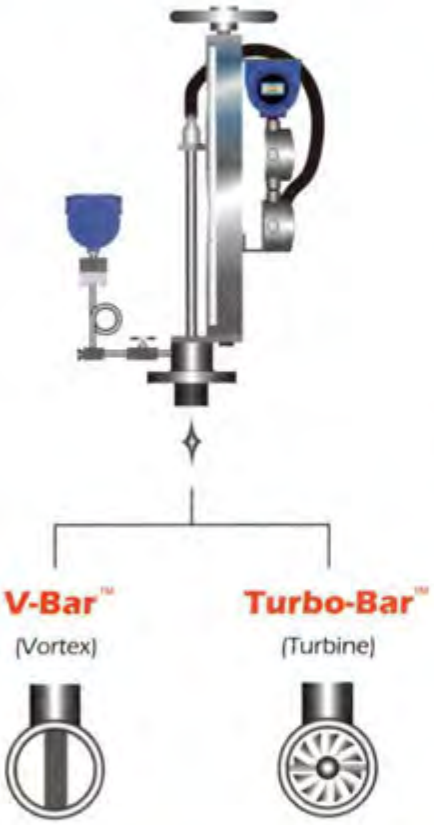
The official publication of APPA: The Association of Higher Education Facilities Officers

Facilities Manager

Volume 8 Number 2 Spring 1992

Upgrading Campus Libraries For New Technologies

Don't let lousy metering rob you...



20 years of experience and 10,000 meters installed in universities world-wide...
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Here are three ways EMCO flowmeters lower your university's energy costs:

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Conservation begins with accountability and accountability with measurement. EMCO's insertion meters are the standard of excellence for reliable, accurate utility measurement.

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

Facilities Manager

VOLUME 8 NUMBER 2 SPRING 1992

On the Cutting Edge:

Upgrading Campus Libraries for New Technologies

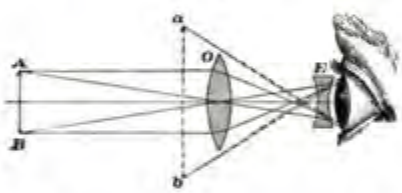
by Ruth E. Thaler-Carter

18

Above: the law library addition at the University of Michigan.

On the cover: University of California/San Diego.

FEATURES



DEPARTMENTS

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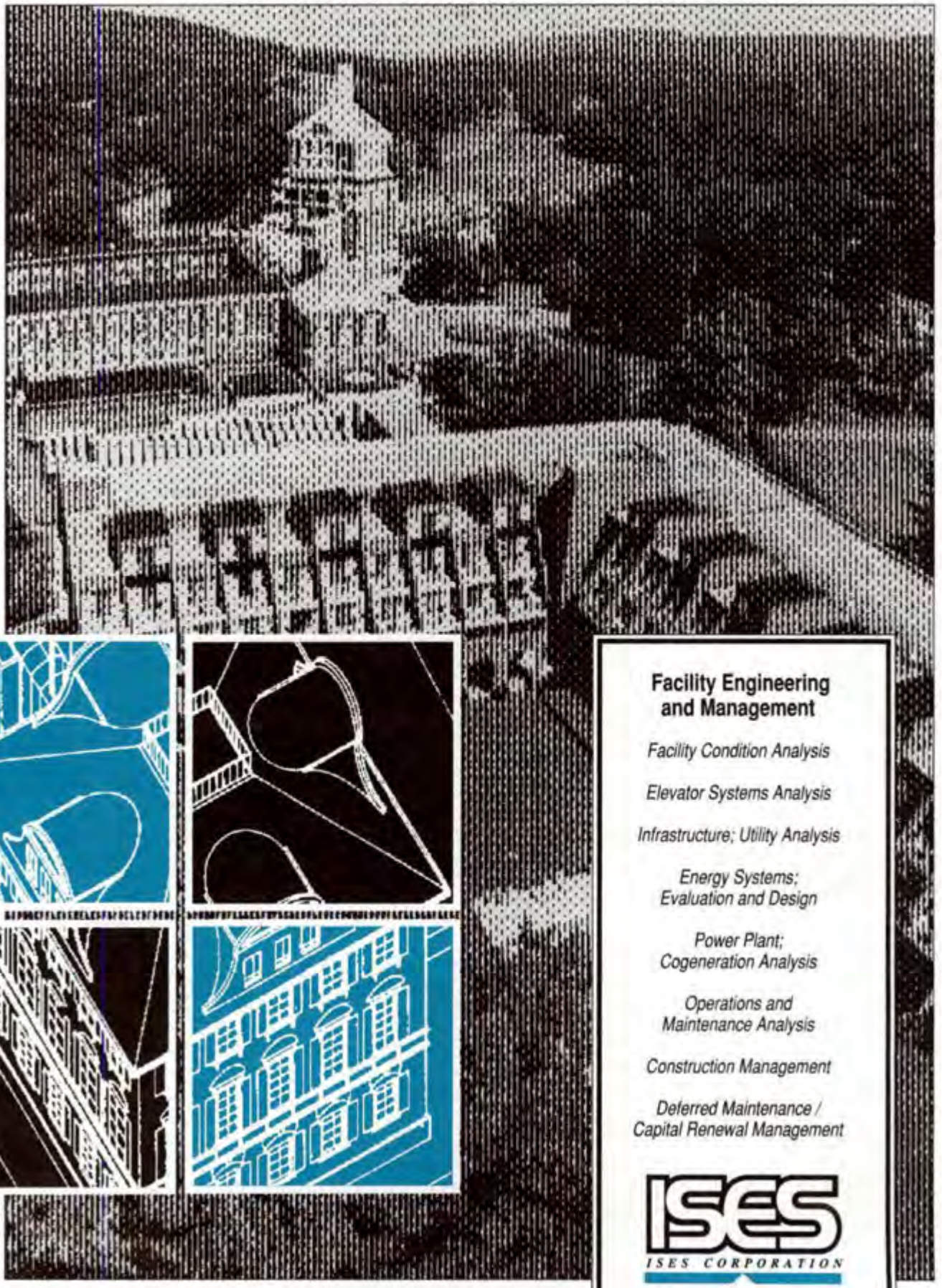

Facility Engineering and Management

Facility Condition Analysis

Elevator Systems Analysis

Infrastructure; Utility Analysis

Energy Systems; Evaluation and Design

Power Plant; Cogeneration Analysis

Operations and Maintenance Analysis

Construction Management

Deferred Maintenance / Capital Renewal Management

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APPA News

What's the Latest in Membership?

From The Vice President for Membership

by George Preston
Executive Director of Physical Plant
Art Institute of Chicago
Chicago, Illinois

Despite the existing economic situation—when an overall decline in association membership is bound to occur—thirty-nine new institutions joined APPA's ranks during the past six months. Our overall renewal rate is approximately 93 percent. Although a decline for APPA, this rate is still higher than most other associations enjoy even in good economic times.

A comparison of current membership figures to our base of April 1991 indicates the following:

APPA Membership Comparison

	4/1/91	12/31/91
Institutions	1549	1468
Associates	2059	1939
Affiliates	289	230
Associates	0	37
Subscribing	155	144
Associates	0	14
	4052	3781

Our greatest declines have been in affiliate membership, with a 77 percent renewal rate, and subscribing membership, with a 72 percent renewal rate.

Despite the decline in renewal, we have continued to grow in membership. To date, we have had thirty-nine new institutional members join, nineteen new affiliate members, and thirty-nine new subscribing members. Also, approximately 397 institutions took advantage of the two-tier dues structure to have an expanded associate membership.

Our institutional membership consists of the following:

- 973 small colleges (66.28%)
- 406 large institutions (27.66%)
- 58 international members (3.95%)
- 31 systems offices (2.11%)

Currently, thirty of the 117 historically black colleges and universities are APPA members. We are working to get the rest of these institutions to join.

Because of the successful APPA/Lilly project, in which we studied the conditions of facilities at theological institutions, seminaries are another institutional type in which we are seeing new members. To date, forty-five schools of theology are members of APPA, and we are focusing membership recruitment efforts on the others in this group.

George Preston

We offered new, expanded membership options to the affiliate members last year and continued to offer an expanded option for subscribing members. Affiliates can now choose from one, three, or five representatives, to increase their associate level participation. Many of our affiliates chose this option, making this alternative a popular one. The same is true for subscribing membership, as more companies chose to expand their corporate representation.

The APPA Emeritus Club is off to a good start. I have had numerous telephone calls and about twenty-five letters from "old timers" all expressing a desire to become members. More have indicated that they would attend our annual meetings providing that those meetings were within a "reasonable driving distance." We are working on ways to involve the 171 emeritus members. For instance, last month emeritus members were sent information on grant reading for federal government projects.

The 1992 Membership Directory was mailed in February to all APPA members; if you have any corrections to make, please contact the APPA Membership Department. We made several changes in the directory this year. The subscribing member section now includes descriptions of the firms' product or service. In addition, we have revised the style from a three-column format to four columns, and the type size is slightly reduced. These revisions have resulted in lower printing and mailing costs.

Facilities: Still a Key Issue in Higher Education

by Walter A. Schaw
APPA Executive Vice President
Alexandria, Virginia

How are facilities issues being regarded these days by the decision makers, primarily the presidents and chancellors? Judging by the extent and regularity of budget cuts at particularly state-supported schools, one might assume that the answer is, "Not too well." One of the barometers we have is an annual opinion survey of presidents and other leaders done by Coopers & Lybrand and summarized in *AGB Reports*, published by the Association of Governing Boards of Universities and Colleges. The survey asks these leaders to identify what they consider to be the key challenges in higher education.

Until 1989, facilities were not mentioned as one of the top ten issues. Then, with the publication of *The Decaying American Campus*, the APPA/NACUBO/Coopers & Lybrand research report on facilities conditions, the issue became "No. 2" in importance in the survey, second only to a concern for enrollment. While surveys are only opinion, a national trend to identify and at least partially correct capital renewal and deferred maintenance needs was a clear result. Up through 1991, the survey continued with facilities issues as No. 2, an opinion reinforced as some of the nation's most prominent institutions identified almost staggering amounts of work backlogs. (These findings also showed APPA's research projections of a $60 billion to $70 billion backlog to be quite conservative.)

Few of you will be suprised by the 1992 results just published by AGB. The most critical issues are: 1) tuition policy and financing, 2) productivity and cost

control, 3) planning and budgeting, *4) capital renewal and replacement (facilities)*, and 5) research funding. It is interesting to note that while facilities has remained a key issue, the previous No. 1 issue of a concern for enrollment is no longer one of the "top five" key concerns.

The AGB report, written by Sandra Johnson and Joel Myerson of Coopers & Lybrand, links facilities to the No. 2 issue of productivity and cost control. "This shift (of facilities to No. 4) may reflect the increasing priority institutions are placing on costs and productivity and not a diminution of the importance of capital renewal and replacement," they wrote. "One important component of productivity is maintaining efficient facilities through regular reinvestment; facilities should not be ignored to control current costs. In fact, failing to invest regularly in facilities will almost certainly increase future costs."

In my own contact and exchanges with higher education leaders, presidents, and business officers, I find an understanding and articulation of facilities issues that didn't exist for many of them a few years ago. Some express a frustration with current funding shortfalls and their effect on already serious facilities backlogs. Others have taken drastic action to reduce critical backlogs or prevent further deterioration. Among the latter was Harvard University's announcement of a deficit budget, directly caused by a significant annual allowance for renewal and replacement—which was advocated by APPA and the National Association of College and University Business Officers. Without that allowance, there would not have been a deficit.

We're well aware that a survey does not produce dollars for facilities maintenance or renewal. In fact, despite data like the $1.7 billion loaned from Sallie Mae for facilities improvements at some 135 independent colleges and universities, the problem of backlogs has escalated well beyond the $60 billion of 1989. Despite the federal requirements by the Office of Management and Budget that reimbursements for depreciation and use charges must in fact be spent on facilities, the cost of compliance for federal regulations is squeezing whatever dollars are available for renewal and replacement.

There is little enough good news for many these days, particularly at state-supported schools. But a continuing recognition of the significance of facilities is demonstrated by the AGB report. The solutions may be long-term and only possible with difficult and even unpopular choices (as at Yale), but a continuing awareness of the leadership is a necessary prerequisite to solutions, whether now or later. In spite of the toughest times we may have known, we have not been forgotten!

Conclusion

By action of the February APPA Board of Directors meeting, APPA's 1992-93 annual budget includes an appropriation for a building reserve for the APPA headquarters. It follows our baseline recommendation of 2 percent of replacement value as an annual appropriation independent of costs of facilities operations. This annual fund will be shown in our audit statement in addition to and eventually in place of depreciation as a more meaningful financial value. To my knowledge, we will be the first association, appropriately, to do so.

Staff News

Cotrenia Aytch, APPA's staff assistant/receptionist since June 1991, was promoted February 26 to publication sales coordinator. In her new position, Cotrenia is responsible for processing all publication orders, managing newsletter and magazine subscriptions, and assisting with advertising billing. She replaces Michelle DuBose-Windom, who left APPA after seventeen months to relocate to Florida.

APPA Publishes Emergency Prep Book

Following numerous requests for information and assistance on emergency and disaster planning, APPA has published *Emergency Preparedness*. The six chapters in this monograph cover fires, floods, earthquakes, hurricanes, snow, and other disasters. Included are charts and figures, as well as a bibliography of additional resources, that will assist in preparing or revising a campus emergency preparedness plan.

The contents of this book include:

- Introduction, by Mohammad H. Qayoumi
- Planning in Time: The Oakland-Berkeley Hills Fire, by Nadesan Permaul
- Killing Waters Revisited, by Alan L. Ingle
- We Were Prepared: Surviving a 7.1 Earthquake, by F. Louis Fackler
- An Institutional Response to Hurricanes, by Alfred Sangster
- Dusting Off the Plan, by C. Ronald Hicks
- Stories From the Trenches, by Ruth E. Thaler-Carter

Emergency Preparedness is now available at a cost of $25 for APPA member institutions, $31 for all others; add $8 for shipping and handling. Prepayment is required, and orders should be sent to APPA Publications, Dept. EPNL, P.O. Box 1201, Alexandria, VA 22313-1201.

Candidates Chosen for APPA Election

The APPA Board of Directors, by recommendation of the Nominating Committee, selected the following candi-

Facilities Manager (ISSN 0882-7249) is published quarterly (Winter, Spring, Summer, Fall) by APPA: The Association of Higher Education Facilities Officers, 1446 Duke Street, Alexandria, Virginia 22314-3492. Editorial contributions are welcome and should be sent to this address.

Of APPA's annual membership dues, $30 pays for the subscription to *Facilities Manager* and *APPA Newsletter*. Additional annual subscriptions for both periodicals cost $40 ($50 for non U.S. addresses). For information on rates and deadlines for display and classified advertising, telephone 703/684-1446.

POSTMASTER: Send address changes to FACILITIES MANAGER, 1446 Duke Street, Alexandria, VA 22314-3492.

Editor: Steve Glazner
Assistant Editor: Stephanie Gretchen
Advertising: Diana L. Tringali
Subscriptions: Cotrenia Aytch
Art Direction/Typography: Chronicle Type & Design
Printing: Good Printers
Editorial Office: 703/684-1446
Fax: 703/549-2772
Bitnet: APPA@BITNIC.BITNET

dates for the 1992 elections.

President-Elect
- Charles W. Jenkins, St. Mary's University (TX)
- E. Diane Kerby, Berea College (KY)

Secretary
- Paul F. Tabolt, University of Colorado/Boulder
- Howard A. (Hod) Wells, Pennsylvania State System of Higher Education

VP Educational Programs
- Douglas K. Christensen, Brigham Young University (UT)
- John P. Harrod Jr., University of Wisconsin/Madison

VP Information Services
- George T. Preston, Art Institute of Chicago (IL)
- Pieter J. (Pete) van der Have, University of Utah

VP Professional Affairs
- Fred A. Giles, Northern Arizona University
- Thomas F. Vacha, University of Delaware

A tally committee met in April to count the ballots, and final results will be published in a future issue of *APPA Newsletter*.

UVA Publishes FM Annual Report

The University of Virginia Office of Facilities Management has recently submitted its eleventh annual report to university administration. According to William D. Middleton, assistant vice president for facilities management, the report "summarizes our significant activities and operations for the 1990-91 fiscal year, as well as shows our progress toward achieving our long-term objectives for providing enhanced and more cost effective facilities support to the university."

As long as supplies last, Middleton will provide copies of the annual report to interested APPA members. Send your request to Facilities Management, University of Virginia, 575 Alderman Road, Charlottesville, VA 22903-2476.

The Environment

Stephanie Gretchen

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

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

If you need to estimate how much **air toxic emissions control** equipment will cost, EPA has published *Handbook: Control Technologies for Hazardous Air Pollutants*. This book was first published in 1986 and was updated to reflect increased costs of control equipment. Copies may be ordered from the National Technical Information Service, 703/487-4650.

On February 5, EPA announced guidelines (57 FR 4448) that would help small businesses set up and run technical assistance programs that comply with the **Clean Air Act** Amendments. Colleges and universities often fall into the same categories as small businesses do. Under the provisions of the Clean Air Act, states will be regulating small businesses, which frequently lack the technical expertise or financial resources to evaluate state regulations. For more information, contact the EPA's Office of Small and Disadvantaged Business Utilization at 800/368-5888; in Washington, D.C. call 703/305-5938. Or contact EPA, OAQPS, AQMD, ROB (MD-15), Research Triangle Park, NC 27711; Racqueline Shelton 919/541-0898.

The EPA announced on February 4 that a cluster of fifty-six federal and state enforcement actions were filed as part of a crackdown on facilities that illegally handle **hazardous waste**. Fifty-one civil actions and five criminal actions assessed more than $20 million in penalties against generators and transporters of hazardous waste, as well as facility owners and operators that have disregarded notification requirements under RCRA. EPA launched an effort with states to find facilities that have failed to notify EPA or the state of regulated hazardous waste management activities, and are therefore operating illegally.

The Government Purchasing Project (GPP) would like to hear from anyone who has an innovative way to make government a **green consumer**, including specific examples of what has been done, successes and failures, in offices, hospitals, maintenance shops, garages, and any other setting transferable to government. GPP will be operating an energy efficiency clearing house for state and local officals, distributing information about energy efficient technologies, writing procurement specifications for new products and answering individual questions. For more information, contact Eleanor Lewis, Government Purchasing Project, P.O. Box 19367, Washington, DC 20036; 202/387-8030. ■

Join your colleagues for APPA's 79th Annual Meeting in Indianapolis, Indiana from July 26-29, 1992. The meeting offers four value-packed days of educational sessions, exhibits, and networking. Indianapolis has many attractions and special midwest charm.

Highlights include two dynamic keynote presentations. Monday's Opening Keynote Address will be given by Dr. Samuel H. Smith, President of Washington State University. The speaker for the Closing Keynote Address is Dr. Mark Pastin, Professor of Management and Director of the Lincoln Center for Ethics at Arizona State University. The Annual Awards Banquet features the awards presentations for the Meritorious Service Award, President's Award and the Awards for Excellence winners.

Kick off the meeting with the Opening Ceremony & Reception in the exhibit hall on Sunday afternoon. Enjoy the opportunity to visit more than 160 companies who will be displaying their products and services. Sunday evening enjoy some of Indianapolis's fine restuarants and relax with your colleagues at the Exhibitor Hospitality Suites.

This year's meeting features over 50 educational sessions on a wide range of subject areas. The Critical Issues in Higher Education series includes a focus on government regulations and ADA compliance. There will also be several Experience Exchange Sessions and Exhibitor/Vendor Technical Sessions to round out the educational offerings. A special after-hours event at the Indianapolis Children's Museum lets you capture your childhood with an evening of fun and learning as you roam the interactive exhibits and ride the carousel. The spouse/guest program visits the Indianapolis Museum of Art and a trip to the past at Connor Prairie Settlement.

When planning your trip to Indianapolis you will want to arrive on Friday or Saturday. Be sure to arrive in time for the Indianapolis Sports Facilities Tour on Saturday afternoon. Its a great opportunity to visit some world class athletic facilities including the Hoosier Dome, the Natatorium, Major Taylor Velodrome, and of course, the Indianapolis Motor Speedway.

JULY 26-29, 1992

INDIANAPOLIS

CONVENTION

CENTER/HOOSIER DOME

INDIANAPOLIS, INDIANA

Coming

May — Feature on the keynote speakers and campus tours.

June — Highlights of the special events, the spouse/guest program, and post-convention trip.

Summer (July) — Special convention issue—Salute to Exhibitors.

Registration Information

The Preliminary Program has been mailed to all APPA members. It includes complete details on the meeting, registration, and hotel information.

Conference Workshop

The Fundamentals of Quality: Platforms on Which to Build a Quality Management Program
Four-hour workshop focuses on the principles and applications of total quality management (TQM). TQM is a management approach that recognizes that quality is a concept built into the delivery of services or production of goods. The idea of improving quality is a continuous process which involves participative management, statistical thinking, data-based decision making, customer service and orientation, empowerment of the worker, strategic planning, training, and transformation of the organizational culture.
Instructor: James O. Cole, management consultant, CommTech Transformations, Inc.

Exhibitor/Vendor Technical Sessions

CMMS: A Recession Proof Product
Discuss the business reasons for implementing a computerized maintenance management system. Demo of Maximo Series 3 with client server architecture and SQL database.
Buzz McArdle, Project Software & Development, Inc.

Comprehensive Facilities Management Using Interactive Computerized Systems
Computerization can help manage graphic and non-graphic facilities data. Discuss planning, record drawing management, utility systems management, facility utilization and inventory, work order processing and operations, and maintenance management.
Thomas Schraeder and Patrick Carolan, Black & Veatch

High Morale Means Productivity
Specific suggestions that raise morale of employees in facilities. Developing a positive work climate.
George B. Wright, The George B. Wright Company

Landscape Design From a Maintenance Perspective (Low Maintenance Landscapes)
Focus on low maintenance tree and shrub special. Techniques and concepts to ensure a successful landscape with a minimum of maintenance following installation.
Dr. Bruce R. Fraedrich, The F.A. Bartlett Tree Expert Company

"The Fifth Wall"
With the advent of elastomeric membranes, non-organic felting materials, spray applied products, and multiple layers and types of insulation, the roofing industry has made a giant leap from the days when "one-system-fits-all". Learn more about managing your roofs and the systems available today.
Terry L. Aten, Roof Spec, Inc.

Experience Exchange Sessions

Panels of experienced facilities professionals will share their knowledge on trends and developments. The experience exchanges are designed for audience participation. Attendees are encouraged to ask questions in an effort to exchange information, problems, and solutions.

- Total Quality Management
- Building a Foundation—Employee Training & Development Issues
- Grounds Management
- Custodial Issues
- Managing with Less—Small College/Campus Management
- Creating an Environment of Mutual Respect Free from Cultural & Sexual Discrimination

Highlights

Friday, July 24

2:30pm - 5:00pm	1991-92 Board of Directors Meeting (All APPA Members Welcome to Attend)

Saturday, July 25

8:00am - 12:00n	1991-92 Board of Directors Meeting (All APPA Members Welcome to Attend)
1:00pm - 5:00pm	Indianapolis Sports Facilities Tour (Optional)
5:00pm - 6:00pm	Welcome to Indianapolis Reception

Sunday, July 26

8:00am - 12:00n	Conference Workshop
12:00n - 4:00pm	Opening Ceremony & Exhibit Hall Reception

Monday, July 27

7:15am - 8:45am	Opening Keynote Address & Breakfast
9:00am - 12:30pm	Educational Sessions
12:30pm - 3:00pm	Exhibit Hall Open/Lunch Served
3:00pm - 4:00pm	Exhibitor/Vendor Technical Sessions
4:15pm - 5:30pm	Regional Meetings
7:00pm - 10:00pm	Optional Evening Activity

Tuesday, July 28

7:15am - 8:45am	President's Breakfast
9:00am - 12:30pm	Educational Sessions
12:30pm - 3:00pm	Exhibit Hall Open/Lunch Served
2:30pm - 5:30pm	Campus Tours
3:15pm - 5:15pm	Educational Sessions
4:30pm - 5:30pm	Military Get-Together
6:00pm - 9:00pm	Annual Awards Banquet

Wednesday, July 29

7:15am - 8:45am	Closing Keynote Address & Breakfast
9:00am - 11:15am	Educational Sessions
12:30pm - 7:00pm	Post Convention Tour—Brown County

Meeting and Hotel Facilities

The educational sessions and exhibits will be held at the Indiana Convention Center. Sleeping room accommodations are available at The Westin Hotel/ Indianapolis and the Hyatt Regency Indianapolis at State Capitol. Details concerning reservations and rates are included in the Preliminary Program.

EDUCATIONAL PROGRAM HIGHLIGHTS

Track — Business Management

The Business Plan for Facilities Management Operations
A business plan should be representative of the university's mission. Objectives and strategies should be clearly defined to reflect the goals that the mission statement puts forth. Examine how to translate your mission into strategic objectives and results.
Jerry C. Black, The University of Arizona

Castles & Sheds: Facilities Management in a Czechslovak University
With the dramatic changes in the last 2 years, the higher education system in Czechslovakia has evolved from a highly centralized and authoritarian system towards democratization. New and inexperienced administrators cannot easily cope with mounting financial pressures. With an uncertain future and increased student interest, examine the challenges of managing in a new order.
Jan Winkler, Charles University Prague

Downsizing Creatively in Facilities: Doing More for Less
Insights into a successful downsizing process designed for facilities managers. The seven step process outlines how to achieve a facilities downsize. Discuss how to avoid or lessen future downsizing efforts.
Patrick J. Lawlor, Virginia Commonwealth University

"Make-Buy" Competitive Procurement Project
In response to the dilemma of whether to contract or perform a service in-house, a "make-buy" program was introduced. This creates head-to-head cost comparison through competitive bids or proposals. Examine the details of program management, types of services, cost considerations, and effect on the facilities organization.
William D. Middleton, William J. Stauf, Richard S. Fowler, and Jay W. Klingel, University of Virginia

Managing the Facilities Portfolio
The role of stewardship means that decisions today affect the future. With that in mind buildings and facilities must be managed aggressively. A key to this is establishing a management model to analyze, assess, and fund facility assets. Explore how this model works and is applied to higher education facilities.
Douglas W. Kincaid, Applied Management Engineering, P.C.

Track — Facilities Operations

Building a Base for Change
A merger 20 years ago, left an operation with poor quality, low employee morale, and extreme customer dissatisfaction. Review how the facilities management operation was evaluated and restructured. Find out the positive changes that resulted and the pro-active base left for future reaction.
J.R. Swistock, Virginia Commonwealth University and Michael P. Onder, Management of America, Inc.

Central Chilled Water Plant Expansions & the CFC Refrigeration Issues
Case studies of campus chilled water storage systems. Overview of CFC refrigerant issue and alternatives. Options for chilled water storage as well as discussion of above- and below-ground storage, steel vs. concrete and other considerations.
John S. Andrepont, Chicago Bridge & Iron Company

Impact of the Clean Air Act on Campus Refrigeration & Air Conditioning
Amendments to the Clean Air Act impose restrictions on the products of CFCs. Costs for maintenance and repair of CFC systems have escalated. The solution: implementation of a CFC recovery and loss prevention program. Examine conversion and replacement alternatives.
Martin D. Ignazito, University of Illinois/ Champaign

Implementing an Environmentally Safe Chilled Water System
Review EPA regulations on refrigerants and types in use. Learn how one university analyzed environmental, operational, and economic considerations to develop a plan for updating equipment and future purchasing.
Theodore J. Weidner, Illinois State University

Lead Point Removal
Review the hazards of lead paint and potential regulatory requirements concerning removal. Examine work procedures, proper waste handling, and inspection procedures.
Mark R. Arriens and David Ciroli, Diagnostic Engineering Inc.

Race into the 21st Century Fueled by Natural Gas
Concern for the environment and costs have put a new emphasis on alternative fuels. Natural gas appears to have broad applications and many advantages. Examine the benefits of this fuel source, alternative uses, and implementation on campus.
Dorsey D. Jacobs, West Virginia University

Thermal Energy Storage: A State-of-the-Art Approach to an Ancient Technology
Examine how to analyze needs, alternatives, and cost justification of thermal energy storage systems. Case study of the decision process, plant design, construction, and operation.
John E. Haley, Indiana State University

Time for a Tune Up?
Learn how to follow a 50-point inspection to produce winning landscapes. The program evaluates landscape design, organizational strategy, equipment, maintenance techniques, and tools for managing in-house or contracted services. Practical improvements that will save money and increase efficiency will be presented.
Cathy Walker and David K. Scatterday, James Martin Associates Inc.

Track — Facilities Planning, Design & Construction

The Classroom of the Future
Explore one vision of education in the 21st century. Learn how you can prepare for and respond to new technology and other challenges. Guidelines for integrating building architecture with technology systems.
C. William Day, KBD Planning Group, Inc.; Paul R. Hollenbeck and Michael J. DiNardo, The Collaborative Inc.

Construction Management: The Owner's Perspective Revisited
Assess construction management as a tool in project management. Discuss assets and liabilities of this approach, as well as case studies that illustrate these points.
John Kreidich and Douglas M. Ault, Penn State University/Hershey Medical Center

Cost Containment Measures in the Planning and Design of Ancillary Campus Facilities
Examine a growing trend toward expanding the university market by tapping unused resources. Look at some creative uses of these resources such as retirement communities, research parks, conference centers, and retail centers. Case studies will explore cost contain-

ment and creative financing opportunities.
Gilbert A. Rosenthal, Wallace Roberts & Todd and Thomas C. Hier, MPC & Associates

Establishment & Application of a University Standards Policy
Developing a set of standards, ranging from paint and carpet to office sizes and furnishings, is a lengthy process. Focus on how to establish standards and examples of what they are. Discuss how the application of these standards can create new challenges and opportunities.
Duane Day and Tim Lewis, University of Texas Health Science Center/Houston

Master Planning Techniques for Success
Master planning is essential in the development of a campus as well as recruitment of faculty and students. Review the ingredients of a successful master plan including how to build a consensus, develop a report, and build flexibility into the plan.
William R. Love, Jr., AICP, Woolpert Consultants

Transportation Demand Management at Cornell University
Traffic and parking demands were taking a toll on campus. A series of positive and negative incentives were introduced promoting alternatives to single-occupant automobile travel. Explore the points of this program and the positive results achieved.
William E. Wendt, Cornell University

Utility Master Planning
Discuss the merits of long range utility planning. Look at all systems including electric, steam, water, and cogeneration.
Speaker to be announced

Track — Governmental Regulations

ADA Facilities Compliance
Overview of the law, compliance dates, enforcement, and exemptions. Discussion of definitions and Title II and Title III issues. Guidelines for evaluating your facilities.
William F. Hecker, AIA, Evan Terry Associates, P.C.

Are You Prepared for the Race with the EPA?
This presentation will help small colleges comply with EPA regulations on PCB's. Review current laws, dates for action, and sources of information. Assess your PCB situation, discuss the importance of record keeping, and how to prepare for an inspection.
James O. Roberts, Georgetown College

Governmental Regulations Update
What's new and what's coming. Review recent regulations and receive an update on pending legislation. Explore how small schools can set up programs to monitor and analyze regulations. Learn what the government looks for to process fines and claims. Explore how to avoid litigation and fines. Question and answer session.
Speakers to be annouced

Meeting Environmental Regulations for Healthy Buildings
Designers, construction contractors, and facilities managers have distinct roles in producing and maintaining a healthy work environment. New regulations force adaptation in such areas as ventilation, energy, waste materials. Case studies of buildings that address these issues.
Harry T. Gordon, Burt Hill Kosar Rittelmann Associates

Solid Waste Management: A Global Imperative
A step by step approach to developing an integrated waste management and reduction program. Discuss how to conduct a solid waste audit, analyze markets for recyclables, methods of collection, the education component, source reduction and how to foster community participation.
Alan S. Bigger, University of Notre Dame

Track — Human Resource Management

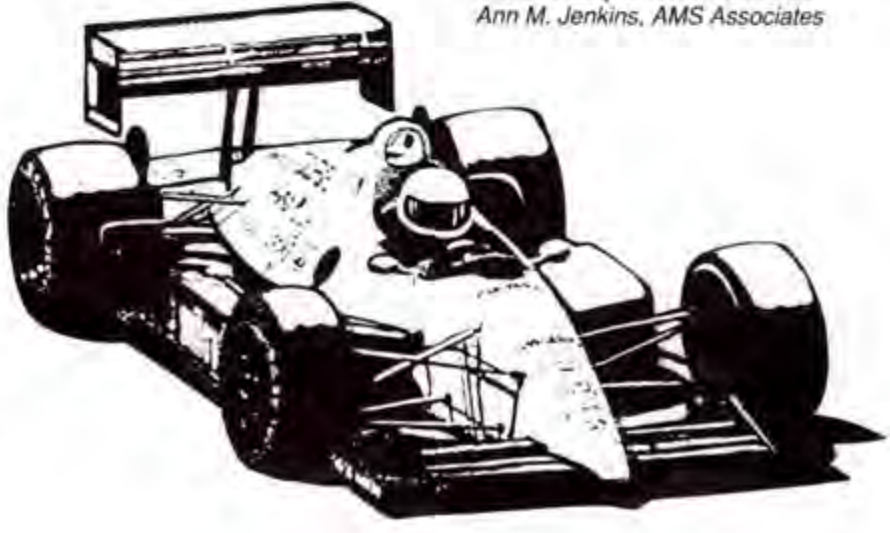
Drugs in the Workplace: An Ounce of Prevention
The Drug-Free Workplace Act of 1988 requires those receiving federal grants to certify that they maintain a drug-free workplace. But what happens when a incident occurs? Learn how to investigate an incident and examine its affect on the work environment. Develop policies to help prevent such incidences, including drug testing.
Michael Gardner and Pat Bacon, Butler University

Handling Layoffs with Compassion & Dignity
In these hard economic times, layoffs are inevitable. Address the question of how to cut your workforce and highlight pitfalls to avoid. The manner in which layoffs are handled affects not only the individuals, but the organization as whole.
Robert A. Getz, University of Illinois/ Chicago

Managing by the Seat of Your Pants
Examine the differences between analytical deductive management and intuitive inductive management. How do they relate to problem solving and the physical plant. Discuss ways to develop an integrated management style that captures the best of both methods and is appropriate to physical plant.
Roy Dalebozik, McGill University

Quality Service in Higher Education
Case studies from three universities using a TQM approach. Address startup issues such as commitment, resources, and planning. Examine training needs, resource requirements, and organizational impact. Focus on what it takes to sustain a TQM program long-term.
Bill Adams, University of Wisconson/ Madison; Ken Burns, Purdue University/ Main Campus; Gary L. Reynolds, Iowa State University; and Jim Yamane, Colorado State Univesity.

Understanding Cross-Cultural Issues in the Workplace
Explore how various ethnic/cultural groups regard authority structures, gender roles, time orientation, and values. A brief overview of assimilation will help to provide a framework for understanding the challenges of relating to a culturally diverse work force.
Ann M. Jenkins, AMS Associates



Capital Notes

Donna Wiesner

There is good news regarding compliance with hazardous waste rules. The **federal appeals court threw out rules that help define hazardous waste** on the grounds that the Environmental Protection Agency (EPA) had not properly sought public comment eleven years ago. Under the current regulations, any waste is considered hazardous if it is mixed with or derived from a substance that is officially classified as hazardous. Henry Doney of Cornell University in Ithaca, New York says that these interpretations are causing the university to remove, at great expense, barrel upon barrel of construction surface water from a waste site clean-up project. This water must be transported to an approved incineration disposal site in Texas, because the construction water indicates that benzene is detectable, although less than one part per billion contamination. This interpretation accrues because the regulations recognize no lower de minimus limit for detectable quantities of any amount of a substance appearing on the toxic list.

Doney also points to an incident involving 500,000 gallons of fire fighting water disposed of after a coal pile fire in the 1970s. The water was collected, neutralized, then hauled by a waste handling company to an approved site; the water contained traces of iron, copper, and chromium. Later, when this water disposal site became the center of the **Superfund cleanup**, Cornell's contribution was considered sufficiently benign as to be dismissed from responsibility. However, another waste contributor to the site was able to sue Cornell as a co-contributor, because the chemicals were listed by the agency.

Several APPA Board members were discussing CFCs at the midwinter board meeting in February, as well as the sometimes competing concerns for safety, the ozone, and the premature elimination of products without safer substitutes. The discussion was made timely by the awareness by the non-technical press of criticism of asbestos removal and by the new studies **questioning the safety of fiberglass**, the replacement for asbestos.

Recently, the President also **requested to eliminate CFCs by July 1, 1996**, instead of the year 2000. The United States has already reduced CFC production to 42 percent below 1986 levels, a reduction beyond that required by the Clean Air Act or the amended Montreal Protocol. Although even our Board

cannot resolve the issue, APPA is becoming increasingly asked for details regarding fines or costs of compliance, and this is one way your opinions can be known before policy is set. Keep those cards and calls coming!

EPA expects the **final rules** to have appeared in the *Federal Register* in March for the **Clean Air Act** Title VI Section 603,4,7, and 16 CFC. For Section 608, proposed rules are expected in mid-April and finals in late October. However, the act directed EPA to have rules out within one year instead of the customary three, so these dates may be delayed.

By the way, congratulations to **Rhode Island College**. They are now PCB-free and have one less headache to worry about.

The Washington-based Institute for Energy and Environmental Research says HCFCs (add hydrogen to CFCs) are only 95 percent less ozone-depleting than the original compound, if you assume that HCFCs release chlorine at the same slow rate as CFCs. Coauthor Arjun Makhijani says that HCFCs free chlorine much faster, allowing the freed chlorine to harm the ozone layer faster. In addition, the costs for HCFCs are five times higher.

I am concerned about a phrase appearing in Washington lately that neglects the continuum for scientific data (or the bell curve in statistics). When EPA agreed to measure pesticide residue based on the chemical remaining on produce in the market and not on crops in the field, EPA Administrator William Reilly said he would use **"sound science."** I recently heard counsel from Vice President Dan Quayle's staff say they were going to use "good" science, not "quasi" science in future rulings. I wonder if these terms don't show a lack of understanding for minor details such as margins of error, statistical curves, and other variables. Science is filled with gray areas, as is all of nature.

A few APPA members have called with questions regarding **OSHA reauthorization**. The Bush Administration has not signed on to the bill, but right now it includes the following.

- All employers with eleven or more employees would be required to establish a safety and health committee at each worksite, consisting of an equal number of employees and management representatives.
- **OSHA would be allowed to close down facilities** and/or equipment without a hearing in case of imminent danger unless the employer immediately adopted OSHA's abatement proposals.
- OSHA **criminal offenses would be increased** from misdemeanors to felonies.
- **OSHA jurisdiction would be expanded** to cover all federal, state, and local government employees.

More later as the law makes its way through Congress.

An **on-line access system** contains more than one million information resources from twenty-eight **EPA libraries**. For information, contact Jonda Byrd at 513/569-7183.

Model Accreditation Plan; Extension of Asbestos Accreditation Requirements to Public and Commercial Buildings (57 FR 1913): The effective date of the requirements in the Asbestos Abatement Training Amendments have been extended from November 28, 1991 until November 28, 1992. These amendments mandate additional training and accreditation requirements for persons who work with asbestos. ■

Donna Wiesner is APPA's director of government relations.

Focus on Management

Sigmund G. Ginsburg

TAKE "PRINCIPLES" OF MANAGEMENT WITH GRAINS OF SALT

We have all been exposed to management principles that stress the science of management and imply that proper application of these principles will result in a high probability of success.

Some of these principles include the following:

- *Unity of Command*—Each subordinate, situation, or condition should be under the control of one and only one immediate supervisor.
- *Hierarchy/Number of Levels, Scalar Chain*—Each individual and unit is ultimately responsible through succeeding levels to the chief executive officer at the apex of the hierarchy. The number of levels should be kept as few as possible to facilitate control and communication.
- *Authority can be delegated, responsibility cannot.*
- *Authority should be commensurate with responsibility.*
- *Duties should be clearly defined.*
- *Span of control*—There is a limit to the number of subordinates an individual can supervise; that limit is, according to many writers, somewhere between five and twelve.

Although these and many other principles have considerable validity, I suggest that they must be analyzed and applied by taking into account the particular organization and the problems and opportunities it faces now, short-term and long-term. In essence, there is both an art and a science to management, and while the principles stress the scientific part, we must always recognize the art as well. In a way, the principles can be seen as proverbs, as Herbert Simon suggested many years ago; one can find opposing principles and proverbs.

I have tried to make this point in speeches and teaching by asking audiences and students to give me opposing proverbs. I frequently receive such contrasts as: "Absence makes the heart grow fonder/Out of sight, out of mind." "He who hesitates is lost/Look before you leap." "Too many cooks spoil the broth/Two heads are better than one." The most creative contrast I ever received was from a member of the clergy who suggested, "Thou shalt not steal/God helps those who help themselves."

> *"Don't apply management principles in a cookbook-recipe fashion."*

The principles are guidelines, but they can be and often are violated, sometimes for good reason, sometimes inadvertently. For example, unity of command is frequently violated since one secretary may provide service to two or more individuals in order to save money for the organization. Authority commensurate with responsibility often breaks down; as a way of overcoming this problem, the matrix, task force, or project organization has been developed. The span of control principle that calls for a relatively small number of individuals reporting to a superior, would, in complex organizations, contrast with the belief that you should keep the number of levels in an organization to a low number.

The span of control principle itself is worth taking a look at since what I call a "numbers racket" applies to it. One frequently sees four to seven, five to eight, five to ten, six to twelve, as the "right" number of employees reporting to an individual manager, particularly at the higher levels. I suggest that there is indeed a limit, but it depends upon a number of factors within an organization at a particular time. At different times that limit might change. In deciding upon the limit, one must always balance questions of effectiveness and efficiency in a wide span of control with questions of additional expense, number of levels, and control and communication issues in a narrow span of control.

I would argue that the span of control depends upon: the level of supervision; the abilities and the style of the superior and the subordinates; type, size, and complexity of the organization; time availability of the superior; complexity of issues and speed of decision-making required; communication and delegation techniques used; rate of change in and on the organization; need for personal contact with subordinates; and so on.

This simply illustrates that in designing an organization or meeting a problem, it is important and valuable to know and understand what "proven" theories and principles of management apply to the case at hand. At the same time, it is equally important to recognize that an issue or problem generally cannot be resolved by simply applying the principle in a cookbook-recipe fashion. One must take into account the realities and peculiarities of the particular problem and organization in determining whether, how much, and how a standard approach principle can be applied. The organization's history, present and future prospects, personnel, competitors, resources, and internal and external environment all must be taken into account.

There are indeed many helpful principles of management, as autopsies of failed decisions and companies can frequently attest. But in today's competitive and changing managerial climate, one cannot go unquestioningly by the book or the advice of a management writer—even this writer! ■

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.

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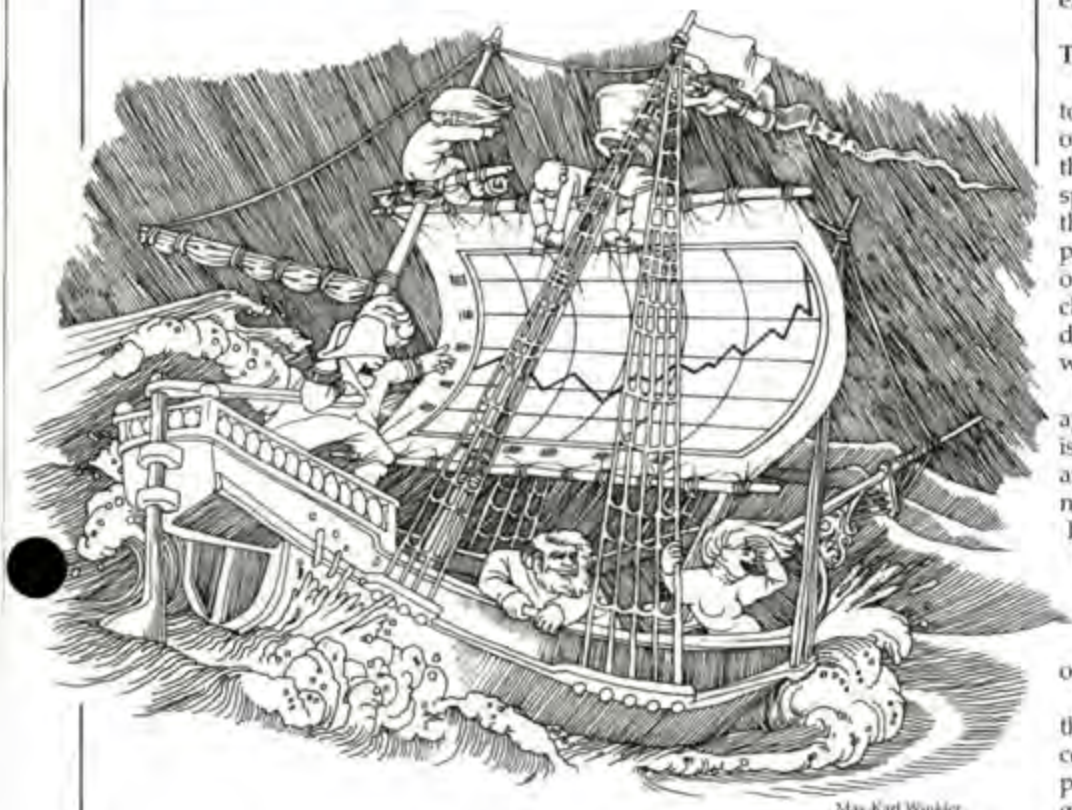
Perspective

Martha Spice and Alan Gilburg



Max-Karl Winkler

LIFE IN THE CHANGE LANE: ARE YOU GROWING FAST ENOUGH?

You don't need more than the front page of the morning newspaper and the business section to see that all of us are caught in the fast change lane. And it's not going to get any easier, slow down, or get more simple.

- Fact: Costs will continue to rise.
- Fact: Revenues will continue to lag behind increase in costs.
- Fact: The pace of change will continue to accelerate.
- Fact: The natural law of entropy is relentless, making deferred maintenance more and more costly, thus severely jeopardizing precious assets.
- Fact: The answers are no longer simple. The relationships of cause and effect are more difficult to determine.
- Fact: Change itself is changing.

These facts are nothing new to those in organizations. Peter Vaill of George Washington University vividly described the current management environment as "permanent white water." Charles Handy, in his book, *Age of Unreason*, suggests that we are facing more than just the accelerating pace of change, and that what's required of each one of us who hopes to be effective in the organization of the future will definitely be different. He offers that the current changes are no longer an incremental moving forward of the status quo; rather, he describes them as "discontinuous." He states: "In a world of incremental change it is sensible to ape your elders in order to take over where they leave off, in both knowledge and responsibility. But under the conditions of discontinuity it is no longer obvious that their ways should continue to be your ways; we may all need new rules for new ball games and will have to discover them ourselves. Learning then becomes the voyage of exploration."

The Challenge

Leaders need to prepare themselves to be learners and changers and develop the skill to manage and promote their own changeability. It is our perspective that for any organization to thrive, managers, administrators, supervisors, and employees within that organization must become experts at changing themselves in order to produce results in the constantly changing world.

Learning and changing takes courage. Traditions, past successes, and existing five-year plans must be revisited and possibly scrapped to accommodate new conditions and new opportunities. It takes tremendous courage to quickly recognize that a good investment of time, energy, and resources in the past is no longer the same good investment for the future, and to act on that recognition.

Sadly, the majority will do the best they can with business as usual and complain about all the difficulties that prevent them from achieving their goals. The world will continue to change all around them and eventually engulf them, excuses and all.

So let's talk about the courageous few for whom learning and changing have become a way of life. What characterizes them? We've found three things:

- They see and value themselves as key resources for the changes they want in their organizations. They are aware of their important role in signaling and modeling the kind of behaviors they expect from others.
- They deliberately ask that their ways of doing things be scrutinized and questioned in relation to the challenging goals they hope to achieve.
- They recognize that any personal or organizational change is at first awkward, and they welcome the support of a guide for the process.

A director of a 1,000-person organization, in an interview, recounted nu-

Martha Spice and Alan Gilburg are principals in Growth Dynamics, Inc., a consulting firm based in Bethesda, Maryland that assists leaders to bring about purposeful change in their organizations. They wrote about visioning in the Winter 1989 Facilities Manager.

merous complaints about his people: "They are not meeting deadlines and not solving problems quickly. What's wrong with their initiative and motivation?" While a mediocre manager would continue to look to others for changes, this person proved himself courageous as he quickly and willingly shifted his focus and looked at himself, asking: What am I doing or not doing that is signaling that the current behavior on the part of my employees is acceptable? What do I personally need to look at within myself? What do I need to do differently? This particular leader cared about results more than he cared about any embarrassment from spotlighting himself. That takes courage.

The Key Resource is You

From our perspective, your own capacity to think in new and different ways is the great untapped resource that makes for overwhelming competitive advantage. In fact, we are convinced that you get the highest leveraged change for the least effort when you, the leader, willingly turn the spotlight on yourself and ask yourself: What changes do *I* need to make in order to show others the way through the problems we face together?

What appears difficult at first becomes easier and more natural with practice and reflection. We suggest two strategies for building resourcefulness: taking care of your existing good energy, and asking for feedback on how it is being deployed.

Take Responsibility: Ask for Feedback

Leaders generally have the best of intentions, visions, and goals. The delicate issue at stake for everyone is to make sure that behavior is consistently aligned with one's possible dreams. The single most powerful way to stimulate your own growth is to set up a way for your team members to give you feedback on their views of you and the organization. This is the most direct way for you to measure the gaps between intentions and behavior.

Three good questions you can ask your associates are as follows:

- What makes you most proud about being associated with our organization?
- In your opinion, what are three biggest problems facing our organization?
- What do you most want from the top leader (me) in order to fulfill your job now and in the future?

No one is neutral when it comes to one's own performance being scrutinized by others. For example, a plant manager for a Fortune 100 company dared to ask and received tough feedback. His tough, loud, demanding style alienated his people rather than supported them. He often shot the messenger bringing the bad news, thus making him the last to know on critical issues. However, he was so seriously committed to organizational improvement that he saw the seeds of truth in his feedback and was courageous enough to ask for help in changing. In this particular case, the impact of his changing took the plant to a higher performance plateau by stimulating others to emulate his example.

In another case, the feedback told the manager of a nineteen-person team that her employees were unclear about

the policies, stands, and responsibilities of their leadership team. Being a doer rather than a thinker, she discovered through the feedback that her energy for getting things done was interpreted as meddling and was actually sabotaging her true intention to empower. She was helped to channel her energy appropriately as a result of taking more time to step back and think, a suggestion central to our second strategy for minimizing resourcefulness and changeability.

Nurture Your Existing Resources

In your enthusiasm to become more able to change, don't give up the gifts you have. Remember to nurture your strengths and make space for good ideas to surface.

Retreat in order to reflect and learn. Take time away to think, seeing this as another form of work, not vacation. Plan a day a month, by yourself or with key staff, that is yours to think about what you are doing. It's one of the best investments you can make.

Pay attention to daily successes. We sometimes think we are doing our job to focus on the 20 percent that's not getting done, ignoring the 80 percent that is getting done. One manager doubled her business by learning to pay attention (and it was a three-month struggle) to her daily successes. Naming three a day, out loud, not only provides a good balance at the staff meeting, but family members enjoy playing with this suggestion at the dinner table.

Take care of your body. Wellness resources abound. How and what you eat, how you exercise, and how you relax do matter.

Do more of what you love and less of what you don't love. Many of the current time management programs are based on getting your life values straight first. When you are doing what you truly value for reasons that you alone may acknowledge, your life becomes easier. Analyze your day for energy drains. Ask yourself how you can manage your doing and your delegating in different ways. Or, face up to the fact that it is time for a real change for you.

What's Next?

We do not pretend to have offered a comprehensive list of personal and organizational growth strategies. Technologies abound to promote total quality, an empowered work force, self-directed teams, and faster learners. Our perspective is that any investment-building readiness for change is wasted unless it helps the leader address his or her part in the game. The leader is the unique and highly leveraging resource in this equation. A small shift in leader behavior cascades its influences down through the ranks and may be the most powerful, cost effective, and quickest change strategy available.

What's next? We suggest that you make a commitment to being flexible in the face of discontinuous change. To this end, are you seeking information for yourself about your role in what's working and what's not working in your organization? Are you taking time to reflect, manage your own attention, and stay healthy, happy, and energetic? Depending on the honesty of your answers, we trust that you'll know how to be ready, on your toes, and in the change lane in these exciting times. ■

On the Cutting Edge:

Upgrading Campus Libraries

For New Technologies

by Ruth E. Thaler-Carter

Among the many arenas in which higher education facilities officers are taking a leading role in keeping their campuses up-to-date is that of library technology. Facilities management departments are key to bringing campus libraries into the 1990s, working closely with campus library professionals to ensure that new and renovated libraries can meet the challenges of changing technology in learning and information management.

Ruth Thaler-Carter is a Baltimore, Maryland-based freelance writer specializing in association features and newsletters. Her last feature for Facilities Manager *was on emergency planning, a two-part article from 1990 that has been anthologized in APPA's new book,* Emergency Preparedness.

Because aging buildings will require extensive efforts to bring them into technological synchronization with the library profession, campus facilities officers can expect to be asked to participate in such projects with increasing frequency. Knowing the issues and being prepared for the demands involved will make it easier for facilities officers to contribute to, if not take a leadership role in, such a process.

In talking with library professionals and a number of APPA members whose campuses have undertaken recent library building, upgrading, and renovation projects, several common areas emerge. Making these projects work smoothly requires a certain level of knowledge about current technological advances and needs in library management. APPA members also agreed that a partnership approach, strengthened by the essential tools of good communications and effective planning, makes a difference in the success of such projects.

The New Technology

One key central idea is vitally important to successful interaction between physical plant and the library profession when considering a library expansion, renovation, or

The Robert D. Clark Library at San Jose State University.

construction project today: "Libraries today are *much* more than warehouses for books or information switching centers," said Maxine Sitts of the Commission for Preservation and Access. The Commission is based in Washington, D.C. and was founded in 1966 "to foster and support collaboration among libraries and allied organizations to ensure the preservation of the published and documentary record in all formats and provide enhanced access to scholarly information."

"Libraries today are living centers of active learning, and key access gateways for scholars. The issue is how to manage and retrieve information so it is most useful and usable," said Sitts. "Cathode ray tubes are only the tip of the technology iceberg. Technology is playing a role in scholar workstations, computerized catalogs, fiber optic wiring, local area networks, and more. Libraries are piggybacking onto and should be part of the telecommunications networks of the entire campus."

In fact, the Commission's 1991 annual report quoted Stanford University leadership on this change in the nature of campus libraries: "The formats we acquire are not only books or volumes; the published material comes in 11 different formats . . . The most extensive format, and the one with the least percentage growth over the (past) 20 years, is the book collection—monographs and bound journals . . . Data sets and videotapes are the two formats which have grown at the greatest rate, because they didn't even exist in our collections 20 years ago. So it is, indeed, a different kind of collection that we provide today and that is required today by students and faculty."

Facilities management professionals agree. "We absolutely are not expanding our library facilities for the reception of books," said Jon M. Gullette, associate vice chancellor for operations at Vanderbilt University in Tennessee. "We are assuming that in the next ten years, all new materials will be computer-generated. Our chancellor thinks that books will not be the major factor in library use in the future."

According to Lawrence R. Kilduff, vice president for facilities management at Columbia University, New York City, "The functions of the library are beginning to migrate, so one prime objective of a renovation or upgrade will be to rearrange how the building works."

And Dr. James A. Field, vice president of academic affairs at Western Evangelical Seminary (WES) in Portland, Oregon, said, "As schools move more toward the use of computers, we all have to address the question of how much print media to keep, and how to store information."

The Facilities Management Role

While library professionals face these changes from a scholarly perspective that focuses on preservation efforts and the nature of information, facilities management professionals must approach it from their own, unique angle: How to provide what colleagues need, students and faculty will use, the campus can afford, and physical plant can manage. Library professionals may see this effort as what the Commission called "agonies of choice" (books *versus* digital information), while facilities professionals may see it through the practical filter of nuts, bolts, and floor weights. But they share a central concern of serving the needs of those who use the material housed in the physical entity that is a campus library.

"Responding to technology is almost more an administration and management issue than one of hammer-and-nails," said the Commission's Sitts. "It should not be an argument over what kind of cable to run, but part of the whole process when a library facility is updated and upgraded. Such a perspective puts physical plant in the forefront of the planning process."

There are other issues affecting the role of facilities management in upgrading for technology, according to Cherly L. Gomez, project manager in the engineering design division of facilities management at the University of Virginia, Charlottesville, Virginia. "These include preservation of resource materials, long-term effects of providing humidity-controlled environments on the structural steel of building envelopes—which are still unknown—and planned phase-outs of chlorofluorocarbons to meet fire protection needs," said Gomez.

The Nature of Change

Most facilities professionals realize that the nature of libraries is changing rapidly, due to two key areas: the deterioration of books and the explosion of digital technology. "As personal computers get more and more powerful, and as more and more programs and peripherals are added to them, they are becoming a scholar's tool of extraordinary range and power," wrote J. Hillis Miller, professor of English and comparative literature at the University of California, Irvine. "This new computer world is a realm of multimedia digital reproduction. Pictures, music, and words are all treated the same way by the computer. 'Papers' (but they are not really papers) written in the new medium will be able to reproduce photographs, film and video clips, paintings, music, sound tracks and any other material that can be digitalized."

All such new, computer-based materials are part of today's campus library. They conserve some space that would otherwise be used by bulkier books, records, films, and other media, but they also contribute to both an information explosion and a need for new or expanded electrical and electronic capability.

One change that also affects facilities management is related—condensing collections into non-book formats creates some space savings, while creating the need for new ways of storing and organizing information and making it accessible to users. This has its detractors and its supporters: "Not everyone will be delighted at the thought of not having to go and root around in the stacks, but the prospect exists of heightened access, independent of the location of the original," according to "Preserving Harvard's Retrospective Collections," a 1991 report of the Harvard University Library Task Group on Collection Preservation Priorities.

"The impact of new electronic information technologies on preservation cannot be in isolation, because it is part of the much broader community involved with scholarly communication (and) this broader community is engulfed in a transition at

The Sawyer Library at Williams College, Williamstown, Massachusetts.

an accelerated pace," according to the Commission. Facilities management must respond to the "library of the future" which will be more than an electronic library or a housing of recorded knowledge; the "library of the future will aim rather to generate, preserve and improve for its clients ready access—both intellectual and physical—to recorded knowledge," according to "Microfilm to Digital Imagery," a report of the Yale University Library to the Commission.

What Needs to be Done

Undertaking a library renovation or building project these days clearly is a complex matter. The experiences of APPA members provide valuable insights into what to do and how to do it.

Whether new or old, today's campus libraries need certain elements in place. One is extensive electrical and electronic capability to support constantly expanding computer systems, remote learning systems, and individual study by computer, which means appropriate wiring. "You're probably looking at a more sophisticated system overall, not just extra plug-ins," as Field of WES said. WES is in the midst of a transition to a new library director in conjunction with updating the existing campus library facility. "The whole concern with technology was part of the process of selecting a new director," Field noted.

Another need is climate control to protect books, which usually means installing or upgrading to a chilled-water system to better manage humidity and overall temperature.

Increases in materials kept and made accessible to the campus community often means investing in compact shelving, a new approach to storing library materials. Several APPA members noted that these systems are a boon in terms of conserving space, but require careful planning before installation since not all surfaces will support the increased density and weight they involve.

Getting the Job Done

The first step to take in bringing a campus library up to date, facilities officers agree, is a careful analysis of needs and process. Facilities management seems to be involved from that first step at almost every campus, which professionals also agree is crucial.

"We did a pre-program process to test the budget and other options," said Columbia's Kilduff. Columbia is in the design development stage and about to start drafting construction documents for a major, $61-million library renovation of 400,000 square feet. It will involve replacing all mechanical and electrical systems, which Kilduff said date back to the early 1900s; bringing in chilled water for the air conditioning system; and upgrading all study spaces and reading rooms with new flooring and better lighting. "The birth of the concept occurred about a decade ago, based on the deterioration of mechanical systems and the increasing costs of repair. Assessing that aspect got the process going (for the upgrade). We concluded we could meet our objectives without a new building."

Columbia used an in-house steering committee structure that involved library staff, facilities management, administration, and various schools within the university. "That process (of inclusion) was pretty important," Kilduff said. A good relationship and communication effort between library and facilities professionals also was "critical—it makes the difference between a successful project and one that is viewed as a failure," he said. "Failures through lack of communication would be devastating."

For Williams College in Williamstown, Massachusetts, upgrading the library began with a planning process in 1990 that followed the school's "usual method" of forming a committee, said Winthrop M. Wassenar, director of physical plant. "I sit on the committee as a representative of the planning officer and work with the architect and consultants. Drawings come through me and then are disseminated to all who need to see them."

Williams recently renovated its library, which opened in 1975, to increase the amount of stack space and number of carrels for study space; improve and upgrade audiovisual capability; add workstations for music and video technology; and connect the library to the campus computer network and computer center, as well as enable the library staff to computerize the card catalog. The project involved running cable into the building for audiovisual and new classroom support so a computer could be used as a projector. New cabling had to be run inside and the number of electrical outlets increased, although "the building power source was sufficient," Wassenar said.

Williams also has improved its government document facility and is installing a new air conditioning system "to respond to new knowledge about the effect of humidity on books, even though our region does not suffer from extreme humid weather conditions," said Wassenar. "In fact, the library originally was built without air conditioning."

In response to societal, as opposed to technological, concerns, Williams incorporated upgrades to serve students and staff with disabilities as part of the overall library renovation project. The building already was accessible through ramps and elevators, but the school added bells and Braille symbols in the elevators.

Upgrading a library designed to hold 35,000 volumes of text to accommodate twice that many as well as today's new learning systems was a real challenge for Western Evangelical Seminary, Field said. The school is seeking grants to support putting its card catalog on computer, would like to set up individual workstations so students can work individually in the computer center, and hopes to enable future work with CD-ROMs, he said. "We are planning to set up a new library committee, in which physical plant staff will be involved," said Field. "There will be a mechanism for the process. We also definitely want architects who understand the needs imposed by new technology."

Plans call for a new library to take on a new "dimension"; the current facility is on one story while the new one will be

Resources for campus library renovation and construction projects

While the experiences and insights of colleagues may be the most valuable resource available to higher education facilities officers faced with undertaking upgrades, renovations, or new construction of campus libraries, a wealth of other resources exists. They include the following.

Organizations

- Commission on Preservation and Access
  1400 16th Street N.W., Suite 740
  Washington, DC 20036-2217
  202/939-3402
- Sociecty for College and University Planning
  2026M School of Education Building
  University of Michigan
  Ann Arbor, MI 48109-1259
  313/763-4776
- Buildings and Equipment Section/
  Library Administration and Management Association
  Division/American Library Association
  Chicago, IL
  800/545-2433
- Council on Library Resources
  1785 Massachusetts Avenue, N.W.
  Washington, DC 20036
- Research Libraries Group, Inc.
  1200 Villa Street
  Mountain View, CA 94041-1100
- Association of Research Libraries
  Office of Management Services
  1527 New Hampshire Avenue, N.W.
  Washington, DC 20036

Publications

- *Preservation of Library and Archival Materials—APPA monograph*
  1446 Duke Street
  Alexandria, VA 22314
  703/684-1446
- *Inform—The Magazine of Information and Image Management*
  301/587-8202
- *Preferred Futures for Libraries*, by Richard M. Dougherty & Carol Hughes
  Published by Research Libraries Group, Inc.

—Ruth E. Thaler-Carter

probably be on two levels, which will require an elevator and careful planning for storage, said Field. "We will be putting in new seismic controls, environmental controls, and humidity factors to protect rare books. Our biggest problem will not be technological—the library is in the center of campus, so we have to figure out how to handle the excavation and route student traffic around the project."

To stay current with technology advances and issues, WES library staff meet regularly with colleagues of ten to twelve other schools, Field noted, and are looking for funding to set up a system in which they can interact. "That will have a real impact on what we do and don't need to buy to bring the library up to speed technologically," he said. The networking process also may help avoid premature obsolesence of the new facility. "Our former librarian worked up a detailed plan that just needs to be updated," Field said. "We will look at CD-ROM, how we want different collections to develop, and where to use microfiche, tape, and video."

At San Jose State University, San Jose, California, which is in the process of putting together a project to build a new, 250,000-square-foot library as well as renovate the existing facility, planning and consultation with library colleagues have been key. "We had major problems with the existing building," said Dr. Mohammad H. Qayoumi, associate executive vice president, facilities development and operations. "The solar system never worked and there were roof problems, although the basic structure was firm. It started out to be an eighteen-story building and ended up as five stories. It doesn't meet all the needs of current technology."

Technology considerations include automated stacking and compact shelving; converting current stack space to reading space by moving the stacks to the new structure; and moving instructional resources such as audiovisual into the new building from current locations outside the existing library.

In planning the new building, which will be next to the existing one and connected to it, "We are formula-driven," Qayoumi said. "We take the number of students and the number of square footage needed to serve each. We also operate in a five-year capital outlay cycle. We do a feasibility study about a year or two ahead of time, so we can do a better job of assessing problems and trends."

At San Jose State, physical plant is responsible for all aspects of a project, "from planning to design to maintenance to construction," Qayoumi said. "We are part of the team assessing what we need, why and how to provide it. We work together through a campus committee and have our own internal committees in the library."

One important element that Qayoumi said should be upgraded in many campus libraries, regardless of technology needs, is lighting. "I think architects must never have been in a library, so lighting is often a problem," he said. "We had indirect lighting, which is far more expensive and inefficient than direct; this will be changed."

Other areas to assess and include in building or upgrading a library, Qayoumi said, include a separate air conditioning system, backup systems to protect climate control and safety, fire, and security protections.

At Yale University, New Haven, Connecticut, lighting also is an issue in the library. "We have re-lamped the entire facility, replacing incandescents with self-contained fluorescents

Psychology professor Kathleen Hoover-Dempsey using the CD-ROM at Vanderbilt University.

in conjunction with the local power company, so we also have a trade-in program for used bulbs," said Jerry Hill, director of physical plant. Yale is including new technology in plans to update and modernize its library, which Hill said is "magnificent—going in is like going into Westminster Abbey—but fifty to sixty years old and in need of work." Physical plant will get involved in the process once library staff have decided what they will want and need in renovations.

Renovating the New and the Old

Upgrading library resources for a community college system requires different planning than doing so for one campus, according to Dr. Nathan A. Ivey, director of facilities management and planning with the Dallas County Community College District, Dallas, Texas. The system is getting ready to expand most of its local libraries through an eight-year, $70-million remodeling and construction program, and most recently expanded and remodeled the Learning Resource Center at its Mountain View College campus.

That project entailed completely gutting a two-story facility to put in new wiring to support new technology such as computers and faxes, Ivey said. "We expanded into the interior area on the second level to provide more space, by filling in an atrium," he noted. "All of the work was planned with a consulting architect, two architects on our staff, and the physical plant director of the local campus. We were involved from the very beginning, which is what we do on all projects."

Since the system is fairly young—the oldest element is only twenty-five years old—"We never had an old-style card catalog per se," Ivey said. "We started with an automated online catalog. Whatever was needed either was installed initially or had to be added in the early days." The system has automated circulation and acquisitions, for which hardware and wiring had to be added. Fax machines have been installed throughout the system to enhance campus-to-campus communication, which required expanding phone lines. "We have a crew to handle voice, data, and mechanical/hardware aspects of such efforts," he said.

Compact shelving, which "we think is great," also is part of the upgrade and now is part of a master plan, Ivey said. "Because of weight-bearing factors, we found out that we are limited in what we can add—when fully loaded, you really have to have a solid flooring and adequate support for these systems, especially if you are putting them on upper floors."

A new agreement with the district's technical services department solved problems of storing books and technical materials that are rarely used although not necessarily rare. "We are very conscious of the fact that we must use space differently now," Ivey said. "We have resources to allow our library people to make the best use of current technology."

At Vanderbilt, improvements involved a 1989-91 project to renovate mechanical systems and install a dry sprinkler system in the 200,000-square-foot library. Construction has begun on a new medical center library of about 80,000 square feet, according to Malcolm Getz, associate provost for information services and technology. Both projects support the library's "extensive use of electronic tools and the variety of electronic information services it provides over the campus broadband data communications network," Getz said.

Other improvements at Vanderbilt included upgrading the air conditioning system in a fifty-year-old building. Environmental conditions in the building—the ability to maintain temperature, rely on equipment, maintain cleanliness, and protect books and other materials from particulate matter—were the factors that made plans into a real project, said Jim Galbreath, mechanical engineer and construction project manager for campus planning. "The evolution of automation had surpassed the ability of the electrical system and outstripped the air conditioning," he said.

Physical plant was key in diagnosing the problems, and the library staff was involved at the planning and development stages; compromise also had to play a part in the process. "We asked them to tell us what they wanted," said Galbreath. "They wanted humidification control, but the project team had to back off because it would have doubled the cost due to the age and nature of the building."

Instead, physical plant cleaned the library's duct system and removed old equipment, and put in a sprinkler system and new insulated windows. The rationale was that there would be a trade-off in increased cooling capacity, he said. The sprinkler system seemed to be "the largest insurmountable obstacle" because library staff "resisted bringing water so close to books, but we were able to build in safeguards. The final decision had to go to the chancellor."

The cutting-edge sprinkler system already has earned its keep, Getz said. "We had a case of arson, and the smoke detection system alerted staff immediately, minimizing the losses. The sprinkler system was charged with water, but the heads did not go off; staff put out the fire with extinguishers." The system offers a "firm line of defense," Galbreath added.

"The library director was instrumental in establishing need," said Vanderbilt's Gullette. Installing new systems was as challenging as determining what was needed; "because of the library's location on the campus, we had to use a helicopter to bring in the mechanical equipment!"

At the University of Notre Dame in Indiana, "We are upgrading all the time," said architect Bob Ringel. "Physical plant is part of a library task force that recently began a planning process for the year 2005—we are looking at what we can develop, how we can improve, because the library is at capacity." Current improvements include installing a fiber-optic system campus-wide and assessing the feasibility of electronic books, compact shelving, and an off-campus depository or storage service for materials not often used. A detailed questionnaire, distributed to every department in the library and all users, from staff to faculty to students, will guide the process, Ringel said.

Planning for the future has been an underpinning of the library process at the Medical College of Georgia in Augusta, according to Clay Adamson, director of physical plant. Up-

grades, guided by input from an architectural firm, have included a new conduit for wiring needed to support a large computer system, enhanced heating and lighting, and air conditioning to protect resources. Flexibility has been the watchword, said Adamson. "We have provided for future expansion of the library so we won't have to do major demolition later," he said. "It will be easier to expand services in the future."

Similar concerns have been integral to past library upgrades at the University of Virginia, according to Cherly Gomez. Current technology considerations on the cutting edge include improving central storage with managed retrieval of seldom-used books, manuscripts, and documents, an issue other institutions have addressed by considering remote storage facilities and depositories. UVA has awarded an architectural/engineering contract to design a storage facility; it is the first of a planned four-phase project, that will house 1.6 million "equivalent volumes" and serve as a prototype for agencies throughout Virginia, Gomez said.

The department also has commissioned a feasibility study to recommend solutions to the need for a facility to house rare books and special collections. "Both projects will free up much-needed space in currently over-crowded library facilities throughout the university," she said.

A 1986-88 "Preservation of Library Resources" project combined new construction and upgrade work, including installing a new mechanical system to provide temperature and humidity control, and upgrading lighting, electrical, fire protection, and security systems. It responded directly to many of the issues covered by the Commission on Preservation and Access.

UVA also installed a local area network at its main research library, the main undergraduate library, and in nine departmental facilities; that was done in 1987-88 and involved new construction of a hard-wire telecommunication connection between facilities, with some minor electrical renovations. That project gave UVA inter-library electronic communication and replaced its manual cataloguing system with NOTIS, the international electronic system.

"Facilities management was directly involved from project inception through planning, budget development, construction, and operation and maintenance," Gomez said. Not only do the facilities managers and library administrators work closely together to review existing facilities and plan new ones that will meet the requirements of growth, preservation, and technology, but project managers also attend APPA seminars on these issues, she noted.

Advice from Colleagues

It is clear that facilities officers are vital to the process of upgrading campus libraries to meet the challenges of new ways of learning and new technologies in storing, providing and preserving information. APPA members planning to undertake library upgrade or building projects may benefit from the experiences of their peers at other instutions. Among the useful suggestions:

- "Have a well-thought-out program, develop buy-in and consensus (from all involved), and have a clear understanding of the phasing and planning involved; the involvement of physical plant in every phase is crucial. Remember that the library has to function throughout the entire process, so the project has to be carefully phased. Think about the life cycle of the building and the costs to operate and maintain the new version—don't let others drive down costs and create the need to pay more later when things wear out prematurely" —*Kilduff, Columbia University*

- "Much depends on the library staff as the ones who have to use the facility. Since there were so many new developments, we used consultants for advice on the latest equipment, so we could install the most up-to-date system one can have. Be sure you are as well-versed as possible. Look at other institutions to see what systems they have and how they operate—both library and physical plant. We used the firm that built the original building, so we didn't have to go through a learning curve about library construction and we could start the project that much faster" — *Wassenar, Williams College*

- "It's obvious to us, but you *must* do the planning program first; everything else is just a development process"— *Field, Western Evangelical Seminary*

- "Start with a literature search—use your own library! Talk to others with recent similar projects and visit other sites—I believe in not reinventing the wheel! Encourage your library people to talk to their counterparts. Involve *everyone*. Be on the leading edge. Look at the library as a building that should feel open, invite people to come in, but remeber that functionality should precede grandeur" —*Qayoumi, San Jose State University*

- "Philosophically, it would be great to have the library director involved and knowledgeable of the type of physical plant needs. A fire consultant on your team can provide historical information on library fires. You need significant capital resources" —*Gullette, Vanderbilt University*

- "Make sure your committee has enough people and that they can contribute. Understand the mission of your campus and how the library contributes to that mission. Do utilization studies to determine what you have been, where you are now and where you are going, so whatever you do is projecting for the future and isn't obsolete as soon as it's finished. Look at the potential for large new collections, bequests or special items being sought by your board or president" —*Ringel, University of Notre Dame*

- "Lighting conditions and privacy for study carrels are the most important concerns, along with climate control. Use something other than full carpeting in areas such as stacks where there is the most foot traffic. Install gate control security systems and computer ID/checkout counters to improve security" —*Adamson, Medical College of Georgia*

- "Follow established planning and programming development procedures, based on requirements provided by the library administration. The process should be guided by facilities management projects managers working closely with library administrators. Conduct a national search (for) qualified architectural/engineering team with experience in designing new library facilties. Attend seminars on preservation of library and archival materials. A team approach is required to best meet library facilities needs" —*Gomez, University of Virginia* ■

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Work Place Excel: DEVELOP ENHANC

ING A SKILLS EMENT PROGRAM

by Wilma Mpelo Worrell

It comes as no surprise to many managers that an estimated 25 to 40 percent of the United States' work force does not possess the necessary language, reading, and writing skills to adequately perform their jobs. It is also disturbing to realize that national reading skills hover at the seventh grade level. This, coupled with advancing technology—giving us machinery requiring higher reading skills to operate, maintain, and repair—only serves to compound the problem.

No longer is the problem confined primarily to the semi-skilled worker; it affects most departments in many businesses. The proliferation of fax machines and computers in the work place generates more written communications. The prerequisites for clerical positions include how fast one types as well as what type of computers and software one knows how to use. Rarely is consideration given to writing skills. Yet these skills are more critical in a technical environment where employees jobs do not require a high level of writing skills, i.e., engineers, architects, and electricians. A secretary who simply types what she or he is given and cannot proofread for errors is more of a liability in this type of environment than in one where other staff members can correct the work.

No longer is it simply a matter of terminating the employee who does not possess these skills; most labor pools do not contain enough prospective employees proficient in the three Rs (reading, 'riting, and 'rithmatic). Unfortunately, 50 to 60 percent of the people in the labor pool are deficient in these skills. Add to this a recent U.S. Department of Labor report stating that many of the nation's high schools are not graduating large percentages of students with the necessary thinking skills needed to join the work force. We quickly realize that the work force contains vast numbers of people deficient in the four Rs (reading, 'riting, 'rithmatic, and reasoning.) This is all occurring when the global work place is becoming more and more technical.

Language skills proficiency is an important factor in training. If employees cannot comprehend the training they receive, they will have difficulty making the training "stick." We all know how difficult a Material Safety Data Sheet can be for many people to comprehend, but imagine the difficulty a reading impaired person has. How could you begin to feel comfortable with your employees' ability to handle hazardous materials in the workplace if they cannot read the warnings and precautions to take to work safely with those materials? If only to better comprehend provided training required by OSHA, we will need to bring our employees' reading skills above the national average.

Meeting training requirements is not the only reason to provide skills enhancement to employees. Poor reading and language skills lead to increased errors on the job, low self-esteem, and job stagnation. When a job has to be repeated, or a repair does not "hold," how often have you questioned whether the person completely understood what was required to do the job correctly?

I have often heard people say that a person just did not think about what they were doing. The ability to think and formulate opinions is correlated with the amount of information a person has on the subject. If a person is incapable of reading to obtain that information, all her or his knowledge comes from what is heard from others. (Often this information is condensed and not as detailed as what is present in the

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Illustration by Max-Karl Winkler

written form.) This greatly limits the amount of information received.

Therefore, these employees may tend to do as they perceive they have been told and have a lower tendency to make decisions on their own. A reading impaired person's ability to make judgments and determine alternative methods is often on a lower level than someone with higher reading skills. This is especially true of employees with limited job experience.

It is easy to place the blame on a myriad of factors, yet that does nothing to alleviate the fact that employee productivity is compromised by lack of these skills. Many employers have come to realize that in addition to providing traditional job skills training, they must now also provide training in the four Rs. Managers are now seeking options to enable their employees to achieve these skills. The most popular options are: using community and public library programs such as general literacy and General Equivalency Degree (GED) programs, assigning one or more staff persons to tutor employees, hiring consultants, sending employees to a touring training program (i.e., Fred Pryor), and development of an in-house program.

In deciding which approach(es) to use, careful analysis of existing deficiencies and available resources should be conducted. If the affected employee simply needs to brush up on his or her skills, a touring seminar may be effective; but if he or she reads at a fourth grade level and the reading material on the job is on a ninth grade level, then a more in-depth program is needed.

What Howard University Did

In determining which approach would be best for our employees, I conducted several meetings with various levels of management over several months. We discussed what needs were going unmet because of deficiencies, in which area could productivity be increased by enhancing employees reading/language skills, and which employees they felt needed to participate in a skills enhancement program.

Afterward, I contacted intra-university departments to see if there were any existing programs to help meet our needs. Because the university's focus is educating students in college level courses, there was not a program available. Most departments tended to hire employees with at least some college experience and felt that supplemental reading/language skills was not needed. However, the School of Education was willing to work with me to help develop a program, and I informed them that I would be in contact with them once I determined if there were any programs available in the community that could be tapped into.

Next, other universities were contacted to discover what approaches they were using to improve employees reading skills. The universities of the District of Columbia and Maryland/College Park had the most comprehensive programs. The University of the District of Columbia has access to its community GED program, and the University of Maryland/College Park has a full-time Adult Basic Education (ABE) instructor. Both programs are excellent, but they did not quite fit what I had envisioned for our employees. Community programs comprised either literacy programs for those with little or no reading skills, and/or the standard GED programs. Unfortunately, these did not meet our needs either.

Having worked with programs that provided training for skills-deficient adults, I had some definite ideas on what I wanted, and I was not flexible on most of them. I recognized my list was long, but I knew all were important. The list included the following:

- The words literacy, remedial, basic, and deficiency would not appear in the program title or literature;
- The program was not to be solely a GED program. There are currently numerous ones available and there are many people with high school degrees whose skills need enhancement;
- Adult learning theories and practices had to be incorporated;
- The program had to stress the fact that we were enhancing employees' skills (accent on the positive);
- Work place and employee-valued (what they are interested in) literature had to be incorporated;
- All participants had to have an assessment of their skills before enrolling in the program;
- The testing instrument(s) must be comprehensive, validated, standardized, non-culturally or sexually biased, measure individual target areas, and be short in duration (less than 3-4 hours);
- Individual test results and progress rates were to be confidential;
- A personalized curricula must be developed;
- Only small groups and one-on-one sessions would be held;
- The program's name would have to reflect its positive nature (it was originally titled the Work Place Reading Enhancement Program; when we added more components, including math, the name was changed to Work Place Excel);

- Classes would take place during work hours; and
- Participation would be on a voluntary basis.

I firmly believed that all items were necessary if a program to meet the bulk of our needs was to succeed. The program had to be one that employees could say with pride they were involved in. Using words that indicated they were deficient or less able than other employees was not going to be as effective as a program that stressed the fact that they were strengthening their skills.

The Program Comes Together

Once I had my lists of "musts" the search began for a qualified instructor. I knew from experience it would be best to select someone whom the employees dealt with only for the program. Once employees were tested and recognized the levels of their skills, they could easily become embarrassed or sensitive about the results. Allowing someone to know the extent of those deficiencies opens up a private part of a person; having daily contact with that person (or being in a position of authority that can have an effect on their job security) can make the relationship uncomfortable. If the participant is not

comfortable with the instructor, the risk of lower levels of progress becomes a concern.

Once again I contacted the School of Education and was put in touch with a wonderful instructor, Esther E. Berry, Ed.D. Maybe I felt she was wonderful because she believed in most of my "musts," but the real reason is that she produces excellent results. She is well versed in adult learning theory and highly skilled in adult learning practices. The participants love her, and she has effectively taken the ball and run with it.

Dr. Berry and I met several times to outline what we believed were the best approaches to accurately determining the reading/language skills levels, what needs could be met by enhancing those skills, what techniques to utilize, and to establish a timetable for implementing a program. With a firm grip on all of these we were now ready for the hard part—selling management. It is easy for people to talk of theory and programs sometime in the future, but when they stare you in the face and a commitment is required it can be a totally different thing. Releasing employees for training is difficult for many managers and supervisors to do. They will give several reasons why they cannot release their employees, and I am sure many are justified. If this program was to work it must have management support on all levels, starting from the top.

Fortunately, establishing a program to improve employees' reading skills was a mandate handed down to me by the assistant vice president of my division. Bringing him up to date on our progress and ensuring that he signed off on the program was our biggest edge. He was determined to see this program succeed. He worked closely with my supervisor who also was determined to see the program succeed. The combination of the two contributed much to the success of the program. Slowly other managers "bought" into the program. The director and assistant director of the department responsible for environmental services (housekeeping) were the strongest supporters, and their employees comprised 75 percent of the initial participants.

Dr. Berry developed a questionnaire for the supervisors and managers to list the materials employees were required to read on the job. Supervisors and managers were also given statistics on the national reading skills levels and the levels required to comprehend the technology and literature in today's work place. We had to make managers aware that this was not just a problem faced by Howard University, but it is a national problem. Data was also provided to show that the higher a person's reading skill, the better she or he performed on the job.

To address the concern of time being spent off the job for training, statistics were given on the effects that training has on productivity. I discussed how an improved work unit would in turn make the supervisor/manager more effective in her or his job. One of the hardest obstacles to overcome was management perceiving and presenting the program as one addressing illiteracy. Many employees whose supervisors presented the program to them in this way were resistant to participating because, as several so aptly put it, "I can read." Once we overcame that, the program began to pick up steam. It is interesting that the managers who were the most reluctant initially are now some of the program's biggest supporters.

It is important to note that the curricula developed for the reading enhancement portion of the program was developed totally in-house. We were unable to find an existing curriculum that met all the needs we identified. In the case of identifying the skills levels for the advanced participants we developed an instrument to measure skills needed to function from an 11.9 to 16.0 grade level. The instrument, titled Combined Diagnostic Reading Skills Test, gives an in-depth look at skills needed for effective written communications. The course is supplemented with materials from a video company on executive writing skills.

Testing Begins

With management support lined up, preparation for assessment testing began. The program had to be advertised to employees. This was done in meetings, training sessions, word of mouth, and flyers posted throughout the work place. Initially, two tests were given to a pilot group. Based upon the results, we decided

to use the Test of Adult Basic Education (TABE), published by McGraw-Hill, for the first phase of the program. (I had to bend on one of my "musts" for this test.) The TABE measures reading (vocabulary, comprehension), language (mechanics, expressions), spelling (vowel sounds, consonant sounds, structural units), and mathematics (computation, concepts, and

application). It identifies skills from grade levels from 2.9 to 12.9, depending upon the form used. It has been my experience that the level of reading comprehension is the strongest indicator of rate of progress a participant will make.

Based upon testing results, a determination had to be made on what instructional aids to use and individual curricula had to be developed. We found a publishing company that provided a comprehensive product line of aids meeting the instructional criteria established. We initially started with a small sample of their products, but after retesting the pilot participants six months into the program, we decided to use more of their products, including their English as a Second Language Program.

The reading enhancement curriculum was developed to consist of the following skills developments.

Vocabulary Basics—Recognizing and Analyzing Words

- Letter sounds and sound clusters
- Basic sight words
- Word analysis/decoding
- Configuration clues
- Vowel
- Root words
- Structural units
- Spelling rules
- Synonyms, antonyms, homonyms
- Prefixes
- Suffixes
- Dictionary rules

Comprehension—Literal

- Identifying main idea(s)
- Interpreting events/sequence
- Character analysis
- Recognizing supporting details
- Using contextual clues

Comprehension—Critical

- Recognizing facts
- Recognizing opinions
- Analyzing the writer's intent, bias, attitude
- Drawing conclusions

Comprehension—Affective

- Recognizing figurative language
- Recognizing fictional and non-fictional writings

Language Mechanics

- Grammar
- Punctuation
- Spelling
- Sentence structure
- Topic sentence
- Tenses
- Proofreading
- Paragraphs/combining sentences
- Nouns, pronouns, verbs, adjectives, adverbs, prepositions, and conjunctions

Dr. Berry met with each participant on an individual basis to discuss the results of their test and to outline their personalized curriculum scheduling. Individual, weekly sessions are conducted and "homework" is also assigned. Participants work at their own pace and on their own levels. Grouping people together with vastly different skills levels can be taxing on the instructor and participant, so this is avoided. She meets with small groups when they are working on the same or similar skills.

Berry also wanted to include materials that deal with current issues. Having been impressed with *USA Today*'s format, its ease of reading, the liberal use of color, and national focus, she requested to use it in the program. It's a hit. The participants love the way the articles are concise, usually completed on one page, and the ease at which they can comprehend the story. Berry loves it because in addition to all of the reasons we subscribed to it, it comes with a lesson plan called Classline Today. It includes a test and lists objectives in language arts, economics/business, mathematics, etc. It is published Monday through Friday from September through June.

As stated before, the program had to include employee-valued reading materials. We identified several publications employees were interested in and provided them for the program. One of the favorites is *Reader's Digest*; participants enjoy the length of the stories and look forward to the Word Power section for building their vocabularies. The participants progress at a faster rate when they are allowed to practice new skills using publications of their choice.

Six months into the program we monitored the participants' progress to determine the effectiveness of the program. The results for the first group of participants (see following table), based upon pre-test and interim-test data, indicate the results in the following areas.

Program Progress Level

Subject	Variance Diff.	T-Value (.05 level of sig.)
Vocabulary	+ 8.2	8.2
Comprehension	+ 6.8	2.92
Language Mechanics	+ 8.7	5.44
Language Expression	+10.0	3.07
Spelling	+ 9.1	2.73

The variance differential represents the changes in the means from one testing to the next. T-Values represent the levels of probability that the hypothesis that participation in the program would

increase a person's skills in target areas. At a .05 level of significance the T-Value is 2.62; any values above that level indicate that the hypothesis produced the desired results. While this data indicates the desired results, we recognize that the pilot group tended to be more motivated than subsequent testing groups.

The first phase of the program addressed enhancing skills through the high school level. The program was later expanded to include skills in job specific areas such as report writing for security personnel and executive writing skills (for secretaries, supervisors, and managers.) One year into the program, we added GED preparation and English as a Second Language. Testing is conducted monthly and on an individual basis for those whose reading skills do not allow them to take a written test. We are scheduled to begin individual TABE testing within the next few months. This will enable employees to enroll in the program when they have their "nerve up." Many become reluctant by the time the scheduled testing rolls around and delay participating in the program.

An Ongoing Process

Test results mean little to employees or to most supervisors and managers. They want to see how it affects their paychecks and employees' productivity. To date, participants have received promotions and reassignments to jobs offering the possibility of upward mobility. Program participants have shown an increase in job performance, based upon performance evaluations. Supervisors are now recommending employees to the program because they see that it works. Participants are our best recruiters, and several bring coworkers with them to meet with Dr. Berry in order to get them involved in the program.

Several participants who have advanced to the upper high school through beginning college reading level have started a reading club—The Brown Bag Book Club. This club meets monthly, over lunch, to discuss books they have read in the past month. The club is open to anyone who wants to join and there are no restrictions to the type of books discussed. It is extremely rewarding to see them take ownership of the reading skills program.

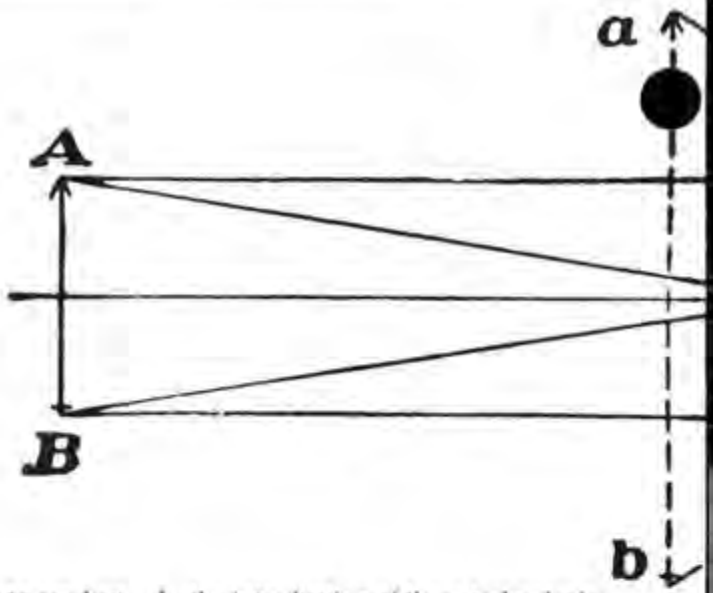
An important component of the program is recognizing the progress made by the participants. This lends a sense of importance to their decision to improve their skills. The most common form of recognition comes from supervisors and managers. Their ability to comment of the employees progress, no matter how small, will validate the employees' efforts. In addition to individual recognition received by supervisors, we hosted an awards program. The participants invited guests and the vice president of our division presents the awards. Those who completed the program receive framed certificates, and those participating receive certificates of participation.

We received a special treat when the president of the university came to speak and told the participants that they were the type of employees who exemplified qualities the university should recognize. He also stated that we need more programs such as ours to enable all employees to succeed. This further validated their participation in the program and resulted in more management support and more employee participation.

In addition, I have witnessed increased levels of self-confidence in participants. The most notable was from a participant who, prior to the program, avoided eye contact and conversations with me and many coworkers. This participant is now initiating conversations with employees on all levels, including the assistant vice president.

The most rewarding and unexpected effects of the program is told by participants with school-aged children or grandchildren. They speak of how this program has helped improve their relationship with their children. Several have stated that they did not help their children with their homework in the past because they themselves did not understand it. They offered numerous excuses or made themselves scarce to avoid letting their children know what they did not know. They are bringing home what they have learned in the Work Place Excel Program to help their children do better in school. They do not wish the same fate that befell them to happen to their children. And as employers, neither do we. ■

The 20/20 Vision



by Mohammad H. Qayoumi

Yogi Berra eloquently stated, "The future is no longer what it used to be." Today, the facilities management profession is going through fundamental changes that are significantly disrupting the existing order of things. This is mainly due to the dramatic changes in technology, the information revolution, environmental concerns, and the barrage of governmental policies at all levels. This has caused organizational uncertainty where traditional performance measures are inadequate or no longer valid. In this chaotic situation, facilities managers are facing difficulty determining their *raison d'etre*.

Clearly, the traditional approach to facilities management can hardly rise to the challenges that lie ahead. In other words, to be successful, one needs the wisdom of Solomon, the strength of Samson, and the guile of Joe Isuzu. A better alternative is to seek answers in new technologies in an effort to establish critical links between organizational strategies and these technologies. The key to success is to understand and manage organizational culture — the invisible barrier to strategic change.

Organizational culture is the shared belief of management about how they should manage themselves and other employees as well as how to conduct their business. It is usually the unwritten rules and traditions that impact the thoughts and actions of the organization.

A change requires basic rethinking of the beliefs by which an organization defines its future. The difficulty lies in managers becoming emotionally committed to the traditional beliefs. They spend their entire careers learning the beliefs from valued mentors and having these beliefs reinforced by success at various stages of their career.

In a university, the organizational culture has a dual nature; namely, the outlook of the academic community is different from the administration. Robert Hutchins referred to the university as a collection of opposing departments held together by their allegiance to the central heating plant. The academic community is highly analytical and autonomous where the accepted approach to solving problems is to pause and deliberate, but not necessarily reach a decision. On the other hand, the administration functions in a hierarchical structure with a keen interest to the bottom line. The challenge stems from the fact that facility administrators primarily serve the academic community and report to the administrative side of the university. Consequently, the facilities administrator vacillates between the above two modus operandi.

In an effort to ameliorate the problems, facility administrators have looked toward new technologies. This has especially been the case in the area of computerization and applications of information technologies. However, the introduction of these technologies has not resulted in any dramatic improvement in productivity. On the contrary in many instances, they have resulted in creating new strains on the organization. This is because new technologies will not fit traditional organizational structures and functional management approaches that are based on separate departments, each having its own objectives, responsibilities, resources, and productivity with little concern or emphasis for integration. The integration of the above technologies will result in a dramatic realignment of the organizational variables, power and decision centers, leadership style, and chain of command.

In other words, when technologies mimetically duplicate the manual processes, they will be doomed to failure. As Zbigniew Brezinski stated, "Advanced countries are entering an age in which technology, and especially electronics . . . are increasingly becoming the principal determinants of social change altering the moves, the social structure, the values, and the global outlook of the society." A better approach will be performing a systematic examination of information technologies to rethink the current process in the organization. This technique is to "process reengineering" in the business community.

Reengineering in Facilities Management

Reengineering, or business process redesign, is the process of reexamining the fundamental assumptions of how a task or a series of tasks is performed, creating alterations to reconstitute to a new form, and subsequently imple-

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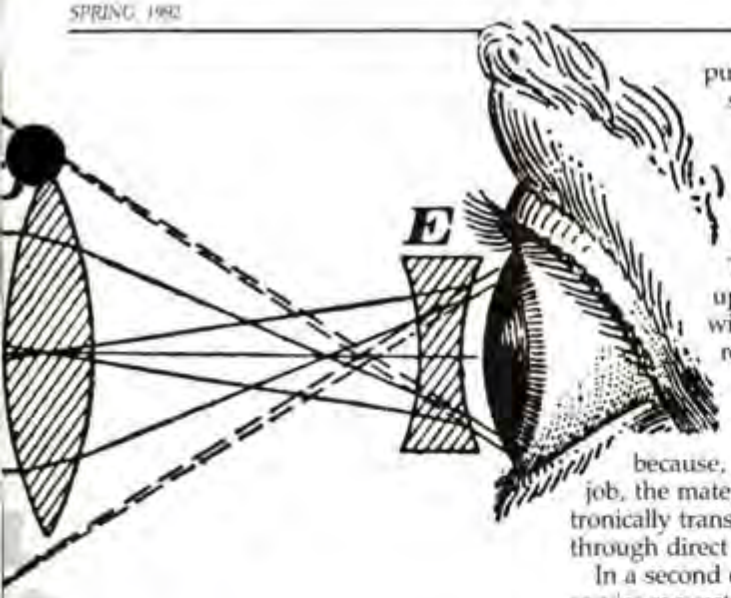


menting the new system. It is an organized approach to changing operating processes involving business restructuring to conform with the most efficient model for delivering service or building products. The key is viewing the problems in relation to the processes that create them. Reengineering streamlines operation and its organizational structure into effective and manageable units.

In other words, reengineering is beginning with a clean sheet of paper and completely questioning the basic paradigms that form the basis of how a business is run. So in contrast to incremental improvement techniques, reengineering implies radical changes. The main goal is process simplification, elimination of redundant or unnecessary steps, and the integration and linkages among functions that occur in an organization that result in greater effectiveness and efficiency. Therefore, reengineering makes the administrators break away from conventional wisdom in order to gain a new perspective on how an organization should be operated and what role information technology can play within the organization not as a tool to automate an existing process, but to enable a new one. To illustrate this, let us look at the following examples.

Consider a service request from a department to build some shelves. When the planner/estimator meets with the requesting department, imagine that the planner with the laptop terminal finalized the design with them. From that information the computer determines the estimated cost and, upon the client's approval, with one keystroke a bill of material is generated by the computer and electronically sent to the material vendor. Also, based on the work backlog, the planner will be able to give a date when the job will be completed. The material vendor, upon receipt of the order, will deliver everything directly to the carpenter shop on the day the job is planned. No invoice will be received because, upon completion of the job, the material cost would be electronically transferred to the vendor through direct deposit.

In a second example, let's assume a service request is electronically received by a work control center to replace two germicidal ultraviolet tubes in a biology lamp. The planner/estimator queries the building components relational data base to determine the specific information regarding the UV lamps and also whether any are available in stock. Assuming that they are available, the planner accesses the classroom schedule for the particular room and, considering the backlog of the electrician, the date and time is determined when the lamps can be replaced. The room is blocked for maintenance for the appropriate time so nothing else gets scheduled and an electronic message is sent to the individual who requested the service.

Now, if one compares the above scenario with existing plant operations, it becomes obvious that most of the bureaucratical juggernaut of Byzantine complexity—found in some offices such as purchasing, central receiving, and accounts payable—becomes an unnecessary evil.

The above capabilities are here today. Actually, numerous U.S. and Japanese manufacturing firms operate almost identical to the first example with the use of CIM (computer integrated manufacturing).

Another area of change will be in the basic philosophy of maintenance. Today's preventive maintenance will be modified to predictive maintenance where various quantitative analysis and operation research techniques will be used to measure the effectiveness of maintenance management. Possible examples are as follows:

- Using statistical approaches to "failure diagnostics";
- Determining optimum sizes of trades personnel by utilizing "queuing techniques" based upon the projected service request and needed response time profiles, and acceptable average response time;
- Integrating energy management with maintenance management practices where real-time system simulations can obtain global optimization for maintenance and energy cost.

Lastly, there will be the need to fundamentally change the labor and management relationship from an adversarial role to mutual support and cooperation. This change is essential in creating teamwork. These changes will not happen without persistence, sacrifice, and difficult decisions. As Peter Drucker stated, "There is no inherent reason why medicine should taste horrible—but effective ones usually do. Similarly, there is no reason why decisions should be distasteful—but most effective ones are."

Conclusion

Perhaps, in the assimilation of these examples, the reader may perceive a science fiction aftertaste. According to Isaac Asimov, "Science fiction is important because it fights the natural notion that there's something permanent about things as they are right now." The Pickwickian approaches of the past promotes unity of thinking, thus resulting in rigid models that fossilize organizations.

To cite an example, if one were to order an automobile in the former East Germany, there would have been a twelve-year backlog. By contrast, in Japan a person can walk into a Toyota dealer on Monday and order an automobile with any desired option, and it will be delivered by that Friday. So you can decide which one of the two systems your operation should be striving to emulate.

The challenges facing the universities in the next decade are immense. We can either actively participate in making the changes happen, watch them happen, or worse than that, wonder what happened. The choice is ours; one can take the safe and easy path of continuing that status quo or be part of renaissance mixed with numerous opportunities and hard decisions. As Robert F. Kennedy eloquently stated: "Some men see things as they are and say 'why.' I dream of things which never were and ask 'why not.' "

Facilities management has come to a critical juncture in its history that requires depth and alacrity in solving the problems that lie ahead. So, as Yogi Berra put it, "When you get to a crossroad, take it!" ■

Selecting a Campus Planning Consultant

by Wain Gaskins

Universities could be described as small cities unto themselves. Oftentimes, colleges and universities have daytime populations that exceed those of small- to medium-sized cities. For example, on football Saturdays in Knoxville, Neyland Stadium becomes the fifth largest "city" in Tennessee by virtue of the 90,000-plus fans at the game. Most universities are charged with the responsibility of providing many of the same services supplied by local municipalities.

Like many municipalities, universities will sometimes use the services of a consulting engineer, architect, or planner in addressing a particular need. Retaining the proper consultant is in many respects similar to selecting a personal physician. At times, a general practitioner will suffice; in other instances, a specialist may be required. Typically, most people would not select a neurosurgeon to treat a case of poison ivy. The same rationale applies to the selection of a consulting firm by a university.

This article focuses on campus planning needs and the various elements related to planning in some capacity. However, most of the items discussed herein also apply to architectural and engineering services.

In order to adequately address campus planning, "planning" must be defined for the purposes of this discussion. One appropriate definition would be the preparation for future events or courses of action. Planning is also the process by which expert considerations and evaluations are made on a subject condition, after which a plan can then be formulated into attainable goals to resolve or improve that condition. The final product of the planning process is the plan itself, not necessarily a set of detailed construction documents.

The May 1962 *Journal of the American Institute of Planning* stated that 1) the planner deals with facts to predict the nature of the future, and 2) deals with values to discover which future conditions are presently desired and which may be desired by future clients.

Although colleges and universities are institutions of higher education, as opposed to strictly commercial ventures, students are indeed clients. An institution's ability to fulfill students' needs and desires is the primary determining factor in the decision on which one they will attend. As more nontraditional students enroll or return to the campuses, the specialized needs of this particular client group, as well as others, should be taken into consideration. One of the specific goals of campus planning is to create an environment that is conducive to learning; aesthetically pleasing; accessible to students, faculty, and staff; and functional.

Planning for a campus, as for a city, is a continuing process. Conditions and needs of a campus are constantly changing. An effective campus plan should promote the basic goals and principles of the institution, yet be flexible enough to meet most future requirements. Therefore, a campus plan should serve as a guide against which decisions can be weighed and consequences evaluated. It is the job of the campus "movers and shakers" to be aware of this process and how best to fulfill the needs of their institution with regard to future planning. Several important steps should be followed prior to the selection of a consulting firm that will best meet the specific planning needs of the institution. Figure 1 is a flow chart outlining the project development and a consultant selection process.

All too often, colleges and universities have a preconceived notion about the type of consultant they want without a clear understanding of their own specific requirements. Some consulting firms offer a full range of services, while others provide only specialized services that may or may not accommodate all

Background photograph: Central Michigan University

Wain Gaskins is the manager of the transportation section of Parsons DeLeuw in Memphis, Tennessee.

the needs of the client. This is why it is extremely important for the institution to fully understand and define its reason for consultant solicitation.

The following selection process may be of some benefit to universities and colleges that are considering whether their perceived problems warrant the assistance offered by the consulting industry. The consulting industry is large, diverse, and capable of meeting almost every conceivable need of a college or university. Due to the diversity of the industry, consideration should be given to the type of consultant service required. For the development of a comprehensive master plan, firms that specialize in planning may offer the broad range of experience sought by the institution. While engineering and architectural considerations are components of the plan, they typically constitute smaller tasks of the overall plan.

Defining the Need

Campus needs are often determined through identifying deficiencies. These deficiencies may be identified in the form of increased complaints, increased enrollment, research requirements, or simple observations. At times, these needs may be adequately addressed by in-house staff rather than by a consulting firm.

As with other aspects of our society, campuses are in a continual state of evolution. A need that was not present in the recent past may be a major concern now. An increase in the number of nontraditional students entering college for the first time or returning to college may create situations or needs for which the institution may not be equipped. Regardless of the reason, changes do occur and will in all likelihood continue. However, colleges and universities rarely update their existing master plans at regular intervals in order to stay current with these changes.

Assessing the Need

If the problem appears complex, individuals representing various campus functions should be included in the discussions. The group should not be so large that a consensus cannot be reached in a relatively short period of time. The group may determine the problem is not long-term in nature and can be readily solved by staff personnel. If the problems are more complex or if the staff is already overworked, consulting services may be required.

People in the planning or facilities management departments of an institution usually have the expertise to address many of the needs that arise. However, the day-to-day administrative tasks and "brush fires" may not permit them to commit the staff necessary to meet the requirements of a special project. The staff is usually in a better position to oversee a major project, which requires much less of their time.

In addition to determining whether the assessed need requires consultant services, a preliminary budget for addressing the identified problem should also be established early on. This preliminary budget may only be for the funding of a study, since the development of construction cost estimates may be a function of the study itself. Once a realistic budget estimate is made, it should be weighed against the financial resources available.

Available funding should be identified through the institution's budget and allocation process before the consultant selection process is initiated. This will ensure that the time and resources of both the institution's staff and interested consultants will not be wasted.

Establishing Selection Committee

Institutional guidelines often dictate the make-up of the selection committee. If not, the group that assessed the original needs would be appropriate as the nucleus of a selection committee. This committee should represent all elements of the campus that could be affected by the potential study recommendations. In the case of a state-supported school, representatives of the board of regents, or similar body, should also have the opportunity to participate in the selection process.

It is important to remember the solution to one problem may be the creation of another. Therefore, the committee itself should be in general agreement as to what their specific agenda should be in order to minimize any unforeseen complications. A study scope should be developed that is consistent with the budget for the study.

College of the Holy Cross, Massachusetts.

Establishing Selection Parameters

This can be the most difficult element. The selection process is dependent upon the specific problems to be addressed. It is important to look at this particular study's elements so the qualifications of the interested consulting firms can be evaluated based upon the particular needs of the institution. A specific problem with traffic circulation and parking is addressed in a different manner than the siting of a new building. Potential solutions to either may have campus-wide impacts. However, both would be elements of an overall campus master plan.

Developing a Request for Proposals

It is important to let consultants know exactly what you want. Typically, only about 4 to 7 percent of a consulting firm's gross fees are allotted to marketing expenses. This includes personnel time, preparing brochures, travel, etc., in addition to preparing pro-

posals for specific projects. Allow the consultants to spend their limited proposal resources responding to specific elements rather than trying to guess what the complete scope of the project really is. Try to include only those elements that fall within your budgetary constraints.

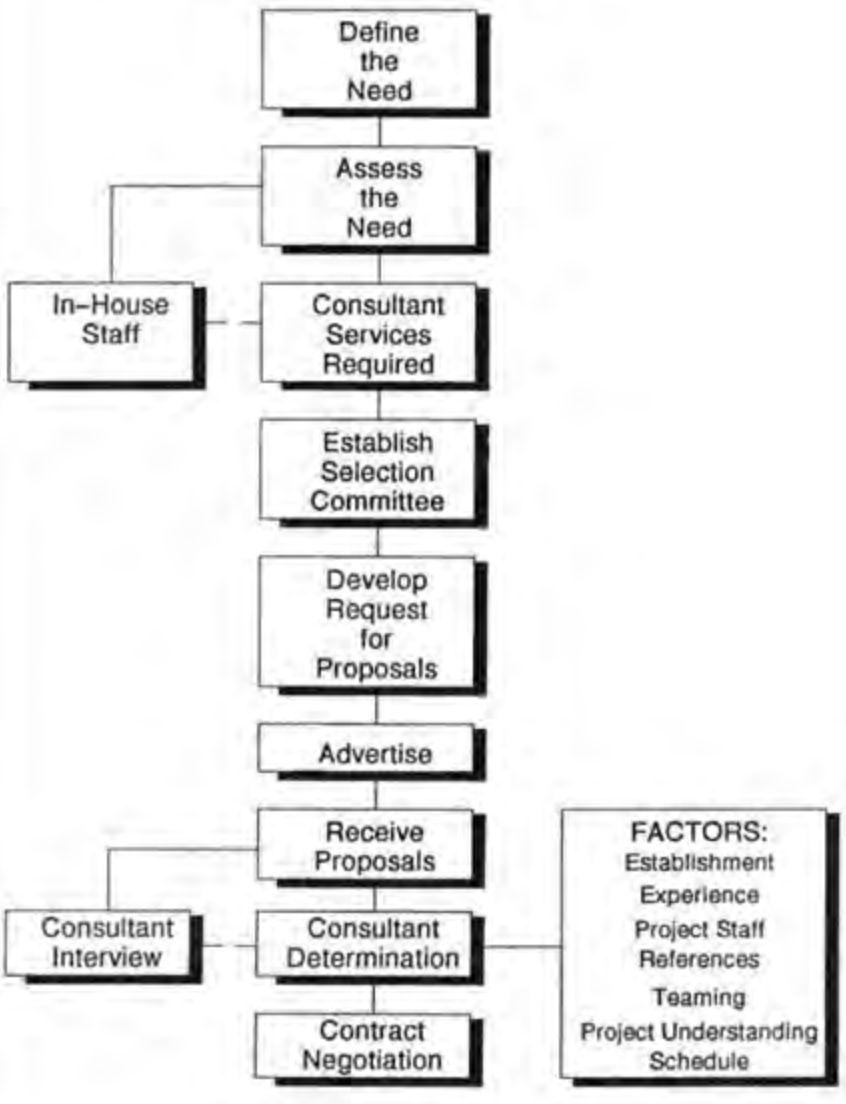
Almost anything can be studied within any budget depending upon the level of detail involved. However, adequate funding should be provided to allow for a study sufficient to adequately address the elements of concern and to formulate implementable solutions.

Advertising Legally

An institution may be bound to follow a specific solicitation procedure. Research should be conducted to identify those firms that have a background not only in campus planning, but in other areas related to the identified study needs. Make every reasonable effort to assure that an adequate number of qualified firms are aware of the upcoming project. Allow ample time for all interested parties to address specific questions prior to the designated submittal date. Many governmental agencies place announcements in publications such as *Commerce Business Daily*. Typically, thirty days are allowed for a response. This is a reasonable amount of time for most major projects.

Figure 1

PROJECT DEVELOPMENT



Selection Criteria

Whether or not a "short list" is developed or interviews are required, certain elements of the proposals should be given careful consideration. The following addresses several of these key elements but should not be considered all-inclusive.

Establishment—How long has the firm or the firm's principals been in business? Does the firm appear to be on solid financial ground? A firm may be new to an area but well established in other parts of the country. The resources of the entire organization should be considered, rather than just the individuals in the local office. In many cases, campus planning can be so specialized that relatively few firms will have personnel with the appropriate experience within the local office. Outside firms should not be excluded from consideration.

Experience—Does the firm have a background in similar work? Do not limit your assessment of a firm's experience specifically to campus-related projects; you may be overlooking new ideas and techniques. Although college campuses do have some unique planning features, many elements of a campus master plan are similar to those of hospitals, commercial developments, and military installations. Experience gained in these areas can be of great benefit to the planners in developing a master plan for a university.

Some firms may have been recently established, but have principals or project managers who have brought vast personal experience to the organization. The experience of individual team members should be considered along with the experience of the firm as a whole.

Project Staff—Are the staff available to do the required work, and do they have experience in that type of project? Some projects or studies required by an institution may be specialized. Therefore, the submitting office of the firm may not have the necessary expertise locally, but have appropriate support through other offices within the firm. A key consideration is whether the firm has promised to commit specific individuals within the defined budget limits. The majority of firms stand behind their commitments.

References—Has the firm earned the

respect of former clients? The best references are recent clients for whom similar work has been conducted. Consideration should also be given to references that illustrate how the firm has performed historically. Typically, no one will list a reference who will give less than a glowing review of the firm's association with them.

Teaming — Is the firm associated with other consultants to provide the required services? If so, do the other consultants meet the same selection criteria standards? Depending on the specific tasks identified in the request for proposals, it is not unusual for two or more firms to "team" together to adequately address the project requirements. Desirably, the selected firm will not require the assistance of subconsultants. However, for large projects that require the involvement of several disciplines, this is not usually the case. From a coordination standpoint, the fewer firms involved on a team, the better.

The lead firm should, in most cases, be responsible for the majority of the work. If parking conditions on campus are a primary concern, a firm that specializes in transportation services is probably the most appropriate lead firm. If building siting or campus aesthetics carry the most weight, a planning or architectural firm would be more appropriate. When reviewing proposals, the composition and organization of a team should be carefully weighed against the services provided by a single firm.

Project Understanding — Does the consultant have a "feel" for the project? Does the firm understand which study elements are more important than others? Consider what level of effort a firm will go to obtain information about a project prior to submitting a proposal. The consultant sometimes walks a tight rope by gauging how much contact can be made to obtain information without becoming a nuisance to the prospective client. The more information supplied to consultants in these initial stages, the better the quality of the proposals will be. A typical question is, "How much money has been budgeted for this project?" When buying a car, one does not go looking at a BMW when you can only afford a Yugo. Policies vary on making this information available. However, substantial problems may be avoided during negotiations if the consultants know up front the level of detail they can promise in their proposals.

Schedule — Can the firm establish a reasonable time frame in which to complete the identified scope? The shortest schedule is not always the best. There could be times when a master plan or other study is quickly undertaken in response to pressures for submittal of a budget request to a board of regents or other governing body. If this is the case, adequate time may not be allotted to the project in order to meet a deadline. By having some idea as to the amount of time studies of this nature take, the university can provide sufficient time to meet its internal deadlines and evaluate the schedule proposed by the consultant.

Evaluate the contents of the proposal and see if it matches the time frame indicated in the schedule. There is a critical path that must be observed to provide a satisfactory product. Another consideration is the university's ability to meet the schedule. If one or two weeks are established for university review of interim submittals, you cannot let a month go by and still expect the consultant to maintain the original schedule. The university needs to be realistic concerning its ability to provide timely reviews.

Interview — As previously mentioned, a consultant may be selected solely on the written proposal contents. This is not the case in most instances. Typically, a "short list" of firms is developed (usually three to five firms) and invitations for interviews are sent to those firms. It is important to indicate whether or not interviews will be required when the RFP is released.

Depending on the anticipated project

Figure 2

CONSULTANT RANKING

		Selection Committee Members						
CRITERIA	WEIGHT	AWG	CHB	RMN	EWC	ABG	Sum	Product
Establishment	3	4	3	2	5	4	18	54
Experience	4	3	5	3	5	2	18	72
Project Staff	5	2	4	2	5	5	18	90
References	4	3	3	3	5	3	17	68
Teaming	3	4	4	5	4	3	20	60
Project Understanding	5	3	5	4	4	3	19	95
Schedule	2	2	4	2	3	3	14	28
Fee	2	5	2	1	3	4	15	30
						TOTAL SCORE		497

Weight : Typically, 1 to 5 based on relative importance (5 is most important)
Rank : Typically, 1 to 5 based on proposal and/or interview (5 is best)
Total Score : Sum the Rank for each Criteria, multiply Sum by Weight for each Criteria for Product, total Products for TOTAL SCORE

budget, travel considerations, cost of proposal preparation, etc., some firms may opt not to pursue the project if interviews are required. This decision may be based on their assessment of the odds for winning the project. The interview process provides opportunities to both the university and the consultants. The university selection committee can meet some of the people that they read about in the proposals.

They will have the chance to determine if the consultants live up to the qualifications presented in the proposal. Does the consultant have a real understanding of the project requirements? Does the consultant appear well prepared for the questions that are asked? Is the consultant giving the answers the committee wants to hear or the answers they need to hear? By the same token, the consultants will have a final opportunity to demonstrate their ability to provide the necessary services. They may clarify some points that were contained in their proposals. The consultants can also use the interview to present their principals and/or the individuals who will be responsible for doing the work. Different firms take different approaches to who will attend interviews.

When inviting consultants to an interview, some things can be done to make the process flow smoother. Provide an ample amount of time for the consultants to prepare for the interview. This allows them to adjust their schedules accordingly to accommodate any potential conflicts. Offer the consultants a choice of meeting times, if possible; this helps to accommodate travel schedules. Indicate the time allotted for the presentation and any question-and-answer session. Provide the flexibility to the consultants so they can organize the presentation to best suit your particular situation.

Once the interview invitations have been received by the consultants, the university contact person will probably be getting some interesting telephone calls. The short-listed consultants will want to obtain as much information as possible regarding the interview process and setting. Some typical questions will be: What is the shape (and dimensions) of the interview room? How are the tables and chairs arranged? How many people will be in the room? Do the lights in the room have a dimmer switch? What are the names and positions of the selection committee members? Are additional handouts permitted? Many of these questions may be addressed early on in the selection process. However, the questions will come, so be prepared for almost anything.

Consultant Selection Methods—There are several methods that may be employed to select the preferred consulting firm. A frequently used method is to list the selection criteria and then assign a numeric value (typically one to five) to each item to establish a cumulative score for each firm. The listed selection criteria could be weighted to give preference to the criteria considered by the committee to be more important than others.

Figure 2 is an example of a ranking chart completed by a selection committee containing five members. One chart would be completed for each proposal/interview. Each criterion is assigned a weighting by the selection committee based on their understanding of the relative importance of each. Then each criterion is assigned a ranking by each committee member. The sum of the rankings for each criterion is then multiplied by the weighting and added together for the total score. The criteria and weightings will probably vary from project to project based on the type of work required and composition of the selection committee. The selection criteria may be expanded to include almost every conceivable item. If each selection committee member has a clear understanding of what is included in the criteria, then the number of items evaluated are best kept to a minimum.

Whatever method is employed, it is wise to thoroughly document the process that was followed. This is beneficial for a variety of reasons. The preferred firm may not be retained if the negotiations are not successful. This would require going down the list to the second choice. There may be legal requirements related to the selection process that necessitate proper documentation.

Also, the firms not selected by the committee often contact the chairperson and request a debriefing to find out why they were not selected. By identifying their shortcomings through the debriefing process, consulting firms can strengthen their weak areas and be in a better position to provide client services in the future. Each firm has probably invested several thousand dollars trying to win the contract. Your cooperation in a debriefing will acknowledge that you appreciate the firm's effort and interest in your institution.

Negotiation—Once a firm has been selected, the final scope of work and fee negotiations should take place. The level of effort required to address elements within the scope of work may differ from that which was identified in the request for proposals. Both parties should be willing to develop a fee, refined scope, and schedule that is fair and equitable and will produce a product that can be adopted and implemented by the institution.

Project fee was not listed in the selection criteria, although it was included in Figure 2, because there is usually little leeway associated with this element. If a non-priced proposal was requested, then price should not be a consideration. If a priced proposal was requested, then the institution usually decides what weight to place on the fee estimate and use the other selection criteria to determine if the firm submitting the lowest fee is competent to do the work.

In some cases, less qualified firms will attempt to "buy" a project by submitting a low fee and then hope to make more money in supplemental agreements. Obviously, project budgets must be established. This is why providing project budget information on the front end will lead to more consistency among proposals and provide a more equitable base from which to make a selection.

Conclusion

The majority of campus facilities planners and physical plant administrators have experience in awarding contracts and dealing with consultants. Many have already developed a system that addresses the items discussed in this article. However, some may not have managed a master planning project, since master plans are typically updated on five- to seven-year intervals. For those individuals, the structuring of a request for proposals and the entire selection process is a new adventure. This article has discussed developing the rules of the game. Most everyone will accept playing by the rules as long as they know what the rules are.

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APPA Answers

Maxine Mauldin

SHARING THE FRUITS OF KNOWLEDGE

For more than five years APPA has provided information and "networking" assistance through our International Experience Exchange data base. The data base contains a wide variety of information from more than 1,000 institutions of higher education. We have focused on subjects such as physical plant service responsibilities, construction/planning, building classifications, utilities sources/telecommunications, employee training/morale/recognition, computerization, and much more.

From time to time, however, we receive a request that we are unable to respond to. But before we look outside our association, we start right in our own back yard, because APPA members hold the seed of knowledge to many unanswered questions. As I walk through our back yard searching for information, I notice that the seeds have grown into tall standing trees, with strong branches of experience reaching to the sky. And on these branches are many leaves that represent answers, understanding, support, and encouragement. Many of our members have already benefited from the fruits of your wisdom. Whenever you see this information request box in *APPA Newsletter* or *Facilities Manager*, please let us know if you have information to share.

Information Request

We still have in our box a need for information on:

- Merit pay.
- Waste paper produces energy.
- Donor construction.

If you have any information or any ideas on finding information on these subjects, please call or write.

I would like to use this space to thank everyone who sent helpful information on two of our recent requests:

- Four-day work week.
- Flex-time (for the summer).

Spring is in the air; time for lawn care, trimming of trees and bushes, planting flower beds, and other grounds work. The International Experience Exchange data base can provide you with a list of institutions that have indicated primary responsibility in the area of grounds maintenance.

Along with flowers blooming and grass growing, also come insects. APPA's data base can provide you with a printout of institutions that indicated on the survey that their physical plant department is responsible for pest control, that they contract this service out and have sample contracts to share, or they do both. This type of list will put you in touch with a fellow colleague who has had the same problem as yourself. In addition, they understand the needs of higher education facilities management.

For instance, when one of our members phoned and requested information on controlling pigeon waste, we were able to scan our data base and find that the University of Texas at Austin had a bird problem. The June 1991 issue of *APPA Newsletter* included an article on how they took control. But we did not stop there. We also gave this member a list of other associations and companies that have information on management of insects, rodents, birds, and other pests that inhabit buildings or structures of any kind. YES, we were able to help, just as we will help you in any way we can.

APPA's Information Services is a free program to APPA member institutions. If you are not currently a member, I urge you to contact our membership department for more information. If your institution is not on the International Experience Exchange data base, call me at 703/684-4338 to receive a blank survey form. ■

Maxine Mauldin is APPA's information services manager.

Global Exchange

UNIVERSITY OF OTAGO

Roger McK.Dodd

Our average annual rainfall is 784 millimeters; however, our wettest month, December, averages 73 millimeters of rain. The driest month, September, averages 51 millimeters of precipitation.

The wind is calm during one third of the year, south/southwest during another third, and north/northwest in the last third.

The mean annual temperature is 11C. During July the mean temperature is 15C. February's mean temperature is 6.5C. Our occasional low reaches 0C, and the occasional high reaches 30C.

Roger McK.Dodd is works registrar at the University of Otago, Dunedin, New Zealand.

[*Ed. Note:* Any international members interested in submitting an article for this column, please contact Stephanie Gretchen, Communications Manager, APPA, 1446 Duke Street, Alexandria, Virginia, 22314-3492, USA; or fax 703/549-2772.]

No major facilities effort is required, because climate extremes are not rigorous. Heating in winter is the main energy requirement. Air conditioning is needed only for special areas (e.g., animal holdings, special book collections, etc.).

Funding

Annual government grants are provided on an EFT student basis. Additional funding is private, by request, or special fund raising efforts. The University of Otago was founded in 1869 by the then Provincial Government, with a 100,000-acre endowment. It was taken over as a New Zealand Government institution some time later.

Student Numbers

In 1990, our enrollment was about 11,500 total [10,000+ EFTs].

Academic Focii

Otago has strong departments of traditional arts and sciences, commerce, marine science, and special schools of medicine, dentistry, land surveying, physical education, consumer and applied science, law, and theology. These are organized into four academic divisions: humanities, science, health sciences, and commerce.

Age of Building

Our buildings were built as early as 1870 and as late as the present.

Land and Buildings

The campus consists of sixty acres (twelve city blocks) centrally located, forty acres of playing fields and outstations, and two medical clinical schools built in other cities (Wellington and Christchurch) on central city hospital sites.

Construction ranges from wooden houses to stone wall/slate roof, double and triple brick/tile roof, and recent concrete and glass structures. We have no major steel structures. We do have all roof types: mainly profiled metal, fiber cement slates, butyl rubber, and bituminous cover to concrete.

Energy Sources

Our energy use consists of 40 percent coal, 45 percent electricity, and 15 percent oil and gas.

The Department

The staff of the works and services department includes seventy people: two in planning and policy, fourteen in consultancy and property management, four in administrative support, two in university equipment and furniture, one in stationery store, and forty-seven in the contracting group. The works and services department combines planning, architecture, engineering, estimating, construction, and operations and plant maintenance. Cleaning and security services are not included.

Primary Concerns as Facilities Manager

The 1990 mission statement states: "The fundamental concerns of the works and services department are environmental quality, function and safety at the University of Otago. The Mission is to effectively promote and safeguard the physical welfare of all Divisions, staff and students in a manner which will support and enhance their collective and individual purposes at the University of Otago. The Mission will be carried out subject to Government and University policy and in an manner which encourages each member of the department to contribute his or her best to support it."

Change is occurring on three levels.

First, additional decision making power and responsibility is being devolved from central government to the university.

The University of Otago is a state funded university, which means that the largest part of its NZ$105 million budget is provided by way of an annual allocation from central government. This is the common form of funding to the New Zealand tertiary institutions, which include seven universities, twenty-five polytechnic, and five col-

A mixture of styles and ages is apparent. The central feature of the campus is the original clocktower building, once the "whole university," now the administration headquarters. At right is a 15-year-old precast concrete tower.

leges of education (teacher training).

"Learning for Life" is the name given to a recent government initiated program of reform in the tertiary sector that revolutionizes the way these institutions are funded, governed, and managed. In the past, the universities have had a relatively high level of autonomy, particularly in respect to the management of their facilities. This has not been the case for the polytechnics and colleges of education. The broad effect of "Learning for Life" is to give something of the autonomy the universities have enjoyed to the polytechnics and colleges. This means that most institutions are having to develop or buy facilities management skills that they have not had in the past because these were provided by central government. Only the universities have experience in this area of management.

Second, decision making power and responsibility at Otago is being devolved from the central university structure to four academic and two service divisions as the university responds to a period of sustained growth. University rolls have increased from 6,800 to 11,500 in ten years (70 percent). Our works and services department is part of the new Administrative and Student Services Division. Each division is headed by an assistant vice-chancellor and a divisional board with boards of studies or faculties attending to the academic and administrative business of each division.

Essential facilities management functions, such as keeping buildings dry, clean, usable, and secure, will remain a central function. Optional activities, such as altering the layout, increasing the amount of signage or determining the quality of internal finish will become questions of priority for the divisional administrations, as will the method by which the work is done. This is an fundamental change. No longer will the works and services department be guaranteed the work load it has had previously.

Third, decision making power and responsibility in the works and service department is being devolved from central administration to trading and service groups.

The works and services department is restructuring to present a more commercial and competitive front to its customers both inside and outside of the university. This means that all units of the department are accountable and must prove their efficiency and effectiveness against a set of prescribed goals, objectives, and performance indicators. New accounting systems have been revised.

Several trends are becoming apparent. Perhaps the most significant is that the pool of knowledge and expertise within the works and services department, built up over many years along lines advocated by APPA, is now seen to be of value to other institutions that are not experienced in facilities management.

The two neighbor institutions (polytechnic and college of education) are likely to use the services we can offer, provided our skills and experience are properly marketed. Conversely, it is expected that university divisions will exercise their increased freedom of decision making by experimentation with the use of external contracting resources for optional work.

Innovation

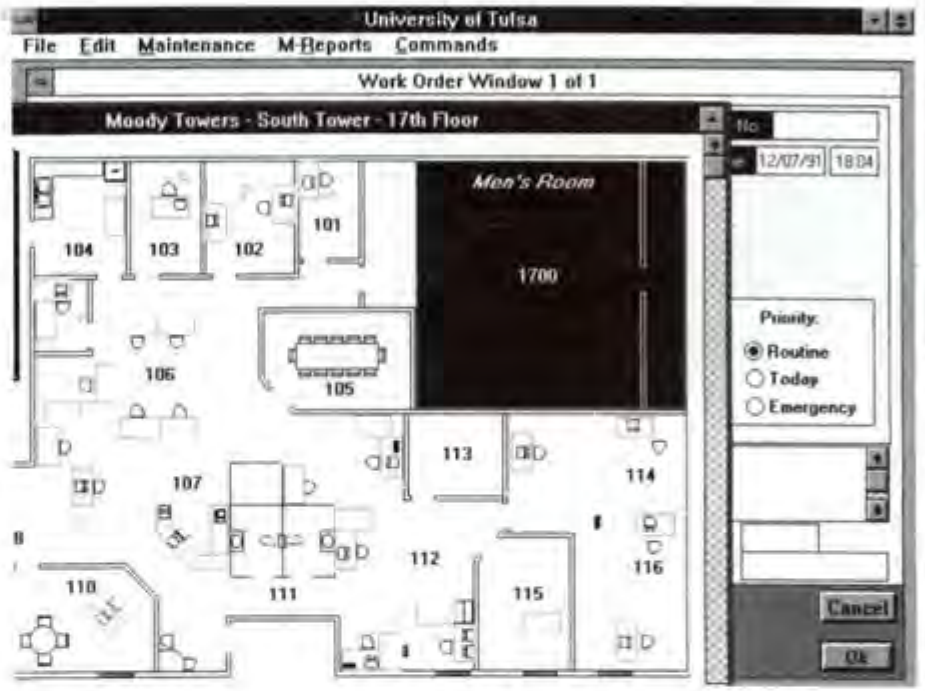
One of the innovations that has been developed for internal use but which has application to external users is a facilities auditing and budget system. This is a reporting system based on the results of an expert survey, cost plan, and computer analysis that presents life cycle costings for an extensive group of building elements extended over any nominated calendar period. It has benefits for building plant managers in that it presents an annual schedule of items that require detailed inspection and action decisions. It benefits financial managers in that it presents a budget for any nominated calendar period. It is an extension of our fully-computerized work orders, stores, work control, asset management, and job planning systems developed in-house over the past fifteen years.

The Future

To survive in this new environment, the department has to recognize its role as a competitive service unit and behave accordingly. This is a fascinating challenge. Unlike a manufacturer, we have no physical product to market. Instead, we have capacity consisting of equipment and expert staff. The challenge, therefore, is for us to provide service with quality built in, perceived as being of value to our customers. Our goals, objectives, and operating plans are of special interest to us at present because of dramatic changes in our environment. We are responding positively (we think!). ■

Data Base Update

Howard Millman



EASY-TO-USE CMMS RUNS ON APPLES AND UNDER DOS WINDOWS

The fastest way to transfer information is to show, not tell. That's one reason for the overwhelming success of Microsoft's Windows (more than 9 million copies sold) and Apple's graphic user interfaces. These two products have probably done more to eradicate computer illiteracy than any other technique.

A facilities management program that runs on Apple as well as IBM machines could mean an end to maintaining two incompatible computer systems and related software. It would certainly help put an end to programs that require a Ph.D. in rocket science to understand.

The Maintenance Authority (TMA), from TMA Systems, Inc. of Tulsa, Oklahoma, offers that cross platform operability. Once you get over its name, TMA is a versatile facilities management application that is easy on the eyes and budget alike.

This isn't two unrelated products sharing the same name; both versions can (with the right hardware) share data with one another. What's more, if you learn how to operate one version, you know how to use them both since the screens and commands are identical. TMA is sold in single and multiuser versions. The single user costs $7,995, multiuser $12,995 plus $500 per user.

Howard Millman is a facility management consultant who provides support services for universities and hospitals planning to purchase, update, or install information management systems. He is based in Croton, New York.

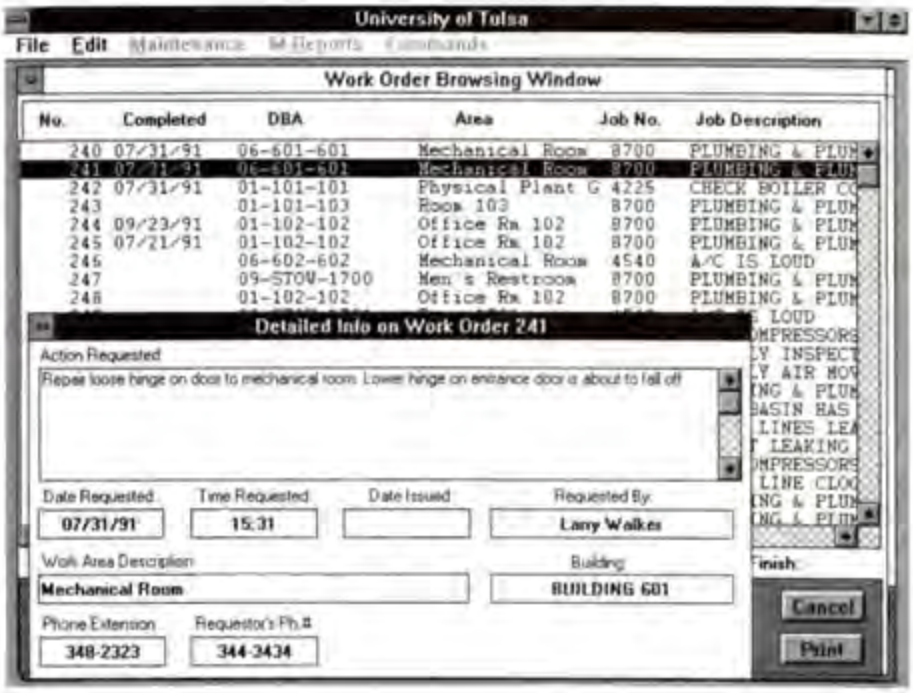
Interestingly, and I'm not sure I agree with their strategy, TMA Systems sells their software one way—complete. Most of TMA's competitors (Chief, Mapcon, Titan, for instance) offer their software in modules. That modular approach allows users to include functionality when, and if, they need it.

Gary Schaecher, president of TMA Systems, says that most people never get around to adding the modules when they need them. "They want to avoid rebidding or justifying a sole source bid and they don't want to go through another retraining cycle. With its graphic screens, TMA is easy to understand. You learn it once and you're through," he says. TMA's purchase price includes three days on-site instruction (excluding travel expenses).

PM and Work Orders

TMA includes a full suite of facilities management controls. It records, organizes, generates, and tracks preventive maintenance, work orders, housekeeping, and scheduled contract work tickets. It schedules PM work on equipment, buildings, and vehicles by calendar dates. You can set the schedule to call for service as often as every day or as seldom as every other year. PM tasks can be rescheduled but not easily ignored. The only way for the shops to dispense with a PM task is to do the work or cancel it. Canceling a PM or work order leaves an audit trail. There's no limit to the number of PM orders this system will track. Maximum data storage capacity is 2,500 megabytes; that's enough to give every mosquito on the planet a proper name.

Entering data into the ticket is very fast. The preview mode shows you the form onscreen, which looks like the form that flows from the printer. Work order data can also be transmitted via modem to remote printers. PM orders can include standardized task specific descriptions selected from lookup tables. Lookup tables, a series of separate



small file that instantly appear when you press one or two special keys, are an absolute necessity in a maintenance program. TMA's lookup tables provide fast convenient access to a dozen lists including building codes, personnel names, vendors, departments, and part and job codes.

Reports

TMA will generate sixty predesigned maintenance reports to facilitate tracking of labor/material cost, completed PM, summary by work order type, parts used analysis, machine work history, and trade performance. Life cycle costing is readily available by means of most expensive work areas and most expensive equipment reports. You can rank the equipment or location that requires the most time or money to maintain and those areas that require the least. An ad hoc (custom) report writer enables you to generate custom reports selecting fields you want included from various screens.

To augment the impact of text-oriented reports, TMA will generate 2D and 3D bar, line, and pie graphs with labeled X and Y axis. In addition to screen display, graphs can be printed on a variety of printers and plotters. Since you are working in a graphics environment, you have a wide variety of typefaces and type sizes to select for your graph's labels, as well as numerous eye-catching text attributes like italics, underlines, and bolding.

If you deal with movable assets (typically furniture, tools, vehicles), TMA will track their condition, cost, present location, and warranty. Speaking of warranty, TMA will help eliminate the unnecessary expense of repairing equipment that's still under warranty. TMA flags such equipment if either a PM or routine work order is issued.

Bar Codes and Inventory Management

TMA's (optional) Bar Code Asset Management module helps you to track and maintain inventory. They use Intermec's fixed and portable scanners to read the labels the module produces. Bar coding is fast, almost automatic, and about as close to idiot-proof as a high-tech system can get. I often advise my university and hospital client's to purchase bar coding since it provides the best way I know to economically keep inventory from mysteriously disappearing.

In addition to inventory control, bar coding lends itself to equipment maintenance. When mechanics repair a piece of equipment, for example, they simply scan to record serial number, location, and description. Later, when the information is uploaded into the computer, added information such as the mechanic's name, date, parts used, and time spent can be added.

Go With Graphics

By providing a version that runs under Windows, TMA Systems endowed TMA with features like its click-to-pick mouse driven, fully graphic interface that helps differentiate TMA from its 250 competitors.

My experience in helping facilities managers install or upgrade their facilities management applications suggests that 80 percent of the facilities use 20 percent of the power of their software. Let's see if graphics can rebalance that equation and perform the same magic in facilities management offices that it works in other industries. ■

TMA
TMA Systems, Inc.
8212 South Harvard
Tulsa, OK 74137-1613
800/331-5511
Fax: 918/495-3760

The Bookshelf

Training

Training for Non-Trainers: A Do-It-Yourself Guide for Managers, by Carolyn Nilson. New York: American Management Association, 1990. 229 pp. $19.95, hardcover.

The modern facilities manager needs trained staff. In Australia, recent government legislation requires employers, including universities, to spend one percent of their payroll on training staff.

The Australian scheme aims to increase and improve the skills of the work force, in order to improve productivity and competitiveness. American research has shown that human resource efforts have accounted for two-thirds of that nation's productivity improvements over the last sixty years. Workers must be highly skilled for productivity to remain high. Training plays an essential part of this process. In this respect, it is timely to review Nilson's recent book. A short and extremely practical book, *Training for Non-Trainers* is written as a do-it-yourself guide for first and mid-level managers who are not trainers, but want trained staff.

The book has eight chapters, the majority of which are how-to chapters covering one-to-one training, peer training, group training, and distance training. The book tells you how to train most effectively in each situation and also contains a useful section on using external training professionals. The final chapter looks at how to reduce training needs through better staff recruitment and selection. A short index and bibliography are also included.

The chapters are easy to follow, well written, and include checklists and examples. The approach is sound, practical, and relevant. The author's view is that training should be quick, effective, and designed for adults.

"Think small, plan well" is a constant message. Training is best when it helps people acquire new knowledge, different attitudes, and new skills.

At the same time, training is not easy. It takes professional trainers about fifty person-days to prepare a customized one day course, so be prepared to spend money for good training. "Keep in mind that the price of having untrained, unproductive employees is heavier still," writes Nilson.

Training for Non-Trainers provides a lot of good practical information for the manager who wants to run a strong and successful training program while getting the best value for the training dollar.

This book is available from AMACOM, American Management Association, 135 West 50th Street, New York, NY 10020.

— **David Mayocchi**
Administration Manager,
Facilities Division
Griffith University
Brisbane, Australia

Productivity

Planned Maintenance for Productivity and Energy Conservation, by John W. Criswell, third edition. Lilburn, Georgia: Prentice Hall, Inc., 1990. 191 pp. $48, hardcover.

This book provides a concise, ten-step procedure for implementation of a planned maintenance program. The system can be adapted for use by any size organization, with minimal reallocation of resources. Sample forms are included to accompany each step, which are clearly set out.

The three fundamentals of a planned maintenance program are 1) knowledge of basic operating techniques, 2) personnel management, and 3) effective procedures for turning ideas into workable solutions. Preventive maintenance is defined as minor work done on a regular schedule to prevent trouble or deterioration to facilities or equipment. Preventive maintenance meets the objective of stopping functional failure by maintaining proven operations, replacing necessary parts, and lubricating regularly. Care needs to be taken to ensure that preventive maintenance personnel and schedules are based on the severity of the problem.

Computerized operations supplement scheduled preventive maintenance rounds, but should not replace inspections. Responsible personnel familiar with the facility can identify potential problems, vandalism, changes in equipment performance, and potential security breaches, then report needed maintenance in advance of an actual failure or machine detectable event. A planned inspection route through facilities that would not warrant a computer node also provides an early warning system.

Computer applications for planned maintenance include inventory tracking of all inventories, work order processing, staff scheduling, maintenance procedures, maintenance history, maintenance location map file, procurement information, financial accounting, and productivity reporting. Computer implementation goals must be realistic and have the complete support of upper management. Managers need to commit the time, energy, and enthusiasm to the computer applications to become fully knowledgeable of the strengths and limitations from the outset.

A brief review of sixty applicable software packages and suggestions for successful selection of hardware and software is included. Useful suggestions include a visit to locations where the system is currently in use and evaluation of systems compatibility. Remember to consider expansion and future applications.

It can be done. *Planned Maintenance for Productivity and Energy Conservation* provides information to implement or improve the preventive maintenance program at any institution. Cost savings can be realized by considering the suggestions and procedures in the book. Institutions that presently have an excellent preventive maintenance program can benefit from a fresh look, fine tuning, and communication that lets people know what good work they are doing.

This book is available from the Association of Energy Engineers, Department 378, P.O. Box 1026, Lilburn, GA 30226.

— **Kate Fenton**
Fiscal Officer
University of Alaska/Fairbanks
Fairbanks, Alaska

Right-to-Know

Community Right-To-Know Handbook, by Neil Orloff & Susan Sakai. New York: Clark Boardman Company, Ltd., 1988. 300 pp. softcover.

The proliferation of governmental regulations concerning chemicals/hazardous materials has, in the last decade, almost overwhelmed those in higher education who find themselves custodians of large numbers and sometimes large amounts of chemicals that have been designated by the government as hazardous. We are given to understand that the regulations were written primarily with industry in mind, and we must conform to "their" standards. "They," of course, due to the nature of their business, usually have trained personnel and the tracking mechanisms to be able to account for the chemicals they use. Small colleges and community colleges usually have a few people doing a number of jobs, and the right-to-know tracking/reporting requirements are usual-

ly added to the workload of an existing staff member.

Anything that facilitates the understanding of the regulations and lessens the burden of meeting them is worthwhile. The *Community Right-To-Know Handbook* falls into this category; it really helps and would be a welcome addition to the reference library of anyone charged with the responsibility of feeding information to the hungry government paperwork monster.

While the handbook addresses the needs of the widest possible audience, the college user can select only those parts that apply to her or his individual circumstances. Chapter one, Overview of Reporting Requirements, summarizes in thirteen pages what it took me more than twenty hours of classroom time to understand. There is a step-by-step flow chart (reporting checklist) that will lead you to the correct answer of whether or not you need to report, based upon your individual circumstances. This feature alone is worth the price of the book.

The second chapter comprises copies of all forms that may be required in reporting. A word of caution: forms sometimes change from year to year, so be sure you are using current ones.

Succeeding chapters deal with emergency planning, chemical release reporting, chemical inventory reporting, toxic chemical release reporting, and compliance with Title III.

Appendices A, B, and C contain valuable reference material including chemical lists, copies of the actual regulations, and a glossary of terms.

The handbook will aid in meeting requirements that apply to you and to determining which regulations actually do affect your operation. The text uses clear language, which is especially obvious when you compare it to the actual language of the regulations. Penalties for noncompliance are noted throughout the text; try not to get too depressed when you realize how much at risk we are.

While it is obvious that I believe the book is worth obtaining and will make your life easier, there are several mechanical things that I do not like. These were probably not the choices of the authors, but the publishers. Number one, this is a reference book and yet the cover is flimsy; a few weeks of use and it will curl up and eventually fall off. I had the cover removed and inserted in the clear cover of a three-ring binder. I then three-hole drilled the text so that the book is now a permanent reference work. Second, the reprint of the 1986 Right-To-Know Act is placed with the top of each page at the spine of the book. As a result, you must rotate the book 180 degrees to read any two pages in a row. Small problems, easily corrected.

This book is available from Clark Boardman Company, Ltd., New York, NY.

— **Robert W. Pharr**
Robert Pharr Consultant
Richardson, Texas

Presentations

How to Present Like a Pro, by Lani Arrendondo. New York: McGraw-Hill, 1991. 180 pp. $19.95, hardcover; $12.95, softcover.

This book is not about public speaking. The author, in fact, states in the preface, "I'm not interested in encouraging the propagation of any more public speakers. There are already quite enough of them around." The differentiation that she makes between speeches and presentations is twofold, the first being approach, i.e., public speaking is from the standpoint of the speaker, while presenting is from the viewpoint of the audience. The focus changes from who's speaking to who's listening. The second significant difference is the response of the audience when they obtain what they want.

The author of this highly practical guide is the founder and principal of a consulting and training firm based in California. Arrendondo has extensive corporate experience and is on the faculty of the National University's School of Business and Management.

The author emphasizes that if you wish to generate a favorable audience response, it is essential to keep the following presentation principles in mind: the purpose is to persuade; perception is more powerful than fact; people are inundated with data; and people forget fast. She further explains that if presentations are to be effective they must be attention-getting, meaningful, memorable, and activating. It is worth noting that these qualities are audience-response criteria.

An excellent chapter entitled Preparing Your Message covers a wide range of material, from knowing the audience as a consumer, to opinions on opening a presentation with jokes (don't). The essential elements of preparation are reviewed, as are practical steps for outlining the presentation in a specific order which, by design, is not the same as the order of delivering

the presentation. The appendix includes model worksheets as well as a presentation review checklist, both of which should benefit anyone preparing for an important presentation.

If, like most people, you are anxious about public appearances or perhaps even choke, the chapter on placing anxiety and self-consciousness in its proper perspective is bound to be helpful.

This book contains numerous other hints—some widely known, such as the KISS technique, and others not as well known, such as unplugging the potential detractor. Other sections include tips for fielding questions and dealing with difficulties. This book has earned a spot in my reference library, and I encourage any of my colleagues who are interested in improving their presentation skills to acquire and use this practical guidebook. It is available from McGraw-Hill, Inc. 1221 Avenue of the Americas, New York, NY 10020.

— **Ronald R. Maassen**
Director of Facilities Services
Waukesha County Technical College
Pewaukee, Wisconsin

Management

Improving College Management: An Integrated Systems Approach, by Thomas E. Tellefaen. San Francisco, California: Jossey-Bass Inc., 1990. 594 pp. $49.95, hardcover.

The author presents a clear outline on how to organize and manage higher education institutions. Tellefaen discusses the unit structure and service provided by academic affairs, student services, development, and business and fiscal affairs. Each discussion focuses on the unit mission, major activity, and specific service.

A brief introduction explains the integrated system approach to improving management (ISATIM) in a diverse institution. The matrix model tool is used to illustrate the unique nature of each unit. There are seventy-nine decision matrices. The matrices chart the decision-making process with procedural steps and participant roles. Following each matrix is a detailed explanation of the procedural step with appropriate action and responsibility.

The book is organized into five areas of managerial activity: overall management, governance, and leadership; academic affairs; student affairs; development; and business and fiscal affairs. Part one discusses governance, leadership, and overall management focusing on trustees, the president, and multi-year planning and budgeting. In part two, academic affairs cover administration, registration and records, and grant and contract administration. Student affairs are discussed in part three and include student activities and services, recruiting and admissions, and financial aid. Part four covers institutional advancement or development. Business management is reviewed in part five. Business management includes facilities, office of human resources, plant operation and management, auxiliary enterprises, and fiscal management. The layout of the book is such that it can be a reference for managing established institutions or used as a guide for restructuring.

I recommend the book to new and experienced administrators at all levels of college and university management. New administrators will reach an understanding of how units function and services overlap. Experienced administrators will have an opportunity to review the relationships among service units and how they collectively fit together.

An informed reader such as experienced administrators familiar with the issues facing higher education, can use this book as a guide to reduce costs. The matrices can be used to challenge the way academic and administrative services are performed. Through use of challenge sessions, staff members can be prompted to take steps to improve services.

This publication is available from Jossey-Bass Inc., Publishers, 350 Sansome Street, San Francisco, CA 94104-1310.

— **James J. Lettiere**
Director, Management & Systems Engineering
Pennsylvania State University
University Park, Pennsylvania

Customer Relations

Keeping Customers For Life, by Joan Cannie with Donald Kaplin. New York: American Management Association, 1990. 259 pp. $24.95, hardcover.

Customer oriented total quality management appears to be the new model for organizations in the 1990s. *Keeping Customers For Life* moves beyond many of the quality programs proposed in the 1980s by applying the tools and techniques in the development of a customer-oriented organization. The book is presented in two sections: the first section provides background information on the importance of service in today's business world; the second provides a twelve-step approach for the improvement of customer satisfaction.

The second section will be the most useful in the facilities management environment. Each step is covered in a separate, fairly comprehensive chapter with examples of exceptional customer service and methods for measuring and improving customer satisfaction. The approach begins by detailing why top management commitment is the first requirement for initiating a customer-driven service culture. Without this support, the strategy has little chance of succeeding.

The remaining chapters include:

- Developing a strategy for completing an internal evaluation of key areas in your organization. This chapter provides a basis for establishing what you are doing that will drive or impede your service problems, including symptoms, causes, and possible solutions.
- Determining customer requirements through the use of formal and informal survey methods. This chapter provides a good reference for the design of surveys and their interpretation.
- Creating goals and performance measures that focus on customers' requirements.
- Creating customer-driven strategies. The strategy is your method of providing service that sets you apart from other organizations. The service cycle flow chart worksheet is a particularly interesting and informative exercise.
- Becoming a customer-champion. The central tenet behind this chapter is that all systems, policies, and decisions send messages to customers. A customer-oriented organization pays close attention to these messages. "Evaluate the effect on customers of every key decision."
- Employees motivation and self esteem. The basic tenet of this chapter is that customer relations mirror employee relations. "If you are indifferent to your employees they will be indifferent to customers."
- Empowerment and training of employees to act for customers.
- Empowering employees to solve and prevent problems.
- Creating a communication link from employees and customers.
- Recognition, rewards, and celebrations.
- Developing a continuous improvement network.

Each chapter challenges your internal policies and procedures and then provides methods for improvement.

To summarize, the book provides a common sense approach to achieving better customer service. The worksheets and surveys can be easily adapted to the facilities management environment. The book is easy to read with many illustration that relate well to providing a service. I found *Keeping Customers For Life* enjoyable and highly recommend it.

This book is available from AMACOM,

American Management Association, 135 West 50th Street, New York, NY 10020.

— **Tom Sichko**
Work Management Supervisor
University of North Carolina
Chapel Hill, North Carolina

Energy and the Environment

Energy and Environmental Strategies for the 1990s, ed. by Mary Jo Winer & Marilyn Jackson. Lilburn, Georgia: Fairmont Press, 1991. 636 pp. $62, softcover.

This book is a collection of presentations at the 13th World Energy Engineering Conference (WEEC) and published by the Association of Energy Engineers. There are 102 articles written by more than 150 contributors. The articles have been grouped into thirteen sections where every section has addressed important energy-related issues.

The first section is on energy and environment and consists of one-fifth of the total articles covering current environmental issues such as indoor air quality, asbestos, underground storage tanks, resource recovery, chlorofluorocarbons, etc. The articles are thorough, and there is a wealth of information ranging from discussing specific issues to theoretical models. For instance, the article on underground storage tanks addresses specifics of EPA regulation 401 CFR 280. By contrast, the indoor air quality modeling is quite theoretical involving complex mathematical formula.

The second section is on cogeneration and independent power generation. Included is discussion on such global topics as the interaction of environmental laws with financing cogeneration, modeling the diffusion of non-utility power generation to specific applications, and package cogeneration for small commercial and residential use. Many key topics relating to large cogeneration sites, i.e., sales contract negotiation, project financing, and utility interconnection, have been covered.

The next section is on electrical system optimization and includes articles on radio frequency dryers, impulse dryers, power factor correction, and power quality. The title of this section is somewhat misleading, since most of the topics are at least remotely related to the book title. The majority of the articles are on power quality as it relates to power utilities at distribution and transmission level voltages, and not therefore of interest to facilities owners and operators.

The energy management and control sections have many useful articles for operation and maintenance personnel. There are good discussions on current issues on building automation systems and energy management and control systems, namely open protocol and open system (which has been the dream of energy O&M staff), application of expert systems, direct digital controls, networking, and system operator interface.

The balance of the sections are on a variety of subjects like innovative ways of financing energy projects, tips on how to succeed in having effective energy programs, gas procurement, combustion efficiency improvement, thermal energy storage, and much more.

Overall, the book has addressed many current topics in the field of energy. The depth and quality of the articles vary. There is some duplication of information and the articles are disjointed. That is, however, what one expects in proceedings of any conference. To the credit of most presenters, more than half of the articles have cited several references that can be useful for further readings.

I believe most APPA readers and specifically energy coordinators and utility distribution managers will find the book very helpful. It is not a book they might read cover to cover, but owing to the large portfolio of topics, they will all find useful materials based on their areas of interest.

I wish every section had an introduction that would coalesce the diverse articles. Similarly, a good preface giving an overview of the subject would have been beneficial, and this is my main criticism. But aside from that, I highly recommend it for energy and utilities manager.

This book is available from Fairmont Press, 700 Indian Trail, Lilburn, GA 30247.

— **Mohammad H. Qayoumi**
Associate Executive Vice President
Facilities Development and Operations
San Jose State University
San Jose, California

Quality Transformation

Managing the Total Quality Transformation, by Thomas H. Berry. New York: McGraw Hill, 1991. 256 pp. $24.95, hardcover.

"Oh no, not another book on quality management! What could possibly be in this book that hasn't been in fifty others?" writes A. Blanton Godfrey, chairman and CEO of the Juran Institute, Inc. in the foreword to this book. "But this book is different," he continues. "Many other books tell us what we should do, but few tell us how to do it." Thomas Berry's book does indeed focus on how quality can be defined, measured, achieved, and perhaps most importantly, maintained.

The author describes total quality management (TQM) as a continuous process and differentiates it from a program with a beginning and an end. He stresses that TQM is not a quick fix strategy, but that it is a process that must be nurtured and maintained year after year. TQM requires continuing maintenance and improvement rather than the establishment of a program that defines, accomplishes, and concludes. Berry states that TQM is a journey not a destination, and he provides what he terms an enhanced definition of quality, i.e., "meeting customers' needs and reasonable expectations."

The author's background in leading the transformation effort at Colonial Penn Group, Inc. while serving as vice president of quality management and corporate training, permits him to speak from a service sector viewpoint. This vantage is one which, more closely than most others, parallels the situations in facilities management organizations where we offer varied services to a diverse clientele.

This book provided a practical step-by-step routine that would allow one to plan, organize, implement, check results, and improve a TQM process. This book does not provide a background in statistical process control (SPC), nor does it train one in the use of SPC tools (histograms, control charts, etc.). These tools and methodologies are explained in great detail in many texts and are generally available as course work, probably on your campus. As complementary reading that addresses the work and fourteen points of Dr. W. Edwards Deming, I'd suggest a concise volume by William W. Sherkenbach entitled *The Deming Route to Quality and Productivity: Road Maps and Roadblocks*, distributed by Mercury Press of Rockville, Maryland.

Chapter 16 is unique in that it outlines traps that are probably all too common to most organizations as they embark on their TQM efforts. Any number of these insightful dos and don'ts could have been written after observing our initial efforts at Waukesha County Technical College.

Webb Castor, former senior vice president of Xerox Corporation, stated, "This book will prove to be the best return on investment this year for any company, large or small, that buys, reads, and uses it as a primer and guideline for quality programs." I agree and recommend this book to my colleagues interested in participating in the total quality transformation.

This book is available from McGraw-Hill, Inc. 1221 Avenue of the Americas, New York, NY 10020.

— **Ronald R. Maassen**
Director of Facilities Services
Waukesha County Technical College
Pewaukee, Wisconsin

Job Corner

Job Corner Deadlines

Job Corner advertisements are open to any nonprofit institution with a facilities-related position available. 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 **May 8** for the June issue, **June 10** for July, and **July 10** for August. 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.

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 or to receive a Job Corner brochure.

■ ■ ■

Architects/Engineers. California State University, Fullerton seeks a licensed architect or engineer to serve as director of design and construction. This position provides overall coordination for all construction projects on campus and is responsible for the design of minor projects. Permanent position, excellent benefits. For additional information call 714/773-2122. Applications due **April 15, 1992**. *CSU, Fullerton is an Affirmative Action/Equal Opportunity/Title IX employer and welcomes applications from women and minorities.*

Director of Physical Plant. Bethany College, located in the Northern Panhandle of West Virginia, seeks professional responsible for managing the maintenance-repair and custodial duties for all campus buildings and grounds. Candidate must possess strong skills in areas of: budgeting, long-range planning, purchasing, scheduling, supervision of central heat plant, contract labor, and enforcing personnel policies and procedures within the department. Bachelor's degree in engineering or related field preferred. Position available July 1, 1992. Please respond with resume, including references and salary requirements, to: Bethany College, Director of Personnel, Bethany, WV 26032. Deadline for applications is **April 30, 1992**. *EEO/AA.* ■

ASSISTANT DIRECTOR, FACILITIES MAINTENANCE
Department of Residential Facilities
University of Maryland at College Park

The Department of Residential Facilities is responsible for providing the principal facilities management services for the 1.9 million square feet of undergraduate residence halls in 50 + buildings on the flagship campus of the University of Maryland System. The FY 92 budget exceeds $12 million ($6 million salary and wages, $6 million operating budget). We employ 159 full-time employees and between 70 and 120 student staff between the academic year and summer months, respectively.

A copy of a more detailed job description and an overview of the department and the campus are available by contacting Mr. Sean Ballantine, Department of Residential Facilities, University of Maryland, College Park, MD 20742.

The assistant director, facilities maintenance establishes and reviews service standards, performance criteria, and workmanship expectations for a staff of approximately 30 trades workers and supervisors. Aggressively reviews existing programs to improve and assure the effective delivery of services to the residents and/or the buildings. Analyzes and projects repair and replacement costs, including the development of multi-year facilities renewal and deferred maintenance budgets. Assures compliance with applicable building, fire and life safety, and health codes, as well as regulations. Reviews with staff major unresolved and ongoing maintenance deficiencies and reprioritizes work or funding as needed to respond to critical or unforeseen problems. Acts as the department liaison and director's representative with major campus and off-campus service agencies.

EXPERIENCE: *Required*—A bachelor's degree, preferably in administration or engineering fields. Minimum seven years of full-time involvement in the management of the full range of maintenance services. Minimum four years in a supervisory capacity of maintenance/trade operation, with at least two years supervising a staff of 15 or more employees. *Preferred*—Minimum of two years direct supervisory responsibility for a facility in excess of 1 million gross square feet, with previous experience on a college or university campus. Experience with automated facilities management, inventory, work control, scheduling, and financial systems.

TO APPLY: For best consideration, apply by **May 1, 1992**. Application materials should include resume, letter of application, and organizational chart of current or previous position showing candidate's position and staff responsibility. Letter of application must clearly outline: 1) Overall size and responsibilities of organization/position in which currently or most recently engaged (number and types of buildings, square footage of buildings, annual budget, and staff size); 2) Number and type (e.g., carpentry, plumbing, paint, temperature control, etc.) of employees currently or previously supervised; and 3) Specific involvement, if any, in budget management, work scheduling, inventory management, and facilities renewal planning and implementation. Send all application materials to Ms. Carol Brice, Department of Residential Facilities, Leonardtown Office Building, College Park, MD 20742.

BENEFITS: Salary commensurate with experience. Additional benefits include 22 working days annual leave; 14 paid holidays; 15 days sick leave a year; tuition remission up to 7 credits per semester; participation in the state pension system; and eligibility for a variety of group health insurance plans.

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Minorities and Women are Encouraged to Apply

MANAGER OF BUILDING SERVICES FOR REVENUE BOND FACILITIES

Wayne State College, a 4-year, public institution of 4,000 students in Wayne, Nebraska, seeks a Manager of Building Services for Revenue Bond Facilities, which includes student residence halls and the Student Center. The individual selected for this position will be responsible for custodial services and building maintenance programs for nearly 500,000 square feet in eight buildings; will supervise all building service personnel in these facilities; and will participate in the planning and development of construction and remodeling programs. Position reports to the Director of Physical Plant.

Qualifications include a baccalaureate degree or an equivalent combination of training and experience, preferably at a college or university. Strong organizational, interpersonal, and communication skills and knowledge of maintenance procedures required; project management experience desired. Ability to work in a service capacity for a campus community is key to this position, and a demonstrated record of customer satisfaction is essential.

This full-time, 12-month position is available immediately; salary and benefits are competitive. Applications will be accepted until the position is filled. Send letter of application, resume, and at least three references to: Manager of Building Services Search, Office of Administration and Finance, Wayne State College, Wayne, Nebraska 68787. *Wayne State College is an AA/EEO employer.*

DIRECTOR FACILITIES PLANNING AND OPERATIONS

The San Mateo County Community College District, located in the San Francisco Bay area, invites applications for the position of Director of Facilities Planning and Operations. The Director will be responsible for facilities planning and construction, and operating and maintaining the physical plant and grounds of the District's three colleges.

The ideal candidate should have a bachelor's degree in Engineering, Architecture, or Business Management. MBA, or MA in relevant field, is desirable. Previous experience in facilities planning and design, supervision, and project management of a large complex of academic facilities is preferable. Knowledge/experience in finance, budgeting, personnel management, and labor relations is desirable.

The current five-step salary schedule for Director of Facilities Planning and Operations ranges from $60,572 to $74,032. The District offers a generous benefit package.

Applications are now being accepted.

Please request the job announcement and official application from:

Office of Human Resources
San Mateo County Community College District
3401 CSM Drive, San Mateo, California 94402
Phone: 415/574-6555 Fax: 415/574-6566
Job Line Recording: 415/574-6111

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MAINTENANCE CONTROL SYSTEMS MANAGER

This position with Princeton University includes primary responsibility for maintenance control efforts for department of over 230 people.

Responsibilities will require the establishment and management of a Computerized Maintenance System (CMMS) for the University's physical plant facilities.

Selected applicant will take lead in selecting new CMMS, work with others to establish university interfaces, then start up and direct the day to day operation of the system working with trade supervisors. Will establish a new work order system, preventive maintenance program, scheduling systems, and other related CMMS modules. Selected person will work closely with shop supervisors to identify and establish all applicable maintenance and information requirements to meet shop and University needs.

Applicant must have good hands-on experience with computerized maintenance management systems including preparation of data bases, work orders and scheduling, as well as at least 5 years of administrative/managerial experience in a multi-shop maintenance organization. Strong interpersonal skills are critical. A degree in relevant engineering field is desired.

Please send 2 copies of your resume to: **Office of Human Resources, Department 5478-DJ, Princeton University, Clio Hall, Princeton, NJ 08544.**

Princeton University

Equal Opportunity/Affirmative Action Employer

DIRECTOR OF PLANT OPERATIONS

California State University, Fresno

Reporting to both the Vice President and the Associate Vice President, the incumbent will oversee both the maintenance and repair of campus buildings totaling over two million square feet, and the maintenance of landscaped grounds; manage a staff of 165 management and union employees, including crafts and trades, building maintenance, grounds, custodial, and administrative and clerical personnel; and administer a budget of $4.7 million. Requires 6 years' physical plant management experience, including directing the work of a large journey-level work force, and a bachelor's degree in engineering, business management, or related field. Please submit employment application, supplement to the application, current resume, and the names, telephone numbers, and addresses of three references by **May 8, 1992**. It is the applicant's responsibility to ensure that all requested materials are received by the filing deadline. Apply: Staff Personnel Office—Mr. Edward Varela, California State University, Fresno, Joyal Administration Building, Rm. 164, 5150 N. Maple Ave., Fresno, CA 93740-0071; 209/278-2032. *An Equal Employment Opportunity (M/F)/Affirmative Action Employer.*

Coming Events

APPA Events

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

Apr. 27—**ADA Compliance Seminar.** Syracuse, NY.

Apr. 30-May 1—**Facilities Audit Workshop.** Washington, DC.

Jul. 26-29—**79th Annual Meeting**. Indianapolis, IN.

Aug. 23-28—**Institute for Facilities Management**. Boston, MA.

Other Events

Apr. 27-28—**Custodial Staffing Guidelines Seminar.** St. Charles, IL. Contact: Robert A. Getz, INFORMED, 760 Duxbury Lane, Bartlett, IL 60103; 312/996-2837, fax 312/996-2055.

May 7-8—**Diagnosing and Mitigating Indoor Air Quality Problems**. Washington, DC. Contact: AEE Energy Seminars, P.O. Box 1026, Lilburn, GA 30226; 404/925-9633.

May 13-14—**Improving Building Systems in Hot and Humid Climates**. Dallas, TX. Contact: Donna Rosenkranz, Texas A&M University; 409/847-8950.

May 14-15—**HVAC Controls**. Chicago, IL. Contact: AEE Energy Seminars, P.O. Box 1026, Lilburn, GA 30226; 404/925-9633.

May 19-20—**Total Quality Management Series**. Washington, DC. Contact: University of Virginia, Conferences and Institutes, P.O. Box 3697, Charlottesville, VA 22903; or call Mary Clark 703/876-6939 or 800/678-4882.

May 19-20—**Housekeeping Management and Leadership Skills Seminar**. Los Angeles, CA. Contact: George B. Wright Company & Roesel, Kent & Associates, 4343 Shallowford Road, B1, Marietta, GA 30062; 404/998-1691.

May 19-21—**Telecommunications Infrastructure Planning**. Vancouver, BC, Canada. Contact: Nancy Mack, Conferences and Institutes, 138 Dana Hall, Washington State University, Pullman, WA 99164-2712; 509/335-3530.

Jun. 3-4—**Northwest Plant Engineering & Maintenance Show**. Portland, OR. Contact: Professional Trade Shows, Inc., 416 South Hillview Drive, Milpitas, CA 95035; 408/946-5600.

Jun. 6—**Wood Shingle Roof Repair**. Windsor, VT. Contact: The Preservation Institute for the Building Crafts, P.O. Box 1777, Windsor, VT 05089; 802/674-6752.

Jun. 7-11—**CAUSE Management Institute for Information Technology**. Boulder, CO. Contact: CAUSE, 4840 Pearl East Circle, Suite 302E, Boulder, CO 80301; 303/449-4430.

Jun. 8-9—**HVAC Controls**. Contact: AEE Energy Seminars, P.O. Box 1026, Lilburn, GA 30226; 404/925-9633.

Jun. 8-11—**Facilities '92 Conference**. Dallas, TX. Contact: Sharon Price, P.O. Box 11318, Newington, CT 06111; 800/451-1196.

Jun. 10-12—**Building Systems Automation-Integration**. Dallas, TX. Contact: Saar Management Company, Inc., 13253 North La Montana Drive, Suite 205, Fountain Hills, AZ 85268; 602/837-6575.

Jun. 11-14—**Ornamental Plaster Conservation and Repair**. Windsor, VT. Contact: The Preservation Institute for the Building Crafts, P.O. Box 1777, Windsor, VT 05089; 802/674-6752.

Jun. 12-13—**Epoxy Repairs for Exterior Wooden Details**. Windsor, VT. Contact: The Preservation Institute for the Building Crafts, P.O. Box 1777, Windsor, VT 05089; 802/674-6752.

Jun. 14-17—**83rd Annual IDHCA Conference**. Boston, MA. Contact: Carolyn Millunzi at 202/429-5111.

Jun. 16-17—**Housekeeping Management and Leadership Skills Seminar**. Chicago, IL. Contact: George B. Wright Company & Roesel, Kent & Associates, 4343 Shallowford Road, B1, Marietta, GA 30062; 404/998-1691.

Jun. 17-18—**MAPPA & PGMS Midwest Grounds Management Conference**. Oxford, OH. Contact: Ken Haven, Miami University, Cole Service Building, Oxford, OH 45056; 513/529-7000; Allan Shulder, 10402 Ridgland Road, Suite 4, Hunt Valley, MD 21030; 410/667-1833.

Jun. 26-28—**Construction Specifier Institute Annual Convention**. Atlanta, GA. Contact: CSI, 601 Madison Street, Alexandria, VA 22314-1791; 703/684-0300.

Jun. 27-Jul. 1—**ASHRAE Annual Meeting**. Baltimore, MD. Contact ASHRAE Meetings Section, 404/636-8400.

Jun. 28-Jul. 1—**American Association of Cost Engineers Annual Meeting**. Orlando, Florida. Contact: AACE Headquarters, P.O. Box 1557, Morgantown, WV 26507-1557; 304/296-8444.

end events

Jul. 14-17—**International Compressor Engineering Conference and International Refrigeration Conference**. West Lafayette, IN. Contact: Phyllis Hurst, Purdue University, 317/494-0177.

Jul. 19-21—**NACUBO Annual Meeting**. Toronto, Canada. Contact: Moss Roscher Associates, NACUBO Annual Meeting, P.O. Box 4500-50, Portland, OR 97208; 503/227-1478.

Sep. 16-17—**Texas Plant Engineering & Maintenance Show**. Houston, TX. Contact: Professional Trade Shows, Inc., 416 South Hillview Drive, Milpitas, CA 95035; 408/946-5600.

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by Stephen R. Cotler, AIA

ISBN: 0-913359-59-9

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The new Americans with Disabilities Act expands protections for individuals with disabilites and bars discrimination in employment and in access to public accommodations. The time frame for compliance is relatively short. New facilities to be occupied after January 1993 are to be designed for accessibility. Existing facilities were required to be accessible by January 26, 1992. Barriers in existing facilities must be removed, if removal is readily achievable and can be accomplished without much difficulty or expense. If not, alternative methods of providing services must be offered.

Removing the Barriers will assist you in surveying your campus and identifying barriers. More than 100 drawings are included to illustrate barrier-free entrances, hardware, floor plans, and more. The book outlines suggestions and cost effective solutions for providing accessibility.

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