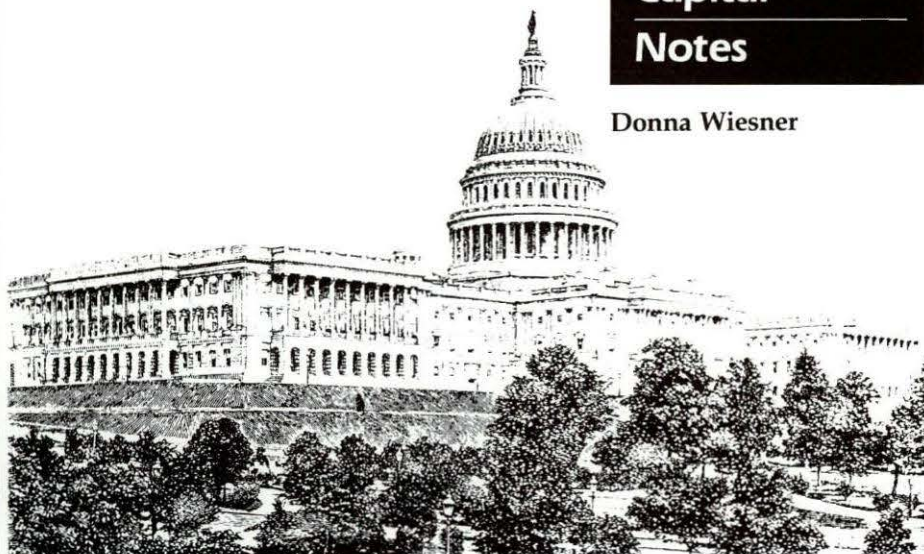
### PACIFIC COAST

**President** — Judd Whetten, Brigham Young University/Hawaii; **President-Elect** — Joe Spoonmore, Washington State University; **Vice President, Annual Meeting** — Chris Christofferson, California State Polytechnic University/Pomona; **Vice President Elect, Annual Meeting** — Peter Harris, Western Washington University; **Secretary-Treasurer** — Ken Hall, University of Idaho; **Senior Representative** — C. Ronald Hicks, University of California System; **Junior Representative** — Dale Klein, Claremont Colleges (CA); **Newsletter Editor** — Chris Christofferson, California State Polytechnic University/Pomona.



## Capital Notes

Donna Wiesner



As you may know, the President vetoed the appropriations for the departments of Labor, Health and Human Services, and Education due to provisions regarding abortions. This may keep the Congress in session, but not long enough to finish the **Reauthorization** of the Higher Education Act.

Although Title VII contains the major facilities component, Title IV contains the charter of the **Student Loan Marketing Association (Sallie Mae)**. The 1986 reauthorization authorized Sallie Mae to do facilities lending on a limited basis, with the requirement that 75 percent of facilities financing be directed to institutions rated less than "A." (If you fall in this category, I encourage you to seek loans from Sallie Mae.) In the last five years, Sallie Mae has loaned or supported approximately \$1.8 billion in facilities financing to more than 130 institutions.

The House reauthorization bill (H.R. 3553) contains a provision to encourage Sallie Mae to do more facilities lending by easing the targeting requirement and allowing Sallie Mae to include A-

rated institutions in the 75 percent category. Senate bill S. 1150 does not include a comparable provision, and in fact restricts Sallie Mae's facilities authority to "**academic, research, and library facilities and equipment.**" This narrow wording precludes Sallie Mae from financing dormitories, administration buildings, dining halls, student unions, bookstores, etc. Moreover, Sallie Mae would not be able to provide a financing package to meet a broad set of needs if part of the financing supports a prohibited category.

Such wording would target the **11 percent of critical need** attributable to libraries, but would severely limit the institution's ability to determine its own critical facilities needs. To make matters worse, Senate Title VII Part A state block grant program language includes similar wording supporting libraries at the expense of the institution's own determination of critical need. The Higher Education Act already has provisions for libraries in Title II. In addition, H.R. 3458, the Office of Educational Research and Improvement (OERI) reauthorization bill expands OERI's dissemination and library services.

Rather than shifting federal facilities

funding to libraries to the exclusion of other needs, Senator Gore's **Communications Competitiveness and Infrastructure Modernization Act of 1991** would help fund a rethinking of libraries and information. One of Senator Gore's goals would be to see fiber optics in every school. With the availability of information through two-way interactive video education, our institutions would be more competitive with Japan, France, and Great Britain.

Because this bill would encourage investment in a public broadband network, an institution's access to any library in the country would not be determined by the number of seats in the university library or the number of square feet in the college stacks. This legislation is supported by the American Council on Education, American Association of Community and Junior Colleges, Council of Independent Colleges, National Association for Equal Opportunity in Higher Education, and the National Association of State Universities and Land-Grant Colleges.

Meanwhile, the *Federal Register* has been busy printing, including proposed rules for gasoline and alcohol blends volatility (Vol. 56, No. 202) and for motor vehicle lamps and reflective devices and associated equipment replaceable light source dimensional information (Vol 56, No. 202). These kind of rules affect the manufacturers more than they do our institutions, but the costs are passed on to all consumers. I understand that new studies will be released shortly to increase estimates of the cost of federal regulations, to three times the \$185 billion figure the President uses.

Other news from the *Federal Register* includes:

**Occupational Exposure to Formaldehyde** (29 CFR Part 1910, 56 FR 57593). To give OSHA time to review the public comment on a proposal to resolve remaining issues on formaldehyde, the stay has been extended for an additional ninety days. Continue to comply with OSHA's Hazard Communication Standard until new rules are published.

**ZIP +4 and ZIP +4 Barcoded Rate Presort Requirements** (39 CFR Part 111, 56 FR 57724). Although current rules are more applicable to large mailings, the trend is toward a price differential between 9- and 5-digit zip codes mailings. It would be to your advantage to begin collecting +4 zips for anyone to whom you write, and to include the full zip code on the next printings for your own letters and letterhead. ■

Donna Wiesner is APPA's director of government relations.





Stephanie Gretchen

Stephanie Gretchen is APPA's communications manager and assistant editor of Facilities Manager.

Government Institutes is offering **books and courses** on a wide variety of environmental topics. For more information, contact Government Institutes, Inc., 4 Research Place, #200, Rockville, MD 20850; 301/921-2300.

The EPA Office of Pesticide Programs has a number of brochures and fact sheets on **pesticides issues** available. Some examples of what they have include EPA's Pesticide Program, May 1991; Pesticide Reregistration, March 1991; Citizens Guide to Pesticides, April 1990; Highlights of the 1988 Pesticide Law, December 1988. For more information, contact the Communications Branch at 703/557-5017.

To obtain EPA's final Pesticides and Ground-Water Strategy (Vol 56, No. 215), contact your regional office. Regional EPA offices were listed in the fall *Facilities Manager*.

Your ABC Guide to the Environment is a

new **book** available from JT&A, Inc. that explains acronyms, abbreviations, and terms. The book costs \$12.95. For more information, contact JT&A, Inc., c/o American Business Publications, 1000 Connecticut Avenue, N.W., Suite 802, Washington, DC 20036.

On November 5, the EPA extended the deadline for **storm water** pollution permits (56 FR 56548) to October 1, 1992. EPA also extended the deadline for submission of the second part of group permits from May 18, 1992 to October 1, 1992 (56 FR 56555). EPA said the extensions were made to allow facilities with rejected applications for group permits to have enough time to obtain sampling data. For more information, contact Thomas Seaton, EPA Office of Wastewater Enforcement, 401 M Street, S.W., Washington, DC 20460; 202/260-9518, or the NPDES Storm Water Hotline at 703/821-4823.

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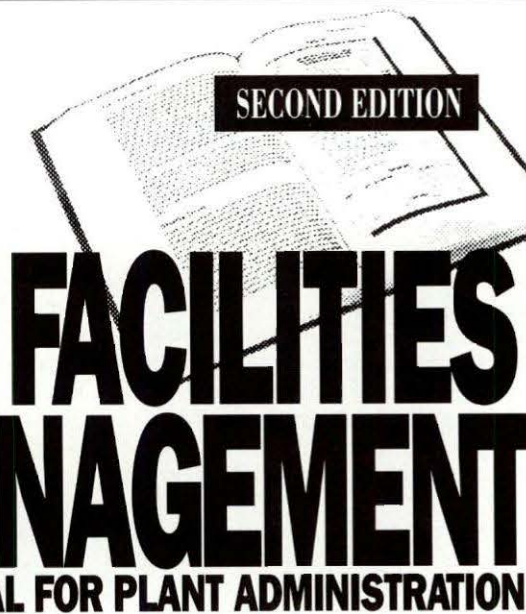


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## Focus on Management

Sigmund G. Ginsburg

### MIXING THE RIGHT DOSE OF POWER AND PRESTIGE

**I**t is tempting to use the full force of your power, prestige, and authority to achieve your goals quickly, prove that you can accomplish things more effectively than others, or simply impress yourself and the organization with your power. Those who are experienced in management recognize that such actions, while feeding egos and perhaps impressing staffs, can lead to serious negative effects and, ultimately, to diminishing power and prestige.

It is important to know what authority, power, and strength you have available to you, as well as the resources, access, poker chips, and IOUs needed for support. Having more strength than those you are dealing or negotiating with does not necessarily mean that you have to use it to accomplish your goals. In management, people have a good sense of the pecking order and who really has influence, even if the organization charts and position descriptions don't coincide with reality. When certain people speak, spite of rank, a person is often ignored or humored because of lack of authority or influence, and because others know that he or she has no real power.

*Sig Ginsburg is vice president for finance and administration at Barnard College, and lecturer in management systems at Fordham University, both in New York City.*

Assuming you indeed have real power, you must ask yourself how much you should use in a given situation. If you look at your authority as limited resources others will listen, agree, and respond positively. The reverse is also true. In much you should use in a given situation. If you look at your authority as limited resources rather than unlimited ones, you can then begin to focus on using your power only when needed, in an amount that accomplishes your objectives without being wasteful, and in a manner that does not lead to negative reactions, which would cause you to use more of your precious resources.

If persuasion and discussion can lead to the action you want, why use an order? If a mild reminder, suggestion, or even reprimand will lead to the desired corrected action, why use threats or formal written reprimands? If you can bring about changes in performance and attitude without suspending or firing, why not avoid such actions?

Occasionally you may have to assert your prerogatives just to indicate that they are there and that, if called for,

you will use the power you have. But this should not be done merely to show off. Your authority should only be used if the conditions warrant it and in a manner that does not employ an excessive reaction to a mild problem. Some managers want to demonstrate forcefulness and to snuff out any problem by killing it several times over.

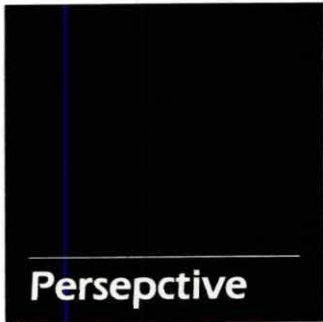
But just as it does not make sense to use a cannon when a pistol will accomplish your goal, a measured response should be utilized at those times when you need to demonstrate your authority. You need not be waving your authority around, referring to it, demonstrating it, wearing it on your sleeve. It is far more effective to keep it buried in your hip pocket, unseen, but easily reachable when necessary.

In short, once you and others know you have authority and power, you don't have to demonstrate it often. It is much better to use these resources rarely but effectively and thus, to paraphrase Teddy Roosevelt, to gain a reputation for speaking and acting softly yet persuasively—not showing the big stick, though being able and willing to use it when necessary. ■

*"Your authority should only be used if the conditions warrant it."*







## Perspective

# Quality Education and the Facilities Component

by Richard T. Ingram

I welcome this opportunity to share thoughts with you on the subject of academic quality and the vital link between academic and facilities management priorities. I do so as an association executive who works with trustees and chief executives—a capacity I hope will not cause you to be too skeptical of my remarks!

I have several propositions for you to test against your own experience, but first some comments about APPA and some of the trends and issues that make the topic assigned to me so compelling for your profession.

First, as someone who has witnessed, firsthand, APPA's development as a major player among the thirty higher education associations in Washington, D.C., congratulations to you and your association's leaders. Walt Schaw, his staff, and the Board of Directors are making a big difference. They represent you very well!

They have earned the respect and confidence of their peers in the association world and have advanced the recognition of your profession significantly.

The studies and reports APPA has produced in recent years have alerted presidents, business officers, trustees, and government leaders to the magnitude and urgency of decades of neglect to higher education's physical assets.

Your association has provided the kinds of tools needed by institutional leaders to assess the condition of the campus and to set priorities that guide the allocation of resources.

And, most importantly, APPA con-

tinues to develop models of creative financing and cost containment that capture the attention of trustees, presidents, and chief business leaders who are feeling, along with you, very beleaguered these days. How to do more with less is on everyone's mind these days.

I would like to share a few thoughts about the current environment within which we do our jobs. For reasons known to all of us, we are experiencing the most profound challenges in our lifetimes to find new and creative ways to manage and lead. We are told by those who look at the numbers that the 1980s were good to education—that, on average, college and university budgets expanded at a real growth rate of about 2 percent each year in the decade. It takes higher education economists to tell us that we had it so good!

But there are three other points that bear on our topic:

1. Higher education's image among elected political leaders and the general public is at an all-time low.

Without reciting the reasons known to all of us, this fact is particularly disconcerting because of our economic difficulties. It is a bad combination. The scrutiny of public K-12 education and the policy debates underway in the health care industry are about to shift to the higher education industry. Are we ready for it?

An "optimistic cynic" might say that it is remarkable that higher education has been able to maintain public confidence for as long as it has. In a nation whose people are so naturally skeptical about all of their institutions, most especially their elected legislatures and leaders, higher education seems also to be falling from grace.

2. Our publics, and we, are obsessed

with improving the quality of education at all levels.

And what is interesting about this preoccupation—one that is not really new but has taken on a sense of urgency—is how our academic leaders have chosen to define quality; it is no longer taken for granted or accepted the way it was. Never mind that quality was and is extremely difficult to define and measure; we all know it when we see it, don't we?

Thus the call by legislatures for mandated testing to assess educational attainment, new criticism of tenure policies, criticism of teaching loads as if course schedules are the only measure of faculty productivity, and so on. The ivory tower is no more in the mood of our publics, and we will have to demonstrate more convincingly what parents and taxpayers are getting for their dollars.

3. American society and its colleges and universities are on the eve of the most profound social and demographic changes in this century.

Are we ready for what is already here? Do we understand the implications of cultural diversity for the way we manage and lead our departments, our schools? Do those of us who hold responsible positions on campus accept the concept that the campus is the ideal laboratory to demonstrate to the larger society how multiculturalism can and should work? Are we ready to improve a poor record in minority hiring, especially in major staff and faculty positions? The new learners need role models. And will there be implications for the way campus environments will be planned?

The new types of learners with different backgrounds and experiences from our own will require changes in a service industry that has proven itself quite capable of resisting change for centuries. Indeed, most of us would argue that this has been why higher education has survived largely intact and true to its fundamental mission of transmitting knowledge in societies that often did not want to have it.

The vicissitudes of fickle public policy require a good measure of independence. The question now, however, is how much independence? Virtually every industrialized country in the world has asked the same question.

The question is more pressing in the United States because changes are coming much faster than the academy

*Richard Ingram is executive vice president of the Association of Governing Boards of Universities and Colleges, Washington, D.C. He will become AGB's president in March. This article was taken from a speech given at APPA's 1990 annual meeting.*



seems prepared to help society and government to cope with them. Whether the academy's tendency to move at a snail's pace will prove to be a virtue rather than a vice remains to be seen.

Caspa Harris, president of the National Association of College and University Business Officers, said it well in some recent remarks. He said:

"...higher education markets, programs, and technologies are changing too quickly for top management to keep abreast of all the latest developments. Slowly we are becoming aware that it is impossible to respond rapidly to the simultaneous demands for lower cost and higher quality without radically improving coordination and teamwork."

There is a great need for coordination and teamwork on campus. Facilities officers and academic leaders must find new ways of working together, and it is likely going to be the facilities officer who will take the initiative—or it will not happen.

The Reverend Robert Hutchins of the University of Chicago once quipped that, "a university is a series of disparate schools and departments united only by the fact that they share a common president and board of trustees." And educator Clark Kerr more recently said, "The university is a series of individual entrepreneurs who are combined by a common complaint over parking."

Facilities officers must find new ways of working closely with faculty entrepreneurs, because tough decisions about academic goals and priorities will have implications for facilities and equipment. What is done with limited resources will require more teamwork and coordination than was necessary before.

How can we link improvements in the quality of teaching and academic programs with facilities management? First, a few obvious connections.

We know that prospective students and their parents are significantly influenced in their decisions by their first and quick impressions when they visit your campus. The perception of quality is made on the basis of their impressions of the physical environment. Trustees, presidents, and faculty need to be reminded of this fact at every turn. That's for starters.

As academic leaders increasingly understand and appreciate your profession, and what it can do for them and their responsibilities, they will recog-

nize that you are at the center of everything that everyone sees (and doesn't see). The new concerns about campus safety, hazardous waste disposal, recycling, and risk management all drive home the point.

But the new frontier in your work is surely the challenge of demonstrating to academic leaders that you also have ideas about interpreting the implications of academic goals and objectives into facilities priorities that are reinforcing and supportive.

Why is this worth the effort?

- Increasingly scarce dollars will be invested in strengthening academic programs and teaching first. Showing the best "fit" between those priorities and the best use of facilities is in your best interest.

- The next several years will give you a special opportunity to establish what we can call a "tradition of concern" about nourishing and protecting capital assets on your campus where one may not now exist.

- Doing so is simply good for your profession, and for you in how you are perceived as a campus leader. Demonstrating that you have something useful to add to the coming debates about how facilities can contribute to better undergraduate and adult instruction is a good thing for everyone. Ditto for your advice about how the new and emerging technologies can be accommodated in existing or renovated facilities.

How can facilities officers hitch their wagons to the academic engine?

The key is to open good lines of communication with academic leaders—lines that rarely exist on campus today. Be sure you know who the real academic leaders are, the movers and shakers who influence decisions. Who knows what is going on in academic planning? It isn't only the provost or academic vice president or dean who is in the center of things. It is often the department heads or a special ad hoc committee. When is the last time you took a dean or department head to lunch?

And there are other initiatives you can take.

- Read *The Chronicle of Higher Education* faithfully to keep abreast of what is going on academically. Be familiar with trends and issues and debates yet to come. Use this knowledge in your conversations. Establish your credibility as someone who is keeping up with the use of computer-assisted instruction, teleconferencing, and satellites.

- Get yourself invited on academic planning committees where you can be a good listener and asker of questions that have implications for facilities management.

- Establish a reputation as someone who can help academicians translate their needs into decisions about facilities priorities.

These are times that separate pessimists from optimists, leaders from whiners. These are exciting times when emerging professionals can establish their footing, organizations can improve their performance, individuals can make reputations for themselves. It is a time for change and many of the old protocols will not hold up as new working relationships among campus leaders develop.

In closing, I offer a few questions to ponder:

- Are new trustees invited to tour your campus within the first few months on the board? Do they see at least one building of every type and purpose? Who conducts these tours?

- Who sets the agenda for the buildings and grounds committee? Do you, or do you at least see the agenda and supporting materials? Does the committee see regular reports of plant condition, resource allocations, space utilization, major repairs and renovation, capital construction?

- Would a small advisory committee of local citizens with specialized expertise be helpful to you? Could they help with cost containment ideas? Help you to consider cost-effective options? Maybe even with fundraising for a few special projects? Could you sell the concept to management?

- Could you be a fundraiser? As one philanthropist told me recently: "There is a lot of loose change out there." You must be careful with the politics on your campus and coordinate such initiatives with institutional advancement offices, but think about individuals and corporations that might be willing and able to help with something that needs to be done. Money and contributed services and materials are out there. Let's go get them!

If there was ever a golden opportunity to show leadership, this is it. Linking your responsibilities more closely with those of academic leaders is the way to go. Just as the budgeting process will have to be integrated much more closely with academic priorities, campus facilities priorities will have to be linked there as well. ■



# Adapting Old Buildings for New Uses

by Steven Einhorn and Jim McKinney

**F**aced with the rising cost of new construction and diminishing opportunities to site new buildings on mature campuses, college administrators across the nation are concluding that it makes good sense to give new life to older buildings through adaptive use. Whether an existing facility is historically significant or simply a desirable background building, it may be a candidate for adaptive use if it can successfully meet new program needs cost-effectively.

Balancing the old with the new is the art of the adaptive use process. Adaptive use may mean modifying an existing building to accommodate a change of use—for example, from a residence hall to classrooms. It may also mean taking a new approach to an existing use—such as a significant change in configuration of a residence hall from a

traditional double-loaded corridor of two-student rooms to a mix of units, including suites and singles.

Whatever the adaptation, the process always involves changing the internal organization of the building. When the program cannot be fully accommodated in this way, the project may also encompass expansion. Adaptive use virtually always requires upgrades in the mechanical, electrical, and plumbing systems as well as modifications to meet current life safety, accessibility, and energy codes.

Existing buildings can often be adapted to radically new uses. The diversity of the following actual projects shows that there is a broad range of opportunities for adaptive use on campus: from a museum to an office/meeting facility; from residence hall to classrooms, academic offices, and library; and from gymnasium to housing.

reasons for saving an older building are the ability to save on construction costs or the building's historic value. In fact, the decision to adapt an older building may be made based on the interaction of several factors: cost, functionality, emotional or nostalgic considerations, historic significance, and physical contribution to campus.

It rarely costs more to save an existing building than to raze it and replace it, as long as one is comparing apples to apples. That is, the cost of renovating a good-quality older building is generally less than what it costs to replace it with a new building of equal quality. True, one can build four walls and a flat roof at a lower cost than adapting a quality older building, but most colleges are looking at the long term, not just low initial cost. Sometimes the higher quality of historic materials and finishes results in lower maintenance. Additionally, older buildings may offer long-term advantages of larger interior volumes, which can provide a more flexible and

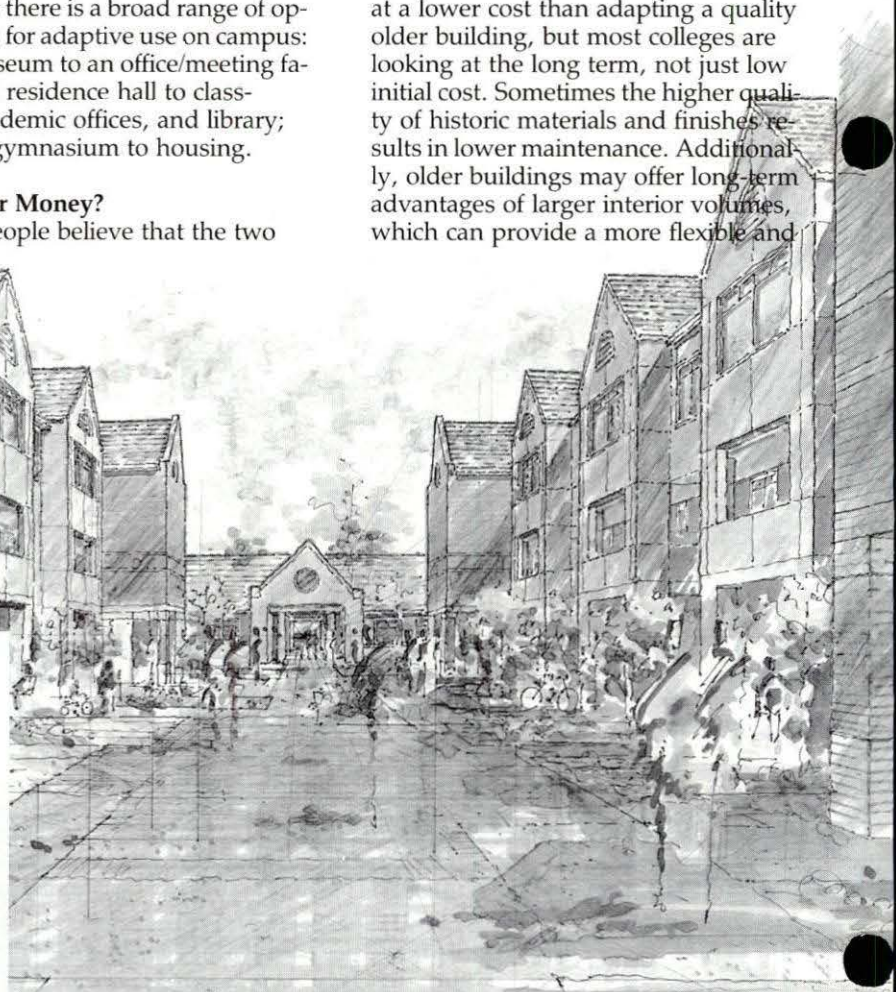
*Steven Einhorn is president, and Jim McKinney is principal, of Einhorn Yaffee Prescott, Albany, New York and Washington, D.C.*

## For Love or Money?

Many people believe that the two



Inset, Hasbrouck Apartments before renovation. Drawing, rendition of Hasbrouck Apartments after renovation.





higher quality interior.

Adaptive use often saves time, too, which means a lower total cost. It is possible to renovate a residence hall over a three-month summer vacation, for example, while new construction could take twelve to eighteen months.

College buildings that have been built to last fifty to 100 years or more are functional resources. Quality older buildings are both solid, and, often, quite flexible about accepting new uses, thanks to their high floor-to-floor measurements, generous window areas, and substantial structural systems.

Many older college buildings have symbolic value to alumni, who may want to preserve a building that brings back special memories. From a business development standpoint, administrators have to be sensitive to these nostalgic attachments.

An older building may be historically significant if it is an excellent example of an architectural style, if it is the work of a famous architect, or if an important event is connected with the building. Often historic buildings can be defined as "signature" buildings that appear in college publications and create a sense of tradition. The college is the caretaker of a cultural heritage that is important both to the institution and to the surrounding community.

Even if it is not historically significant, a quality older building may make an important visual contribution to the

## The Feasibility Study: Seven Steps to a Go/No-Go Decision

**1** *Evaluate existing conditions.* A general evaluation consists of a walk-through visual inspection and an examination of record drawings and documents. The walk-through should be done by a team of architects and engineers who are experienced in adaptive use. Next, a structural evaluation determines the building's capacities. Mechanical, electrical, plumbing, and fire safety systems are examined to see what needs to be modified or replaced. The building is inspected for asbestos and other hazardous materials. Architectural elements that should be preserved are identified.

**2** *Determine project requirements.* The architect/engineer (AE) and college administrators establish the requirements of the project: overall goals, the reason for the project, and expected outcome; program goals and quantity of space needed; levels of quality and flexibility required; budget parameters; schedule requirements; and construction phasing opportunities and availability of swing space.

**3** *Perform code analysis.* In most jurisdictions, a change in use of a building triggers a requirement for current code compliance as if the building were new. Applicable codes may include life safety, energy, and accessibility.

**4** *Analyze program/building fit.* The AE determines the building's ability to accommodate the program's quantitative and qualitative needs. This may in-

volve a choice between adjusting the program to fit the building or adjusting the building to fit the program.

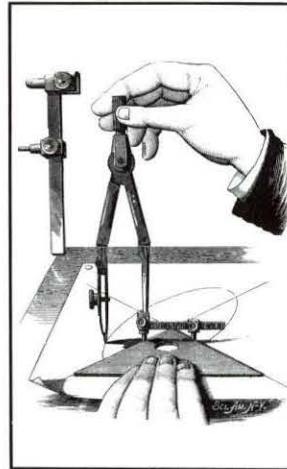
**5** *Develop alternative design concepts.* The AE generates architectural and engineering solutions, considering the interrelated issues of space planning, engineering systems, and cost impact. Typically, there might be a number of approaches established to meet the college's goals.

**6** *Conduct regulatory review.* Before an approach is selected, all pertinent regulatory agencies must be consulted to see

what impacts the review process might have on the final design selection. State or local preservation groups, the local planning or zoning board, the insurance company, and even the fire department should be consulted. It is extremely beneficial to involve these groups early to broaden the base of ownership of the final design choice, which will result in a smoother approval process.

**7** *Select the preferred design alternative.* The AE develops, reviews, and selects with the college the desired design alternative that best meets the college's goals. The selected scheme will illustrate horizontal and vertical relationships; construction costs; operating/maintenance costs; phasing strategy; and, in some cases, conceptual sketches, especially if the project will require modification of the exterior.

—S.E. & J.M.





campus. Its architecture may create an orientation point, define a quadrangle, frame an important view, or provide a gateway to another part of the campus.

### Feasibility Study

What attributes of an existing building make it a good adaptive use candidate? A seven-step feasibility study answers that question and determines whether an older building can successfully accommodate space and financial goals. An architect/engineer (AE) team will evaluate existing conditions, determine project requirements in concert with the college, analyze building codes, study the program/building "fit," devise alternative design concepts, determine impacts of the regulatory review process, and come up with preferred alternatives. (See sidebar.)

The feasibility study is the most important part of the entire project analysis, yielding a go/no-go decision. When the feasibility study is well organized, it eliminates the typical hazards that can destroy the planning or economic goals of a project.

The cost of the study will vary with the size and characteristics of the existing building, condition of existing documentation, program complexity, ease of accommodating the program in the space available, and the level of detail of design alternatives and drawings required by the client. It will likely range from 25 cents per square foot for a project that requires only a basic study, to 50 cents per square foot for an average project, to \$1 per square foot for a highly complex project, such as one that involves a landmark building.

### Creating and Reclaiming Space

Many older buildings are inefficient in their space utilization, resulting in actual usable space of less than 50 percent. Improving the yield of a building to bring it closer to the average 65 to 70 percent usable space of new buildings is a key economic factor in initiating an adaptive use project.

There are several opportunities for increasing usable space: reorganize the circulation; reclaim attic or basement space; insert a mezzanine or a new floor; decentralize mechanical/electrical systems; stack support components, such as mechanical spaces and restrooms; and use well-designed furniture systems to increase the efficiency of the floor layout.

Reorganization is not always enough, however. There are four fundamental opportunities for an expansion: add on horizontally, infill a courtyard or light well, build up vertically, or expand below ground. Because open space is often at a premium on college campuses, horizontal expansion is not always possible.

### Historic Review

When an addition is the answer, a design choice must be made. Should it replicate the existing architecture of the original period, echo rather than copy the proportions and materials of the period, or should it contrast the original with contemporary forms and materials? There is no right or wrong approach — there are good and bad examples of each.

Some successful adaptive use projects on college campuses have been those that replicate the existing building, but this is the most difficult of all solutions to do well. A replication must be done with knowledge, skill, and great care or the result may detract from the original. In fact, the National Park Service guidelines for preservation and restoration work, *Secretary of the Interior's Guidelines for Rehabilitation of Historic Properties*, actually discourages additions that attempt to replicate the original building.

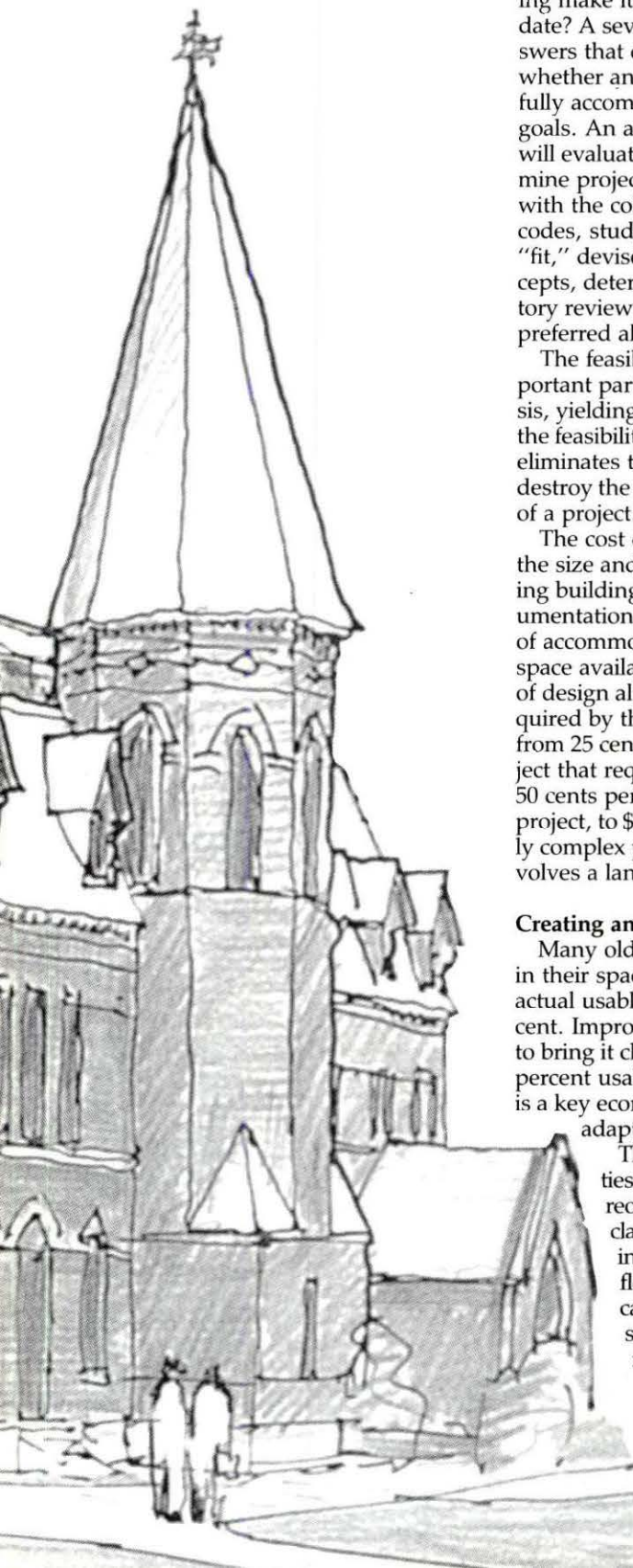
The AE should involve historic preservation agencies/interest groups early in the design process, fostering a two-way communication between these bodies and the college. Through working together, they should formulate the design goals and guidelines for the project.

### A Study in Contrasts

To illustrate the way the adaptive use process works, here's a look at two projects undertaken by Cornell University in Ithaca, New York. The two buildings are a study in contrasts: one, an adaptation of a 125-year-old landmark structure from residential to academic functions; the other, an update of a functional but ordinary multifamily student housing complex.

Sage Hall, designed in 1872 by Charles Babcock, first dean of Cornell's School of Architecture, is considered one of the finest Gothic Revival collegiate buildings constructed in the decade following the Civil War. The structure was originally designed as the first women's college. It now contains a dormitory, dining facilities, and offices.

Initially, Cornell considered a minimal renovation of Sage Hall to accom-





moderate a change of use, but determined such a project would not be cost effective given that the existing plan configuration of the building did not functionally accommodate academic uses. The university then did a comprehensive feasibility study and, ultimately, a complete adaptive use renovation and expansion project.

Over a period of five years, the 95,000-square-foot building will be adapted to provide faculty offices, classrooms, and a computer center for all mathematics departments; a learning skills center; faculty apartments; a career center; and a graduate center and lounge.

This involves renovation of the interior to meet program needs and life safety codes—including replacement of the wood structural system, installation of air conditioning and ventilation systems, new heating and electrical systems, and a wire management system to enable computer and communications systems networking.

To increase usable program space to 105,000 square feet, compatible additions will close Sage Hall's "U" shape and fill the courtyard, to be covered by a four-story glass atrium. The historic exterior will be restored.

Cornell has many reasons for renovating Sage Hall, including its historic/nostalgic value; limited new building site opportunities within the central campus; and a pressing need for additional academic space. In summary, the factors driving the Sage Hall renovation include the building's prime location, space needs, and its historic visual importance. Clearly, cost savings was not the project impetus.

Cornell is also undertaking another adaptive use project. Constructed about thirty years ago, Hasbrouck Apartments contains 246 one- and two-bedroom apartments in twenty-nine garden-type units on twenty-one acres of land at Cornell.

The university contracted for a feasibility study, and ultimately implemented a four-part adaptive use project: first, a comprehensive renovation of the existing buildings; second, the addition of ninety new units through a vertical expansion (third floor) of sixteen buildings; third, expansion of community and academic facilities on the site; and fourth, upgrading the site with additional parking, landscaping, lighting, and walkways.

Renovations include roof and window replacement, additional insulation, interior improvements, and new

mechanical, electrical, plumbing, and fire safety systems. Additions expand the number of units by approximately 35 percent, while they also improve the exterior appearance of the structures.

Reorganization of this site, including new outdoor spaces, enhances the quality of the complex. Common buildings incorporate academic spaces within the "new" community.

Cornell's decision to renovate and vertically expand Hasbrouck Apartments was based on limited land economics (a lack of new building sites in

the area), and the fact that this approach yields lower costs than new building construction.

These contrasting projects illustrate the fact that adaptive use can enable a college or university to meet pressing needs for academic, administrative, and housing space on campus—whether the existing structure is a landmark or simply a serviceable background building. A well-planned adaptive use project gives new life to older buildings by combining the best of the past with today's technology. ■

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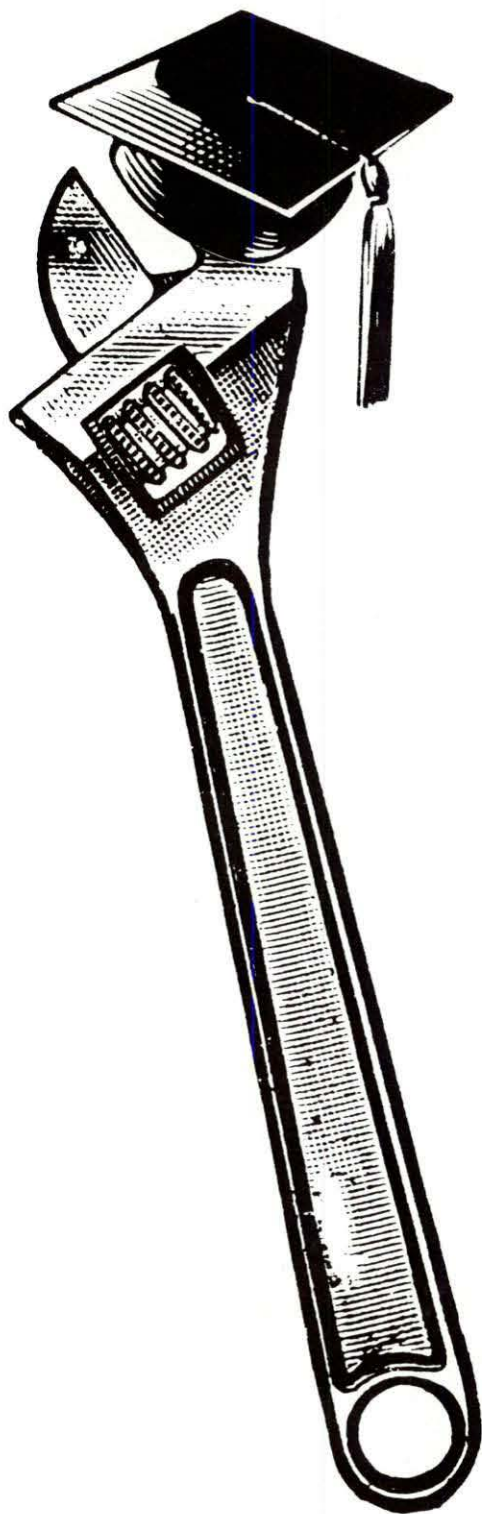


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# Miami University's Job Enrichment Program

by Esther M. Geiermann

**H**ow do you motivate employees? What catalyst can be used to provide the factors involved in creating job satisfaction? At Miami University we believe we have found the answer to these age-old questions. By adopting the philosophy that when the job is enriched it can bring about more effective use of personnel, we think we have hit upon the magic formula.

About three years ago at Miami University, the physical facilities department undertook the task of developing job enrichment programs that would enable employees to experience personal and professional growth and perform more complex and skilled work with less supervision. By using brainstorming techniques, the project teams developed several methods by which employees could improve their employment and economic positions.

The Job Enrichment Program presents professional opportunities not previously available and opens up a new world to physical facilities employees. Job enrichment offers psychological growth and acts as a stimulant. It gives the employee a sense of purpose and professional achievement. Along with achievement, the Job Enrichment Program provides the additional motivational factors of recognition for achievement, increased responsibility, growth, and advancement.

A person can enter the physical facilities work force at the laborer level, then can meet the program's entry level criteria, complete course work, pass validated examinations at several professional levels, and work herself or

himself all the way up to a master position. This opportunity is available in the groundskeeping area, automotive field, and in thirteen skilled trades. It is an exceptional program and deserves careful examination by anyone who is serious about doing more for their employees.

A 25-minute videotape describing the Miami University Physical Facilities Job Enrichment Program is available from the office of the director.

## How the Job Enrichment Program Began

Miami University's Physical Facilities Department is responsible for maintaining the quality of university buildings and grounds. We expect our employees to quickly develop specialized skills and gain a working knowledge of the campus community, its programs and activities. We rely heavily on the skills and knowledge of our employees to keep up with the changing campus community and increased demands for excellence and service without adding full-time employees.

Mirroring the concerns of other organizations, employee motivation and productivity has been a main area of concern at Miami University. For the past several years the topic of motivation has been discussed both formally and informally. Recognizing that the facilities operation and the university community are continually undergoing change, especially with ever shrinking budgets, we felt limited in our effort to keep up with these demands.

We could no longer seek to employ only lawn mower pushers, general re-

*Esther Geiermann is the training manager in the Department of Physical Facilities at Miami University, Oxford, Ohio.*



pair persons, and custodians. Today we are compelled to demand much more from our employees. In addition to quickly developing specialized skills, we expect workers to have a thorough knowledge of the campus community, its mission, policies, programs, and activities.

We require our grounds employees to have a professional knowledge of plant material, planting and transplanting methods, and pesticide safety and practices. We expect them to understand plant health standards, recognize insect and plant diseases, and know how to control those diseases. We use a wide variety of complex, specialized equipment and rely heavily on the skill and knowledge of our employees to maintain, operate, and follow safety practices for this equipment.

Our building services personnel are expected to keep up with higher demands in housekeeping, health practices, and constantly changing cleaning agents, materials, and surfaces. Our automotive technicians are expected to stay up-to-date with the rapidly changing technology of the automotive industry in order to maintain the large number and variety of vehicles in the university motor pool.

Miami University is geographically isolated from any major city. Skilled tradespeople were becoming increasingly difficult for us to attract and retain. Nearly 80 percent of almost 100 tradespeople at Miami have been promoted internally. It became evident that we needed a system that would not only formally train all of our workers, but would also give us some objectivity in promotion within the division.

At Miami University we are fortunate to tend to attract "career type" employees and experience a low rate of employee turnover. This unique situation provides us with great opportunities for employee development. However, our system of advancement by vacancy, especially when there are few vacancies, left little room for initiative. Our career-oriented employees had little incentive to develop and were not adequately recognized for their efforts. As these ambitious employees developed their skills and became more valuable members of the work force, it was apparent that something had to be done to improve job satisfaction. It was imperative that a system be devised to provide more challenging and reward-

ing work if we hoped to retain these employees. With this change in mind, planning committees were formed for the various physical facilities areas and the development started for job enrichment programs.

### Program Objectives

Objectives of the programs are as follows:

1. To provide a job enrichment program that would allow the employees the opportunity and motivation to demonstrate their ability, earn promotion to higher level jobs, and thus become more valuable and productive employees.
2. To increase job knowledge and skills that will enable employees to keep pace with the rapidly changing technologies and methodologies.
3. To increase performance, enabling us to sustain a growing, ever-changing campus, and ever-increasing demands for higher levels of excellence, without adding new personnel.
4. To design a program that will be cost effective and provide value beyond the cost of implementation and management.

Program teams found that existing job descriptions were in need of updating in order to reflect present-day standards of excellence and expectations. The revised job descriptions included job title, detailed description of the work, position function, qualifications, and certification. Current employees were assigned a revised classification equal to their present classification. New job classifications were also created to allow the employee to advance through the various levels of the program.

Criteria for entrance into and continuation in a job enrichment program would be based on employee work performance history, length of service in

each classification, and achievement of appropriate levels of trade knowledge and skill development, along with the recommendation of the employee's immediate supervisor.

Outside agencies were approached to develop formal training programs to provide an equal opportunity for every employee to develop the necessary skills to achieve promotion to the next highest level in their job classification. Department supervisors were assigned the task of developing individual training agendas for the formal and on-the-job training for each employee, and a standard system of recording and certifying training progress and



First row, (l to r): Randy Marcum, Ernest Sauerland. Second row, (l to r): Lee Webber, George Kimball, Joe Kimball, Don Wadleigh.

skill development. The revised job descriptions served as a guide for this process.

### Developing the Grounds and Automotive Services Program

Cincinnati Technical College (CTC) developed the curriculum for the Campus Grounds Services and Automotive Services areas. Each of these two programs are designed to take the employee through the levels of assistant, groundskeeper or automotive technician, senior, and master. The primary objective was to guarantee that as employees progressed through these levels, they were sufficiently educated for the jobs they were required to perform.

The grounds services program's first



step was to conduct on-site visits that assisted CTC in determining exactly what job duties and responsibilities were required in each of the four categories. The CTC project team observed employees working in their natural environment, the types of tools and equipment used, and the daily challenges they encountered.

Following the initial interviews, CTC devised a system of training modules. The training would enable the employee to better realize and understand the duties and responsibilities in the next level of the position. Each module consists of four hours of training per week for eight weeks. Upon completion of the eight-week series of lectures and hands-on training, CTC administers the written portion of the final examination to the students.

Students receiving a score of at least 70 percent on the written examination are eligible to take the skills examination segment of the testing process. The skills examination includes working on actual equipment or performing specific procedures directly related to the job function. Depending upon the job level requirements, the student will actually prune a hedge, mow a particular piece of property, perhaps start a new lawn from seed, or possibly train a new employee. The skills tests were designed and are administered in conjunction with CTC instructors and Miami University groundskeeping supervisors and managers.

The student must receive an average score of 70 percent for the first two levels of the grounds service program and an average score of 80 percent to achieve master classification.

The Automotive Technician Job Enrichment Program began when CTC developed a method to evaluate the current knowledge level of the employees. This was accomplished by means of on-site visits to talk with employees and administering a series of eight validated proficiency examinations. The process allowed CTC to design a set of courses unique to the skills level of the Miami University physical facilities employee, thus eliminating wasted time, money, and energy on material in which the employees were already sufficiently skilled.

When formal class work is completed, the evaluation process is repeated to determine the proficiency level achieved at that point. Via this method

of course work and post-testing, employees are assisted in advancing through the four levels of the automotive technician classification.

The automotive job enrichment committee recognizes the competency and reputation of the National Institute for Automotive Service Excellence (ASE) as the best resource for keeping abreast of the rapidly changing automotive technology. Application was made to ASE for certification testing.

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### *The Job Enrichment Program . . . opens up a new world to physical facilities employees.*

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Certification in each of the eight automotive categories is used as part of the evaluation process for promotion and reclassification.

Examinations are scheduled by the institute approximately every six months. Certified automotive technicians must be retested and recertified every five years. The physical facilities department and CTC have agreed that after completion of the initial eight courses there would be a continuation program. The next two-year plan is to conduct advanced classes that specialize in electronics training, fuel delivery, and other categories requisite to maintaining excellence in the automotive field.

#### **Reclassification and Bonus**

It takes five years to advance from the entry-level assistant groundskeeper and assistant automotive technician positions to the master position. After successfully meeting all criteria for advancement, employees are recommended for promotion to the next highest classification and receive a one-time bonus equal to 2.5 percent of their annual salary for the groundskeeper and senior groundskeeper classification, and 5 percent of their annual salary for the master groundskeeper class.

Should no vacant position exist with-

in the next highest classification, the employee will receive the bonus and be certified as eligible for promotion when the next vacancy occurs. Should several employees be certified at the same time, the employee with the highest rating in the evaluation process will be placed in the highest order for that period.

The Skilled Trades Job Enrichment Program allows training of those people who have already selected a skilled craft. The master trades position allows individuals who have already attained a trades level position to advance beyond their existing pay scales and job positions without accepting training or responsibilities for management placement.

D. Russell Lee Career Center of the Butler County Joint Vocational School District was contracted to assist in development of the Skilled Trades Job Enrichment Program. As in the other programs, the process began with interviews of key workers in all the craft areas. Approximately 400 questions were asked to determine the kinds of tasks and skills needed and used on the job, and how critical the knowledge is to the effective operation of the department. This data circumscribed the training necessary for a person to become proficient in the specific trade.

The career center then conducted a survey of more than forty institutions in the area and around the state and closely examined available curricula for training and apprenticeship programs offered at twenty of these schools. With this information, career ladder schedules were established for each of the maintenance department skilled crafts positions. The report generated from the survey also identified which institutions offer courses needed in order for the employee to advance through the program. In some areas training is only available by means of self-study programs such as TPC Training Systems or correspondence courses.

The program also offers maintenance repair workers (MRW) the opportunity for training and advancement. Prior to promotion to an MRW 1 position, a hand/eye coordination test is administered to determine the employee's ability to succeed in the skilled crafts field.

Successful completion of four general courses are required to advance from



MRW 1 to MRW 2. The MRW 2 worker will be considered for entry into a skilled trades job enrichment program as an assistant, following completion of a basic mechanics course and three Level 1 courses in the trade curriculum.

Written examinations for the self-study training modules are administered by the career center. To pass a self-study course, the student must receive a score of 70 percent. Passing scores for formal classroom training at outside institutions are determined by the institution.

The final stage of the skilled trades program looked at employees who have had several years of work experience. These employees could be considered master craftsmen, but have learned most of their training on the job and have not been exposed to the required formal training. The career center developed competency tests whereby employees in this category, who are recommended by their supervisor, can "test out" on some of the required courses and move up through the classification levels.

It takes eight years to advance from the entry level Maintenance Repair Worker 1 position to the master position.

### Reclassification

Advancement in all job enrichment programs is based on skills and knowledge development, successful completion of the appropriate and equal opportunity validated evaluation process, work performance history, length of service in each classification, and recommendation of the immediate supervisor.

When master classification criteria is met, successful candidates are awarded a certificate of completion, a physical facilities department jacket, and recognition in the newsletter and on department bulletin boards, in addition to the promotion and salary increase.

Should the immediate supervisor find all criteria has not been met, the employee will be notified in writing. The notification must specify areas where deficiencies exist and a recommended means for achieving success.

To date, one grounds service worker, four automotive technicians, and six skilled trades employees have accepted the challenge and completed all levels of training to reach master status. As each employee is recognized for achiev-

ing master, it seems to generate the enthusiasm of additional physical facilities employees to enter into the program.

Career ladder opportunities also exist in the building services division. A custodial worker can advance to the position of building repair worker (BRW). In this classification 20 percent of the work effort is spent performing semi-skilled carpentry, electrical, and plumbing functions in the building where the custodial services are performed. On-

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*"We are excited about our Job Enrichment Programs from both an employee and a management perspective."*

*—Roger E. Rowe*

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the-job training to perform slightly higher level skills is provided this employee. This move can spark the initial interest in the skilled trades field.

A building grounds worker (BGW) career path is in the development stage. In this position approximately 10 percent of the custodian's work effort would be devoted to trimming, weeding, and watering the grounds area immediately adjacent to his or her assigned building. This path would be the initial phase leading the custodian into the Grounds Services Job Enrichment Program.

### Reaction of Employees and Supervisors

Reaction to the program has been extremely positive. One participant said that, "it is long overdue." Another said, "Once the employees know and understand the program, hopefully, individuals will take advantage of the opportunity to improve themselves, help Miami, and make working at the university a pleasure again." Employees also expressed belief that the Job Enrichment Program will offer them job security. By being better trained in their

field, workers feel that they can accomplish more jobs in-house, rather than using outside contractors.

Overall employee perception is that department committees have worked diligently on the Job Enrichment Program for a long time. Employees agree that a great deal of effort has been put into making it a good opportunity for employees who want to take advantage of the program to advance in their field without having to move into a management position.

### Benefits of the Program

Roger E. Rowe, director of physical facilities, states, "We are excited about our Job Enrichment Programs from both an employee and a management perspective. All employees need to perceive personal growth. These opportunities, coupled with an employee participative management program, is the way we want to do business in the physical facilities department in the 1990s. The Job Enrichment Programs allow employees the opportunity and motivation to demonstrate their ability to earn higher level positions, and provides the department with a work force of more highly skilled, productive, and valuable employees. Management has the obligation to acknowledge the reality that employees must achieve personal growth if they are going to be instrumental in the organization achieving its required mission."

The current programs have been so successful that we are in the process of developing a similar opportunity for our building services division. It, too, will offer the building services worker (formerly called custodian) the opportunity to advance to the master level.

Job enrichment is a viable alternative to the short-range alternative of adding staff or awarding outside contracts each time an obstacle, growth, or change is encountered. Equally important, job enrichment enables us to recognize our valuable employees who have accepted the challenge to increase their skills and are participating in this constructive effort of professional development.

While the initial expense is somewhat significant, management agrees that the Job Enrichment Program is the best long-range means of achieving professional status. This professionalism is needed if physical facilities is to continue to provide in-house services in a competitive manner. ■



# Solid Waste Management:

## A Paradigm Imperative

by Alan S. Bigger



It's 1991: Do you know what your trash is?" So starts an article in the May 1991 issue of *National Geographic* (page 123). The article stresses some interesting points that will have a major impact upon the future of trash and trash disposal in the 1990s. For instance, it is estimated that every man, woman, and child generates four pounds of trash every day (up from 3.5 pounds in the late 1980s).

As gross disposed pounds increase, landfill disposal space is decreasing at an alarming rate, with subsequent increases in disposal and tip surcharges. A speaker at a recent seminar conducted in Chicago indicated that 50 percent of the current landfills will be closed by the end of 1995. Persons choosing to ignore their garbage may be in for a rude awakening in this decade, and may find themselves figuratively, if not literally, buried in trash.

As the amounts of waste increases, so are disposal rates. Some segments of the United States are paying more than \$100 per ton for disposal of nonhazardous waste. On top of these escalating rates are the tip surcharges levied by local communities. As trash mounts, space is declining. Our ability to dispose of the trash is decreasing because our available budget dollars are not keeping pace with the rapidly increasing cost of garbage disposal.

Is there an easy and rapid answer that will provide a solution to this problem? There is an answer, one that has been under our noses literally for decades; the solution, like the answers to many of life's problems, is complex but highly practical. The answer is to recycle products, and to implement an effective waste minimization plan. There are economic and ecological incentives to do so. Jack Debell, the recycling director at the University of Colorado (cited in *Environmental Management*, January 1991), indicates that the average person in an office discards more than 175 pounds of valuable high-grade paper per year. The American Paper Institute states that the average American uses 650 pounds of paper a year, and the vast majority ends up in the landfill. High-grade recycled paper may generate more than \$70 per ton, much more in some geographic areas.

In addition, Debell cites that "harvesting waste paper from

Alan Bigger is assistant director, building services at University of Notre Dame, Notre Dame, Indiana. The author would like to thank the University of Missouri/Columbia for their help with the charts in this article.



## Figure 1. Recycling Surveys

University of Nebraska-Lincoln  
Waste Reduction/Recycling Survey

Respondent's Name \_\_\_\_\_ Department or Unit \_\_\_\_\_ Phone \_\_\_\_\_

Please return completed survey by June 4 to Bud Dasenbrock, Chairman, UNL Recycling Committee, 1440 North 17th St., 68509

1. Please identify the types of wastes which have been generated by your department or unit during the past year and an estimated volume or amount generated. Compute paper volume by checking your current inventory against volume order. Also, identify those items which are being recycled and the approximate percent being recycled. Also indicate any seasonal increase in volume (Fall, Winter, Spring, Summer). Use additional sheets if needed to include all wastes generated. Call Bud Dasenbrock at 2-2679 for additional information or assistance in completing this survey.

Waste generated	Seasonal	Estimated Amount or Volume					Percent Recycled					
		Cubic Yards	Tons	Pounds	Number	Other	None	0-10%	11-25%	26-50%	51-75%	76-100%
Paper												
Computer (blue or green bar)												
Mixed												
Cardboard												
Organic Waste												
Food												
Plant												
Animal												
Lumber												
Pallets												
Other												
Glass												
Colored												
Clear												
Plastics												
Metals												
Aluminum												
Barrels												
Other												
Chemicals (list types)												
Solvents (list types)												
Oil												
Vacuum Pump												
Automotive												
Other												
Batteries												
Automotive												
Other												
Other												

Note: Refer to Recycling Facts on the reverse side of this sheet for assistance in completing this question.

cities [dare we say a college campus? — question is mine] creates five times as many jobs as does harvesting the raw materials from forests. Over time, there is money in trash!

Jeff Vincent of IBM states that "if we can reduce our waste, it boosts profitability." According to Vincent, an environmental engineer at the Rochester, Minnesota division of IBM, the company currently recycles 63 percent of its waste material — 3,656 tons of it in 1989. At \$75 per ton for tipping fees, the company saved \$275,000. IBM is not alone, and the following example illustrates the potential impact upon the environment.

Cheryl LaPerna, recycling coordinator for AT&T's office paper recycling program, says in New Jersey alone the company saved at least \$372,000. This translated into 62,395 trees that were saved from logging (and made for happier owls?); almost 16,000 cubic yards of waste didn't have to go to the landfill; and they saved the equivalent of 9,176 barrels of oil. (The IBM and AT&T examples are extrapolated from *The Full Circle: Recycling Newsletter*, Spring/Summer 1991.)

Recycling makes both dollars and sense over the long haul, and has an incredible impact upon the environment. This fact has not been ignored by some of the major retailers. Both Walmart and K-Mart are now stressing the environmental issues in many of their in-store displays, indicating their concern and commitment to the environment. In addition, in many states, recycling is either the law or quickly becoming the law. Many states have established recycling goals and objectives.

Communities are beginning to ban items from their landfills, such as tires, mattresses, batteries, grass clippings, leaves, large appliances, motor oils, solvents, and paints, just to name a few. Failure to abide by applicable laws may result in a fine or a surcharge. For these reasons alone it is imperative that the university community be in the forefront of recycling efforts. A proactive, responsive, and ethical waste disposal and minimization program will reap ecological, environmental, economic, and legal benefits that will prepare our institutions for the 1990s and the twenty-first century!

In order to begin a recycling program, a paradigm shift is imperative. The shift requires that, both mentally and physically, institutions and facilities move from the opulence of the belief that resources are there to be exploited in a never ending supply, to the understanding that resources are becoming increasingly limited, and the ability to dispose of end-user trash ad infinitum has become a thing of the past.

The paradigm shift should include a minimum of four elements: reeducation in the very way we think and process solid

RECYCLING SURVEY --

The Campus Recycling Committee is interested in the types of items that are discarded into the waste stream, and what element of discarded items are capable of being recycled. We would be most appreciative if you would take a few moments to survey your trash containers to determine what percentages of the following items are in the solid waste stream. PLEASE DO NOT PLACE HANDS IN THE TRASH, we at this time are interested only in an "eyeball" estimate. Thank you for your assistance with this survey. When completed, please return survey to Alan S. Bigger, Manager, Special Services, 127 General Services Building, 882-6448.

BUILDING NAME/LOCATION: \_\_\_\_\_

YOUR NAME: \_\_\_\_\_ (Optional)

Please estimate the percentage (%) of each type of item that is in the solid waste stream. Your answer should total 100%. If the other category is used, please briefly explain the item.

CATEGORY OF PRODUCT	PERCENTAGE
PAPER	*****
White computer paper	_____
Green bar computer paper	_____
White paper	_____
Paper cups (no wax)	_____
Magazines	_____
Newspaper/ad sheets etc.	_____
CARDBOARD	*****
Cardboard products	_____
PLASTICS	*****
Plastic bottles	_____
Mixed plastic products	_____
Styrofoam products	_____
METALS	*****
Aluminum cans	_____
Other metals	_____
GLASS	*****
Clear	_____
Colored	_____
ORGANIC WASTE	*****
Food	_____
Plant	_____
Lumber	_____
Pallets	_____
OTHER SOLID WASTE	*****
(Please describe category and percentage:	_____
_____	_____

PLEASE REMEMBER THAT TOTAL PERCENTAGE SHOULD = 100% THANK YOU!



waste, a reduction in the amount of products that enter the waste stream from both purchasing sources to end-user waste, a reuse of materials whenever practical, and recycling. The elements are progressive in nature, and it is interesting to note that recycling comes last as indicated by the editors of *Full Circle: Recycling Newsletter*. One of the best indicators of this shift is illustrated by Cheryl LaPerna of AT&T when she said, "I want the whole world to know how easy it is to recycle."

Once the shift is realized, the institution is on the threshold of a realistic solid waste management program for the 1990s. In order to effectively manage an integrated waste management program, a series of steps must be followed as discussed below. These steps are intended to be in a sequential order, based upon the inputs of numerous institutions nationwide; however, it is realized that no particular program is suited to all institutions and that each organization may opt to select only those steps that are meaningful to its institution.

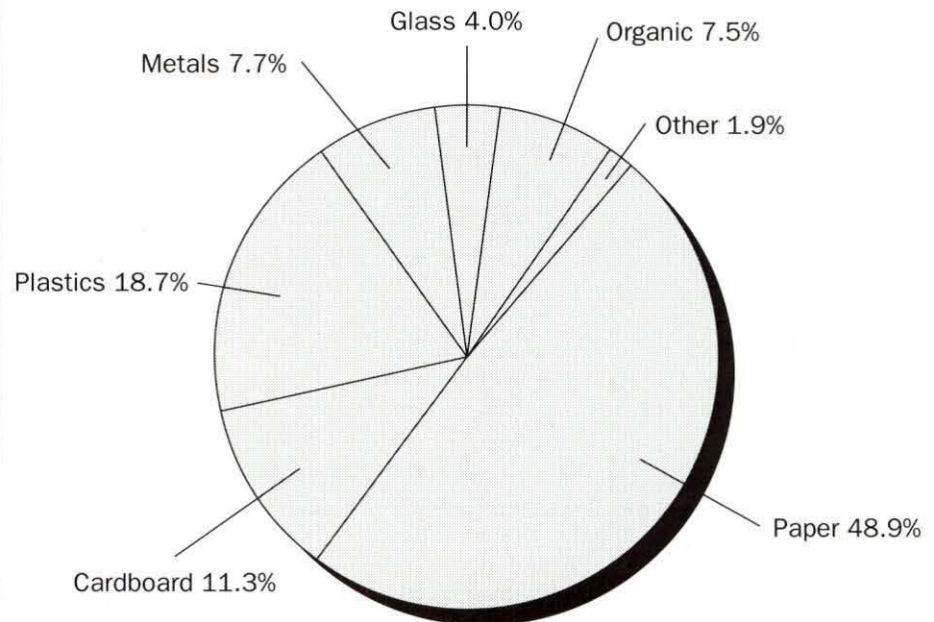
### Commitment and Cooperation

It is absolutely imperative to solicit the commitment and cooperation of executive decision makers and implementers of decisions at any level. As many elements of the university community should be involved, including but not limited to, environmental health and safety; risk management; purchasing; schools of biological, environmental, and health sciences; solid waste generators such as food services, residence halls, laboratories, printing services, campus facilities, physical plant, faculty, students, and employees, especially building services or custodial representatives as these persons are your most important resource in the handling and disposal of solid waste.

In addition, selected inputs may be solicited from environmental community leaders. If a committee approach is warranted, it may be wise to heed the admonition of Tom Lindmeier, an editor of an environmental newsletter. On recycling, and recycling committees, he states: "Don't study it . . . research it . . . committee it . . . or task force your company's waste problem right into the ground. The time to take action is NOW!"

The cooperation and commitment should extend beyond verbal support, and should be integrated into a written, communicated, and established university plan that includes specific goals and objectives that are realistic and

**Figure 2. Recycle Survey—Overall Responses  
October 1990**



meet or exceed legislated standards. Solid waste management programs cost money, and oftentimes these monies have to be established up front, with the cost prorated over several years. A commitment of policy support without fiscal commitment is about as effective as a tiger without teeth!

### Recycling Coordinator

It is vitally important, in an institution of any size, to establish a recycling coordinator who is dedicated to and enthusiastic about the goals and objectives of a recycling program. Establishing the recycling program by using "an additional assigned duty" to a manager with an already overburdened workload is establishing a recipe for defeat, no matter how dedicated the manager. Many of the most effective programs have recognized this up front, and have taken the plunge to fund a full- or part-time position. It is estimated that to start an effective solid waste management program a person will expend a minimum of three to four full days per week, and a large campus may require significantly more time.

### Solid Waste Audit

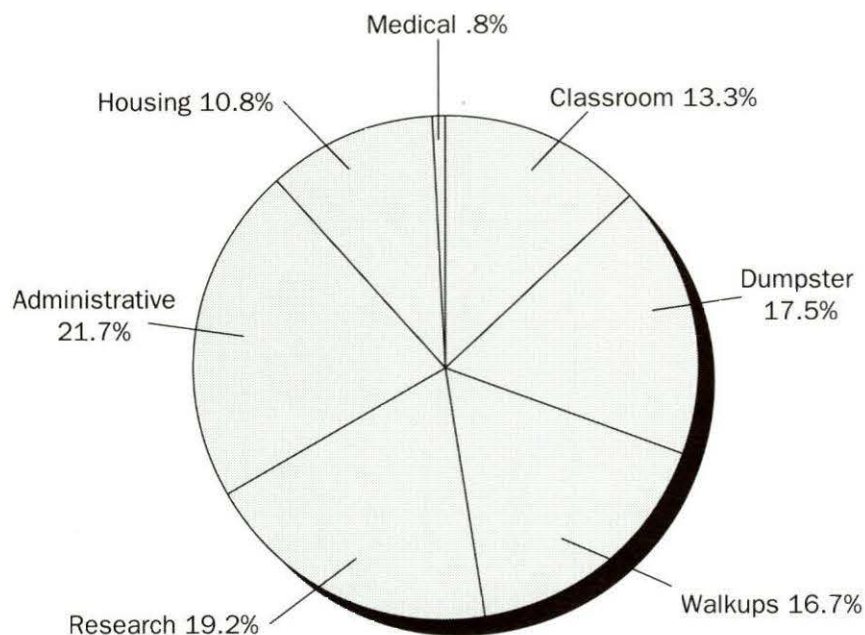
Once the cooperation and commitment of each level is achieved, and a recycling coordinator appointed, the next

step is to implement a solid waste audit and analyze the solid waste stream. In other words, become a Sherlock Holmes and discover, in a quantitative way, the amount of each major type of trash in the waste system. An audit could be by volume, by weight, or projection using a similar community. Before any type of trash audit is established, it is necessary to define and develop the gross tons of trash generated by the campus. Such information may be obtained from your contracted waste disposal company, landfill where you haul your waste, or by weighing your vehicles (unloaded and loaded). An analysis of the trash will be somewhat meaningless if a clear baseline is not established from which to compute percentages.

Having established the gross amount of waste generated, the next step in the audit is to develop an instrument to measure and track what is in the waste stream. A survey tool that measures the major categories of waste should include paper, cardboard, food or organic wastes, metals, glass, plastics, construction waste, etc. Each major category might have subcategories such as paper, which may have categories of white paper, colored paper, computer paper (white), computer paper (green bar), etc. Once the survey instrument is



**Figure 3. Recycle Survey—Building Types Responding, October 1990**



developed, it is time to start analyzing the trash (see two examples in Figure 1).

One method is to randomly select samples of trash from all types of buildings on campus, and have the waste analyzed by assigned personnel, by sheer volume, which is actually an estimate. If a six cubic yard dumpster is analyzed, what percentage of the waste is paper, plastic, cardboard, etc.?

Another method, again using random sampling of all types of buildings, is to select the dumpsters, and then physically set aside a location to pour out the dumpsters and weigh the contents. A caution on doing this is in order. Coordinate this type of activity with your environmental safety/risk management offices; digging through discarded trash could present potential risks, even if protective equipment is worn.

A third method is to mail out a survey to all solid waste generators on campus, and solicit their support in developing percentage estimates of the amount of waste, and the types of waste, flowing through their offices or buildings.

Probably the most realistic method is to use a combination of all methods. The waste audit is the most important process in determining the long-range

goals and objectives of an integrated solid waste management program. Failure to clearly define baseline volumes and quantities will make it difficult to proceed into future steps of a recycling program.

#### **Developing Marketability of Recyclable Products**

Once the baseline volume or weight is determined, it is easy to then project, using survey results, the approximate amount of major categories of products that might be sold to potential buyers. Initially, it is probably wise to concentrate on the one to three major categories of solid waste generated, that may include paper products, cardboard, plastics, metals, or glass (whichever are specific to your institution).

Work closely with your purchasing department. Buyers may be approached based upon the volume of recyclables available on campus to determine approximate or estimated resale costs and revenue generation projections. It may be economically feasible to sell high-grade office papers and computer paper, but practically impossible to generate any revenue (and maybe significant losses) by selling newspaper or telephone books.

Once the marketability is established, it is time to sit down with the

potential buyers and determine the necessary collection modes and points. Will the products be collected by building, by clumps of buildings, or from a mass storage area? Your local vendors will be able to help you with this. Be advised to steer clear, if at all possible, of a sole source environment. Find as many potential buyers as possible and then competitively bid out your products. Much of the marketability, and practicality of marketing the recyclables, will be contingent upon quantities, quality, and location of your institution.

Using your survey results of the types of solid waste generated by your facility will enable you to develop realistic markets. You may be surprised by the accuracy of the results of your survey, as well as your projections for marketability, when all are tabulated and averaged.

A 1990 analysis using a by-volume survey method was conducted on a mid-sized university campus in APPA's Central Region; the results were quite interesting when compared with national norms. According to the survey of this particular campus of 25,000 students, the solid waste stream was 48.9 percent paper, 18.7 percent plastics, 11.3 percent cardboard, 7.7 percent metals, 4.0 percent glass, 7.5 percent organic, and 1.9 percent other. A 1991 scientific study conducted by *National Geographic* indicated that an analysis of solid waste indicates 50 percent is paper, 10 percent is plastic, 1 percent is glass, 13 percent is organic, and 20 percent miscellaneous. In the major categories, especially papers, the by-volume study related both very closely together. (See survey results in Figures 2-5.)

It is important to track the source of each type of solid waste. Obviously, most of the standard office and computer papers will be generated from administrative and academic areas. However, one study indicated that the largest generators of cardboard on a campus were the residence halls, specifically pizza boxes. Much of the metals or organic wastes are found in the food services areas.

By conducting the survey by major categories of waste, and tracking to specific categories of buildings, the recycling coordinator, in conjunction with committees or advisory groups, will be able to make intelligent decisions about where to establish recycling programs, containers, and bulk recycling modules for collection points.



### Selecting a Collection System

Many companies would love to sell large universities collection systems that are, usually, quite expensive. The American Paper Institute indicates in its literature that source separation is probably one of the best systems. Each person at a desk or within an office sorts out the recyclable categories, then brings this to a central container on their floor. Many of the successful college systems then have their housekeeping personnel (or the buyer of the products) remove the containers to a loading dock in the building. These containers are then emptied and returned to their original location (by either housekeeping or vendors).

Several universities have interesting case studies. One has contracted their entire recycling of paper to a local concern. The concern provides all the containers free of charge and moves, empties, and replaces these containers, and then pays the university a nominal fee. No expense or labor is incurred by the university under this program. The down side is that the end refund cost for the recycled items is usually low.

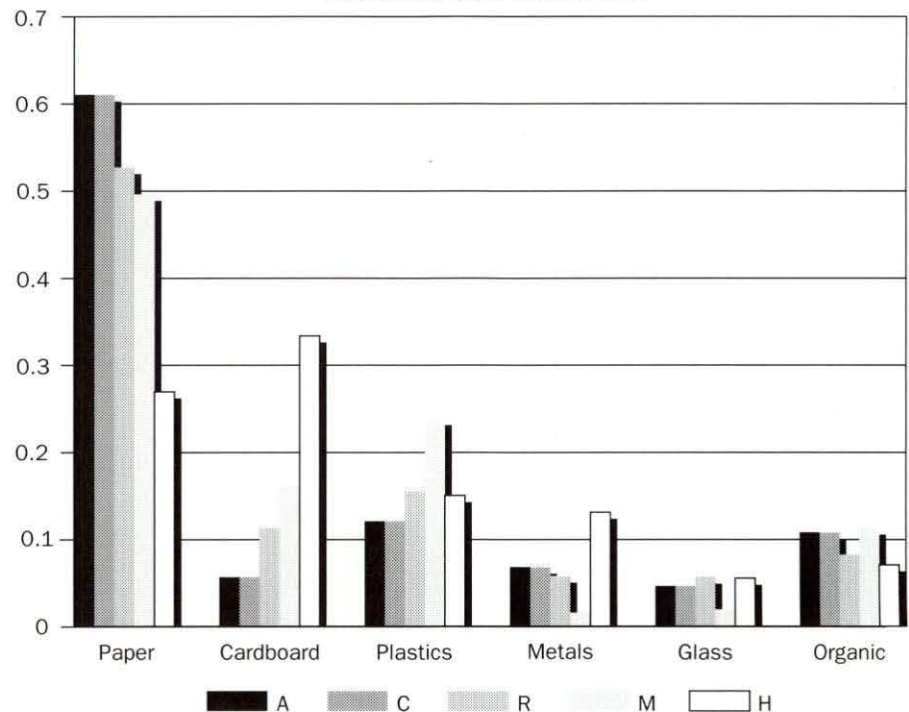
In another case, a university uses a student initiated program, collects soda cans and newspapers in specific containers (cardboard containers that are plastic lined for soda cans). The soda cans are collected weekly by the housekeepers and deposited on the loading dock. At a prearranged time, the university delivery system picks up the containers and deposits them in a secured 40-cubic yard covered dumpster that is removed by the local recycling company. The end cents per product is much higher, but there is more university labor involved.

Some other universities have opted to use all student labor (paid at student rates), class projects, or combination of students and regular employees. The key to making any of this successful and workable is having an active and effective recycling coordinator. The students are often energetic; however, after a few years, the classes turn over, and one could be back at square one. The recycling coordinator provides a consistency from year to year and can more easily keep up to date on industry changes.

Probably the best approach is to use the system that costs the least, maximizes the potential for returned dollars, and runs effectively. Each university may have different resource pools to draw from. A combination of several sources will probably increase the potential for long-term success.

**Figure 4. Recycle Survey—Responses**

By Building Type, October 1990



### Education

It is absolutely critical to develop and initiate an effective education program using student groups, faculty advisors, and staff personnel. As the logistics of analyzing solid waste and developing recycling strategies is in progress, a clearly defined education program should be in progress. Such a program should be directed at both the head and the heart. Solid arguments may be developed from factual literature; however, a fair amount of professional persuasion and public meetings will be necessary.

As mentioned earlier, the arguments for recycling are effective: it is an ethical alternative to polluting the planet, it is a viable alternative since landfills are reaching capacity, it is an economic alternative since it is becoming increasingly costly to dispose of waste, and it is a legal imperative since many states are now legislating that recycling programs be implemented.

### Waste Reduction or Minimization

Up to now we have discussed recycling, however, maybe even more important is how to minimize solid waste from ever entering the waste stream and if it does, how to handle it in an effective manner. Many strategies are available.

For instance, solicit products from vendors while minimizing the amount of packaging involved. Use containers that are shipped in recycled and recyclable plastics. Several companies now have a return program; you ship back the empties (at no cost) while receiving the new shipment. Several janitorial supply companies, rather than shipping items in five-gallon plastic containers, are now shipping items in recyclable five-gallon boxes (exterior) with plastic internal collapsible bladders, some of which can be recycled.

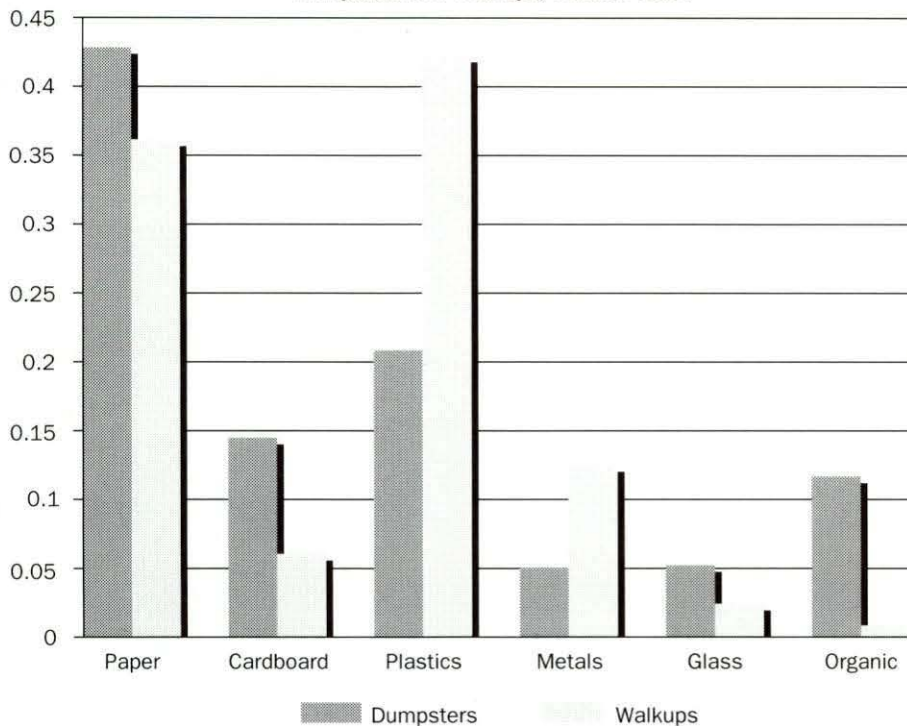
Buy products in concentrate form. A national manufacturer of fabric softener now sells its fabric softener in a concentrated form. It comes in a very small carton, and the purchaser then adds water at home. By using concentrate, containers are minimized, shipping is less, and more storage is available.

In food service areas, move away from the use of plastics, paper, and styrofoam products. Ensure that shipping containers, whenever practical, are made of products that can be recycled. A Canadian company is now marketing eight-ounce individual milk cartons in plastic disposable bladders rather than in waxed cardboard cartons.

In office areas, photocopy on both sides and use scrap paper for writing drafts or memos. The reuse of file fold-



**Figure 5. Recycle Survey-Responses**  
Dumpsters and Walkups, October 1990



ers (flip over and change dates for following year or relabel), reconditioning toner cartridges, reinking ribbons, or simply using electronic mail may go a long way to reducing waste. A number of recycling publications provide insightful information about how to minimize waste and reduce the amount of potential waste entering the waste stream of an institution.

Waste can also be minimized in areas such as landscaping and grounds by recycling clippings and leaves, chipping or mulching tree limbs, or composting (which may minimize fertilizer purchases). Other areas of your facility can recycle items. Car tires can be used as an alternate energy source in some boilers, as can other forms of solid waste. Car oils and batteries can be recycled and kept from the waste stream. Several recycling companies are now recycling pallets.

Indeed, an integrated solid waste management program starts at the preprocurement stage and follows through to the final recycling and disposal of the end product. One newspaper company recycles its expended newsprint by loading the unused papers into a rail freight car. The rail freight car is then returned to the mill. Based upon a prearranged plan, the mill provides the newspaper company

with rolls of free newsprint. The possibilities are nearly limitless.

#### Community Participation

The university community is a microcosm of the larger community in which it exists, works, and plays. A successful university recycling program will work closely with community leaders and agencies. A case in point is a university in Indiana that opens up its recycling boats to members of the community. The boat is a 40-cubic dumpster on wheels, with segregated areas that are caged (to avoid pilferage) and provide drop off points for glass (clear and colored), cans, and other forms of containers. The boats have doors to keep products dry and free from the weather. This program has proven to be a community success. A boat is on campus for part of the campus and community program, and boats are located throughout the local community for use by all members of the community. The university directly benefits from the income generated by the boat on campus.

#### Distractors

Paradigms have been mentioned on several occasions, and there are several philosophies that can detract from a potential recycling program. These detractors or distractors need to be over-

come, because solid waste management and recycling is an imperative for the 1990s. Such distractors may include arguments that recycling will cost money and human resources. This is true, but the alternative is that if something is not done soon, it will cost more money in the long run. If you decide to do nothing for now, what are you going to do when your local landfill closes (because your school was one of the institutions that filled it up in the first place!)? Or if your dumping fees that might have been \$20-\$30 a ton are now \$100 or more per ton because you have to ship the waste 100 miles?

Many states have chosen to implement legislation requiring purchasing goals and recycling goals, and many more have pending legislation. These rules, rather than getting easier, will become more restrictive. Those organizations that have started early in the process will be well ahead when legislation is enacted. The time to set up your program is now, while the opportunity exists to conduct a thorough examination of your alternatives, to develop an effective solid waste audit, to provide an efficient waste collection system, to educate personnel, and to implement a solid waste minimization program that is proactive rather than reactive.

#### Conclusion

Many schools and universities have started the pathway to professional solid waste management programs. Many stellar examples come to mind including, but not limited to the University of Colorado in Boulder, Cornell University, Dartmouth College, University of Illinois/Chicago, University of Minnesota, University of Missouri/Columbia, University of Nebraska/Lincoln, University of Notre Dame, University of Wisconsin/Parkside, and Washington State University.

One of the professional enrichment advantages afforded by an organization such as APPA is the ability to network with true professionals. Universities and colleges have a unique opportunity to be in the forefront of solid waste management. The imperative for such programs has been established by economics, legislation, environmental concerns, and ethical issues.

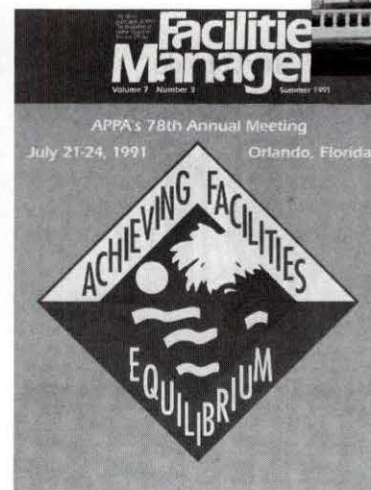
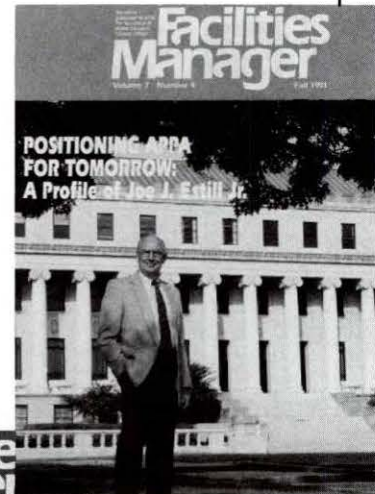
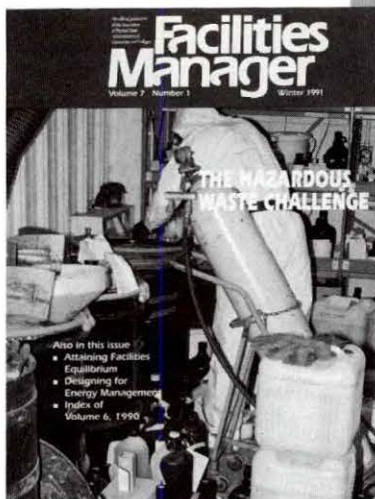
The facilities management organization is in a critical position to enhance the image of the institution and to be on the cutting edge of change in the handling of solid waste into the year 2000 and beyond!



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by Steve Glazner

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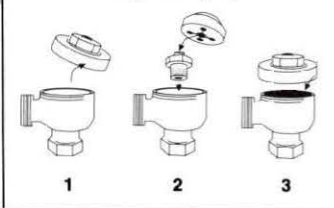
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# APPA EDUCATIONAL CALENDAR

APPA offers educational/training programs throughout the year. A brief explanation of our training programs for 1991-92 follows:

**Executive Training Programs**—Designed for senior facilities administrators, these programs focus on developing skills needed to play an effective role in the leadership of higher education institutions. Subjects include: management skills, budgeting, long-range planning and institutional policy-making. Programs include: Executive Development Institute and Institute for Facilities Finance.

**Seminars**—Short educational programs which focus on a single subject. Topics may focus on current issues or general training.

**Annual Meeting**—This meeting features educational sessions, exhibits and social activities directed toward middle- and senior-level facilities managers. Highlights include the Keynote Speakers and the Critical Issues in Higher Education series.

**Institute for Facilities Management**—A week-long training program designed to benefit all levels of management. The Institute offers three successive and parallel program tracks that provide a comprehensive education in facilities management and operations. The program is offered every January and August.

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## 1992 Programs

January 13-14	ADA Facilities Compliance Seminar Los Angeles, California
January 19-24	Institute for Facilities Management San Antonio, Texas
January 30-31	Custodial Staffing and Guidelines San Antonio, Texas
February 27-28	Environmental Compliance Seminar Washington, DC
March 26-27	Preservation of Library and Archival Materials (tentative) Chicago, Illinois
March 29- April 3	Executive Development Institute South Bend, Indiana
July 26-29	79th Annual Meeting Indianapolis, Indiana
August 23-28	Institute for Facilities Management Boston, Massachusetts



## APPA Answers

Maxine Mauldin

### TAKING ADVANTAGE OF APPA'S INFORMATION SERVICES

Welcome to APPA Answers, the newest column in *Facilities Manager*; you will see more of it in the issues yet to come. APPA Answers will appear quarterly and will keep you up-to-date on what's going on in APPA's Information Services Department. There will be follow-ups on general topics, statistics on different criteria, and much more.

The International Experience Exchange, the foundation of APPA's information service effort, is a free service

*Maxine Mauldin is APPA's information services manager. She has been an APPA staff member since 1979.*

to APPA member institutions. All you need to do is call or write us with your request, and we will respond as quickly and completely as possible.

The idea for APPA's International Experience Exchange started in the early 1980s. There was a need for a centralized information system to serve as a way to enhance communications among members. By the mid-1980s a survey was developed and mailed to all members. This survey asked members to identify about eighty areas of physical plant responsibilities and operations within their institutions. More than 400 colleges and universities responded.

During the late 1980s the number of APPA members grew, as did APPA's programs and services. Currently, more than 1,000 institutions are on the system, reporting on more than 150 topics within facilities management and operations.

The major topic categories on the International Experience Exchange data base include the following:

- **Physical Plant Responsibilities**—includes contracted or self-provided custodial, grounds, trades, building maintenance, facility audits, environmental compliance, fleet, parking, purchasing, pest control, and more.
- **Construction and Planning Responsibilities**—includes master planning, building planning, plans and specs for projects under and/or more than \$100,000, minor construction, roads and walkways, commissioning, and more.
- **Classification of Buildings**—includes comprehensive campus facility list of existing buildings, new construction, and recent renovations.
- **Utilities Sources**—includes type of heating fuel used, district service,

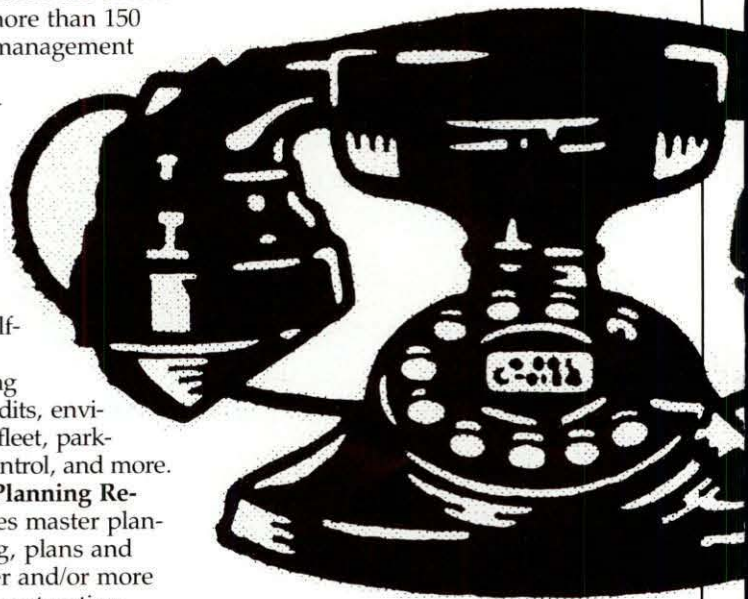
electrical, water, cogeneration, and telecommunications.

- **Employee Training**—includes programs for custodial, grounds, trades, supervisors, security, asbestos removal, and more.

- **Employee Morale/Recognition**—includes plant department newsletters, employee recognition and term-of-service programs, and tuition support for professional development activities.

- **Computerization**—includes PC, mini, or mainframe applications for accounting/billing, personnel, work order control, energy management, preventive maintenance, equipment and facilities inventory, and more.

The data base allows members to communicate with each other. While we hope to be accessible on-line via modem someday, the beauty of the current system is that you can get expert advice right away on a problem, and you can get it from someone who has been in the same situation as yourself. We will provide you with a print-out of institutions with similar needs and responsibilities, including a list of your colleagues who can understand and relate to your situation. The Experience Exchange data base is designed to put you in touch with an individual who can help.



The **International Experience Exchange** is a free service to APPA member institutions. All you need to do is call, fax, or write us with your request. If your institution is not one of the more than 1007 institutions on the data base, please complete a survey form and return it to APPA for inclusion. The more schools we have on the data base, the more comprehensive the data will be.

For more information on the International Experience Exchange, call the APPA Information Services hotline at 703/684-4338. Requests may also be sent by mail to APPA, Information Services, 1446 Duke Street, Alexandria, Virginia 22314-3492; or fax it to us on 703/549-2772.

**All this information is only a telephone call away!**



**703/684-4338**

#### Using the Data Base

Let's take an example. First, you call APPA's Information Services Hotline (703/684-4338) to request information on starting a trash recycling program



at your institution. The first four questions that probably came to your mind are what, where, when, and how. With our data base you will learn that many institutions just like yours have already answered those questions. We can provide you with a printout—queried by FTE, Carnegie classification, state, APPA region, or many other categories—of those institutions that indicated on the survey that they currently operate a trash recycling program.

But Information Services does not stop with the Experience Exchange. We also provide you with as much information possible by using APPA's other departments. From the Publications Department we will scan our bibliography to find books or chapters within books that may have additional information on recycling. We'll also search the indexes of *Facilities Manager* and *APPA Newsletter* for articles that have appeared on the subject. Citations of other published information will be provided to you for further research.

Then we move on to the Educational Programs Department for a look at any upcoming institutes, seminars, or workshops that may cover that topic as well. We also provide you with a list of other related organizations and associations that may be of some help.

There may be an occasion when the information you request is not included in the Experience Exchange data base or through

our other sources. We would then use *APPA Newsletter* or this column to appeal to readers who may have information on your topic; we ask to be copied on such correspondence so that we can follow-up ourselves as well as keep our files up-to-date.

A recent example involves a member requesting information on four-day work weeks. After searching our data base and other sources, I found we did not have any information on this topic, or on the use of flextime. By using *APPA Newsletter*, I was able to request the help of other institutions that may have some type of flextime program in operation. The response was great, and the member who requested this information was very pleased. He was able to contact the institutions directly to get of more in-depth assistance.

Remember that Information Services is a free service to APPA member institutions. If your institution or organization is not a member, we urge you to contact APPA's Membership Department for more information. We look forward to responding to your information requests, and I look forward to sharing this with you in the next APPA Answers column. ■

#### *Most-Requested Topics of Recent Calls to Information Services*

1. Contracting for services (especially construction bid specs).
2. Emergency awareness/disaster planning.
3. Space management.
4. Recently-built or renovated classrooms, libraries, and athletic facilities.
5. Recycling.



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## Global Exchange

Sam Ragusa

### GRIFFITH UNIVERSITY

Griffith University is located in Brisbane, which is the capital and business center of the state of Queensland. A city of 1.3 million people, Brisbane has a subtropical climate with warm summer days tempered by afternoon sea breezes and occasional thunderstorms. The average temperature ranges between 29°C (84°F) during the summer and 9°C (48°F) during the crisp, sunny winter. Because of the hot, humid summer climate, the majority of teaching buildings are air conditioned; however, very little winter heating is required.

Griffith University is a state university funded by the Australian government and has an annual operating budget of \$75 million.

There are 12,300 students enrolled at Griffith University in a variety of undergraduate and postgraduate courses. A characteristic of research and teaching at the university is its multidisciplinary approach to problem solving. Griffith has recognized research strengths in a broad array of subject areas, including Australia-Asia relations, Australian public sector management, applied environmental research, cultural policy studies, and molecular biology and biotechnology.

The university was established on a 175-hectare (432-acre) bushland site at Nathan in 1971. Academic and physical planning began in that year, and teaching commenced in 1975. In 1990, the nearby Mt. Gravatt Campus (originally Mt. Gravatt Teachers College) amalgamated with the university. Construction on the 42-hectare (105-acre) site at Mt. Gravatt began in 1968, and teaching on that campus began in 1969.

Both campuses feature modern,



Above, aerial view of Griffith University. Below, Australian Environmental Studies Building.

well-designed buildings, principally constructed in white or off-white concrete or concrete masonry. Highest priority has been given to building finishes that minimize maintenance. Load bearing walls within buildings have been minimized to retain flexibility in partitioning. The university has twenty-seven major buildings on two campuses and a building gross floor area of 120,000 square meters (1.3 million gsf). The oldest building is a five-level social services building constructed at Mt. Gravatt in 1969. The majority of build-



ings are three levels. Major buildings include six science buildings, four teacher education buildings, and three central lecture complexes. The university also provides on-site residential accommodations for 1,000 students in both private study rooms and apartments.

Preservation of the natural landscape and replanting of the native flora are key features of the university's landscaping policy. Both campuses adjoin Toohey Forest, a 650-hectare (1,610-acre) area of remnant native Australian bushland. Buildings have been constructed with minimum disruption to the bush setting. The concept of native

bush and buildings in close proximity has produced a uniquely Australian university campus that observes sound ecological principles and design techniques.

The major energy source at Griffith University is electricity; at the Northern Campus, high voltage electrical power is distributed through an 11,000-volt underground twin ring main system. A Honeywell central control and monitoring system was installed in 1977, the first in any Australian university. All major buildings are connected to this system, which has achieved substantial savings in energy costs. The university has an energy management committee that monitors energy consumption and conducts energy awareness publicity campaigns.

Griffith University has twice won the prestigious National Energy Management Award, in 1985 and again in 1988. The university has received eleven awards for design and construction of its buildings, its landscape, and its civic design.

The facilities division currently employs 120 staff including architects, landscape architects, civil, electrical, and mechanical engineers, as well as a variety of trade, security, cleaning, gardening, and administrative staff. The division is headed by the manager, facilities, who reports directly to the vice-chancellor (chief executive officer).

As a facilities manager, my main interest at present is in the development of an Australian system for space planning and management. Since 1989, I have been a member of a federal government working party established to develop a system of space planning and management for higher education. I presented a paper on this work at the 1990 APPA annual meeting in Ottawa.

*Sam Ragusa is manager of facilities at Griffith University, Brisbane, Australia. He wrote on designing for energy management in the Winter 1990 Facilities Manager.*



## Data Base Update

Howard Millman

### HOUSING ASSIGNMENTS DRIVE COMPUTER CRAZY

Better the computer than you. Tracking hundreds, often thousands, of new and returning students while trying to honor their living preferences ("I only wanna a roomie from Brooklyn"), gender requirements (male, female, either, or neutered), and meal plans (three-a-day, ten-per-week, non-stop), linen options, and varying room rates will turn your remaining strands of hair gray.

If you have responsibility for managing student/faculty housing, American Collegiate Systems provides an integrated set of seven software tools you may want to know more about. Why? Because ACS's Housing Information System (a division of Griffin Technologies) competently manages most of the brain-numbing data-churning typical of university housing management.

In response to a request from a client to evaluate ACS's housing software, I met with Steve Crozier, ACS's founder, lead programmer, and technical evangelist at Griffin Technology's Rochester, New York office. Steve ran the program through its paces, demonstrating its many attributes and even its few limitations.

Each of ACS's seven smoothly integrated modules targets one aspect of housing services.

- *Facilities and Residents:* This required core module contains the data base of your buildings and students (current and past), maintains room assignments, generates assignment letters (linking with your existing word processing software), and prints occupancy reports and histories. Twenty

free-data fields allow customization of screens, reports, and printouts to meet your specific needs.

- *Automated Assignments:* Remember the computer dating services? Applicants answered a bunch of questions describing their preferences, finances, and traits. The computer, doing what it does best, categorized and compared the data and matched people with like-minded companions. Automated Assignments provides a similar matching service. It collects data sent in by thousands of housing applicants, compares requests to the available housing, and makes recommendations.

It does much more, too. Suppose the

initial match of roommates or building proves unsuccessful, as often happens. A/A will quickly changing room assignments while maintaining an audit trail. It also tracks unassigned rooms and beds.

As a final gesture of goodwill, A/A generates letters to incoming residents, welcoming them and providing the details of their housing accommodations. A true sanity saver.

- *Accounts Receivable:* This maintains current records of resident housing accounts. You establish charge codes and design a statement format that suits your needs. It also prints fully detailed statements including security deposits.

#### ACS University Housing Information System Menu

- HIS
- A. Facilities and Residents
  - B. Automated Assignments
  - C. Accounts Receivable
  - D. Automated Billing
  - E. Maintenance/Inventory
  - F. Conference Services
  - G. Room Survey and Billing
  - J. Student Data Import
0. Design/Run your own Reports/Queries
- 1. Logout
  - 2. Change your Password
  - 3. Display Date and Time
  - \*. Housing Information System Administrator

Housing Information  
System/II

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hi0000

Press letter of desired selection, or **Esc** to exit.

#### Update a Student Applicant

ID 333-33-3333 Other ID 019812

Name Crossman, Emily Gender ☒ (M-male F-female)

Address1 911 Snowmountain Dr. c/o Howard Crossman  
2 111 Elm St.  
City Irving Dayton  
State/Prov TX Zip/Post 75062-9877 OH 43829  
Country USA USA  
Phone 214-555-9087 419-555-0923  
Major Engineering Birthdate 04/07/74 Late Fee ☒ (Y/N)  
Class FRESH Freshman

Comment  
needs air-conditioned hall for allergy problems

Height  
Weight

fr0000

Complete form and press **End** to update, or **Esc** to exit.

Howard Millman is an author, lecturer, and consultant for facilities management and computer issues. Based in Croton, New York, he helps universities and hospitals plan and install facility management computer systems.



ACS University

Insert a Conference

HIS

Con

Conf ID

Category

Conf Name

Contact

Sponsor

Address

City

Country

State/Prov

Zip/Postal Code

Phone

Fax

Est. Attend.

Start Date

End Date

Start Time

End Time

Room Rates

hi000

cs0002

Complete form and press **End** to add, or **Esc** to exit.

With this module's help you'll become a ledger in your own lifetime (sorry, couldn't resist).

- **Automated Billing:** This trims the task of assessing the cost of basic and optional services provided to each resident. Typical categories include linen service, type of meal plan, and varying room rates.

- **Room Service and Billing:** Records

the presence and condition of furniture and residential equipment as well as the condition of the physical space. Residents responsible for missing inventory or damages will receive documented evidence with their bill for repairs/replacement. Housing staff can collect inventory data with bar code readers and later transfer it into the program.

- **Conference Services:** Essentially, this is a super-duty information manager and event planner. This module automates the endless details involved in booking and operating (revenue generating) on-campus conferences. It provides full financial tracking, schedules, registration, coordinating of onsite accommodations, as well as a detailed recap after the event.

Prices for ACS's modules range from about \$10,000 for the single Facilities and Residents core module (required by all the other modules except Maintenance/Inventory). The cost for additional modules ranges from \$4,000 for Automated Billing to \$11,000 for Automated Assignments. These prices are approximate; they depend on the amount of training required, the number of online users and workstations, and the total number of modules purchased.

#### Maintenance and Inventory

As an adjunct to the other Housing Information System modules, Maintenance/Inventory provides a reasonable degree of maintenance tracking and data storage. Since it's fully integrated, it transparently exchanges information with all the other modules. Newer than the other modules, it came online in 1989.

ACS's module delivers a competent set of features to expedite tracking of routine repairs and preventive maintenance functions. It's simple-to-understand menu systems combined with its straightforward data entry screens make it a worthwhile contender for managing fundamental maintenance demands.

For all its advantages, however, comparing ACS's maintenance module to established powerhouses such as Titan's TMS, DFM's Mapcon, Maintenance Automation's Chief, and Kurtz & Steel's MASC is unfair. Although comparably priced to dedicated, standalone computerized maintenance applications, the value of ACS's maintenance module is in its ease of use and integration with the other modules.

To match the depth of sophisticated features available from other fourth generation language (4GL) data bases, ACS's maintenance module requires a significant infusion of additional features. For example, it needs greater flexibility in designing the freeform, ID, and record fields in the onscreen and printed data forms. It also needs links to predictive and energy management add-ins, hot keyed RAM resident pop up screens, async communication modules, bar code readers, and some graphics, spreadsheet, as well as word processing links. Managing all of the new, powerful features will also necessitate a context sensitive, customizable online help system.

Steve Crozier predicts ACS's maintenance module will, in time, contain the missing features and stand toe to toe with the hundreds of established applications. Purchasers of the present module will receive the updates as they become available.

Following the advice I offered my client, if you want a suite of housing management applications, take a long look at the Housing Information System. Yes, I wish they were a bit less costly and executed faster, but they definitely do the job. If you want full-featured, powerful, and expandable maintenance software, then look into dedicated data bases such as Titan, DFM, Maintenance Logic System, Maintenance Automation, and Kurtz & Steel. If you want both, contract with a competent independent programmer to design an interface for data exchange between the applications and have the best of both worlds.

So what if your computer talks to itself.



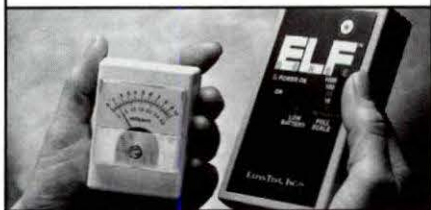
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## The Bookshelf

### Energy and the Environment

**Strategic Planning for Energy and the Environment**, F. William Payne, editor. Lilburn, GA: Strategic Planning for Energy and the Environment, 1990. 79 pp. softcover.

This 79-page book is a collection of nine articles dealing with various energy and environment topics. In the preface, the editor expresses the need for viewing energy and environment as two different but highly coupled elements of the same challenge.

The first article is an abstracted version of a World Watch Institute concerning a worldwide strategy for slowing global warming. It contains valuable information on the portfolio of world energy usage, the need for improving energy efficiency, today's realities regarding nuclear energy, and the major impact of renewable energy sources. The theme of the article demonstrates that a comprehensive energy plan must be based on energy efficiency and further development of renewable energy sources. In an effort to prove this point, valuable statistics are cited.

The second article is by Amery Loving, the research director at Rocky Mountain Institute. He emphasizes improving energy efficiency as the most economically feasible alternative in attacking the greenhouse effect.

The third article projects a world energy scenario for the year 2010 using the analytic hierarchy process (AHP). This is the most technical and by far the most comprehensive paper in the book. The results of the study are astonishing. For instance, in 1987, 86.4 percent of the world's energy mix (134 MB/D oil equivalent) was based on fossil fuel while in 2010, 68 percent (170 MB/D oil equivalent) is based on fossil fuel. This means, if serious effort is not given to renewable resources and energy efficiency, the survival of our civilization will be at stake.

The second half of the book contains case studies about specific energy projects. There is a review of current technologies in lighting retrofit projects where various new products and analytical techniques are discussed with a reasonable level of

specificity. Another is a case study on how energy management systems can be justified in new construction projects. The balance of the book contains short articles that address various energy related issues in a very cursory manner.

Generally speaking, the book contains two types of articles. The first are looking at the global issues and the latter are very specific situations. Except for some valuable statistics, the book hardly contains any new information for facilities managers. Most of the information has been presented in the popular press during the past two years. I recommend the book only for new facilities managers or those who have a keen interest in global energy statistics. Energy and environment is the most complex challenge of 1990. But, unfortunately, the book's content and brevity fall short of what the title conveys.

This book is available from Strategic Planning for Energy and the Environment Journal, Department 378, P.O. Box 1026, Lilburn, GA 30226.

— **Mohammad Qayoumi**

Associate Executive Vice President  
Facilities Development and Operations  
San Jose State University  
San Jose, California

### Building Teams

**Building Productive Teams**, by Glenn H. Varney. San Francisco: Jossey-Bass Publisher, Inc., 1989. 150 pp. \$20.95, hardcover.

I tried to find some utility in this book for the average physical plant manager. I read some sections three times, and still could not find the ore such mining deserved. The book purports to be an "Action Guide and Resource." It fails!

The author frequently presents lists of related items without explanation and without a particular goal in mind. Mystery may chance a novel; it is not appropriate to a teaching text as this aspires to be. The reader should not have to guess the lesson. It should be put before him or her clearly.

Instead, we have, for example, the story in chapter one where some machines would not run because nobody bought gasoline. While the "team" members were bickering and finger-pointing about whose job it was, and why it wasn't theirs, someone (who was definitely not the one responsible) left the meeting, bought a can of gasoline, returned and plunked the can of gas in the middle of the boardroom table. Varney then tells us "this" demonstrates how poor teamwork can lead to "ugly and counterproductive situations."

What demonstrates the poor teamwork: the plunking down of the gas can? The failure to purchase gasoline? The failure of the leader to assign responsibility? The way the meeting was held? The problem of an organization where gasoline purchas-

ing becomes a senior management team problem? The feelings of the responsible party when someone (whose job it was not) did it anyway?

Varney never tells us! He does not explain this example; he does not elaborate on his conclusion; and he never provides us with the means to correctly interpret his puzzle.

Until chapter ten, discussing. He seems to touch lightly on many issues, then dances away without grasping them firmly and dealing with them. Varney has a peremptory way of stating his perception of fact, then moving on.

As an example of this, in chapter seven, Improving Team Member Relationships, Varney states: "Typical manifestations of interpersonal incompetence include restricted commitment, gamesmanship, and deceptive and out-of-character behaviour." Varney does not explain each of these elements. He does not support these claims with evidence or argument. He simply drops the sentence and moves on as if his statement has prima facie validity.

These are not self-evident propositions to me. "Restricted commitment" could be the result of a team member's mandate from his or her superior, and not the result of incompetence.

In 1976, Michael Maccoby wrote a best-seller *The Gamesman*, in which he concludes that the most successful managers of those studied were those he calls gamesmen. The concept of gamesmanship is not at all universal, and Varney has an obligation to make his particular meaning clear.

In the last phrase, there is no obvious connection between "deception" and "out of character." Deceptive behavior may be entirely in character, and the uncharacteristic behavior may be honesty. Out-of-character behavior may be a sign of increasing interpersonal competence, if a manager who habitually flies into rages starts controlling his temper at meetings.

Throughout the book, it is difficult to determine if Varney is being descriptive or prescriptive. We should not have to guess whether he is telling us what frequently happens, or telling us what we should do when it does happen.

It is my feeling that a writer should only puzzle his reader by design and for effect. The writer should also remove the puzzlement before the end of the book. Varney's poor writing just makes me work too hard trying to determine what he is trying to say. The results are not worth the effort.

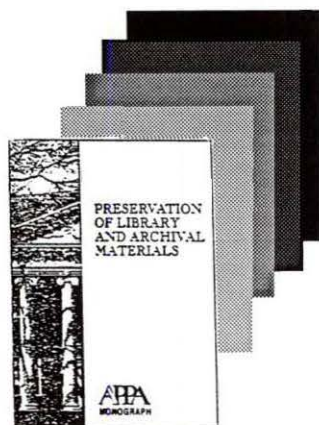
If you want to learn about teams, buy some other book!

*Building Productive Teams* is available from Jossey-Bass Publishers, Inc., 350 Sansome Street, San Francisco, CA 94104.

— **R.A. Jackson**

Personnel Administrator  
University of Alberta/Edmonton  
Alberta, Canada





## Preservation of Library and Archival Materials

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### Management

**Essentials Of Management**, fifth edition, by H. Koontz and H. Weihrich. New York: McGraw-Hill Publishing Company, 1990. 530 pp. \$34.95, softcover.

The explicit purpose of this book is "to prepare men and women for the exciting, challenging, and rewarding career of managing in the 1990s."

The science and practice of management is thoroughly explored and supported by examples, definitions, reviews, and case studies.

The mythology of management is the belief that a solid employee off the line is a good bet to become an efficient manager. Is it not always so.

A good manager should be an organized, energetic person, with good human relations skills, who has a feel for budgets and who can tolerate lots of meetings.

Newcomers, aspiring managers, as well as managerial staff, can benefit from this very well organized textbook. It is well planned and follows a logical sequence in the presentation of information.

A systems model, shown on the inside cover and used throughout the book, integrates the five essential managerial functions: planning, organizing, staffing, leading, and controlling. Each of these functions is documented separately. "Management is the process of designing and maintaining an environment in which individuals, working together in groups, efficiently accomplish selected aims" is the definition given in the book.

Top-level managers spend more time on planning and organizing, while first-line managers spend more than 50 percent of their time leading. In general, four kinds of skills are required from administrators in order to be successful problem solvers. These skills are technical, human, conceptual, and design.

The various approaches to management analysis indicate that the management theory and science are based on a core of basic sciences and theories; these are simply presented in the pie diagram. Basic management is part of an eclectic science and theory. The summary to chapter one states: "Managing as practice is art; organized knowledge about management is science. The development of management theory involves the development of concepts, principles, and techniques."

Chapter two discusses the relationship between management and society with respect to social responsibility and ethics. "Ethics deals with what is good and bad, and with moral duty and obligation. There are three moral theories in normative ethics: the utilitarian theory, the theory based on rights, and the theory of justice."

The nature and purpose of planning, objectives, strategies, and decision making are the four chapter components of the second part, Planning. Throughout the

chapter the authors insist on the direct relationship between planning and the selected objective. "The more thoroughly individuals charged with planning understand and agree to utilize consistent planning premises, the more coordinated enterprising planning will be." In all instances, planning requires decision making and must be interrelated with controlling. "Planning is looking ahead, and control is looking back."

In chapter four, the emphasis is on verifiable objectives. "Clear and verifiable objectives facilitate measurement of the surplus as well as the effectiveness and efficiency of managerial actions." Management by objectives (MBO) is clearly and simply explained, outlining its weaknesses, especially with respect to self-control and self-direction.

"Strategies, Policies, and Planning Premises" and "Decision Making" form the last two chapters of Planning. The discussions, exercises, and reference are relevant, conclusive, and easy to follow.

Part 3 follows with the topic of organizing. "Although the science of organizing has not yet developed to the point at which its principles are infallible laws, there is considerable agreement among management scholars and practitioners about a number of them." Each of the four chapters that constitute this part are applications of this statement. "There is no single, best way to organize; the most appropriate pattern depends on various factors in a given situation."

The managerial function of staffing is presented in Part 4, which includes human resources management and selection, performance appraisal and career strategy, and manager and organizational development.

### SAFETY PROGRAM INFORMATION REQUESTED

Georgia Southern University is in the process of revising the work safety program for its physical plant employees as well as reviewing procedures for the testing of fire protection systems for residence halls and other campus buildings. We would appreciate any information on safety procedures currently practiced by various colleges and universities to facilitate our revision. Please direct information to Marsha S. DeLoach, Physical Plant, Georgia Southern University, Landrum Box 8012, Statesboro, Georgia 30460-8012; 912/681-5752; fax 912/681-0324.



The responsibility for filling and keeping filled various positions within the organization is the primary function of a manager. However, performance appraisal, verifiable objectives, and career strategy are also essential to proper management.

Management and the human factor is the topic that introduces Part 5 entitled Leading. It includes three more chapters of great interest: motivation, leadership, and communication.

"The managerial function of leading is defined as the process of influencing people so that they will contribute to organization and group goals." Managers are required to understand the role assumed by employees, the individuality of people, and the personality of each individual. Rational or emotional, behavioristic or phenomenological, economic or self-actualizing are some of the behavioral models of human nature that must be considered by managerial staff.

Guiding employees' activities in required directions to the best of the manager's ability represents the leading process and motivation of people. This topic is presented in chapter fifteen. Maslow's five steps of hierarchy are used to explained basic human needs and reasons for motivation. There are several theories in this regard, but Maslow is easy to follow with his step-by-step, simplistic approach.

The "art of leadership" and its two main concerns, the final achievement, and people are presented in chapter sixteen. Managerial successes are determined by his or her leadership style.

The next chapter outlines the communication process, giving guidelines for improvement, for understanding and for eliminating barriers and breakdowns.

The managerial function of controlling, its measurement, and correction of performance are closely related to the planning process. These are the two blades without which a pair of scissors cannot work. It includes establishing standards, measuring performance against those standards, as well as correction of deviations.

Although the basic nature and objectives of management control do not change over the years, a large number of techniques and tools were used, as outlined in chapter thirteen, Control Techniques and Information Technology. Budgetary and non-budgetary control devices, as well as time-event analyses or information technology, including the computer, are analyzed.

Productivity and operation management, as well as overall and preventive control are the topics presented in the following two chapters.

In recent years, there has been a great deal of interest in the science and applied science of management. This book sets up to identify the major issues, to outline the results, and to suggest future investiga-

## Job Corner

### Job Corner Deadlines

Job Corner advertisements are available to any nonprofit institution with a facilities-related position opening available. Positions wanted ads are also welcome. Regular classified advertisements cost \$20 per column inch; display ads cost \$25 per column inch. There is a two-inch minimum charge on all ads, and no agency discounts are available.

Upcoming Job Corner deadlines are **February 10** for the March issue, **March 10** for April, and **April 10** for May. Closing deadlines for job announcements are posted at the request of each institution. In some cases, deadlines may be extended by an institution. APPA encourages all individuals interested in a position to inquire at the institution regarding its closing/filing date.

tion. Description analysis of various chapters confirms the availability of a number of useful approaches that enhance the study.

Management by objective can be achieved through a classical experiences centered approach, or by an educational competency based approach. Differences in managing methods are presented in the last part of the book.

*Essentials of Management* reinforces this fundamental point: managers share responsibility for actions that assist the development of the economy and enhance the well-being of millions of human beings.

I trust that this book will create accrued interest in the scientific development and the excellence of management in our society.

*Essentials of Management* is available from McGraw-Hill Publishing Company, 11 West 19th Street, New York, NY 10011.

— Alfred M. Rozeiu

Director of Physical Facilities  
Canadian Memorial Chiropractic College  
Toronto, Ontario, Canada

Send all ads, typed and double-spaced, with an official purchase order to Diana Tringali, Job Corner Advertising, APPA, 1446 Duke Street, Alexandria, VA 22314-3492. Or send your ad via fax 703/549-APPA (703/549-2772). Call 703/684-1446 for more information.

■ ■ ■

**Horticulturist.** California Institute of Technology is seeking a horticulturist to plan, coordinate, and manage the overall grounds maintenance, renovation, landscaping, and plant palette for campus and off-campus properties including the president's and provost's residences. Responsibilities include: campus landscape design, plant selection, procurement of a water conservation plan, liaison to campus, garden, and other service groups, and establishing and consulting with landscape architects, designers, and suppliers. With the assistance of the grounds superintendent will be responsible for supervising the general maintenance of grounds, developing and administering the operating budget and schedules, and acting on personnel issues. This position reports to the director of physical plant and the assistant director and requires a college degree in horticulture and a minimum of five years of increasingly responsible experience in landscape maintenance of a park, school, or industrial complex, and two years in a supervisory capacity. Must possess knowledge of modern methods and procedures of planting, cultivating, and caring of trees, shrubs, flowers, and lawns (commonly grown in CA), and the methods, materials, tools, and equipment used in gardening and landscape work and current knowledge of local plant pests, diseases, and the methods used for control and eradication. Must possess a working knowledge of IBM-PC or equivalent and excellent interpersonal and service-oriented skills as well as excellent verbal and written communication skills. Basic conversational Spanish is desirable. Must pass a Post Employment Offer Physical Examination. Interested candidates may submit a resume along with salary history and requirements to: Caltech Employment Department, Position 653JC, 1201 East California Boulevard, Pasadena, CA 91125. Caltech is an affirmative action/equal opportunity employer. Women and minorities are encouraged to apply.



**Electrical Engineer**, Purdue University. Qualifications include: bachelor's degree in engineering or engineering technology required. Indiana State registration as a Professional Engineer required. Must be able to analyze client needs, develop creative solutions to problems, and consult with other professional staff on multi-disciplined problems. Knowledge of building construction codes required. Knowledge of engineering system design, construction methods, and operations required. Knowledge of computer operations and applications desired. Major responsibilities include the following, under the general direction of senior engineer. Design engineering systems for university construction projects. Meet with clients to determine scope and feasibility of project and identify project needs. Prepare cost estimates for new

construction, renovation, and repair, including utilities systems requiring engineering systems. Provide support to shops staff. Consult with project managers and other university staff. Review designs of outside A/E firms. Provide professional guidance and direction to physical facilities construction inspectors. Participate in the development and implementation of engineering policies and standards. Provide guidance and direction to project teams in coordinating the development of estimates, project budgets, working drawings, and specifications. Interested applicants should send a resume to: Sue Gibson, Employment Representative, Personnel Services, 1126 Freehafer Hall, West Lafayette, IN 47907-1126.

*Purdue University is an equal opportunity/affirmative action employer.*

#### **DIRECTOR ENVIRONMENTAL HEALTH AND SAFETY UNIVERSITY OF TEXAS AT AUSTIN**

The director is responsible for the management of a multi-disciplinary, comprehensive campus environmental health and safety program. The individual will develop, administer, and promote programs and procedures necessary to maintain a safe and healthy environment for faculty, staff, students, and visitors, and ensure that university operations are in compliance with applicable state and federal statutes, codes, and regulations.

The position requires a master's degree in natural sciences, engineering, industrial hygiene, public health, health physics, or other appropriate discipline/field, and five years of progressively responsible experience in the management of a comprehensive environmental health and safety department, or equivalent experience in an academic or research environment. May require occasional exposure to potentially hazardous environments or situations to assess life safety risks.

Preferred qualifications include a doctoral degree in natural sciences, engineering, industrial hygiene, public health, health physics, or other appropriate discipline/field; certification as Certified Safety Professional (CSP), Professional Engineer (PE), Certified Industrial Hygienist (CIHP), and/or Certified Health Physicist (CHP); 10 years of progressively responsible experience in the management of a comprehensive environmental health and safety department or equivalent experience in an academic or research environment; demonstrated managerial skills in planning, organizing, evaluating, and delegating; and demonstrated effective communications and interpersonal skills in a university environment.

Starting salary for this position will be negotiated based on education and experience. An excellent benefits package is provided.

To apply, submit a resume with appropriate letter of application and a minimum of three references (preferably from persons associated with higher education). Resumes or nominations should be submitted by **February 28, 1992** to:

Rebecca DeLosSantos  
Employment Center  
Office of Personnel Services and Employee Relations  
The University of Texas at Austin  
P.O. Box Drawer V  
Austin, TX 78713-7449

*The University of Texas at Austin is an equal opportunity and affirmative action employer.*

#### **DIRECTOR FACILITIES MANAGEMENT AND PLANNING**

The director reports to the vice president of fiscal affairs and is responsible for directing the buildings, grounds, utilities, and maintenance operations for a campus of 30 buildings located on 75 acres. The director also has responsibility for divisional budgets and long-range plans and coordination of major construction projects.

Candidates should have a bachelor's degree in engineering, business, or management with progressively increasing responsibilities, preferably in higher education, in facilities management. The candidate will possess excellent oral and written communication skills and a strong sense for providing quality service.

Please submit letter of interest and resume with salary history to: Robert E. Gallman, Vice President of Fiscal Affairs, University of Evansville, 1800 Lincoln Avenue, Evansville, Indiana 47722.

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#### **SUPERINTENDENT OF BUILDINGS AND GROUNDS GREENWICH ACADEMY GREENWICH, CT**

Greenwich Academy, an independent day school of 600 girls in PK-12, seeks a superintendent of buildings and grounds for a campus of 32 acres and eight buildings. The superintendent reports directly to the business manager, supervises a staff, oversees independent contractors, reviews compliance programs, maintains a schedule of preventive maintenance, and is responsible for the functioning of the heating, electrical, and plumbing systems.

This position is available as of February 1, 1992 and may be filled as late as July 1, 1992. The salary is competitive with excellent benefits including on-campus housing. Qualified candidates may send resume and cover letter to:

John Ryan  
Business Manager  
Greenwich Academy  
200 North Maple Avenue  
Greenwich, CT 06830



### PHYSICAL PLANT ADMINISTRATOR UNIVERSITY OF CALIFOR- NIA/SANTA CRUZ

The University of California/Santa Cruz is seeking a physical plant administrator to manage the physical assets of a dynamic and growing campus. Reporting to the associate vice chancellor of campus facilities and services, the incumbent will oversee the operations, management, and repair of approximately 3 million gross square feet of state-supported buildings, housing, and other non-state supported activities, as well as Long Marine Lab and 500 landscaped acres.

Responsibilities include overall management of the following sub-units of campus facilities: physical plant craft operations, buildings and grounds, and business operations and administrative services. There are more than 220 employees in the unit.

Qualifications: demonstrated successful experience in the management of a large physical plant organization; evidence of a management style that emphasizes congeniality, teamwork, participation, and communications knowledge such as that obtained through a bachelor's degree program in engineering, architecture, campus planning, sciences, and/or business administration; knowledge of state-of-the-art facility maintenance techniques applicable to an institution of higher education.

Compensation: Salary commensurate with qualifications and experience. Excellent benefits including health, dental, optical, and life insurance coverage as well as retirement plans.

Application: Contact Staff Personnel at 408/459-2011 for required supplemental application and copy of complete job description and requirements. Refer to job #91-11-16. Please submit application/resume with salary history and the names of three references to UCSC Personnel Office, 102 Communications Building, Santa Cruz, CA 95064. All materials must be received no later than **February 7, 1992**. AA/EEOE.

### ASSISTANT DIRECTOR, PHYSICAL PLANT/ENGINEERING

Under direction of the director of physical plant, manage personnel and operational activities of engineering and project management division (including asbestos management and energy management programs) of physical plant department. Bachelor's degree in engineering or architecture, with emphasis in structural, mechanical, or architectural engineering. Three to four years of experience or training that demonstrates competence in master site planning; new construction; renovation and remodeling; facilities systems planning; contract administration; energy analysis and conservation techniques; plant data base development and management; project supervision and management required. Must have Professional Engineers (P.E.) License and State of Vermont Asbestos Consultant and/or Abatement Supervisor License or be able to secure both licenses within a reasonable time after taking position. Forward detailed resume, salary history, and social security number to:

Employment Office  
237 Waterman Building  
University of Vermont  
Burlington, Vermont 05405



Applications accepted until filled. *Affirmative action/equal opportunity employer.*

### DIRECTOR OF FACILITIES PORTLAND STATE UNIVERSITY

Portland State University invites applications and nominations for the position of director of facilities. The university is an urban campus located in downtown Portland, Oregon. The campus encompasses 32 acres with 28 major buildings totaling approximately 2.5 million square feet. The fall term 1991 student enrollment was 14,285 with an FTE of 9,701.

**Required Qualifications:** fifteen years or more of experience in engineering or architecture or related field. A minimum of **six** years of supervisory/administrative experience of which **three** years must be managerial experience in a physical plant setting of comparable or larger size.

**Desirable Qualifications:** a baccalaureate degree with emphasis in architecture or engineering. Knowledge of energy conservation programs; academic facilities planning requirements; space management, environmental management, and a familiarity with continuous quality management theories and techniques.

This position is currently open and will be filled on a 12-month, non-tenured basis. Salary is dependent upon qualifications and experience. Applications and nominations should be submitted no later than **January 30, 1992**, and include a resume and the names of at least three references. Please submit to:

Lindsay Ann Desrochers  
Vice President for Finance and Administration  
Portland State University  
P.O. Box 751  
Portland, OR 97207-0751

*Portland State University is an EEO/AA employer. Minorities, women, and members of other protected groups are encouraged to apply.*

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# APPA

## AROMATHERAPY

Georgia Southern University is considering the use of aromatherapy within the facility buildings on campus. Information is needed from institutions that have utilized this procedure, i.e., how it is applied, application costs, and the positive and negative aspects of its use. Please send your response to Hugh R. Hagin, Chief Engineer, Georgia Southern University, Landrum Box 8012, Statesboro, Georgia 30460; 912/681-5752; fax 912/681-0324.

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### Coming Events

#### APPA Events

Contact the APPA Educational Programs Department at 703/684-1446.

Jan. 13-14 — ADA Seminar. Los Angeles, CA.

Jan. 19-24 — Institute for Facilities Management. San Antonio, TX.

Jan. 30-31 — Custodial Staffing Guidelines. San Antonio, TX.

Feb. 27-28 — Environmental Compliance Seminar. Washington, DC.

Mar. 26-27 — Preservation of Library and Archival Materials. Chicago, IL.

Mar. 29-Apr. 3 — Executive Development Institute. Notre Dame, IN.

Jul. 26-29 — Annual Meeting. Indianapolis, IN.

#### Other Events

Feb. 11-13 — Thermographic Applications for Predictive Maintenance. Phoenix, AZ. Contact: John Snell & Associates, 17 First Avenue, Montpelier, VT 05602; 802/229-9820.

Feb. 27-28 — IDHCA Fifth Annual College/University Conference. Auburn, AL. Contact Tom Clapper at 216/672-4300.

Mar. 9-13 — Air Conditioning Controls. Orlando, FL. Contact: Johnson Controls, Inc., Johnson Controls Institute/M-45, 507 East Michigan Street, P.O. Box 423, Milwaukee, WI 53201; 800/524-8540.

Mar. 13-15 — Affordable, Energy Efficient, Non-Toxic Housing. Leominster, MA. Contact Northeast Sustainable Energy Association, 23 Ames Street, Greenfield, MA 01301; 413/774-6051.

Mar. 17-18 — 1992 Energy Showboat. Long Beach, CA. Contact: Carol Whittet, Southern California Edison Company, 100 Long Beach Boulevard, Room 110, Long Beach, CA 90802; 213/491-2424.

Mar. 19 — Basics of Roofing — Level I. Nashville, TN. Contact: Roof Consultants Institute (RCI), 7424 Chapel Hill Road, Raleigh, NC; 919/859-0742.

Mar. 23-27 — Advanced Air Conditioning Controls. Contact: Johnson Controls, Inc., Johnson Controls Institute/M-45, 507 East Michigan Street, P.O. Box 423, Milwaukee, WI 53201; 800/524-8540.

Mar. 31-Apr. 2 — Telecommunications Infrastructure Planning. Austin, TX. Contact: Nancy Mack, Conferences and Institutes, 138 Dana Hall, Washington State University, Pullman, WA 99164-2712; 509/335-3530.

Apr. 13-17 — Air Conditioning Controls. Orlando, FL. Contact: Johnson Controls, Inc., Johnson Controls Institute/M-45, 507 East Michigan Street, P.O. Box 423, Milwaukee, WI 53201; 800/524-8540.

Apr. 28-30 — Telecommunications Infrastructure Planning. New York, NY. Contact: Nancy Mack, Conferences and Institutes, 138 Dana Hall, Washington State University, Pullman, WA 99164-2712; 509/335-3530.



# College/University DHC Conference

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**For more information or to register contact:**

IDHCA, 1101 Connecticut Avenue, NW, Suite 700, Washington, DC 20036 (202) 429-5111

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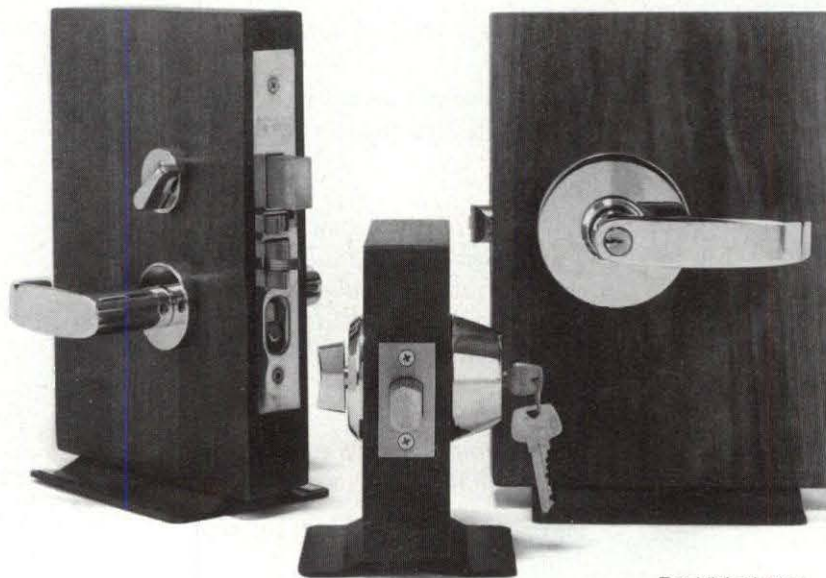
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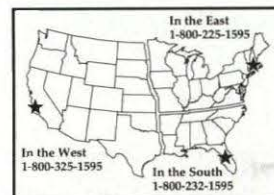
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