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The Association of  
Higher Education  
Facilities Officers

# Facilities Manager

Volume 10 Number 3

Summer 1994



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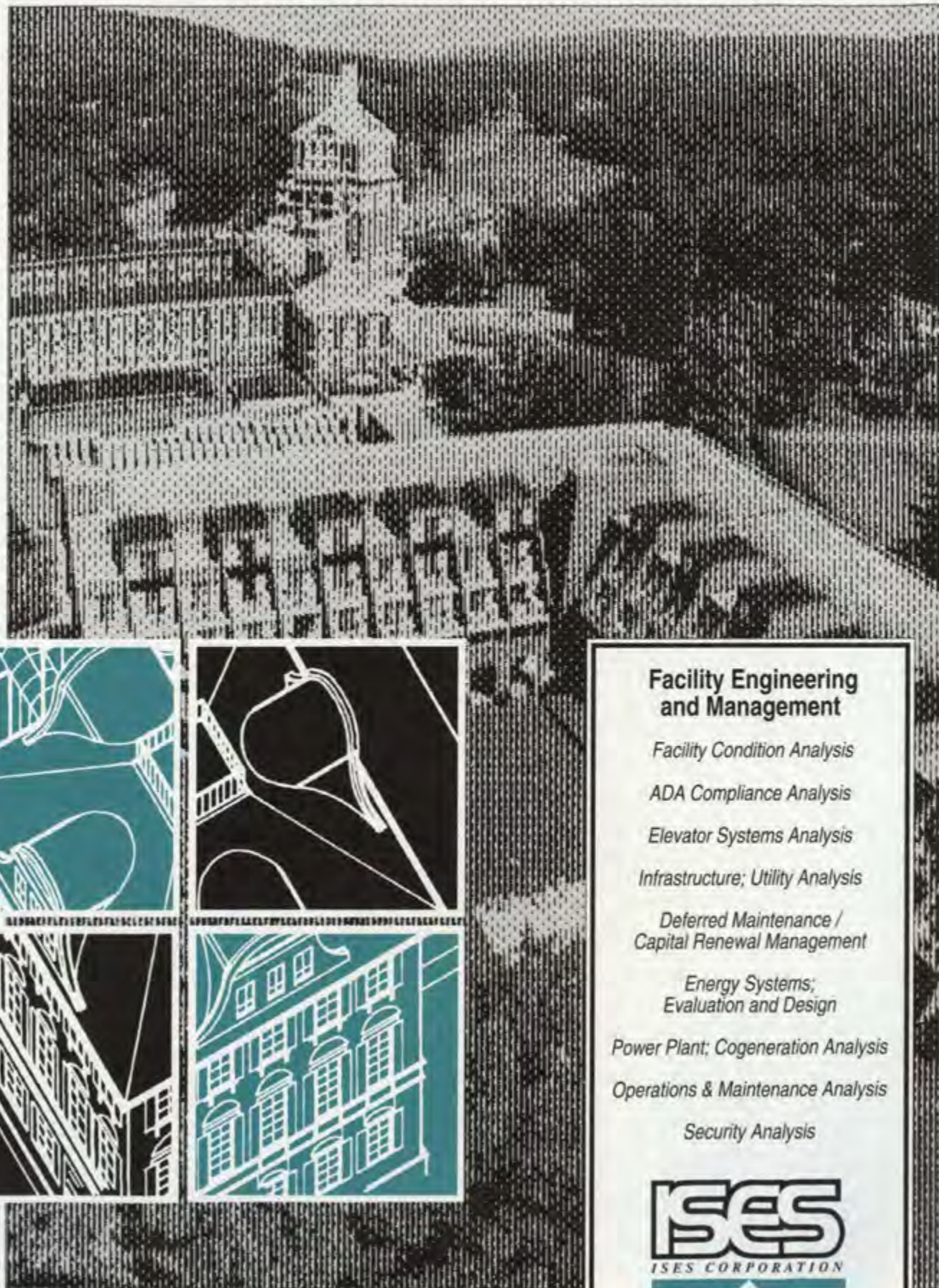
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# Facilities Manager

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Ursinus College,  
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## From The Editor

Steve Glazner

Change is most definitely in the air. Our institutions of higher education have experienced not only unprecedented growth in endowments through fundraising efforts within the past decade, but also mind-boggling cuts in budgets, staffs, and services. At the same time, our customers—students, faculty members, parents, alumni, trustees, and others—are demanding and expecting more and better service from the campus facilities organization.

How are we handling these demands? Are we anticipating and meeting our customers' expectations? The articles in this issue are focused on the theme of customer service in the facilities environment, and all offer exciting and practical approaches to this fundamental management activity. Many thanks to field editor Roger Rowe for selecting and reviewing these articles, and to the authors who prepared them.

In addition to the valuable assistance these articles will provide, APPA has published three books that will serve as excellent resources in your efforts to improve your department's customer service approach. The titles are self-explanatory:

- *Building Quality: TQM for Campus Facilities Managers*
- *Contract Management or Self-Operation: A Decision-Making Guide for Higher Education*
- *Custodial Staffing Guidelines for Educational Institutions*

Change is also in the air for APPA. The APPA Board of Directors and staff recently participated in a rigorous management evaluation conducted by the American Society of Association

Executives. While the evaluation team provided many recommendations for improvement for both the Board and staff, their final report highly praised APPA for its management and leadership abilities despite its limited resources.

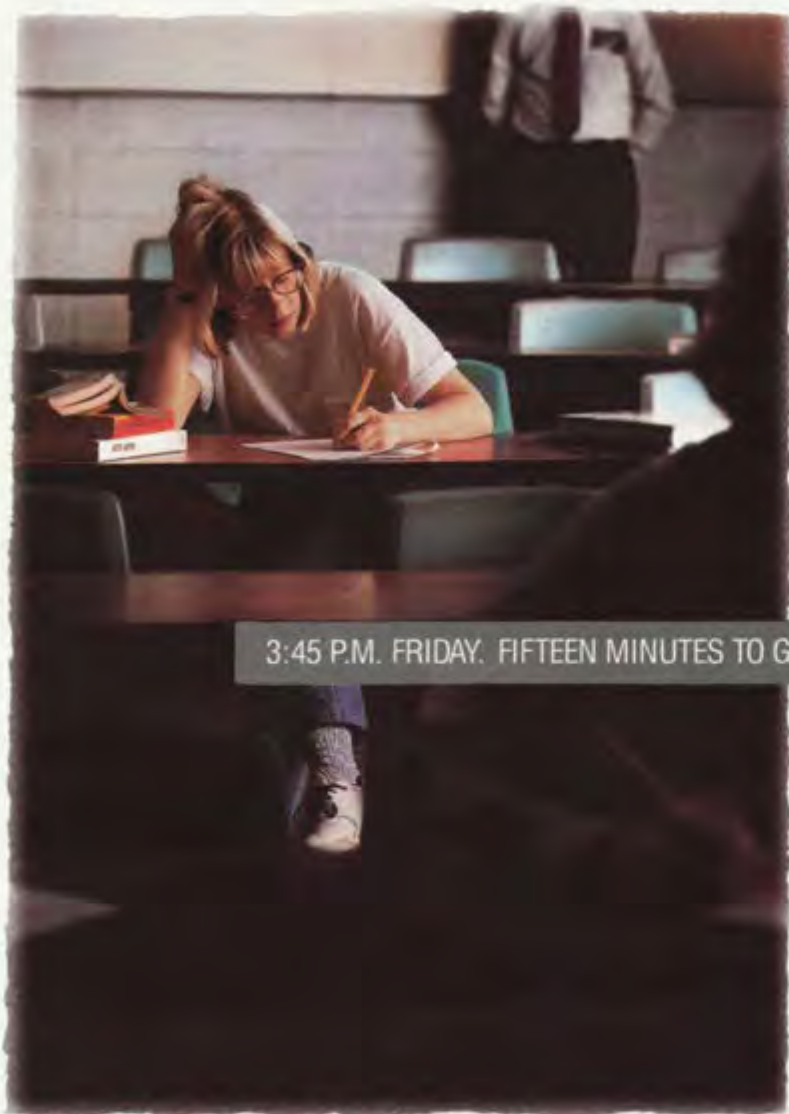
In addition, an objective readership survey of *Facilities Manager* and *APPA Newsletter* will be conducted this summer by an outside firm hired by APPA. A select portion of our readers will be asked to complete a detailed questionnaire about the content, quality, format, and value of these two key APPA periodicals. The results of the survey will greatly assist us in determining editorial content for future issues, as well as provide a clearer focus for generating advertising revenue. If you are selected to participate in the readership survey, I strongly urge you to complete the form as completely and honestly as possible and return it to us by the deadline. We need to know what you want so that we can continually improve our publications—and our service to you.

And finally, this month is when Wayne Leroy succeeds Walt Schaw as APPA's executive vice president, making Wayne the third chief staff officer since the Association was incorporated in 1971. Having served APPA for more than ten years already, Wayne will provide a consistency within the Association while offering a fresh vision for our future growth. If you don't yet know Wayne, see page 7 for a brief introduction.

To anyone who knows Walt Schaw, you never really believe that you're saying farewell to him for long. His influence and sheer force of will linger not unlike the pipe smoke so closely associated with him. Some people like pipe smoke and some do not, but you cannot deny that it was there. What also can't be denied, however, is Walt's tremendous contribution to APPA and to the higher education facilities profession. His absence will be noticed and missed.

I worked with Walt throughout his nine years at APPA, and I learned a lot from him. Because of his constant quest for new challenges for personal, professional, and societal growth, he helped confirm a belief I've long toyed with—that the journey is the purpose. We at APPA wish Walt and Madeleine the best in the next phase of their own journey. ■





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## APPA News

### Wayne E. Leroy: APPA's New Executive Vice President

by Stephanie Gretchen  
APPA Assistant Director of  
Communications

This is a new era for APPA, not just because Wayne Leroy has recently become our new executive vice president, but because of the changes happening throughout the Association. APPA is on the path to leadership through visioning. The organization is repositioning itself to meet the ensuing needs of our members in this rapidly changing world.

Wayne has worked at APPA since 1983 when he was hired as the associate vice president. As such he has been responsible for the general oversight of all program areas. During his tenure Wayne has served as the primary contact for the Facilities Management Evaluation Program, was an active participant in the APPA/Lilly study of seminary facilities, and took a lead role in the recent district heating and cooling project. He received APPA's President's Award in 1993.

Before coming to APPA, Wayne was the director of association development at the American Vocational Association; for five years he served as liaison with state, regional, and other national organizations in membership, leadership, development, and legislative networking. From 1972-78 he was the executive director of the Florida Vocational Association, where he managed all aspects of the organization.

Prior to that he was the dean of occupational education at Seminole Community College in Sanford, Florida.

Wayne's educational background includes a bachelor's degree in education from Miami University in Oxford, Ohio, and a master's degree in business education from University of Central Florida in Orlando.

Wayne has served on numerous committees and projects for the American Society of Association Executives and the Greater Washington Society of Association Executives. He is a Certified Association Executive.

The following are some of Wayne's thoughts, in his own words, on APPA's future, the Association's efforts, and areas for expansion.



Wayne E. Leroy

### By Wayne Leroy

A combination of things will affect where APPA is going in the future. As a result of the recent ASAE evaluation of the Association, the Board and membership of APPA will be completing a visioning process for APPA during the

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coming year that will focus our activities for the next three to five years in programming and activities and enhance the quality of higher education facilities.

Visioning is a three-step process. First you see where you are. The ASAE evaluation helped us do that in an objective way. Next you structure a format to see where you would like to be. Again, the evaluation helped us identify some of these parameters. Finally, you develop a plan to decide how you want to get there.

Impacting this process will be the financial condition of higher education as a whole, which has a great impact on APPA. How do we continue construction, modernization, maintenance (both deferred and ongoing), operating expenses, and staffing (in-house versus privatization)? APPA will provide the tools for facilities managers to make the best decisions within those options.

No matter what we do, we must

closely adhere to three core principles for delivering quality programs, products, and services: 1) Be member/customer driven; 2) Be process oriented; and 3) Be in a state of constant improvement.

#### APPA's Next Step

The next wave for APPA will be the positioning of the Association to best meet the changing needs of higher education facilities managers. Our greatest areas of need for the Association include

- **Emerging technologies**—networking, distance learning, fax on demand, etc. APPA as an association needs to be an information resource that will assist facilities managers in their decision-making processes. We will expand our work in publications, research, information databases, and networking abilities. We currently have little pieces of all of these in place, but it needs to be greatly expanded. We are on the verge

of an information explosion. To meet these needs we need to have greater electronic accessibility and additional information and resources.

- **Enhanced partnering** with other associations, groups, and organizations that have an interest in facilities—working together for a greater cause, cooperative efforts with many groups. We can't do on our own all that needs to be done. We are talking about massive undertakings that no one organization can accomplish. Who has that kind of money or staff?

- With the complexity we are currently encountering in technology and general ways of operation, we're going to have to **enhance and expand our educational programs** to meet continual programming needs. This is the only way to maintain productivity and control costs.

- We will also have to **enhance leadership training and skills** of facilities managers. The facilities of an institution are that institution's largest capital asset. The person responsible for it must have leadership skills that will enhance and improve the institutions they serve.

Leadership doesn't just mean becoming president or an elected official of an association. It means being involved on whatever level you can. The lifeblood of APPA, as well as any association, is the involvement of its members—all its members. The synergy of 4,000+ people writing articles or books, being faculty members or resources, and serving as mentors is what enriches the lives of all the members. These are all examples of leadership. The more people who are involved in APPA, the more we all benefit. ■

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#### Bylaws Available

All APPA members are entitled to a free copy of the Association's current Bylaws. For a copy, please contact APPA Publications, 1446 Duke Street, Alexandria, Virginia 22314-3492; 703-684-1446. Also let us know if you are interested in receiving a copy of APPA's current Long-Range Plan.



## Don't Forget to Attend Your Regional Meeting

The annual fall APPA regional meetings are fast approaching. The following is information about the location and contact person for each of the seven regional association meetings.

September 24-27—**RMAPP**. Boulder, Colorado. Contact: Paul Tabolt, University of Colorado/Boulder, 303-492-7120.

September 29-October 1—**AAPPA**. Adelaide, South Australia. Contact: Angus Moir, Flinders University of South Australia, 61-8-201-2383.

October 8-12—**SRAPP**. Louisville, Kentucky. Contact: Michael Besspiata, Southern Baptist Theological Seminary, 502-897-4103.

October 9-12—**MAPP**. West Lafayette, Indiana. Contact: Donald Hufford, Purdue University, 317-494-1423.

October 16-19—**CAPP**. Kansas City, Missouri. Contact: Mike Reuck, William Jewell College, 816-781-7700 ext. 5507.

October 22-26—**PCAPP**. Lake Tahoe, Nevada. Contact: Nick Cimino, Truckee Meadows Community College, 702-673-7100.

October 23-26—**ERAPP**. Pittsburgh, Pennsylvania. Contact: Fedor Salva, Washington and Jefferson University, 412-223-6086.

## Small Colleges Finding Answers Through ACCESS

A group of computer services personnel from small colleges and universities (student enrollments less than 1,500) held its third annual conference at George Fox College in Newberg, Oregon, June 23-25.

The group, called ACCESS (Administrative and Campus Computing Environments at Small Schools), was founded by three administrators who found that their very limited budgets and staff sizes gave them a different set of problems from bigger institutions. Michael Gnoutcheff, director of administrative computing for Bennington College (VT); Nancy Price, director of administrative computing at Marlboro

College (VT); and Adrian Segar, former director of academic computing at Marlboro, are still the volunteer organizers for ACCESS. They recently expanded the group's focus to include secondary schools, which deal with many

of the same issues as higher-ed peers.

A more-or-less quarterly ACCESS newsletter, *Small School Computing News*, focuses on problems common to most higher education institutions—getting on the Internet, custom soft-

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ware development, system management—from a small-school perspective. To be accessible to as many schools as possible, the group has set membership fees at only \$20 per year. For information about ACCESS membership, con-

tact Nancy Price at 802-257-4333. Conference information is available from Dave Votaw, George Fox College, 503-538-8383.

[Source: Spring 1994 Manage IT, published by CAUSE.]

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Dr. Harvey H. Kaiser

### Kaiser Wins Rex Dillow Award

Dr. Harvey H. Kaiser, senior vice president for facilities administration at Syracuse University (NY), received the eighth annual Rex Dillow Award for Outstanding Article in *Facilities Manager*. This is Kaiser's second time to receive the award, which was given at the 1994 Educational Conference and 80th Annual Meeting in San Antonio, Texas. Kaiser wrote "Putting the Facilities Audit to Work," which appeared in the Spring 1993 *Facilities Manager*. The article was selected by APPA's Information Services Committee from among sixteen eligible articles. Only articles written by full-time staff members at APPA-member institutions are eligible for the award.

The Rex Dillow Award was named for member emeritus Rex O. Dillow, who has made valuable contributions to APPA publications. Dillow was editor-in-chief of APPA's two editions of *Facilities Management: A Manual for Plant Administration* and is also newsletter editor for APPA's Central region. He received APPA's Meritorious Service Award in 1983 and the President's Award in 1989.

Previous Rex Dillow Award recipients have included the following:



- 1987—Douglas K. Christensen, "Integrating Capital Studies Within Physical Plant Operations"
- 1988—Harvey H. Kaiser, "Capital Needs in Higher Education"
- 1989—William S. Mutch, "The 1988 Olympic Winter Games: The University of Calgary Involvement"
- 1990—Teresa S. Hargett and Robert C. Osborn, "Cornell Recycles: A Major University Commitment"
- 1991—Paul Banks and Carolyn Harris, "The Library Environment and the Preservation of Library Materials"
- 1992—James E. Christenson, "Maintenance Management for the 1990s"
- 1993—Mark Pastin, "Power, Influence, and Survival in Difficult Times"

## Proceedings Available

A limited number of *Proceedings* are still available from APPA's 1994 Educational Conference and 81st Annual Meeting. In addition to versions of most of the features found in this issue of *Facilities Manager*, you will also find the following presentations.

- The Latest Developments in Alternative and Emerging Medical Waste Treatment Technology
- Facility Services Enhance Indoor Air Quality
- Maintenance Funding Proposals: A Cooperative Statewide Approach
- Life-Cycle Costing: Getting Approval for the Budget You Need
- Thermal Storage Partnership for Energy Conservation
- ADR: Alternate Methods to Resolving Construction Contract Disputes
- Accessible Landscapes: Designing for Inclusion

## Request for Information

APPA has recently received a member request for information from anyone in facilities management who has responsibilities for a computer repair shop. Please contact Maxine Mauldin, information services manager, on 703-684-4338 with any information.

- The New Partnership: Women and Men in Facilities Management
  - Olympian Thinking: Tapping Into Your Heart for Service
- The full collection of papers in the 1994 *Proceedings* is available for \$25

for APPA members (\$35 all others) from APPA Publications, P.O. Box 1201, Alexandria, VA 22313-1201. Orders must be prepaid; please add \$8 to cover shipping and handling.



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## Capital Notes

Barbara Hirsch

### Appropriations

**H**ouse increases construction funds for academic research facilities in NSF bill (HR 3254), but includes a catch—On May 4 the House passed a two-year \$6.4 billion appropriation for the National Science Foundation (NSF) that would limit earmarks for academic research facilities. The House voted 227-197 to adopt an amendment by Rep. Sherwood Boehlert (R-NY) to fund the NSF with \$3.15 billion for FY1995 and \$3.23 billion for FY1996. The original measure would have authorized \$3.2 billion for FY1995 and \$3.4 billion for FY1996.

The measure would double spending for construction of academic facilities from \$52.5 million in FY1994 to \$110 million in FY1995 with an increase to \$150 million in FY1996. The Science, Space, and Transportation Committee approved this increase to encourage institutions to seek money for facilities through peer-review rather than through earmarks. The catch is that academic institutions, which win construction money through other appropriations, would be denied grants under this program.

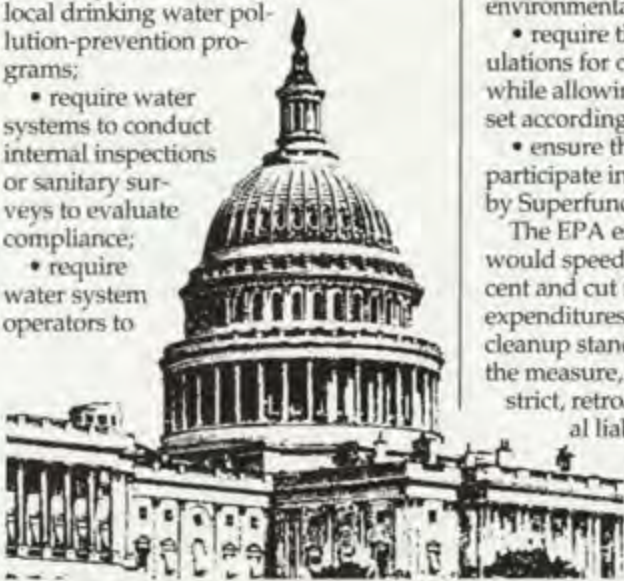
The bill would also establish a government-wide facilities construction program through the White House Office of Science and Technology. The Senate Labor and Human Resources and Commerce, Science, and Transportation committees are expected to act on a companion measure later this year.

*Barbara Hirsch is APPA's director of government relations.*

### Energy and Environment:

House introduces new drinking water bill (HR 4314) while Senate goes to floor with its measure (S 2019)—In an attempt to reach a compromise among water utilities, state and local officials, environmental groups, and the EPA, a new drinking water bill was introduced in the House on April 28. Like the Senate bill, the House measure would provide states and local water systems with revolving loan funds and address the unfunded mandate issue. The measure would also

- establish less-expensive best available technology for small systems;
- allow states to provide monitoring relief to local water systems once they have established local drinking water pollution-prevention programs;
- require water systems to conduct internal inspections or sanitary surveys to evaluate compliance;
- require water system operators to



be certified by an approved state program; and

- require states to develop a viability program as a condition for receipt of revolving loan funds. A viability program would assess a water system's managerial, technical, and financial capability to comply with the law.

HR 4314 would also scale back the number of new contaminants to be regulated.

Meanwhile, the Senate approved the Safe Drinking Water Act on May 19 (95-3) after negotiators reached a compromise on standard setting provisions. The resulting amendment would give the EPA flexibility to consider risk and cost when setting standards for non-

carcinogenic contaminants. Under the current bill, the EPA has this flexibility only for cancer-causing pollutants.

**Superfund reauthorization approved by House committee**—On May 18 the House Energy and Commerce Committee unanimously approved the Clinton administration's rewrite of the Superfund bill (HR 3800). The bill, which was stalled over disagreements on the remedy selection provisions, was resurrected by negotiations between Clinton administration, industry, and environmental groups. The compromise measure would

- set a single national goal for risk reduction in place of the risk range allowed in the original bill. The provision was changed to satisfy environmentalists' environmental-justice concerns.
- require the EPA to set national regulations for chemical contaminants, while allowing the cleanup level to be set according to future use.
- ensure the right of communities to participate in decisions regarding nearby Superfund sites.

The EPA estimates that the bill would speed cleanups by 10 to 20 percent and cut total Superfund related expenditures by 25 percent. Although cleanup standards would change under the measure, the current system of strict, retroactive, and joint and several liability system of responsibility for Superfund site

cleanup would remain. However, the legislation would allow for a non-binding, fair-share allocation plans under which cleanup costs would be divided proportionally among potentially responsible parties. "Orphan" shares would be covered by the Superfund.

The bill would also set up an insurance fund to settle claims relating to cleanup of wastes disposed of before 1986. The fund would be financed through a fee attached to insurance premiums and is expected to raise \$3.1 billion over five years.

Rep. Al Swift (D-WA), chairman of the Energy and Commerce subcommittee on transportation and hazardous materials, said that more work needs to be done regarding the role of states in planning and conducting cleanups, but



that negotiations should be completed before markup.

However, Rep. John Dingell (D-MI), chairman of the full committee, is not as optimistic. He feels that time is against good Superfund reform, and said he would be loathe to allow piecemeal amendments to the bill without reforming the whole law. He added that industry could get itself into trouble with piecemeal amendments that could result in unintended or unforeseen consequences.

**House introduces risk assessment bill (HR 4306)**—On April 28 Rep. Herb Klein (D-NJ) and other members of the House Science, Space, and Technology Committee introduced the Risk Assessment Improvement Act with input from the "highest levels" of the Clinton administration. The legislation is a middle-of-the-road approach to risk assessment, which threatens passage of every major piece of environmental legislation this year. Members from both sides of the aisle feel strongly that the EPA be required to conduct scientific assessments of health and safety risks before issuing regulations. However, so far the administration has opposed any legislation that would dictate specific regulatory tools at the agencies.

The Klein bill is a more moderate approach to the Mica-Thurman amendments and the Johnston bill. The measure would

- establish a director of risk assessment at the EPA to establish initiatives and ensure that state-of-the-art scientific methods are used;
- establish a comparative risk pilot program to rank the severity of various environmental hazards; and
- ensure that government agencies use compatible methods of risk assessment.

**Senate passes green technology bill (S 978)**—On May 11 the Senate passed the National Environmental Technology Act, which would develop pollution prevention methods and establish a national strategy for the use of environmental technologies. The measure, which passed 85-14, would

- establish a small business assistance office within the EPA to provide information about environmental technologies;
- authorize \$236 million from FY1994

through FY1996 for research and development grants to private companies, particularly small businesses;

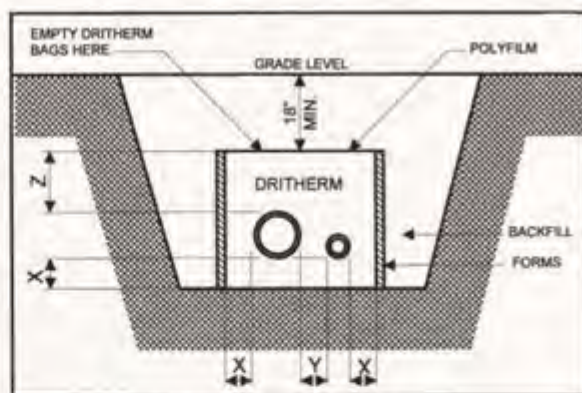
- authorize \$68 million from FY1995 through FY1998 for EPA administrative expenses in running the program;

- require federal agencies with environmental cleanup budgets exceeding \$50 million annually to devote a minimum of 1.25 percent of those funds to environmental technology research and development; and

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- require federal laboratories to test environmental technologies to verify costs and effectiveness.

The administration supports the bill, introduced March 4 by Sen. Max Baucus (D-MT), calling it an essential part of the White House plan to create jobs and protect the environment.

**House subcommittee caves in to pressure from restaurant lobby on environmental tobacco smoke bill (HR 3434)**—The hospitality industry scored a major victory when the House Energy and Commerce subcommittee on health and the environment excluded restaurants and bars from the provisions of the Smoke Free Environment Act. The subcommittee adopted two amendments, one exempting restaurants, bars, tobacco shops, and prisons and another exempting private clubs, before passing the measure by 14-11. Subcommittee chairman Henry A. Waxman (D-CA) admitted that the compromise was necessary in order to win sufficient votes to send the bill on to full committee.

However, even this watered down version has met with opposition from tobacco state senators who argue the bill infringes upon the rights of smokers and intrudes too deeply into private lives. Thomas J. Bliley Jr. (VA), ranking Republican on the subcommittee, called the measure the "ultimate Big Brother bill." Another tobacco state senator, Alex McMillan (R-NC), called the restrictions unnecessary because private businesses have begun to restrict smoking on their own.

Not all of the restaurant lobby opposed the original bill. The National Council of Chain Restaurants, the California Restaurant Association, and the Restaurant Association of Maryland all endorsed the measure. But the National Restaurant Association, representing 150,000 food service establishments from company cafeterias to chain restaurants, and the National Licensed Beverage Association, representing 16,000 bar and tavern owners, strongly opposed the bill. Waxman said he supported the restaurant exemption with tremendous reluctance, but said he may seek to amend the bill later to extend the smoking restriction to "family-oriented" restaurants. The full com-

mittee has not yet scheduled a markup session.

**House committee marks up environmental risk bill (HR 4306)**—On May 18 the House Science, Space, and Technology subcommittee on technology, environment, and aviation marked up the Risk Assessment Improvement Act, introduced by Rep. Herb Klein (D-NJ) on April 28. The measure would set up a program in the EPA administrator's office to set sound risk assessment guidelines. The two-year project would compare different environmental risks, the results of which would be reported to the EPA administrator and the White House Office of Science and Technology Policy for the purposes of coordinating risk research and communication among different federal agencies.

Several amendments are in the offing, including four by Rep. Dick Zimmer (R-NJ), a cosponsor of the bill. The Zimmer amendments would

- require the EPA to issue an annual report on all environmental regulations issued over the prior year, the costs the regulations imposed on the economy, and risks they addressed;
- require a national database on human exposure to various toxic compounds to minimize the use of animal testing in risk assessment research;
- prioritize environmental research based on comparative risk analysis;
- place the risk assessment program in the Office of Research and Development.

### Unfunded Mandates:

**Sen. Glenn asks administration to clarify its position on unfunded mandates**—At a hearing April 28, Sen. John Glenn (D-OH), chairman of the Senate Governmental Affairs Committee, said the administration should clarify its position on unfunded mandates before a Senate committee markup on May 26.

At the April 28 hearing, officials from the administration, state and local governments, and environmental groups gave testimony on eight unfunded mandate bills. (For a partial list of the bills, see the April 25, 1994 edition of the *Update*). While Glenn is supportive of reform, he said it is important to find some kind of consensus on the unfund-

ed mandate issue that will not interfere with important federal health, civil rights, and environmental protections.

Sally Katzen, administrator of the OMB Office of Information and Regulatory Affairs, testified that the administration had not determined whether it needed to take action on unfunded mandates in addition to the President's executive order. President Clinton signed an executive order last October 26 that prohibits federal agencies from promulgating any regulation, not required by statute, that creates an unfunded mandate on state or local governments.

Katzen said the administration has held meetings with state and local governments to address their concerns on this issue. The administration has also sought provisions in clean water and safe drinking water bills to increase flexibility for state and local governments.

Meanwhile, the Congressional Budget Office (CBO) is concerned about the impact that unfunded mandates would have on its workload. CBO Director Robert Reischauer expressed concern that the CBO would not be able to adequately handle the economic analysis of all reported bills that unfunded mandate legislation would require.

The House has continued its own hearings on the issue. The latest hearings were held May 18 before the Government Operations Committee on the Federal Mandate Relief Act (HR 140), the Mandate Community Assistance Reform Act (HR 886) and the Intergovernmental Reform Act (HR 1295).

### U.S. Supreme Court Ruling:

**Ash from burned garbage ruled hazardous waste under RCRA**—On May 2 the Supreme Court ruled 7-2 to treat ash from burned garbage as hazardous waste under the Resource Conservation and Recovery Act (RCRA). The decision affects cities that dispose of lead and cadmium batteries and other potentially toxic waste in facilities where such materials are burned to create energy. The case is *City of Chicago v. Environmental Defense Fund*.



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## Focus on Management

H. Val Peterson

### How Good Is Your Service?

A past article in *Time* magazine featured a cover story entitled, "Why is Service So Bad?" and the subtitle read, "Pul-eeze! Will Somebody Help Me?" The entire article dealt with the plight of frustrated

*Val Peterson is director of facilities management at the Arizona State University in Tempe, Arizona.*

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American consumers that wonder where the service went. It seems that more and more consumers are feeling extremely frustrated since personal service has become a "maddeningly" rare commodity in the American workplace. Thomas Peters, a management consultant and coauthor of the book *In Search of Excellence*, has concluded that "in general, service in America stinks."

The popular movie *Back to the Future* cracked up its audiences with a scene in which Michael J. Fox's character, who has traveled back in time, walks past a 1950s-era filling station and is flabbergasted to see four cheery attendants in neatly pressed coveralls. Like a pit crew at the Indy 500, they dash up to a car and proceed to fill the gas tank, check the oil, clean the windows, and polish the chrome. Americans tolerated and even welcomed self-service during an era of rising prices, but now a backlash has taken place. The result is that some companies are scrambling to make amends, and "quality of service" is the current business buzz phrase.

The *Time* article maintains that the simple reason service workers have so little attention to give is that businesses often overwork them to save labor costs and keep prices low. The article also concludes that too many service workers lack any pride or satisfaction in their jobs, especially in a society like America's that puts so much emphasis on speedy upward mobility.

You are probably asking yourself what this has to do with the operations of a facilities management organization. The fact is that while the article in *Time* dealt exclusively with problems in retail businesses, there are lessons to be learned that can be of benefit to the facilities manager.

*Lesson #1: The same people that are unhappy with the lack of service from the retail community will also be unhappy with the facilities management organization if it is not service oriented.* After all, the facilities management unit is supposed to be a service organization. Even though we fight some of the same problems as retailers—that is, too few people and

too few dollars to go around—we still must provide the service.

*Lesson #2: While the magazine article suggests that too many service workers in retail lack pride and satisfaction in their jobs, it is gratifying to observe in many instances the pride and satisfaction exhibited by physical plant workers.* A campus could not function as well as it does or look as good as it does without employees who take pride in doing their jobs and in return, receive satisfaction from knowing they have done a good job. If we ever lose these qualities, we will be in serious trouble.

*Lesson #3: The business buzz phrase "quality of service" is one that is being used today to make amends for the shoddy service of yesterday.* Quality service is a theme that my own employees at ASU have been hearing ever since I arrived. It has been one of my favorite sermons, and I feel strongly that facilities managers need to reinforce this important concept at every opportunity.

*Lesson #4: Quality of service does get noticed.* I regularly receive notes and letters from all across campus telling me how the services provided by the facilities management department are appreciated. Our operations can be suc-

**Quality service is a theme that my own employees at ASU have been hearing ever since I arrived. It has been one of my favorite sermons, and I feel strongly that facilities managers need to reinforce this important concept at every opportunity.**

cessful only by providing services that satisfy our customers—which includes students, faculty, and staff.

How good is *your* service? It can only be as good as each employee makes it. Hopefully, no one will ever say, "Why is service so bad?" in reference to your department. That can never happen as long as you and your staff still care.

Instead, be sure customers say, "Their service is great!" after dealing with your facilities management organization.



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# Quality Customer Service

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by Roger E. Rowe

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**T**he theme for APPA's educational conference and annual meeting this year is Deep in the Heart of Service. In these ever challenging times, providing quality service with a customer focus is the key to enhancing the academic experience for students, faculty, and the university community.

This issue of *Facilities Manager* focuses on quality customer service and what some facilities departments are doing to improve their service and support requirements for their customers.

How do you know if you are providing top quality

customer service? Where do you start? What do you need to have "in place" to assure that your services are customer focused, involve input from your employees, are continuously improved, and provide the necessary accountability.

Obviously, you need a plan, a road map. Where are you today as a service organization, where do you want to be in the future, and how do you get there? The physical facilities director and staff with employee representation must develop a well-defined mission statement, vision, values, guiding principles,

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*Roger Rowe is director of physical facilities at Miami University, Oxford, Ohio. He is a member of APPA's Publications Advisory Board.*



and goals and objectives as a way of starting this process. To be successful, this effort should have consensus from all levels of the organization.

At Miami University, for example, our vision is to "create an atmosphere of shared responsibility in which all PFD employees have the opportunity to contribute in the process of continually improving the services we provide our customers." In fact, these critical elements are a part of TQM's philosophy and guiding principles.

This philosophy is devoted to involving all our PFD employees to shoulder accountability and responsibility with trust, teamwork, and training provided by leadership rather than authority. Easier said than done!

Recently, I came across a listing of the top ten principles of customer service. These principles were

if you have not thought much about this matter.

It is essential to start this process by using a structured, systematic approach to assess the current operation of the entire organization, including support and administrative areas. This type of detailed effort is sometimes called an operations analysis. This type of analysis reviews everything about the operation, from organizational structure to vendor/supplier control and capability. It includes all major systems to determine the current state of efficiency and effectiveness of each. The assessment usually includes organization health/culture, operations systems, technology utilization, support systems, and administrative systems.

The goal of all this is an integrated, comprehensive study of current operations that is then used to determine present capabilities. The results yield many

opportunities for customer-focused improvements across all areas of the organization. It also can provide exactly what processes need to be improved and in what priority.

Through all of this, the really important issue of satisfying the customer must become the most important thing that any of us can do even with severe resource restraints. If we believe this, then it surely makes sense to put the entire organization to work on this effort.

Deep in the Heart of Service echoes APPA's mission and the critical role the facilities officer makes to provide quality facilities and quality services to meet the academic mission. The following articles will provide you with


### Top Ten Customer Service Principles

- ❖ Integrity means that you must attempt to balance customer needs and wants. They are not always the same.
- ❖ Don't assume that you know what the customer wants or needs.
- ❖ Market research is only one element in identifying customer needs and wants.
- ❖ Poor customer service is most often a result of a poorly organized business structure.
- ❖ Driving fear into the workplace will drive fear into your customers.
- ❖ Your policies and procedures are irrelevant to your customers.
- ❖ Customers need to be educated also.
- ❖ Customer responsibilities are missed opportunities.
- ❖ Everyone better have a customer, and it better be the next process down the line.
- ❖ Everyone is in the customer service business.

developed over a number of years by Dr. John Persico Jr., an independent consultant living in Minnesota, and should provide a good starting point

many examples of some of the best current practice in quality customer service. ■





# Assessing Customer Expectations

by Wilma Mpelo, Paul J. Schneller, William G. Suter

*This article is contributed by Sciré, The Training Consortium for Higher Education, a not-for-profit professional organization promoting employee excellence through training and development. This article draws heavily on the book Delivering Quality Service, by Zeithaml, Parasuraman, and Berry, published by The Free Press.*

**B**udget constraints, reduced staff, aging infrastructure, union contracts, OSHA regulations, the EPA's Clean Air Act, hard winters, flooding rains, computerization, the crisis of the day. Hey, give us a break, will you!? We are giving customers the best we can under existing conditions. But, are we really doing our best? Contracting of services is a growing industry. Many institutions have had services contracted out in recent years because external vendors have convinced finance and administration departments that they can provide a better service.

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*Wilma Mpelo is training and development coordinator, physical facilities management department, at Howard University, Washington, D.C. Paul Schneller is coordinator of development, physical plant department, Indiana University-Bloomington. William Suter is physical plant director at The American University, Washington, D.C.*



In higher education, the fact that we are serving customers is often overlooked. The failure to see the students and employees—whose offices, classrooms, labs, and dormitories we heat and cool, locks we repair, walls we paint, and leaks we fix—as customers has led to misunderstandings and conflict between facilities and the rest of the campus. All businesses have customers to serve, and our higher education institutions are multi-million, sometimes multi-billion, dollar-a-year businesses trying to meet the diverse needs of a multitude of customers.

### Who Are Our Customers?

If an organization is committed to providing quality service, it must recognize that the only important criteria for service quality are set by its customers. If the customers are not satisfied, it does not matter what words we say, what policies and procedures we have in place, or what new programs we implement: we have failed. And obviously we cannot satisfy customers without clearly identifying who they are and clarifying what they expect. Students, faculty, staff, and visitors who use our facilities are easy to identify as customers. Other customers who also must be satisfied are parents and others who provide funds in the forms of tuition, endowments, grants, scholarships, and financial aid.

Then there are our coworkers and people we supervise, our internal customers whose expectations we must also meet before we can adequately service our external customers. Our internal customers are our greatest resource and most effective tool in identifying practical, easy-to-implement suggestions for improving service.

### What Do They Expect?

Once we have identified who our customers are, we can find out what they expect of a facilities department. The information gathered must be clear, easy to comprehend, and accurate. One tool for gathering such information is a survey questionnaire. Each question would be followed by a seven-point scale, from 1 (strongly agree) to 7 (strongly disagree).

Responses from a representative sample of customers (or from a majority of customers, if possible) will allow your facilities department to see what your customers expect. In other words, you will have a standard that has been set for you by your customers. Figure 1 contains a list of statements with which to develop your standards for customer expectations.

The statements in Figure 1 reflect five critical dimensions that underlie customer expectations of service quality. Those critical dimensions are:

**Tangibles**—appearance of facilities, equipment, personnel, and communication materials

**Empathy**—caring, individualized attention provided to customers

**Reliability**—ability to perform the promised service dependably and accurately

**Responsiveness**—willingness to help customers and provide prompt service

**Assurance**—knowledge and courtesy of employees and their ability to convey trust and confidence.

Figure 1

### Assessing Customer Expectations of Service Quality

1. Excellent facilities departments will have modern-looking equipment.
2. The physical facilities at excellent facilities departments will be visually appealing.
3. Employees at excellent facilities departments will be neat-appearing.
4. Materials associated with the service (such as pamphlets or statements) will be visually appealing in an excellent facilities department.
5. When excellent facilities departments promise to do something by a certain time, they will do so.
6. When a customer has a problem, excellent facilities departments will show a sincere interest in solving it.
7. Excellent facilities departments will perform the service right the first time.
8. Excellent facilities departments will provide their services at the time they promise to do so.
9. Excellent facilities departments will insist on error-free records.
10. Employees in excellent facilities departments will tell customers exactly when services will be performed.
11. Employees in excellent facilities departments will give prompt service to customers.
12. Employees in excellent facilities departments will always be willing to help customers.
13. Employees in excellent facilities departments will never be too busy to respond to customers' requests.
14. The behavior of employees in excellent facilities departments will instill confidence in customers.
15. Customers of excellent facilities departments will feel safe in their transactions.
16. Employees in excellent facilities departments will be consistently courteous with customers.
17. Employees in excellent facilities departments will have the knowledge to answer customers' questions.
18. Excellent facilities departments will give customers individual attention.
19. Excellent facilities departments will have operating hours convenient to all their customers.
20. Excellent facilities departments will have employees who give customers personal attention.
21. Excellent facilities departments will have the customer's best interests at heart.
22. The employees of excellent facilities departments will understand the specific needs of their customers.

—adapted from *Delivering Quality Service* by Zeithaml, Parasuraman, and Berry.



These five critical dimensions were identified in a nationwide survey of 731 customers of major service-provider sectors, including repair and maintenance. Ratings of these dimensions indicated their relative importance to the customers on a ten-point scale, 1 being not important and 10 being extremely important.

|                      |      |
|----------------------|------|
| Tangibles .....      | 7.90 |
| Empathy .....        | 9.25 |
| Assurance .....      | 9.34 |
| Responsiveness ..... | 9.46 |
| Reliability .....    | 9.55 |

As you can see, with the possible modest exception of tangibles, all five dimensions were ranked very high. But when asked which dimension was the single most important service factor, the differences became more pronounced:

|                      |         |
|----------------------|---------|
| Tangibles .....      | .00.88% |
| Empathy .....        | .13.93% |
| Assurance .....      | .14.65% |
| Responsiveness ..... | .18.43% |
| Reliability .....    | .52.13% |

These critical dimensions are influenced by four subjective factors:

- Word-of-mouth communications from other customers
- The customer's personal needs
- The customer's past experiences
- The service provider's communications to the customer.

Word of mouth is the most effective and destructive communication tool customers wield every day. If we succeed in meeting their expectations, they'll respond favorably when asked by others about our services. If we exceed their expectations, they will spread the word unsolicited to those in their circle. When we fall short of the mark, they will tell everyone who mentions our name how horrible our service was, often to the point of exaggeration.

It would be simple if customers complained to the service providers so we could correct the problem. But only 4 percent of all customers complain to the service provider; the other 96 percent tell an average of nine to ten people. Think about the last time you had poor service in a restaurant; how long and how often did you retell the story?

A second factor influencing the dimensions of customer expectations is personal needs. "My office is too hot; I want it more comfortable." "The leaky faucet is driving me up the wall." "An accreditation team is inspecting my college in two weeks." "I hate walking by trash every morning." This is not to say that there are not those whose motives are altruistic, but by and large the original request for service is personally motivated. This does not mean we can discount the service request. Since most of us do not work with our children or

spouses, the most important person on campus is the person our customer sees in the mirror.

The way customers were treated in the past determines how, or if, they will approach us when they need our services again. Treating customers as if they are an annoyance to be tolerated, ignoring them, or treating them rudely sends a message that will be remembered. Customers may not care why they received such treatment; they may only wish to avoid doing business with that vendor, even if it is an internal department. When we and our staff make a mistake, we should own it and correct it, immediately. If there's a tendency for customers to bypass the system, it's time to evaluate the system. Customers are sending us a message that the system does not work effectively. Be cautious of assisting or encouraging customers to bypass the system (that is playing politics and showing favoritism). Such an approach may foster an environment that breeds discontent and tells people that they are permanent bench warmers and not really part of the team.

The fourth factor influencing the dimensions of customer expectations is our communication with customers. The quality, level, frequency, and tone of our communications tells our customers what to expect from us. Our communication tools can also serve to establish how customers respond to and work with us. These tools should be used to educate the customers about our services; to inform them of the most effective way to use our services; to encourage them to participate in helping provide quality service; to seek their input for improving services; to forewarn them of upcoming problems; and to thank them for their business.

Customers' perceived access to information, the belief that they are being heard, and the feeling that they play a pivotal part in having their expectations met, comprise a large component of customer satisfaction. We are telling them that we are working to please them. Often the knowledge we are trying to improve service leads to their belief that service has improved.

## The Gaps

**W**hen the service that customers receive falls short of what they expect, a service quality shortfall develops. This discrepancy between the customer's expectations of service and the customer's perceptions of service are caused by four gaps within the facilities organization.

### *Service Gap 1: Between Customer Expectations of Service and Management's Perception of Customer Expectations*

This gap develops when management thinks it knows customers' expectations, but it really doesn't. The gap is created by three interrelated factors: 1) the lack of a marketing orientation within the service provider's operations, 2) poor upward communications within the service organization, and 3) too many levels of management.

Each factor can be explored by your department asking itself the questions in the following outline.



### Service Provider Self-Analysis—Gap 1

1. Factor 1 (Marketing Orientation)
  - a. Is research conducted regularly to get information on what customers want?
  - b. Does research focus on quality of service delivered by the department?
  - c. Do managers understand and use research findings?
  - d. Do managers mingle with customers to learn what is on their minds?
2. Factor 2 (Upward Communication)
  - a. Do managers encourage suggestions from customer contact personnel concerning quality of service?
  - b. Are there formal and informal opportunities for customer contact personnel to communicate with management?
  - c. How frequently do managers have face-to-face contact with customer contact personnel?
3. Factor 3 (Levels of Management)
  - a. Do too many managerial levels separate top managers from those responsible for dealing with and serving customers?

### Service Gap 2: Between Management's Perception of Customer Expectations and Service-Quality Expectations

This gap develops when management's perception of customer expectations are on target, but the facilities department's specifications for service to customers do not reflect what management knows. Inadequate management commitment to service quality, management's perception of infeasibility of meeting customer expectations, inadequate task standardization, and lack of or misdirected goal setting are the factors contributing to Service Gap 2.

To analyze your department's status on this gap, ask the questions in the following outline.

### Service Provider Self-Analysis—Gap 2

1. Factor 1 (Management Commitment)
  - a. Are department's resources committed to improving service quality?
  - b. Do internal programs exist for improving the quality of service to customers?
  - c. Are managers who improve the quality of service to customers more likely to be rewarded than other managers?

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- d. Are upper and middle managers committed to providing quality service to their customers?
- 2. Factor 2 (Management Perception of Infeasibility)
  - a. Does the department have the necessary capabilities to meet customer requirements for service?
  - b. Can customer expectations be met without hindering financial performance?
  - c. Do existing operations systems enable customer expectations to be met?
  - d. Are resources and personnel available to deliver the level of service that customers demand?
  - e. Does management change existing policies and procedures to meet the needs of customers?
- 3. Factor 3 (Task Standardization)
  - a. Is technology used to achieve consistency in serving customers?
  - b. Are programs in place to improve operating procedures so that consistent service is provided?
- 4. Factor 4 (Goal Setting)
  - a. Is there a formal process for setting quality of service goals for employees?
  - b. Does the department have clear goals about what it wants to accomplish?
  - c. Does the department measure its performance in meeting its service quality goals?
  - d. Are service quality goals based on customer-oriented standards rather than department-oriented standards?

**Gap 3: Between Service Quality Specifications and Service Delivery**

This gap develops when service quality specifications are set based on accurate management perceptions of customers expectations, but service delivery does not meet specifications. The gap is created by a number of contributing factors: role ambiguity of employees, role conflicts that keep employees from satisfying all demands, poor employee/job fit, poor technology/job fit, inappropriate supervisory control systems, lack of perceived control by employees, and lack of teamwork.

To help with your department's self-analysis of this gap, see the following outline.

**Service Provider Self-Analysis—Gap 3**

- 1. Factor 1 (Role Ambiguity)
  - a. Does management provide accurate information to employees concerning job instruction, department policy and procedures, and performance assessment?
  - b. Do employees understand the services offered/ provided by the department?
  - c. Are employees able to keep up with changes that affect their jobs?
  - d. Are employees trained to interact effectively with customers?
  - e. How often does management communicate department goals and expectations to employees?

- f. Do employees understand what managers expect from them and how to satisfy those expectations?
- 2. Factor 2 (Role Conflict)
  - a. Do customers and managers have the same expectations of employees?
  - b. How often do customer-contact employees have to depend on other support services employees to provide quality service to customers?
  - c. Do employees have more work to do than they have time to do it in?
  - d. Does the number of demands in employees' jobs make it difficult to effectively serve customers?
  - e. Do too many customers want service at the same time?
- 3. Factor 3 (Employee/Job Fit)
  - a. Do employees believe they are able to perform their jobs well?
  - b. Does the department hire people who are qualified to do their jobs?
  - c. Does management devote sufficient time and resources to hiring and selecting employees?
- 4. Factor 4 (Technology/Job Fit)
  - a. Are employees given the tools and equipment needed to perform their jobs well?
  - b. How often does equipment fail to operate?
- 5. Factor 5 (Supervisory Control Systems)
  - a. Do employees know what aspects of their jobs will be emphasized most in performance evaluations?
  - b. Are employees evaluated on how well they interact with customers?
  - c. Are employees who do the best job serving customers more likely to be rewarded than other employees?
  - d. Do employees who make a special effort to serve customers receive increased financial rewards, career advancement, and/or recognition?
  - e. Do employees feel appreciated for their contributions?
- 6. Factor 6 (Perceived Control)
  - a. Do employees spend time in their jobs trying to resolve problems over which they have little control?
  - b. Are employees given the freedom to make individual decisions to satisfy customers' needs?
  - c. Are employees encouraged to learn new ways to better serve their customers?
  - d. Are employees required to get approval from another department before delivering service to customers?
- 7. Factor 7 (Teamwork)
  - a. Do employees and managers contribute to a team effort in servicing customers?
  - b. Do support services employees provide good service to customer-contact personnel?
  - c. Are employees personally involved and committed to the department?
  - d. Do customer-contact employees cooperate more than they compete with other employees in the department?
  - e. Are employees encouraged to work together to provide quality service to customers?



**Figure 2****Service Provider Self-Analysis****1. Factor 1 (Horizontal Communications)**

- a. Do customer-contact personnel have input in planning and execution of advertising?
- b. Are customer-contact personnel aware of external communications to customers before they occur?
- c. Are the policies and procedures for serving customers consistent across departments and branches?

**2. Factor 2 (Propensity to Overpromise)**

- a. Is there increasing pressure within the department to generate new business?
- b. Do competitors overpromise to gain new customers?

**Gap 4:** Between Service Delivery and External Communications to Customers

This gap develops when service delivery does not match what external communications promise to customers. The

contributing factors are inadequate horizontal communications between the service providers functional areas and a propensity to overpromise.

See Figure 2 for self-analysis questions for your department.

When your facilities department conducts an assessment using these questions (or ones like them), you will be taking a giant step toward providing service that meets your customers' expectations. This step is just the beginning of a sequence that includes identifying customer expectations, assessing quality of service, developing a plan to close service gaps, implementing plans and then monitoring and readjusting the process. Future articles will outline those steps and describe ways to take them. We hope they prove useful. ■

**Bibliography**

"The Forgotten Customer," Barr Training Videos, 1991.

Weaver, John, "Want Customer Satisfaction? Satisfy Your Employees First," *HRMagazine*, February 1994.

Zeithaml, Parasuraman, and Berry, *Delivering Quality Service*, The Free Press, 1990.

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# Quality Planning

## Employee Involvement Enhance Customer Satisfaction

by Esther M. Geiermann

Optimizing the relationship between provider and customer has been a prime topic of communication and discussion for quite some time. The focus has been to get rid of the gimmicks and slogans and apply the tools and techniques that concentrate on improved communication. Communication is necessary in order to establish agreed upon needs, requirements, and expectations. Active listening is, by far, the most effective technique and tool for improving communication. Listening to the customer is an essential part of any quality initiative; however, listening is also the most underrated and underutilized skill of people at all levels in an organization.

Listening alone accomplishes little. Converting the information into knowledge requires a change in how the organization thinks and operates. This proactive approach toward customer satisfaction calls for an outward-directed perspective. It requires quality planning in order to transform the customer's needs and expectations into a process that successfully meets the predetermined goal. Quality planning should be a part of every activity for which your organization is responsible, whether it is internal material procurement, employee recruitment, or providing service to the external customer.

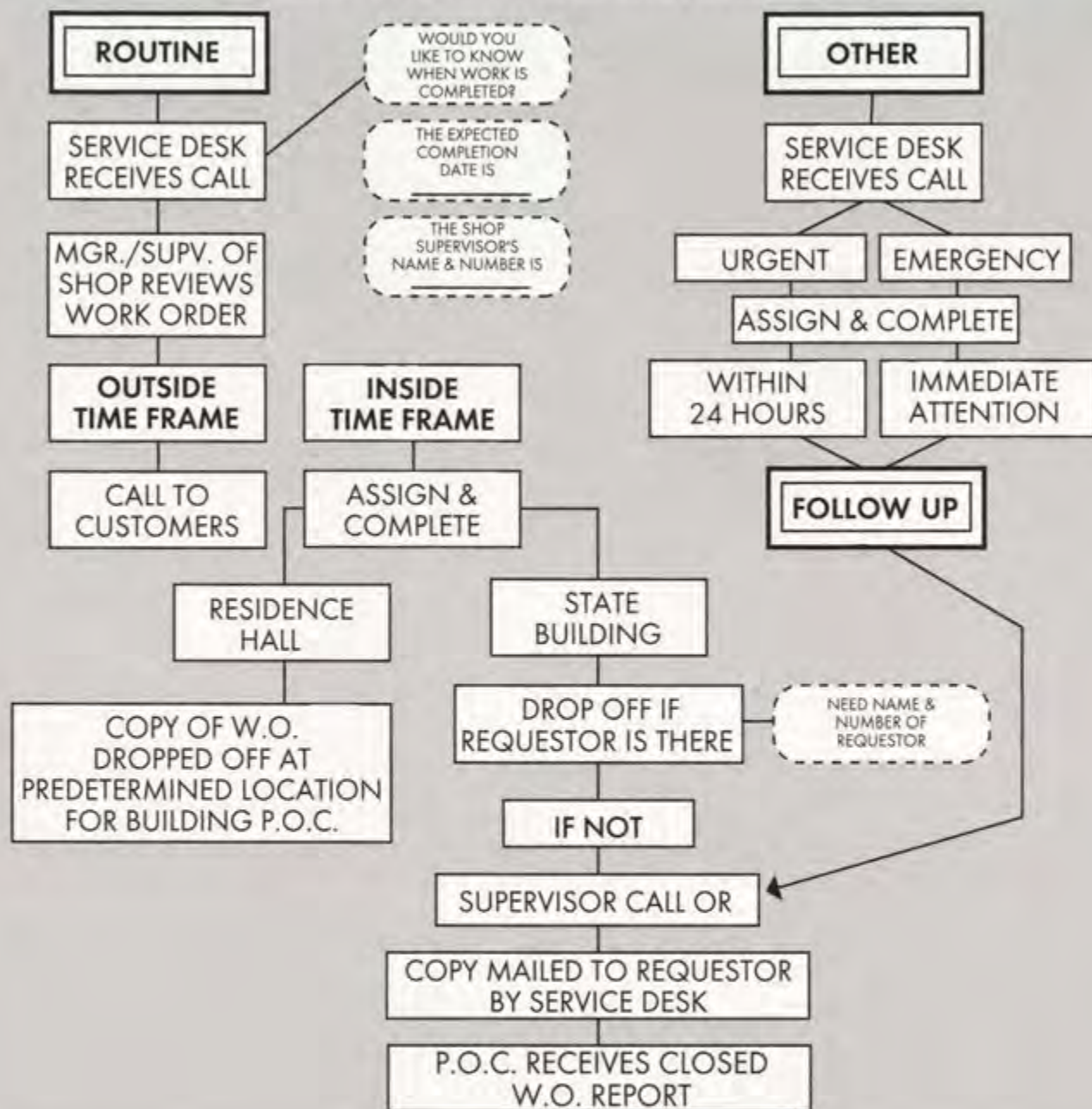
### Key components to quality planning include the following:

1. Identify key customers, both internal and external, to your unit.
2. Identify what you provide these customers. Is it data to complete a report, accurate information on a work order, or charge-back information for performing a service?
3. How do you know what the customer thinks of your service? Would you be surprised to learn that what you perceive and what the customer perceives are worlds apart?
4. What distinguishes your service from similar outsourcing services? What do you do that is outstanding and provides exceptional customer service?
5. What actions or incidents prevent you from providing exceptional service? What is your quality plan for responding to negative feedback? Are employees trusted and authorized to respond to customer concerns and make adjustments to a procedure in order to meet a commitment?
6. What strategies are in place for system improvement when you are unable to meet internal or external customer expectations? Do you have an action plan? Are quality teams formed to focus on system improvements? Does management readily accept and implement, in a timely manner, team decisions based on data collection?
7. Are current processes periodically examined for areas of continuous improvement? Is process mapping used to identify current and past inhibitors to success? As part of the mapping process, is the customer listened to through a personal interview? When process mapping is complete, are values placed on "Importance" and "Need for Improvement"?

*Esther Geiermann is manager of training and staff development, physical facilities department, at Miami University, Oxford, Ohio.*



## WORK ORDER COMMUNICATIONS SEQUENCE



### Physical Facilities Administrative Support Services Review

In September 1993, the physical facilities department (PFD) was selected as one of six Miami University departments to undergo an Administrative Support Services Review. The objective was to identify the critical activities, customers served, and barriers that impeded the attainment of objectives and efficiency. Also, it was intended to assist departments in self-evaluation, planning, and identifying and resolving problems. In other words, it was the university's quality plan.

#### The Process

The department self-study and site visits by the review

team focused on the elements of centrality, quality, effectiveness, and efficiency. The self-study was a ten-step process. It required identification of selected key customers, listed in priority order, with an indication as to why they are considered a key customer. The review team conducted interviews with the customers to gain further insight into the quality of services rendered by the physical facilities department and responsiveness of the PFD to their needs.

The review team made its assessment on the basis of 1) a close review of the department's self-study report, 2) a two-day site visit of the department, and 3) interviews with selected key clients of the unit. It is on the basis of this tripartite process that the review team made its key findings.



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The final report stated, "It is clear, based on the administrative review, that the overall operation of the PFD is characterized by a commitment to quality. The review team observed that achieving efficiency within the department is both a matter of using its relatively static resources prudently and continuously striving to identify means of generating cost savings in its ongoing operations. While time constraints did not allow an exhaustive review of all PFD operations, the process did permit a number of observations and administrative findings to be made."

### Articulation With Units/Departments

Efforts need to be further strengthened with respect to such matters as departmental charge-backs and completion of work orders.

A process action team (PAT) made up of maintenance supervisors and managers was formed to improve the process of identifying charges for specific services. Interviews were conducted with both internal and external customers to analyze how they could best be served. Based on this information, a program was written whereby all expenses relating to each work order are captured and identified. Depending on the specific requirements of the customer—which are stated during the work order request—expenses are either individually itemized or a total amount is reflected on the customer's monthly ledger. An itemized listing indicates the cost of items procured from stores, time and material contract expenses, and cost of PFD services.

Another PAT was formed to initiate an active follow-up

process for completed work orders. Customer requirements were established through personal interviews with appropriate departmental liaisons. A statistical analysis was done to determine the job backlog for each shop. Based on this analysis, service desk personnel can advise the customer of the expected completion date of the work order, the shop supervisor's name, and inquire if they would like to know when the work is completed.

The shop manager or supervisor reviews the work orders and, depending on the requirements of the customer, personally calls those who want to be notified if there is a change in the expected completion date. Upon completion of the job, the technician drops off a copy of the completed work order at a predetermined location for the building point of contact. The building point of contact also receives a copy of the closed work order report. Figure 1 illustrates the process.

Following completion of the two PAT charters, meetings were held with departmental points of contact to explain and discuss the revised process. All indications are that our customers are pleased and satisfied with the efforts of the physical facilities department and at that time had no further requests relating to these two aspects of our operation. In addition, quarterly meetings will be held during which time PFD can listen to the wants and needs of our customers and take proactive measures to exceed their expectations.

The need to continuously improve service is always with us. Active listening, quality planning, and employee satisfaction through involvement in a team effort are key ingredients to successful operation of the organization. ■

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# On Becoming A More Student-Centered Campus

b y D a v i d E . H o l l o w e l l

**A**s recently as the late 1980s, the University of Delaware had the luxury of having more applicants than it felt it needed. It was able to attract a freshman class of increasing numbers and acceptable quality while employing a modest admissions program and minimal financial assistance. Computer support for such areas as admissions, billing, and financial aid were modest to nonexistent. Even more disturbing than the lack of computer support was the bureaucracy that students faced to accomplish even the most simple administrative tasks and an institutional attitude that gave a low priority to improving services to students.



A student attitude survey administered to students in 1987 identified several areas in which the university was ranked below average both within the survey questions themselves and as compared to national norms. These areas included general registration procedures, financial aid procedures, billing/fee payment procedures, dining services, attitude of non-teaching staff toward students, and concern for students as individuals. These items made clear the need not only to address systemic issues, but also to address attitudes of employees.

I was recruited to the University of Delaware in 1988 with a mandate to improve administrative services in every area and to develop management systems that would better support ongoing operations, management, and institutional planning. Given the survey results and the critical importance of enrollment management, the first major effort was to select and implement an integrated student information system. This involved assembling a team from the various administrative offices involved and directing them not only to identify software systems, but to carefully examine policies, procedures, and processes related to student administrative activities.

The project team, chaired by the registrar, focused on overall goals and objectives, ranking those of individual units. A major objective was not to accept past practice without question. The results were changes to many archaic policies and streamlining many procedures in order to achieve efficiencies and to make the processes more user friendly. Along with making the systems and procedures easier to use, the project involved staff training on the technical features of the new system, customer service, interpersonal skills, and telephone manner.

A major objective of this effort was to provide the employees with the tools to more effectively do their jobs and to provide them with the training needed to be effective and helpful. We continually asked those who serve students to "think of themselves as a student."

Simultaneous with selection and implementation of the student information system were efforts undertaken to strengthen the overall computing environment and to improve the operation and maintenance of facilities. Both cases involved the recruitment of new leadership and the development of action plans to bring about significant changes in the way in which these functions had operated.

The year 1990 was significant because a new president was appointed, the student information system was implemented,

and the needs and scope of a capital maintenance program were presented to the board of trustees. Fortunately, the system implementation went well, the board accepted and endorsed the need for a capital maintenance program and gave it a priority for funding. The new president not only endorsed, but championed programs that would address the needs of students and improve their living and learning environment.

### Development of a Student Services Building

About the time that the student information system came on-line, a building became available near the center of the campus and presented an opportunity to consolidate student service activities in a single location. The same steering committee that oversaw the implementation of the system was asked to plan for the operation and renovation of this new Student Services Building.

The initial reaction was to bring in an architect and start drawing lines. This impulse was rejected in favor of taking a few steps back from the current thinking. The committee focused on the objective that students who visit this facility should be served as efficiently as possible including the novel notion that they might be able to satisfy their questions without talking to a single person. If that was not possible, then they should be served by only one individual whenever possible. The committee was reminded to take full advantage of the available technology. The committee began to analyze the kinds of questions and processes that caused students to visit their offices. They also considered what parts of their activities were essentially "back of the house" functions that could be separated from those functions that directly served the public, an important consideration given that not all units that serve students could fit into this building in their entirety.

The committee determined that about 20 percent of the people who visited their offices did so to accomplish simple activities such as to pick up a registration or financial aid form; to get a copy of their class schedule; to find out the status of their loan application or student account; or to request an unofficial transcript. About 60 percent of the questions were routine and could be answered by a person who was trained to access information in the various components of the student information system. Only about 20 percent of the

**A major objective was not to accept past practice without question.**

**The results were changes to many archaic policies and streamlining many procedures in order to achieve efficiencies and to make the processes more user friendly.**

*David Hollowell is senior vice president at the University of Delaware in Newark, Delaware.*



questions required the assistance of someone who was a specialist in a particular student service area.

Given this information, the committee developed a list of items and services that should be provided in the lobby area of the new building. Some of these items were as simple as having racks with clear signage where students could pick up various forms and information booklets. Others were easily available using the technology that led to the development of kiosks where the student information system could be accessed by using student ID and a personal identification numbers. The kiosks allowed access to their class schedule, academic record, financial aid record, and billing information on a read only basis. By adding a printer, students could print their class schedule or an unofficial transcript and be on their way.

For the routine activities the idea was to have a service counter that would be staffed by personnel who were cross-trained in the various student service areas, generalists. In the 20 percent of cases where a specialist was needed, they should be located in close and visible proximity to the generalists. With this groundwork completed, the architect was brought in to lay out a floor plan that would meet the service requirements. The building was designed, staff was cross-trained, and in August 1992, the building opened. The concept of having "one stop shopping" for student administrative needs has been extremely well received by both the students and the staff.

Since 1992, efforts have continued to expand access to the student information system to all those on campus who are involved in the advising process and to make available, across the campus computer network, the kinds of information initially available only on the kiosks in the Student Services Building. Data is currently being loaded into the system that will permit advisors and students to assess progress toward their degree requirements or to determine what additional courses might be needed if the student were to change to a different major. Installation of a voice processing system in 1993 has permitted students to register, drop and add courses, renew library books, and even to get their grades by simply using a touch-tone telephone.

### Campus Technology

Continuing in the area of technology application, the university has been expanding its on-campus computer network since 1987. As of fall 1991, every student was assigned an electronic mail account, and a high percentage of students are now using e-mail for courses and personal communication. Last summer, all 4,200 residence hall rooms were wired for computer hookup (ethernet connection to the campus network) and for cable television. A cable television system car-

rying forty-three commercial channels with the capacity for up to twenty university channels was also installed.

This summer, all of the classrooms, lounges and meeting rooms will be similarly wired. A voice mail system was installed last year and all students, both living on and off campus, have been assigned a voice mailbox. Similarly, academic and administrative offices are now making use of voice mail on an increasing basis. Students at the University of Delaware are exposed and have easy access to state-of-the-art technology.

### Facilities Improvements

The campus of the University of Delaware is a significant asset. It is characterized by its Georgian buildings focused on a grassed mall, lined with elm trees at the edge of a small college town. However, it was beginning to suffer from the lack of a capital maintenance plan and a lack of adequate funding being directed toward immediate and long-term maintenance. It was also true that the rapid growth of enrollment in the 1970s and early 1980s was not matched by growth of facilities to serve students academic, social, and recreational needs.

Most classrooms are assigned to the registrar, but the registrar did not have access to funds to maintain those rooms. Since 1988, more than 90 percent of the classrooms have had significant renovation ranging from painting, new ceilings, and new lighting to major renewal of lecture halls that has included, beyond the painting and lighting, new seats, acoustical treatment, handicapped accommodations, and a substantial investment in audio/visual technology such as modern control systems, built in video projection systems, and computer connections. Having the teaching and learning environment be visually and acoustically pleasing as well as having the latest in instructional technology available for the faculty has been another important part of our strategy.

Recreational facilities have also been renewed and expanded. Since 1990, the university opened three student fitness centers, has resurfaced tennis courts, and has renovated other facilities for intramural activities. The university built a 5,000-seat sports/convocation facility that provides the home for the university's basketball teams and provides a venue for major university meetings and ceremonies, concerts, plays, and exhibitions. Smaller auditoria have also been renovated to better support our on-campus theater and music groups as well as having stage facilities (lighting, rigging, etc.) that can support traveling theater, dance, and music performances.

The university's student center was built more than thirty years ago for a student population well below our current levels. Ground will be broken this summer for a second student center that will provide many offices and meeting spaces for student groups as well as study space, a major dining



facility, movie theater, and a large multi-purpose room that can meet many campus needs. The existing student center has received some attention through renovations over the last two years, but will undergo significant alterations after the new student center opens in 1996.

There were six major dining complexes in 1988 that had not received any significant attention since most were built some twenty to thirty years earlier. As of this summer, all six of these dining facilities will have undergone major renovation, with five remaining as dining facilities and one having been converted to another student use center last summer. In one section of the campus where there were four dining facilities within close proximity, demand was such that one traditional dining hall could be closed. Since the building was in the center of a major residential complex, having the space continue to be available for student use was the logical conclusion. Last fall this facility reopened as a combination student fitness center, convenience store, forty-two station computer site, and two study lounges and has been quite popular with the students. In addition, the university made the decision three years ago to contract its dining services to an outside vendor, which has significantly improved both the quality of the dining services and its financial stability.

The housing operation was one of few areas that included facility renewal as part of their annual budget planning. As a result, there is a regular program in place to address renovation needs. However, the pace of renovation activities has been increased and some new suite-style residence halls were built in part for expansion and in part to permit some of the smaller, less efficient buildings to be removed from the housing system.

In addition, other student related facilities such as the Arts & Science Undergraduate Advising Center has been relocated to expanded and newly renovated facilities; the Academic Services Center, which provides undergraduate tutorial and other study assistance services, will move into a consolidated and renovated facility next month; and campus landscaping improvements have included outdoor seating areas, expanded bicycle racks, and improved campus lighting as part of an extensive program for improving the campus environment.

## Results

While a comprehensive student opinion survey is not scheduled until the next academic year, there are many examples that indicate our strategy of becoming a more student-

centered campus is working. The campus student newspaper, which is always quick to criticize when things are not going well, has had several positive articles on the effectiveness of the Student Services Building and on the uses of technology to expedite student administrative procedures. At the end of its first year of operation, the Student Services Building received "cheers" in the newspaper's semiannual "Cheers & Jeers" column. Staff who are serving as generalists at the Student Services Building have been recognized with letters of appreciation from students and other staff for their helpfulness and positive attitudes—truly a remarkable turnaround in a short period.

A recent admissions survey gave the university high marks

Staff who are serving as generalists at the Student Services Building have been recognized with letters of appreciation from students and other staff for their helpfulness and positive attitudes

on the appearance of the grounds and buildings. Similarly, prospective students and their parents often comment very positively about the campus environment and contrast it favorably with other campuses they have visited. From a more quantitative view, we have seen an increase in accepted students matriculating, and retention of matriculated students has also risen over the last two years.

While area apartment complexes have cut rents and become more aggressive in marketing to our students, we have managed to maintain full occupancy in university housing facilities due in large measure to the ongoing renovations of the residence hall system, improved campus dining opportunities, availability of recreational facilities, and the installation of computer hookups and cable television, the cost of which is included in the basic room rates.

## Conclusion

As the primary reason for the existence of educational institutions is to educate students, keeping the focus on meeting the needs of students both inside and outside the classroom must be a top priority for the institution. The administrative units within the college or university need to work together to ensure that the quality of the living and learning environment is maximized and enhances the educational experience. A key to success in this regard is having strong support at the top of the institution while paying close attention to team-building and clear communication throughout the organization. The University of Delaware has undergone a major transformation in its approach to meeting the needs of its students, and it appears to be paying off both in terms of the reaction of students and parents and in the level of morale and satisfaction of the university's employees who deliver services to the students. ■



# The Total Facilities Management System: Using Information Technology To Provide Quality Service

by William J. Stauff & Fred Rembold

Recently this letter was received by the University of Virginia's chief facilities officer, Gene Shirley, from our associate dean of finance, one of our key customers from the Health Sciences Center. "I was very impressed by the presentation of the computer system. ...It is a tour de force! I urge you to make as much of the system as is legally available to the University community on-line. The dissemination of this information to your customers will greatly improve communication and working relationships. As we discussed, information breeds understanding."

A management information system can be a valuable system if it is designed to meet both the organization's and the customer's needs at the same time. A total facilities management information system is one that addresses all logical areas within an organization and all of the major business functions within each area. Therefore, each information system will vary depending on the scope of responsibility within the organization.

The University of Virginia Facilities Management (UVa FM) department is a service organization with a broad scope that encompasses many distinct functions, including engineering design, project management, space and real estate management, construction management, work management, preventive and corrective maintenance, facilities inspections, renovations, landscape, building services (custodial), utilities (utility heating and cooling plant operations plus distribution line maintenance), systems control, and business operations. These are basically all the functions required to construct, manage, and operate the various facilities and utilities for the university and medical center.



## Background

For many years each area developed various manual and automated systems to manage their own information or data. This led to duplicate data in multiple systems that never completely agreed because of the unique policies regarding what data to keep and delays in updating the data. Therefore, reporting was often inconsistent and difficult to correlate. The effort required to maintain the duplicate data was also inefficient. The automated systems were a variety of mainframe and personal computer systems and were not on-line, multi-user systems.

We recognized the need for better information to run the business of facilities management and provide timely, meaningful data to our customers. We began working with the university administrative computing department to define a new system. A systems analyst was hired to oversee the project of providing a new information system.

## Defining the Total Facilities Management System (FMS)

Information systems development is similar to construction of a building and calls for careful consideration of the requirements before beginning design, construction, and implementation. Facilities management conducted a top-down, system-requirements study to determine what types of information should be included, what business functions could be automated, and the identification of various required automated interfaces to other university information systems. The estimated volumes of data are also important. A steering committee was formed to coordinate and evaluate each step of the process.

A representative for each part of the organization provided their perspective on the total system to ensure a quality product that would meet everyone's needs, including those of our customers.

## Objectives of the FMS Project

Different organizations may have different objectives and different priorities. UVA Facilities Management established the following objectives:

- *Must have on-line, up-to-date information*—An on-line information system is one that allows information to be entered and viewed on a computer screen. The information must be immediately updated to a common database to provide current, up-to-date information for everyone in the organization.

Our chief facilities officer was frustrated that project managers and customers had to wait days, weeks, and sometimes a month for information to be updated and printed out for decision making. By that time the data was outdated and useless. In the new FMS, the labor, material, and equipment costs are entered and updated into the database as they are received in the cost office. A "view work order status" report now can be run on-line for a current summary of the status of a given work order.

Hal Dempsey, a project manager from facilities management, had this to say about the new system. "One of the responsibilities I have as a project manager is to report to the requester how a project is proceeding according to budgeted dollars. This new reporting gives timely financial information so when we report to the customer, we are talking about current data. We can keep him abreast of what's going on. We

can let him know when we are in trouble a lot earlier than in the past, so we can do something about it. It makes us look a lot better in the eyes of the customer. I actually now print out and send the report directly to the customer showing him where he stands against the budget. Everything is just more timely."

Hal and many other project managers are looking forward to using the system when schedule, completion dates, and major capital expenditure data is added and integrated into the system.

- *Must be highly integrated*—The term "highly integrated" means that purchase orders must relate to specific work orders and the work orders must be associated with the building or facility being serviced. This integration or relationship is imperative for providing the total solution.

Highly integrated also means that data is only stored once. Since everything evolves around the facility, then there should only be one building file or table. All other equipment and work order information should reference the single file or table, not use another file or table that can get out of sync with the main table.

"How many square feet does the university have?" "How many buildings does it own?" The answers to these questions could vary depending on what source you ask. The new system is now networked to effectively integrate hardware, software, and systems. Users have easy access to the FMS and interact with it on a regular basis. Correspondingly, they are also held accountable for the system's use.

Steve Dorrier heads up the HVAC division of facilities management. When asked how he uses the system, he said, "I pull up renovations projects on the screen, and it tells me how many hours I've got and time and material I'm using on fixed-price jobs. It is very helpful if you know how to use the system. I can go to it very quickly. If I am worried about my guys running over, I know the hours. I can turn around and look right in the screen and see exactly where I am at as of today. A good example of this is we are installing purge units. Before, we would have to track this manually. This has helped. I am having my three supervisors trained so they can check their own work."

- *Must be user-friendly/easy to use*—This is a subjective evaluation regarding what is easy to use. However, most people prefer the graphical user interface provided by the Windows environment.

Systems that are user friendly can be easily used by people with little training. All of the people trained on the FMS at UVA are trained in-house by one person. After a few hours of training in Windows, the user can, for the most part, begin productive work at their workstation. Today we enter most information into computers on keyboards, but more user-friendly input and access methods like the mouse are becoming more popular.

Bruce MacCall, from our organization, has trained more than 175 employees (350 hours) since July 1993 on the system. As a professional engineer, Bruce not only knows the facilities business, but is computer literate and has had the

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*William Stauff is director, business operations, and Fred Rembold is manager, systems development, at the University of Virginia Facilities Management Department, Charlottesville, Virginia.*





Bruce MacCall (FMS Implementation Manager) trains Jim Offield, Construction Supervisor, on the system.

unique challenge of training everyone from office staff and HVAC leadmen to top management. Bruce says: "Some have picked up on it and have done very well. I personally check to see how well they are doing once back on the job. Training must be supported from the top down, and those who are in the leadership positions have to join right in and be trained. It is a relatively easy system to use once you have learned the basics. Any product like this is an extremely powerful tool."

Bruce gives his students homework problems to turn their training into practical application. "One particular problem that I have them do is to search the data for management information, like searching for all the current active projects in any particular building. I think it is important to show them the ease of access. The object is to get the appropriate data with one search."

■ *Must be a cost-effective solution*—This includes both the capital acquisition cost of the new hardware, software, training, etc., and the ongoing cost of operating the system. The economic justification should also include the time saved by not entering data twice and time saved by people not manually searching for information.

Universities operate with limited budgets for developing and modifying systems. Systems analysts and designers must choose between alternative systems and designs by considering their costs and what benefits the organization may expect. The cost of hardware, software, people, and supplies can usually be estimated with reasonable precision. Benefits such as "50 percent faster processing" can often be translated directly into dollars. Benefits such as "making information more accessible" are more difficult to measure.

■ *Must increase productivity*—By making information immediately available via on-line query or report, people do not spend time completing manual forms to request information and/or do not spend time going to a central business office to get information.

For years project managers and foremen literally wore out the soles of their shoes walking across the physical plant parking lot to the materials office to get information from the stand-alone materials database, then walked back with it in

hand to the cost office back in the main building to gather together more outdated cost information usually stored on fiche. They then walked back to the other end of the building to their workstations and entered this data into their spreadsheets. Any other information related to the project had to be gathered from other stand-alone sources throughout the building. After a few days of this madness they would print out a report for the impatient customer. Connectivity now has linked together this information which has provided communication for the users with each other, helping them improve their productivity.

All of our personnel, scattered across the campus in nine locations, have direct access to the system. Soon our customers will also. Dave Hines, our power plant superintendent located several miles from the main building, had this to say, "The system speeds things up quite a bit.

One of the things I like is the Grainger catalog [on compact disc on the server]. This is great for getting quick quotes on industrial products. I can pull work orders right up and find out where things are and what's happening with them. I am happy with electronic mail. It definitely helps me. The first thing I do in the morning is walk in and turn it on to see if anything has been sent to me from the day before."

Mealony Gain is our program support technician from the Health Sciences Center Physical Plant, which is part of facilities management but removed from the main building. She is responsible for tracking the financial data for her department. Mealony says, "The system has been extremely helpful to me. When you get into the system, you can look at the detail and see who actually worked on a project by employee name and cost center and what labor, materials, and equipment were charged to it. This will determine whether they should be there or not and whether, also, it is the right fund and expenditure code. Before, you couldn't really tell unless a customer called and complained about the bill."

■ *Must provide customer satisfaction*—Customer service comes in many forms, including work orders, statements, and reports received from an organization's information system. Customers are more satisfied when this information is timely, accurate, and easy-to-read (with minimal codes).

Some customers needed more data than what was on the statement. Our system was flexible enough to enable us to supplement the statement with a custom arrangement of the data to meet their unique needs. One such customer, Doris Smith from parking and transportation, reacted this way when we delivered her request very quickly. "I am extremely pleased with the customer statement reports that you have provided me. It categorizes the various work types by our individual account codes. I also would be very interested in getting on-line to see our data."

When the facilities management system was demonstrated recently to a group representative of our customers in the university community and the FM Advisory Board (26 members), the response was overwhelming. For the first time, these customers could see on-line, up-to-date information related to the work being done in their own buildings. They



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- |   | YES                      | NO                       |
|---|--------------------------|--------------------------|
| 1. Do they have experience in educational construction?   | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Can they develop a reliable budget estimate which will accurately reflect the building to be designed? | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Will they provide comprehensive cost estimating, scheduling and value engineering?                     | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Does their staff include mechanical and electrical specialists?  | <input type="checkbox"/> | <input type="checkbox"/> |

- |   | YES                      | NO                       |
|---|--------------------------|--------------------------|
| 5. Will you benefit from the objectivity of an independent architect and construction manager, striving to provide you the most for your money? | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Is their field staff experienced in building on busy campuses?   | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. Can they provide a Guaranteed Maximum Price, if you so desire?   | <input type="checkbox"/> | <input type="checkbox"/> |

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saw on-line queries performed with ease resulting in instant reporting of work order status, equipment, building, and financial data.

Chemistry professor and director of environmental health safety Ralph Allen's reaction as the chairman of the advisory board was, "The process that Facilities Management has gone through to incorporate the concerns of the customers has been absolutely appropriate. You have tried to develop a system that serves your needs, but at the same time the needs of your customer. That's a commendable attitude, and the way you have gone about doing it really has been good."

This resulted in a formal request from professor Allen to our chief facilities officer to provide them with on-line access. This is technically possible with our university-wide network. A plan is underway to study their business needs and give them instant access to their own data.

The request for on-line access was followed up with a hands-on training session for a group of customers to familiarize them in more detail with the system. Gary Conley, a plant engineer for dining services, had this to say about what he observed in the training, "The system will allow me to review the task and frequency of the preventive maintenance being done on my equipment allowing me to recommend adjustments where appropriate. It answers a lot of questions when you can see how many crews were in there and for how long....I can also look at the costs."

After her FMS training, Laurie Kelsh, a faculty member in the chemistry department doing a one-year fellowship in the president's office, commented, "I was very impressed with the system. It had an amazing amount of information, and it was very flexible and easy to use. I definitely come from the school that says you can be great managers, but if you don't have the information you need to manage then you can't quite do your job."

### Project Overview

The FMS project was organized like a large construction project with a work plan, schedule, and phases of work. We hired a systems analyst with more than twenty years experience who would act as the project manager and architect for the new system. Like all large projects, a work plan was needed to define the various tasks and phases of work. The university's administrative computing provided Spectrum systems development methodology to create the work plan for the system development life cycle.

FIGURE 1



Phase I included the requirements study, evaluation of alternatives, and recommendation. Phase II included the installation of hardware and software for the initial applications. Phase III included additional applications, enhancements, and expansion of the network.

A top-down approach was used to define all of the requirements for the information system. These requirements focus on the types of data involved, data flow, and business processes. Interviews were conducted with all levels of management starting with upper management and progressing down the organization chart including selected front-line workers to gain a full understanding of the business of facilities management and what information was needed. The processes that would be addressed and types of information to be included were categorized by upper management into "required" and "desirable." The project scope (what would be included in the project) was also defined.

Once the requirements were reviewed and approved, the various alternatives were considered. There are always alternatives involving the various types of computers, types of software, types of databases, and techniques for obtaining the hardware and software for the system. UVa Facilities Management selected a microcomputer-based LAN (local area network) with client/server software. This type of mid-range system seemed to best meet the objectives of the project given the 150 anticipated users and estimated volume of data (e.g., 100,000 work orders per year).

The FMS committee considered the various alternatives for implementing such a system which included in-house devel-



opment, contract development, purchased software packages, and combinations of these. We decided to implement the LAN with the assistance of the University Communication Group, to purchase ourselves software packages where available, to contract the development of two critical applications, and to develop the remaining applications with in-house personnel. A request for proposal was issued and a contract was awarded to Project Software and Development, Inc. for their Maximo Series 3 (see Figure 1). This is client/server software that runs on a LAN and uses Microsoft Windows and an SQL database to provide an on-line, highly integrated, multi-user system. Specialized applications are being developed in-house to provide a total solution.

#### Specific Applications

The Maximo software package is designed for CAMM (computer-aided maintenance management), which generally includes preventive and corrective maintenance. UVA elected to use Maximo for CAFM (computer-aided facilities management), which includes all work orders for many types of work (see Figures 2 and 3). This also includes standing work orders for overhead accounts, utility accounts, and repetitive work orders for landscape and building services.

We purchase a full featured general ledger, which is used to provide financial reporting (monthly financial statement)



Lee Pielemeir, Senior Programmer/Analyst (left), and Michael Yost, Programmer/Analyst, keep the system operational.

for each cost center and for facilities management. Each month we extract the detailed cost information from Maximo, summarize the information where applicable, and update the

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FIGURE 2

| Work Orders                       |                     |   |                |
|-----------------------------------|---------------------|---|----------------|
| Form                              | Table               | Field   | Next           |
| Database Options Screens Run Help |                     |   |                |
| Work Order #:                     | 107943              | BIOCHEM - RMS 6-25 & 6-26 NO HOT WATER - SADLER |                |
| Equipment #:                      | C61142              | RTN. MAINT. PLUMBING & REFITTING Jordan Hall    |                |
| Work Type:                        | 1R                  | Area:   | H              |
| Building #:                       | 1142                | FM Cost Center:                                 | 34             |
| Priority:                         | 0                   | Lead Craft:                                     |                |
| Status:                           | COMP                | Status Date:                                    | 03/24/94 11    |
| Requestor/Phone:                  | KEVIN COX - 42370   |   | Request Date:  |
| Project Manager/Phone:            |                     |   | Target Start:  |
| Consultant/Phone:                 |                     |   | Completion:    |
| Construction Supervisor/Phone:    | DAVID TYREE - 48095 |   | Modified Date: |
| Contractor/Phone:                 |                     |   | By:            |
| Group/Zone:                       | 2                   | Master WO #:                                    |                |
| # Sub WOs:                        | 0                   | History?  | N              |
| PM Master #:                      |                     | Job Plan #:                                     |                |
| PM Trade:                         |                     |   |                |
| BROWSE  First record retrieved.   |                     |   |                |

ledger for a specific period. The financial statement shows the current period and year-to-date information for both budget and actual cost within each account. This represents the operational cost for facilities management.

Alice Brady is the cost manager of the facilities management department and is responsible for all the financial transactions and budgets. The new ledger has impacted her staff in a positive way. She says, "It used to take two people a day to prepare the cost center reports manually, and you were never sure that they balanced; there was always some human error. It's cleaner and more accurate now."

The software provides the capability to integrate the facility data with the AutoCAD topographical map information to graphically display and/or print where equipment is located. This software can also track what facilities are affected when a particular electrical line or circuit is out of service.

AutoCAD is used for both drawings and maps. Building floor plan drawings are being converted to AutoCAD. When new construction is completed, the vendor must provide the as-built drawings in AutoCAD format. UVA also obtained a new topographical map in AutoCAD format. These drawing and maps are stored on the network and will be available for viewing and printing by various users without them knowing AutoCAD.

### Development/Implementation

The facilities management system was a phased implementation. We purchased the hardware, network software, and application software as needed to build the information sys-

tem. The LAN was the first phase where existing PCs were connected to a central file server using Novell Network.

University Communication Group assisted with the initial design, installation, and testing of the communications hardware and communications software. Office Automation software packages such as cc:Mail, WordPerfect, and Quattro Pro were installed to get personnel familiar with a shared system.

Ken Smith, director of facilities planning and construction, says this about his use of the new departmental e-mail software: "Being in and out of the office, I find the electronic mail a good way to communicate by leaving detailed messages to my managers. I write a message once and, zing, it's gone by way of the mailing list feature to all senior managers. I use it to share confidential information and bounce ideas off key people to give me feedback. Overall, it's a good way to communicate in a

timely and informal manner."

Recently the university fire safety officer, a non-facilities employee, was added to the system, which has greatly improved communication between him and the department's project managers he works with. Communication connections were also created to allow network users to connect to the university IBM 3090 mainframe, Internet mail, and other computers.

During Phase II the Maximo software package and other custom applications, such as time reporting and billing, were implemented to provide a complete work order job-cost system. This included entering work orders from multiple locations, printing the work orders, preventive maintenance (PM equipment and work order generation) for the university and medical center, entering daily charges for labor, materials, and equipment (trucks, tractors, etc.), and the monthly billing.

Phase III is currently in progress and includes applications such as project tracking, personnel, purchasing, and room inventory. The project tracking application will provide the capability to track and report both the schedule status and budget status of large construction and renovation projects. This application is being developed by an in-house programmer/analyst and will be integrated with the current work order system. The personnel application will also be integrated with the Maximo system to provide addition information about each employee and track the relationship of employees to the university authorized positions. The purchasing application will allow network users to submit purchase requisitions on-line and will track the purchase order to work order relationship and status.



FIGURE 3

**UVa Facilities Management (Maximo) Work Types**

| Work Types | Description  |
|------------|--|
| IE         | Service Call - Emergency                               |
| IR         | Service Call - Routine                                 |
| IS         | Service Call - Service Contract                        |
| 21         | Insurance  |
| 2N         | Hospital Nursing                                       |
| 2P         | Hospital Minor Project                                 |
| 2R         | Minor Work   |
| 25         | Minor Work - Service Contract                          |
| 2V         | Vandalism  |
| 3C         | Major - Capital  |
| 3E         | Major - Maintenance                                    |
| 3F         | PIR (Preliminary Investigation Report) FP&C            |
| 3G         | Grounds Improvement                                    |
| 31         | Special Projects Improvement                           |
| 3M         | Maintenance Reserve                                    |
| 3p         | Painting - General                                     |
| 3Q         | Painting - Academic                                    |
| 3R         | Major Renovation                                       |
| 3S         | Major Work - Service Contract                          |
| 4C         | Corrective Maintenance                                 |
| 4F         | Facilities Inspection                                  |
| 4P         | Preventive Maintenance                                 |
| 45         | Preventive Maintenance - Service Contract              |
| 5B         | Utility Billing - Steam Blue Ridge Plant               |
| 5C         | Utility Billing - Chilled Water                        |
| 5D         | Utility Billing - Demand Electric                      |
| 5E         | Utility Billing - Electric                             |
| 5G         | Utility Billing - Gas & Oil                            |
| 5J         | Utility Billing - Systems Control                      |
| 5N         | Utility Billing - Steam Main Plant                     |
| 5N         | Utility Billing - Steam North Grounds Plant            |
| 55         | Utility Billing - Sewer                                |
| 5W         | Utility Billing - Water                                |
| 6A         | Overhead - FP&C (Facilities Planning and Construction) |
| 6Th        | Overhead - Trucks                                      |
| 6C         | Overhead - Landscape Equipment                         |
| 6D         | Overhead - Tool Room                                   |
| 6E         | Overhead - Landscape Contracts                         |
| 6F         | Overhead - Other                                       |
| 6G         | Overhead - General                                     |
| 6H         | Overhead - Labor Offset                                |
| 6J         | Overhead - Leave                                       |
| 7A         | Landscape - Mowing                                     |
| 7Th        | Landscape - Snow Removal                               |
| 7C         | Landscape - Storm Damage                               |
| 7D         | Landscape - Trees                                      |
| 7G         | Landscape - General                                    |
| 75         | Landscape - Service Contract                           |
| 8C         | Building Services - Contract Buildings                 |
| 8H         | Building Services - Health Science Buildings           |
| QN         | Building Services - Non-Contract Buildings             |
| 85         | Building Services - Service Contracts                  |
| 9A         | Watch Standing   |
| 9Th        | Recycle Resources                                      |
| 9D         | Facilities Management Directives                       |
| 9F         | FMS Work Requests                                      |
| 9P         | Heating and Cooling Plants                             |

**Summary**

William Middleton, former chief facilities officer for UVa Facilities Management, had the vision to see the need for a total information system and the resolve to pursue this project many years before realizing any of the benefits. Today, UVa Facilities Management has a modern computer information system that supports more than 265 users in nine locations and provides both direct and indirect benefits to the organization. The network and e-mail alone have greatly improved communication within the organization. The on-line work order system provides current up-to-date information about the work being performed on a day-to-day basis. When questions arise about the cost of some particular piece of work, anyone can quickly determine who worked on the project and when. They can also determine what vendor invoices have been paid or the overall budget status versus the actual cost.

The highly-integrated relational database has helped improve the quality of the information. Data can be easily accessed and validated, and people can more readily report problems, such as a work order being charged to a maintenance account when it should have been capital improvements.

UVa customers have expressed their satisfaction with the quality of the new monthly statement. The organization, presentation, and quality of information has improved. Each fiscal administrator receives a monthly statement of charges for their departments that provides a summary of charges by account, a detailed list of current work orders, and a comprehensive summary of their utility charges. With read-access we envision customers eventually logging on from their offices either entering work order requests or searching the database for up-to-date information and running their own specialized reports.

**Suggestions**

UVa Facilities Management separately purchased the hardware, network software, application software packages, and software development tools to create a total information system because we were not able to purchase a complete solution from a single vendor. Consideration should be given to the use of a systems integrator to provide a turnkey solution for the LAN and major application software.

The first step to any new information system should be the definition of requirements from the perspective of the organization and the customer. Without good documentation of the system requirements, it is difficult to achieve a good end product. The requirements must also identify the anticipated number of users and their locations to allow for the proper type of software to serve all users and/or customers and for the system to be properly sized.

Do not attempt to install this type of information system for your critical business systems without a fully qualified staff or contract support agreement. An experienced systems analyst is needed to define, document, and manage a project of this size and diversity. An experienced network administrator is required to implement and support a large local area network. Client/server software also requires a highly skilled staff of programmer/analysts and a database administrator. ■



# THE ROLE OF ELECTRONIC MAIL IN CUSTOMER COMMUNICATION

by Donna Schlieve



**I**F AS FACILITIES ADMINISTRATORS we truly want to delight our customers (as Charles Jenkins suggested in the Winter 1994 issue of *Facilities Manager*), we should begin by making it easy for those customers to find us. We should empower customers with the ability to get the information, service, or action needed from the facilities department with a minimum of effort. At Grand Valley State University, electronic mail (e-mail) has played a major part in our effort to be accessible to our customers, and it has dramatically altered the nature of work request-related communication.

The customer service center is the office within the facilities services and planning department responsible for work request processing. Between fiscal years 1988-89 and 1992-93 the center processed more than 52,000 work requests without requiring customers to use standardized forms or follow complicated procedures. What do we ask our customers to do? We ask them to let us know what they need by whatever method they find most convenient, and we guarantee to welcome requests in any format.

What does "whatever method they find most convenient" mean exactly? It means we will accept a request even if it's written on a napkin. It means a handwritten note will do. We'll take a typewritten memo. If customers prefer to call us, no problem. If they would like to walk to our building and submit a request in person, great!

Do customers at GVSU use all of the methods above? Sure. Is it okay with us? You bet. However, in 1989-90 we began actively encouraging the campus to take advantage of e-mail access and forward requests to us electronically. As this case study illustrates, the introduction of e-mail into the work request transmittal process has almost eliminated the use of the regular campus mail system for requesting facilities services.

## Background

Until 1990, we asked faculty and staff on campus who wanted non-emergency custodial, grounds, or maintenance help to purchase and use standardized three-part work order forms that they had to buy from the campus print shop, fill out completely, and forward it to the customer service center through the campus mail system. Hardly a procedure designed for a customer's convenience! Consider how you

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would feel about a car dealer who agreed to sell you a vehicle only if you bought an order form from the office supply store next door!

In Figure 1 you can see that we received 58 percent of all requests through the campus mail system in 1988-89. Telephone requests constituted 31 percent of the total, followed by requests written internally by facilities services staff at 8 percent. E-mail was used to send only 3 percent of the 6,600 requests submitted.

**Figure 1. Work Requests by Source: 1988-89**

| Source of Requests | Request Volume | Volume as % of Total |
|--------------------|----------------|----------------------|
| Campus Mail        | 3,847          | 58%                  |
| Electronic Mail    | 199            | 3%                   |
| Internal           | 531            | 8%                   |
| Telephone          | 2,055          | 31%                  |
| Total              | 6,632          | 100%                 |

In 1989, we designed and implemented a database application for processing requests and added a full-time clerical employee to the customer service center staff. It was time to purposely seek out our customers and tell them who we were, where we were, what we were doing with their requests, and why. The first step in improving relations with our customers was to convince them we were serious about being a service-oriented department.

During the fall of 1989, we forwarded announcements to all faculty and staff proclaiming that we were abandoning our own policies, procedures and work request forms. We distributed wall charts that listed facilities services and planning staff names, phone numbers, and e-mail addresses and encouraged customers to begin using e-mail to submit requests. Many other activities followed, such as informal meetings with high-volume customers, assisting new users of e-mail with questions, and presenting opportunities for customers to suggest ways we could facilitate communication.

#### Changing Communication Preferences

By the end of 1990, it was clear that a significant change had taken place in the kind of communication that took place between the customer service center and its users. The number of requests sent via the campus mail system had dropped by 52 percent! Incidents of e-mail use had climbed from 3 percent to 31 percent during the same period. Clearly, e-mail was preferred by customers (Figure 2).

In reviewing the chart you may also notice that internally generated requests represented only 8 percent of the total in 1988-89, but had jumped to 31 percent by the end of 1990. This increase was due to several factors, including 1) the incorporation of safety and preventive maintenance work requests within the request system, 2) implementation of a

**Figure 2. Work Requests by Source 1988-89 vs. 1989-90**

| Source of Requests | 1988-89        |                      | 1989-90        |                      |
|--------------------|----------------|----------------------|----------------|----------------------|
|                    | Request Volume | Volume as % of Total | Request Volume | Volume as % of Total |
| Campus Mail        | 3,847          | 58%                  | 527            | 6%                   |
| Electronic Mail    | 199            | 3%                   | 2,721          | 31%                  |
| Internal           | 531            | 8%                   | 2,810          | 32%                  |
| Telephone          | 2,055          | 31%                  | 2,721          | 31%                  |
| Total              | 6,632          | 100%                 | 8,779          | 100%                 |

classroom/restroom routine maintenance inspection program, and 3) a conscious effort to urge all facilities services and planning employees, regardless of job classification, to look for and report custodial, grounds, or maintenance problems so that they can be corrected. Our goal is to find and resolve facilities problems before they become obvious to customers; the volume of internally generated requests is one barometer of how well we are doing in this area.

#### Where We Are Now

During 1992-93, we received only 159 requests through the campus mail system. Of the 12,981 work requests processed by the customer service center in 1992-93, 60 percent were submitted by phone or e-mail.

If we examine data for only those requests generated by external customers (other than facilities services employees), the differences are even more compelling (Figure 3). Campus mail requests constituted 63 percent of the total number of requests received in 1988-89 versus only 2 percent in 1992-93! E-mail, on the other hand, has increased from 3 percent to 41 percent.

**Figure 3. External Work Requests by Source: 1988-89 vs. 1992-93**

| Source of Requests | 1988-89        |                      | 1992-93        |                      |
|--------------------|----------------|----------------------|----------------|----------------------|
|                    | Request Volume | Volume as % of Total | Request Volume | Volume as % of Total |
| Campus Mail        | 3,847          | 63%                  | 159            | 2%                   |
| Electronic Mail    | 199            | 3%                   | 3,275          | 41%                  |
| Telephone          | 2,055          | 34%                  | 4,522          | 57%                  |
| Total              | 6,101          | 100%                 | 7,956          | 100%                 |



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Communication with customers isn't one-way. The customer service center now uses e-mail to alert building occupants to potential interruptions in service, such as a malfunctioning HVAC unit or a need to shut off hot water. We also use it to request clarification of information and avoid playing telephone tag. By using e-mail ourselves, we subtly encourage e-mail response from customers.

### Future Plans

E-mail will continue to be a viable means for conducting work request transactions, at least in the near future. Our short-term plans for further incorporating e-mail into the customer service center communication system include the following:

1. Encouraging members of the GVSU Student Senate to use e-mail to report custodial, grounds, or maintenance problems they become aware of in their travels around campus. Students have traditionally been excluded from routinely submitting requests, other than those they report to housing during their tenure as campus residents. While it would be impractical for us to respond to 13,000 students, we need the valuable perspective of the student population. E-mail will make frequent communication with the university's ultimate customers possible.

2. Using e-mail to transmit confirming copies of work requests by attaching images of requests to e-mail messages. This service responds to those customers who ask that we print copies of the work orders generated in response to their requests and mail them out via the campus mail system. Although fewer customers are interested in receiving these copies each year, some still retain them for reference purposes. E-mail would make this process more efficient and produce fewer pieces of paper for distribution.

3. Advising customers via e-mail of an anticipated delay in completion of a previously submitted request. In this case also, copies of the work orders are marked with estimated completion dates, and these are returned to the requesting person. Potential benefits of handling this through e-mail are similar to those mentioned above.

4. Processing charges to other units through use of an electronic interdepartmental charge form. Currently, when completion of a work request will result in a chargeback to another unit we forward a copy of the request to the customer so he/she can provide an account number, obtain an authorizing signature, and return it to us for processing. At the end of each month, customer service compiles the charges in a memo for the business office so they can complete the necessary journal entries. Electronically processing interdepartmental charges would save time and paper. This concept does, however, raise questions such as how to prevent unauthorized on-line approvals of expenditures, and this will be pursued in consultation with the business office staff.

### What Our Customers Think

In November 1991 we distributed surveys to those 100 faculty and staff members who contacted the customer service

center at least ten times during the previous fiscal year, and we asked them to rate the center's performance. In response to the question, "Are you confident that customer service staff

will accurately record your request on a work order?" all who completed the survey answered yes. The survey scheduled for October 1994 will specifically address our customers' satisfaction with the use of e-mail.

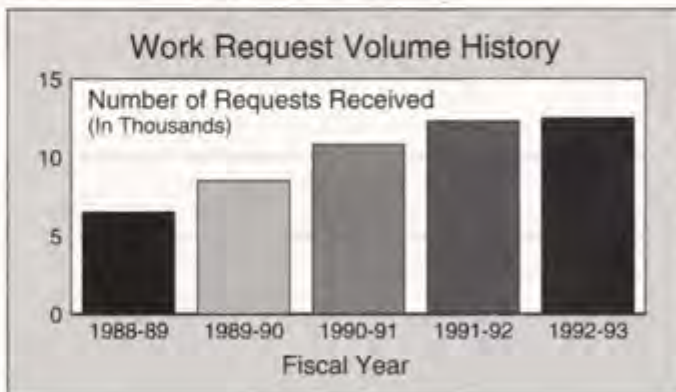
We began documenting complaints about all aspects of facilities services and planning operations in 1990 as well. Since that time we have received only twenty-three complaints regard-

ing the administrative handling of work requests. During that same period we processed more than 30,000 service requests.

### Final Thoughts

At Grand Valley State University we have found e-mail to be a relatively cheap, fast, and efficient method for keeping in touch with facilities customers. It has made it possible for us to handle a tremendous upsurge in the number of requests submitted with no increase in full-time clerical staff (Figure 4). Also, it has reduced the number of documents in the regular campus mail stream by thousands and has contributed to campus resource conservation efforts by eliminating the need for printing, processing, and disposing of multi-part forms.

Figure 4. Increase in Request Volume



There are, of course, potential disadvantages. Computer malfunctions, power failures, or other technological problems may prohibit e-mail access on any given day. Not all users routinely read, acknowledge, or promptly respond to messages. It may not be suitable for transmitting complex diagrams or drawings at your campus.

Obviously, there is more to managing a facilities services operation successfully than introducing e-mail. The most important tool we have in the effort to delight our customers is not the latest and greatest technology—it is our willingness to accept the need for change. Rudolph Flesch said, "Creative thinking may mean simply the realization that there's no particular virtue in doing things the way they always have been done." This is also true of customer service. ■

**The most important tool we have in the effort to delight our customers is not the latest and greatest technology—it is our willingness to accept the need for change.**



# QUALITY SERVICE THROUGH EMPLOYEE-DEFINED PERFORMANCE MANAGEMENT

by Laura J. Davis & Michael L. Hagler

In the facilities management organization at The Johns Hopkins University Applied Physics Laboratory (APL), we replaced the laboratory's generic performance appraisal with an entirely new performance management system. Employees helped define the work activities and determine how performance was assessed. Our employee-developed performance appraisal criteria and performance management system improved productivity in all our activities. The new system includes pay-for-performance salary administration algorithms, three annual appraisal/coaching sessions, and carefully defined performance expectations and standards. Continuous improvement is built in. Appropriately rewarding superior performance and correcting deficient performance have improved morale, customer service, and customer satisfaction.

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## The Need for Better Performance Management

At APL, the plant engineering branch manages facilities ranging from classrooms, offices, and cafeterias to satellite dishes, cleanrooms for satellite fabrication, and jet propulsion research laboratories. More than thirty-five buildings cover 1.5 million square feet on a 365-acre campus. Besides our 3,500 onsite customers (APL employees), we serve more than 2,000 students and more than 200 faculty members of the G.W.C. Whiting School of Engineering of The Johns Hopkins University, which is also onsite. The plant engineering branch's 135 employees serve diverse customers in a complex environment.

Like many similar organizations, we had a reputation for doing technically fine work. However, emphasis was not placed on customer expectations or customer satisfaction. The popular phrase was good, fast, cheap—pick any two. In the 1990s, of course, that had to change. When we asked our customers how they saw us, the following response to a survey in October 1991 was typical:

"Breaks are ridiculous. Far too much time is lost to them. This is not my feeling alone, it is a general feeling. Don't think you could compete with outside market."

With cuts in defense spending, budgets tightened, efficiency came under scrutiny, and the potential for outsourcing had to be studied. To continue work as usual meant not measuring up. Providing value in every service became an imperative. Our awakening was not unlike that of many colleges and universities coping with tighter budgets and learning to do more with less. We needed to truly understand what our customers valued and how to satisfy them. We had to become more efficient.

Because effectively managing and assessing individual and team performance is fundamental to a quality organization, we set about looking at the performance appraisal process as part of performance management. The old performance appraisal was like what most of us have suffered through. Although people believed human resources (HR) required them, appraisals had little effect on day-to-day operations. You endured them, paying as little attention as possible.

In a high-performance organization, recognition, measurement, and reward are fundamental building blocks of performance management. Our system, however, did not effectively measure factors that employees and supervisors thought were important. It did not facilitate coaching or communication, and it did not link pay raises to performance. The top and bottom 10 percent of performers in 1991, for example, received salary increases of 4 to 7 percent, regardless of performance rating. Performance did not affect pay, and people knew it.

Our goal, therefore, was to establish a communication and appraisal process that employees understood and accepted and that also linked pay to performance. But before you make such a link, it is crucial that employees understand and accept the appraisal process. People can tolerate a poor performance management environment if it doesn't affect their pay, even though good performers may have little incentive to keep going and poor performers may not feel repercussions. The instant you tie pay to performance, however, you have people's attention. That attention must be based on something people understand, accept, and believe in.

## Development of the New Performance Management System

In developing a new performance management system, we followed eight distinct steps.

*Step 1.* A planning team was established and given the required resources. We hired a consultant to provide performance management expertise, added our branch HR person, the trade group supervisors, and the plant engineering branch supervisor. The organization's leader must firmly believe in the benefits of performance management and must support that belief with time, money for training, and attention. Without commitment from the organization's leadership to spend the necessary resources and time, performance management will not succeed. People listen to what we say, but they pay attention to what we do.

*Step 2.* Small-group information sessions were held with the staff. The next step was to tell the staff what was going on. We held meetings of groups no larger than forty and told people what we planned. Certain things had to be clearly communicated: 1) employees would be involved at every step; 2) the planned change was a response to their direct feedback that the appraisal process just doesn't work for me; and 3) the new approach would be separate from the laboratory's existing performance appraisal process.

*Step 3.* The staff selected craft-knowledge experts. For this step, the staff selected experts in the various crafts from their peers. Those selected needed to clearly understand and be able to articulate what it took to be a good plumber, carpenter, electrician, stationary engineer, or other skilled trade. Then we set up time, while people were on the clock, for staff and the craft knowledge experts to discuss what they wanted from the new appraisal process. To keep people aware and involved, we continued to facilitate communication between the craft-knowledge experts and their peers throughout the process.

*Step 4.* The craft-knowledge experts were trained in the fundamentals of performance evaluation. In a half-day session, we discussed such items as the need for criteria to be observable, measurable, and job related. The goal was not to produce specialists, just to foster awareness. With a little structure and guidance, people seemed to understand intuitively what makes a valid performance appraisal.

*Step 5.* Small groups of craft-knowledge experts developed evaluation criteria. The craft experts at first planned to develop separate criteria for each craft. We gave them sample performance appraisals from other organizations and provided facilitators to guide the team process. Developing the criteria took the groups about three-quarters of a day.

*Step 6.* As a single larger team, the craft-knowledge experts developed a new appraisal format. Together, the entire group of craft-knowledge experts took another three-quarters of a day to develop the performance appraisal format. The team found that, although knowledge bases certainly differed among the various crafts, the separate, craft-based appraisals they had planned could be combined into one appraisal for the skilled trades.

The form developed for skilled trades is shown in Figure 1. It defined eight categories as important to a job: application of knowledge, workmanship, productivity, equipment and



Figure 1a

## IIA. APPRAISAL SCALE DEFINITIONS

| Scale    | Definitions  |
|----------|--|
| <b>N</b> | <b>Not Observed or Not Applicable.</b>   |
| <b>1</b> | <b>Unsatisfactory:</b> Considering the time you have been on the job, your performance is below the minimum requirements for the job.  |
| <b>2</b> | <b>Below Expectations:</b> You are doing the job reasonably well in most areas but need improvement in a major area or two. You require closer supervision than is dictated by the job.  |
| <b>3</b> | <b>Meets Expectations:</b> You are doing a full, complete, satisfactory job. Your performance is what is expected of a fully qualified and experienced person in the job. You are a good, solid worker and are capable in all areas of your job. |
| <b>4</b> | <b>Exceed Expectations:</b> Your performance exceeds the job requirements even on some of the most difficult and complex areas of the job.   |
| <b>5</b> | <b>Clearly Outstanding:</b> Observation of your performance is the "best of the best," and your accomplishments have made a major impact on the work of your group.  |

#### **II.B. PRIORITY WEIGHT FOR PERFORMANCE CRITERIA**

| Weight | Definitions   |
|--------|---|
| 1      | <b>Important</b> to the success of the job or goal attainment.                                      |
| 2      | <b>Very important</b> to the success of the job and goal attainment. A major factor in job success. |
| 3      | <b>Critical</b> to the success of the job and goal attainment. A make-or-break criterion.           |

### **II C. SCORING SECTION**

|   | Priority Weight | Rating  |   | Priority Weight | Rating  |
|---|-----------------|---------|---|-----------------|---------|
| <b>DIMENSION 1--Application of Knowledge</b>        |                 |         | <b>DIMENSION 5 - Safety</b>                 |                 |         |
| 1. Job Knowledge                                    | 3               | _____   | 19. Safety                                  | 3               | _____   |
| 2. Technical Skill (If Applicable)                  | 3               | _____   | <b>DIMENSION 6 - Communication</b>          |                 |         |
| 3. Technical Interpretation                         | 3               | _____   | 20. Listening Skills                        | 3               | _____   |
| 4. Keeping Current (If Applicable)                  | 1               | _____ * | 21. Keeping Others Informed/(If Applicable) | 3               | _____   |
| 5. Problem Solving                                  | 2               | _____   | 22. Documentation (If Applicable)           | 2               | _____   |
| <b>DIMENSION 2--Workmanship</b>                     |                 |         | 23. Communication                           | 3               | _____   |
| 6. Workmanship                                      | 3               | _____   | <b>DIMENSION 7 - Working With Others</b>    |                 |         |
| 7. Competency                                       | 2               | _____   | 24. Relations with Co-workers               | 2               | _____   |
| <b>DIMENSION 3--Productivity</b>                    |                 |         | 25. Relations with Other Units              | 2               | _____   |
| 8. Time Management                                  | 2               | _____   | 26. Relations with Laboratory Personnel     | 2               | _____   |
| 9. Completion of Work                               | 2               | _____   | 27. Work/Guidance Training (If Applicable)  | 1               | _____   |
| 10. Performance Under Pressure (If Applicable)      | 1               | _____   | <b>DIMENSION 8 - Work Standards</b>         |                 |         |
| 11. Filling-in for Others (If Applicable)           | 1               | _____   | 28. Job Site Condition                      | 1               | _____ * |
| 12. Attendance                                      | 3               | _____   | 29. Accountability                          | 2               | _____   |
| 13. Punctuality                                     | 3               | _____ * | 30. Policy Compliance                       | 2               | _____ * |
| 14. Planning  | 2               | _____   | 31. Off-Duty Hours (If Applicable)          | 2               | _____   |
| 15. Suggestions for Improvement                     | 2               | _____   | Total _____                                 |                 |         |
| <b>DIMENSION 4--Equipment and Tools</b>             |                 |         | Shop range _____                            |                 |         |
| 16. Knowledge of Equipment                          | 3               | _____   | Branch range _____                          |                 |         |
| 17. Specialized Equipment Operation (If Applicable) | 2               | _____   |   |                 |         |
| 18. Use of Tools                                    | 2               | _____   |   |                 |         |

\* Maximum Score is 3.

\* Maximum Score is 3.



Figure 1b

## IID. SKILLED TRADES APPRAISAL CATEGORIES

### DIMENSION 1 - Application of Knowledge

1. **Job Knowledge**  
Possesses and applies the necessary common and specialized knowledge required for the position.
2. **Technical Skill (If Applicable)**  
Demonstrates proficiency in utilizing advanced specialized knowledge and equipment in a technical specialty to diagnose and solve technical problems.
3. **Technical Interpretation (If Applicable)**  
Correctly reads and interprets technical manuals, drawings, and instructions. Applies accepted practices within the field of specialization.
4. **Keeping Current (If Applicable)**  
Participates in training programs, and/or takes advantage of other continuing education opportunities, and/or reads trade publications to keep current on techniques or methodologies appropriate to the job. Adjusts well to new methods, conditions, and changes.
5. **Problem Solving**  
Demonstrates ability and knowledge to diagnose problems and solve them.

### DIMENSION 2 - Workmanship

6. **Workmanship**  
Performs work accurately and thoroughly. Gives attention to details.
7. **Competency**  
Demonstrates ability to work both supervised and unsupervised.

### DIMENSION 3 - Productivity

8. **Time Management**  
Organizes work to use time effectively and efficiently.
9. **Completion of Work**  
Completes work assignments within established deadlines.
10. **Performance Under Pressure (If Applicable)**  
Works effectively under pressure conditions, such as heavy workloads or deadline situations; adjusts effort so that errors do not become more frequent.
11. **Filling in for Others (If Applicable)**  
Fills in for others during heavy workloads or absences when necessary.
12. **Attendance**  
Complies with Branch attendance guidelines.
13. **Punctuality**  
Is on time for work, leaves work no earlier than appropriate, and takes only reasonable breaks and lunch periods.
14. **Planning (If Applicable)**  
Demonstrates ability to effectively plan and schedule work activities; arranges and relates workload and resources to meet desired results.
15. **Suggestions for Improvement**  
Suggests ways to improve efficiency or productivity of unit.

### DIMENSION 4 - Equipment and Tools

16. **Knowledge of Equipment**  
Demonstrates knowledge in the operation and/or maintenance and/or repair of all equipment used on the job.
17. **Specialized Equipment Operation (If Applicable)**  
Effectively uses and maintains all specialized equipment necessary for the job.
18. **Use of Tools**  
Correctly uses proper tools. Returns tools to their proper location, cleaned and in proper working condition.

### DIMENSION 5 - Safety

19. **Safety**  
Observes all safety precautions. Demonstrates safe work practices.

### DIMENSION 6 - Communication

20. **Listening Skills**  
Listens and understands information that is being conveyed.
21. **Keeping Others Informed (If Applicable)**  
Informs designated person when equipment is not working properly, or when problems or unusual situations arise.
22. **Documentation (If Applicable)**  
Properly records and documents new installations and changes.
23. **Communication**  
Utilizes proficient oral and/or written communication skills to convey ideas and information in a manner that is clear and concise.

### DIMENSION 7 - Working with Others

24. **Relations with Co-Workers**  
Cooperates with fellow employees in order to accomplish work more effectively and efficiently; helps create and maintain good working relationships.
25. **Relations with Other Units**  
Works cooperatively with other units to accomplish the goals of the organization.
26. **Relations with Laboratory Personnel**  
Creates a positive and professional impression in dealing with other Laboratory personnel.
27. **Work Guidance/Training (If Applicable)**  
Provides work guidance, training, and assistance to coworkers and/or new employees when appropriate.

### DIMENSION 8 - Work Standards

28. **Job Site Conditions**  
Maintains the job site for which the employee is responsible in a clean and organized manner.
29. **Accountability**  
Accepts responsibility for actions.
30. **Policy Compliance**  
Knows and complies with written and communicated policies and procedures.
31. **Off-Duty Hours (If Applicable)**  
Responds to "call-ups" while on call in accordance with written and communicated policy.



tools, safety, communication, working with others, and work standards. The categories covered thirty-one separate rating factors. Each factor could be rated as 1—unsatisfactory, 2—below expectations, 3—meets expectations, 4—exceeds expectations, or 5—clearly outstanding. Because not all factors were equally important, they were assigned weights of important, very important, or critical. This system of categories, rating factors, ratings, and weights gave enough of a scoring matrix for calibration that the team felt comfortable with its proposal.

*Step 7.* The parent department office, the legal office, and HR reviewed and approved the proposed appraisal format. Once the proposed appraisal was ready, the next step was the appropriate reviews. If we were to succeed, we would need these groups' support. After working out several issues, we received their support.

*Step 8.* The craft-knowledge experts held meetings with the staff to review and explain the new appraisal format. Finally, the craft knowledge experts took the appraisal back to their peers. They explained the options considered and the decisions made during development. The other staff members reviewed and accepted the form.

### Implementing the New System

#### Training Supervisors

Supervisory training is vital for any successful performance management process. We created five videos, using people in our organization, and began with a two-day session for supervisors. The videos used role reversals. It covered recognizing good performance and poor work habits, the elements of performance management, coaching, recognition, day-to-day reinforcement, and the day-to-day interaction that is so critical to performance management. This session was the first training many of the supervisors had received. Too often, we select people with good trade skills as supervisors and then simply expect them to go forth and supervise, even though supervision requires a completely new set of skills.

After a resting period to let the first session settle in, we held a one-day session to work with completed sample appraisals. This second session included role playing to work on what the coaching session might be like. Sometimes the employee was cooperative, sometimes a little excited. We were preparing the supervisors to evaluate performance for employees who might never before have had an appraisal based on something credible. Supervisors needed to be braced for a range of responses.

After the first appraisal cycle, we held a follow-up session for supervisors to look at what went well and explore areas where they wanted more training. We gave each supervisor a small book on performance appraisals, which included an evaluation instrument for them to privately assess their effectiveness in conducting performance appraisals. The supervisors reported that the book was helpful.

#### Gathering Staff Feedback

After we had conducted the first appraisal cycle and developed salary actions based upon the performance appraisal process, we asked our consultant to come back. He led focus

groups and used questionnaires to evaluate our new process. How well were we doing? Did people understand the process? Did it make sense to them? We needed to understand the results so far, because we intended this to be a continuous improvement process. We incorporated feedback from the first appraisal cycle by revising the form in a couple of areas.

### Key Components of the New Appraisal Process

#### Employee-Developed Rating Criteria

A critical part of our project's success was the use of employee-developed criteria. People must believe that evaluation criteria are relevant. The best way to get relevant criteria is to ask people what is important to their jobs. They can tell you.

#### Perception of Fairness in Appraisal Administration

Once you have a valid instrument that employees helped to develop, people must believe that it is administered fairly, that appraiser bias is addressed. Questionnaire results told us that 85 percent of the employees wanted more than one supervisor to appraise their performance. Thus, a second key component of our system was multiple appraisers for each employee.

Supervisors from three levels work with and appraise the employee: 1) working leaders (who work with their tools with the employees); 2) senior leaders (who are the first-line supervisors, they spend most of their time supervising and interacting with customers in the administrative or design side of the work process); and 3) operations supervisors (the highest level nonexempt supervisor). Each supervisor appraises the employee independently. The appraisals are fed into a software program that assigns a weighted value to the ratings of each supervisor, calculates values for the rating factors based on the importance assigned to each factor, and determines the rating. Table 1 shows a sample combined appraisal with a composite score. The supervisors then meet to discuss differences. Supervisors need not change ratings if they differ, but they should understand why the differences are there. The multiple-appraiser process allows adjustment for appraiser bias, although some bias is unavoidable, of course. Establishing a clear system that attempts to minimize bias gave people confidence that they had a fair shot going into the process.

#### Analysis and Normalization of Ratings

The software used lets us analyze the appraisals and the appraisers. It gives an overall profile of performance. Interestingly enough, analysis of the first group of appraisals (Figure 2) showed nearly a bell-shaped curve (without forcing). This software also provides numerical and frequency distributions; standard deviations; score ranges; evaluation of trends to point out areas of difficulty; and analysis of supervisors, including number of employees appraised, appraiser averages, and distributions of appraisal scores (see Table 2 for an example).

Before we calculated salary increases, we normalized the



Table 1

## Johns Hopkins University

## Individual Appraisal Report

Manual number: 2 craft

| Appraisers:                |       |                       |  | wgt |
|----------------------------|-------|-----------------------|--|-----|
| 1                          | 03018 | Senior Leader         |  | 70  |
| 2                          | 45113 | Working Leader        |  | 20  |
| 3                          | 64895 | Operations Supervisor |  | 10  |
| Total Appraiser weight=100 |       |                       |  |     |

| Fac | Dim |  | Priority | Appraiser Scores |   |   |   | Score |
|-----|-----|--|----------|------------------|---|---|---|-------|
|     |     |  |          | Max              | 1 | 2 | 3 |       |
| 1   | 1   | Job Knowledge                                | 3        | 5                | 3 | 3 | 4 | 3.1   |
| 2   | 1   | Technical Skill (If Applicable)              | 3        | 5                |   |   |   | 0.0   |
| 3   | 1   | Technical Interpretation (If Applicable)     | 3        | 5                | 3 | 3 |   | 3.0   |
| 4   | 1   | Keeping Current (If Applicable)              | 1        | 3                | 3 | 3 | 3 | 3.0   |
| 5   | 1   | Problem Solving                              | 2        | 5                | 3 | 3 | 3 | 3.0   |
| 6   | 2   | Workmanship                                  | 3        | 5                | 4 | 3 | 4 | 3.8   |
| 7   | 2   | Competency                                   | 2        | 5                | 4 | 3 | 4 | 3.8   |
| 8   | 3   | Time Management                              | 2        | 5                | 3 | 4 | 4 | 3.3   |
| 9   | 3   | Completion of Work                           | 2        | 5                | 3 | 3 | 3 | 3.0   |
| 10  | 3   | Performance Under Pressure (If Applies)      | 1        | 5                | 4 | 3 |   | 3.8   |
| 11  | 3   | Filling-in for Others (If Applicable)        | 1        | 5                | 3 |   | 4 | 3.1   |
| 12  | 3   | Attendance                                   | 3        | 5                | 1 |   | 1 | 1.0   |
| 13  | 3   | Punctuality                                  | 3        | 3                | 3 | 3 | 3 | 3.0   |
| 14  | 3   | Planning (If Applicable)                     | 2        | 5                | 3 | 3 | 3 | 3.0   |
| 15  | 3   | Suggestions for Improvement                  | 2        | 5                |   |   |   | 0.0   |
| 16  | 4   | Knowledge of Equipment                       | 3        | 5                |   |   |   | 0.0   |
| 17  | 4   | Specialized Equipment Operation (If Applies) | 2        | 5                | 4 |   |   | 4.0   |
| 18  | 4   | Use of Tools                                 | 2        | 5                | 3 | 3 | 3 | 3.0   |
| 19  | 5   | Safety                                       | 3        | 5                | 3 | 4 | 3 | 3.2   |
| 20  | 6   | Listening Skills                             | 3        | 5                | 3 | 3 | 4 | 3.1   |
| 21  | 6   | Keeping Others Informed (If Applicable)      | 3        | 5                | 3 | 3 |   | 3.0   |
| 22  | 6   | Documentation (If Applicable)                | 2        | 5                | 3 |   |   | 3.0   |
| 23  | 6   | Communication                                | 3        | 5                | 3 |   | 4 | 3.1   |
| 24  | 7   | Relations with Coworkers                     | 2        | 5                | 4 | 4 | 4 | 4.0   |
| 25  | 7   | Relations with Other Units                   | 2        | 5                | 4 |   | 4 | 4.0   |
| 26  | 7   | Relations with Laboratory Personnel          | 2        | 5                | 3 |   | 3 | 3.0   |
| 27  | 7   | Work Guidance/Training (If Applicable)       | 1        | 5                | 3 |   |   | 3.0   |
| 28  | 8   | Job Site Conditions                          | 1        | 3                | 3 | 3 | 3 | 3.0   |
| 29  | 8   | Accountability                               | 2        | 5                | 4 | 3 | 3 | 3.7   |
| 30  | 8   | Policy Compliance                            | 2        | 3                | 3 | 3 | 3 | 3.0   |
| 31  | 8   | Off-Duty Hours (If Applicable)               | 2        | 5                |   |   |   | 0.0   |

Overall rating

3.14

Table 1. Combined appraisal score from three appraisers. Individual appraisers' input is weighted (with the immediate supervisor having the most influence on the rating), and rating factors are weighted according to importance to the job. The software calculates the composite score.



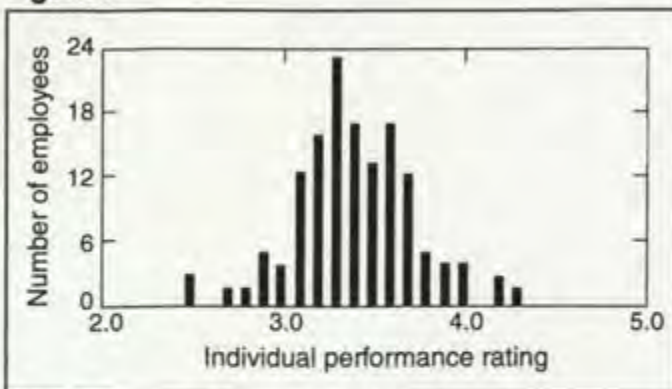
**Figure 2**

Figure 2. The first group of appraisal scores from the new performance management system. Ratings fell into a bell-shaped curve without forcing.

ratings to the branch mean. This process eliminated the problem of differences showing up between groups of employees when different reviewers tended to give tougher or more lenient ratings.

### Frequent Performance Appraisals

Used just once a year, even the best designed performance appraisal will not be particularly effective. Performance management has to be a daily process, and a more structured approach to the formal performance review can encourage

daily interaction. We require appraisals three times a year:

1. In January the employee and the immediate supervisor sit down together, each fills out an appraisal form, and they compare their differences. The appraisal form becomes a framework for discussion. Often supervisors are not adept at (and employees may not be particularly interested in) coaching-style discussions. However, when both fill out a form and discuss the differences, the discussion quickly becomes a coaching process. Also at this time, the employee and supervisor look at objectives and establish goals and work plans.

2. In April the appraisal is somewhat more formal. Multiple appraisers are used, with the goal of checking on how January's plan is going.

3. In August the final multiple-appraiser performance review occurs. This review is the formal appraisal used to determine annual salary increases.

Thus, in January the employee finds out where he or she stands and sets a plan. April provides a check on how the plan is going, and the formal review in August affects salary. People believe the system is fair. And, an added benefit of more frequent reviews has been better communication between employees and supervisors.

### Calculation of Salary Increases on the Basis of Ratings

To calculate each person's raise, we use a salary algorithm having two distinct features:

- People are compared with their peers, so, for example, a

**Table 2**

| Appraiser Analysis Report    |      |            |           |                        |     |      |      |     |
|------------------------------|------|------------|-----------|------------------------|-----|------|------|-----|
| Source file(s): Current only |      |            |           |                        |     |      |      |     |
| Appraiser                    |      | # of Appri | Avg Score | Distribution of Scores |     |      |      |     |
| Number                       | Name |            |           | 1                      | 2   | 3    | 4    | 5   |
| 69636                        | —    | 7          | 3.18      | 4                      | 6   | 160  | 40   | 7   |
| 70039                        | —    | 14         | 3.33      | 1                      | 8   | 223  | 105  | 9   |
| 70045                        | —    | 11         | 3.35      |                        | 7   | 189  | 103  | 5   |
| 81988                        | —    | 28         | 3.69      |                        | 4   | 351  | 341  | 111 |
| 82837                        | —    | 15         | 3.07      |                        | 16  | 358  | 39   | 2   |
| 85275                        | —    | 15         | 3.22      |                        | 8   | 220  | 53   | 10  |
| 86554                        | —    | 9          | 3.48      |                        | 8   | 128  | 100  | 14  |
| 89677                        | —    | 8          | 3.78      |                        | 8   | 70   | 124  | 35  |
| 90598                        | —    | 15         | 3.21      | 2                      | 33  | 247  | 93   | 13  |
| 91408                        | —    | 11         | 3.34      |                        | 15  | 160  | 94   | 8   |
| 95336                        | —    | 10         | 3.43      |                        | 5   | 83   | 61   | 5   |
| 95348                        | —    | 2          | 3.67      |                        |     | 26   | 20   | 8   |
| 95522                        | —    | 8          | 3.24      |                        | 1   | 176  | 40   | 8   |
| Totals/mean score            |      | 383        | 3.44      | 26                     | 257 | 5690 | 3223 | 672 |
| Standard deviation: 1.49     |      |            |           |                        |     |      |      |     |

Table 2: Analysis of the scores shows how various appraisers are doing and how much scores tend to vary from appraiser to appraiser.



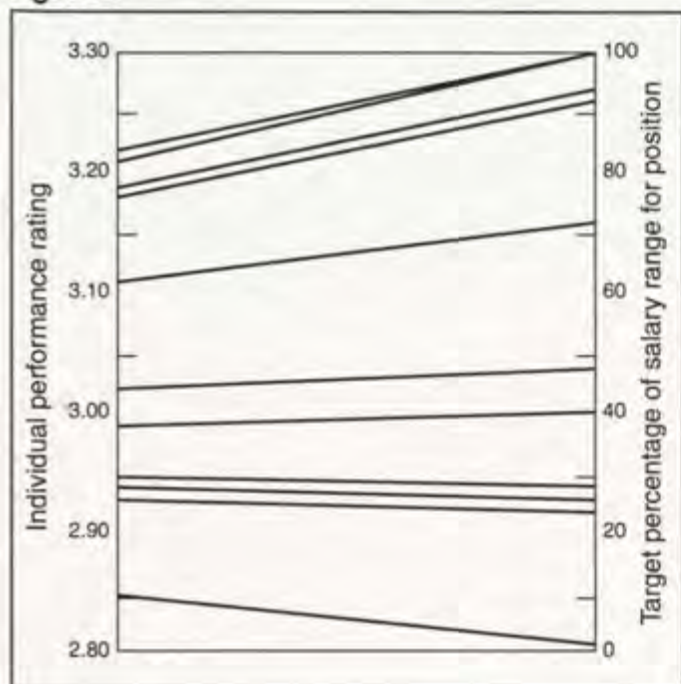
**Figure 3**

Figure 3. In linking pay raises to performance, we used people's ratings to target them in the salary for their position. Lower ratings produce a lower target in the salary range, higher ratings a higher target.

plumber isn't competing against an electrician.

■ Pay is tied to performance through a target position in the salary range, not through the percentage increase.

Generally a cluster of twenty people includes two, three, or sometimes four people whose performance score exceeds the average by one standard deviation or more. We target their salaries toward the top of their salary range. More than just the single top performer can be targeted at the top of the salary range. (In theory, everyone can be there.) Then we express everyone's score as a percentage of the lowest score that would result in a top-of-the-range target, multiply that percentage by a spread factor, and subtract it from 100. The result becomes the person's targeted position within range. This algorithm is mapped in Figure 3. Someone whose score is 2.85 on the scale of 1 through 5 is at the lower end of the range, for example, but someone whose score is 3.2 more than meets expectations and is at the top of the range.

The available pool of money for salary increases is then distributed using a spreadsheet that defines minimum, average, and maximum percentage increases. We set the upper limit of possible increases at twice the average. For example, if the average increase is 5 percent, top performers can move toward

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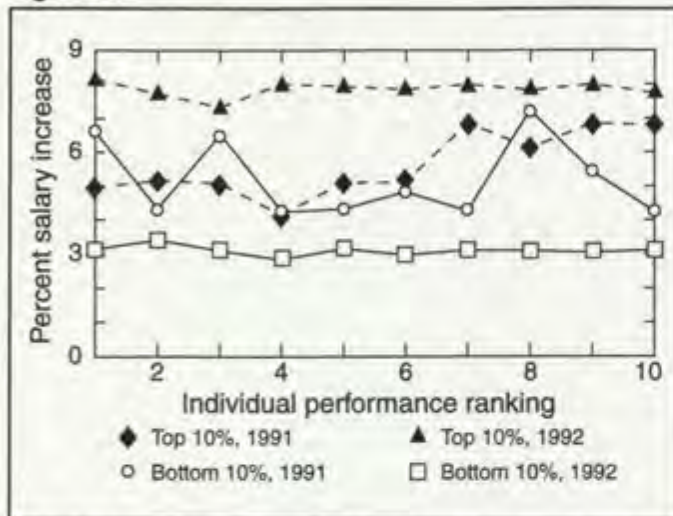
**Figure 4**

Figure 4. In 1991, the top and bottom 10 percent of performers received raises unrelated to their performance rating. By 1992, after the new performance management system had been implemented, a better performance rating produced a better raise.

the top of their range with a 10 percent salary increase. The lower limit is zero, which means that some people get no raise at all. As we made the transition to this plan, we found that some people were paid far more than their performance evaluation numbers could justify. We do not cut such people's salaries, but we make it clear to them that further increases are contingent on performance ratings that justify a raise.

As Figure 4 shows, in 1992 the better performers got the better raises. This figure compares the raises given to the top and bottom 10 percent of performers in 1991, before the new system was adopted, and 1992, after the first new appraisal cycle.

#### Continuous Improvement of the System

We are continually seeking ways to improve the performance management model. Since the initial implementation in 1991, several changes and enhancements have been incorporated.

#### Refinement of the Performance Appraisal Form

The appraisal form itself is open to change, and has been changed. For example, the initial description for the attendance category was, "does not allow job performance or coworkers to be adversely affected by unscheduled absences." That description was subjective and open to misinterpretation. It was changed to read, "Complies with branch attendance guidelines." To expand and clarify attendance requirements, a full page of specific guidelines was then distributed to all employees. Each person now knows in advance exactly how the attendance factor will be rated, and ratings are consistent from appraiser to appraiser.

#### Development of Performance Standards

While every effort has been made to ensure that all employees and supervisors understand the rating factors, how do employees know what they must do to meet or exceed expectations? How do supervisors know they are consistent from one employee to another, or from one supervisor to another? The development of performance standards resolves these problems.

Performance standards were developed by again including the employees and supervisors who must use them. Because the work in various units is diverse, standards should be tailored to fit each type of work. This tailoring ensures that peers are rated consistently.

The supervisor of one work unit drafted a set of standards for the appraisal scales for each rating factor. These standards clarified the expectations for each factor. The supervisor, the branch staff development manager, the employees, and the other supervisors of the work unit met to discuss and, through consensus, finalize the standards. For example, one rating factor is Suggestions for Improvement. This factor is defined as suggests ways to improve efficiency or productivity of unit. Table 3 shows the performance standards defined for this rating factor in the work unit. An additional way to measure performance is currently being initiated. Staff members are being trained to develop estimates and define jobs using software that employs R. S. Means Standards. This soft-

**Table 3**

#### Performance Standards for Rating Factor "Suggestions For Improvement."

| Rating | Description  |
|--------|--|
| 1      | Never offers concerns/suggestions to supervisors                                       |
| 2      | Offers few concerns/suggestions for improvement to supervisors                         |
| 3      | Offers constructive opinions for improvement to supervisors                            |
| 4      | Develops a plan to implement suggestions and follows through                           |
| 5      | Seen as an innovator, one whose plans and suggestions are often sought and implemented |



ware also provides benchmarks against which to measure completed work.

### Development of Individual Performance Improvement Plan

In August 1993, we added another element to our performance management plan. Some people consistently failed to meet expectations in some factors, despite their supervisors' best coaching efforts. We instituted Personal Performance Improvement Plans, written plans developed jointly by the supervisor and the employee who needs to improve. A plan contains the following elements:

1. The supervisor details the reasons the employee does not meet expectations for a rating factor.
2. The supervisor and the employee jointly define specific, attainable, and measurable improvement goals.
3. The supervisor and the employee develop specific action steps that will help the employee reach the improvement goals.
4. The employee signs the plan, indicating that he or she understands the actions needed and is committed to reaching the goals.
5. The supervisor signs the plan, acknowledging its joint

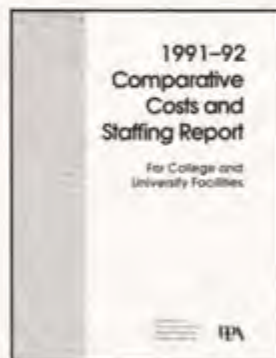
development and formally offering guidance, clarification, and support to help the employee reach the goals.

Although these steps could be followed without a formal written document, putting it all in writing offers several benefits. Because people tend to take a written contract more seriously than an oral agreement, they are more likely to improve. Also, developing the written document forces a thorough discussion of the factor needing improvement. The document then serves as a reminder for both the supervisor and the employee to continually work on this factor.

A word of caution if you plan to adopt a tool like our improvement plan, employees must clearly understand the document's intent and proposed use. We reassured employees that these documents would not become a part of their permanent files, nor would they be used as anything but a tool for improvement and a vehicle to foster improved employee-supervisor communication.

### Continuing Staff Input Through Employee Surveys

Employees understand that they may raise concerns or suggest changes to the system at any time. We survey our employees regularly in an attempt to understand their needs and concerns. Part of this survey deals with the performance



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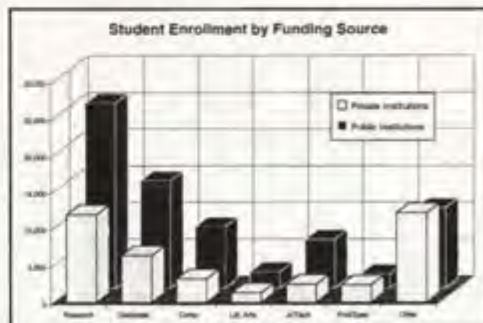
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**Table 4**

*Customer survey results from 1991 and 1994 show the dramatic improvement in customer satisfaction since we adopted the new performance management system. The most dramatic gains were in 1991's two lowest-rated factors, "Estimating" and "Job Cost."*

#### TPO Customer Survey Index Averages

| Year | Estimating | Job Cost | All Factors |
|------|------------|----------|-------------|
| 1991 | 87.0       | 78.7     | 92.6        |
| 1992 | 94.9       | 86.7     | 96.3        |
| 1993 | 104.0      | 92.5     | 100.1       |
| 1994 | 108.1      | 114.9    | 101.2       |

appraisal system. As a result of the survey, revisions have been made, such as the refinement to the attendance criteria. We take every employee suggestion seriously and ensure that we respond to each idea.

#### Lessons Learned

We don't want to give the impression that this evolution has occurred without obstacles. By drawing upon the following lessons learned, you may minimize the rough spots in your implementation of a new performance management process.

Expect skepticism, even from some of your best employees. After years of a system that rewarded poor performance, many employees may not believe that any positive changes can happen. One of our best employees happily paid off his cup-of-coffee bet with his supervisor when, contrary to his predictions, he saw a real difference between his raise and those of poorer-performing coworkers.

Expect resistance from a few individuals. Not everyone likes being held accountable. Also, some supervisors may be uncomfortable with the additional effort required and the new skills they must acquire with a system such as this. A few supervisors on the staff chose to return to working with their tools. Individuals with demonstrated leadership and communication skills have been promoted to take on these supervisory roles.

At the onset, develop an agreement for making changes to the process. We first tried to establish more definitive attendance guidelines when the problem was recognized midway through an appraisal year. Some staff members were quick to point out that implementing new guidelines at that time amounted to establishing retroactive requirements, which was unacceptable to them. We agreed that the process would be altered only at the start of an appraisal year.

#### Improvement in Customer Satisfaction

How do we know our customers are more satisfied now than before the implementation of this performance management system? We asked them. Since 1991 we have surveyed our customers at the completion of each major project. Customers are asked to rate eight elements in each of two ways, how important each element is to them and how satisfied they were with TPO's performance in each element. On a scale of one to five, these elements are rated in importance and in satisfaction:

- Planning
- Estimating
- Scheduling
- Coordinating
- Job cost
- Quality
- Making changes
- Meeting technical requirements

To facilitate comparison of both overall performance and performance in each element, an index is computed that correlates satisfaction with importance.

#### Index = $\frac{\text{Satisfaction}}{\text{Importance}}$

An index of less than 100 percent for a particular element indicates the degree to which the customer rates satisfaction lower than importance. Conversely, an index greater than 100 percent indicates the degree to which the customer rates satisfaction higher than importance.

In 1991, the overall index for all elements was 92.6 percent. You might think that's not too bad; over 90 percent is an A in anyone's book, right? However, the indexes for individual elements clearly showed plenty of room for improvement,



and in our total quality environment, we strive for continuous improvement. The two lowest elements were Estimating, with an index of 87.0 percent, and Job Cost, with an index of 78.7 percent.

Recent survey results show a significant improvement in customer satisfaction (see Table 4). For the first quarter of 1994, the overall index for all elements was 101.2 percent. The previously lowest rated elements have improved dramatically: The current index for Estimating is 108.1 percent; for Job Cost, the index has increased to 114.9 percent, a 46 percent improvement. Our customers have definitely noticed a difference!

These tangible results are extremely satisfying for the entire plant engineering branch team. We do not hide the results of our surveys. Each survey is distributed to all who were involved in the completed work. In this way, supervisors and employees receive direct feedback from customers.

What happens as a result of the feedback? If customers are not completely satisfied, our staff contacts them in an effort to resolve their concerns. Employees commonly receive praise for their individual efforts. Often the entire team receives positive recognition.

Customer comments have become much more positive than those received in 1991. Typical of such comments is this one, received in April 1994:

"All of us were extremely impressed with the professional

manner in which all of the staff carried out their work. The level of coordination and cooperation was fantastic and the quality of work excellent."

This accomplishment is even more remarkable considering that staff was reduced from 175 to 135 employees during this time, with no reduction in the services we provided. At the heart of this success is the employees' improved understanding of what it takes to provide great service to customers, and the use of that knowledge to involve the employees in the process for managing performance.

### Conclusion

The results of our new employee-developed performance management system are outstanding. Performance expectations are defined, and survey results show that employees understand the appraisal process. For the first time, performance ratings affect pay raises. The branch's productivity improved, and use of sick and family leave dropped significantly. The careful supervisory training and the structured approach of multiple appraisals have increased supervisors' involvement, improved their coaching skills, and helped them keep expectations consistent. The system recognizes and rewards excellent performance, and employees know it. And finally, customer satisfaction is up dramatically—the ultimate measure of success in a total quality organization! ■



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# APPLYING NEW TOOLS TO PROJECT MANAGEMENT

by Boone Hellman, AIA



**W**ITH ALL OF THE VARIOUS DEMANDS that are placed on a project manager, the business of project management has become increasingly difficult. A skilled project manager needs to apply a multitude of tools to the project in order to bring it to successful completion. I have discovered two tools, partnering and team building, that are extremely effective in ensuring a successful project.

Partnering and team building are not new concepts. Both are regularly utilized in the total quality management process that is so common these days. Team building is an essential component of partnering; however, team building can be promoted throughout organizational structures whereas partnering typically involves the pursuit of a specific project. For purposes of this article, partnering and team building will be discussed in the context of construction.

I am involved with a fairly large capital improvement program at the University of California at San Diego. Since 1987, the department I am responsible for, the office of facilities design and construction, has let construction contracts in excess of a half billion dollars. In that period of time, with that magnitude of construction contract costs, we have seen just about every conceivable problem that can be encountered in design and construction project management.

Typically, project managers are well-rounded people. They are often architects, engineers, construction managers, analysts, or accountants, to name a few. What is often not recognized is that project managers also need to possess the power of clairvoyance, the skills of a psychologist, and an under-

standing of the principles of running a children's day care center. The last statement is partly tongue-in-cheek, but there is a certain amount of truth to the simple fact that project management is not an orderly process. The skilled project manager certainly needs to know how to appropriately apply these skills and attributes at the right place and time in order to juggle the demands of most projects.

Because people and personalities are involved, project management becomes much more than the basic task of organizing materials into a process that will deliver a product within a set amount of time for a given cost. "On time and on budget" is the primary goal of a project manager in any construction project.

What many project managers don't know how to do, or at least not very well, is to manage people as well as time and money. Managing projects well can be easy and straight forward compared to managing people well. This is where partnering and team building come into play. Many in the construction industry are left in the cold when it comes to dealing with how to manage and direct people in diverse and often competing relationships. Some basic understanding of the principle tenets of partnering and team building is all that is required to really give your project management endeavors some additional power.

Partnering and team building allow us to fully recognize the liabilities and assets of all the players involved. If you can manage the people involved, then you've probably solved 90 percent of your problems at the start.

## WHAT IS PARTNERING?

Partnering goes back to a way of doing business when a person's word was a bond and people accepted responsibility for their commitments. Mutual trust, honesty, and integrity



were the mainstays of everyday contractual relationships. There is no doubt these principles have become seriously eroded in today's litigious society. Partnering refosters these ideals. All parties recognize that every contract includes an implied covenant of good faith.

In the construction industry accepted way of doing business, all parties seem to be involved in adversarial relationships. Partnering is a process that establishes a relationship of creative cooperation. Partnering recognizes that the goals of the project owner, contractor, and design professional are complementary, not in conflict. Quite simply, partnering enables all participants to understand that it's not "your problem," it's not "my problem," but it is OUR problem. Putting on the other person's shoes in order to understand their issues is a key focus in the partnering process. It is essential to have a clear understanding of each other's perceptions and expectations. Communication is obviously the key ingredient in the whole process.

The goals of the parties involved in a project are in fact complementary. The project owner's goals are to safely complete a quality project, on time and on budget. The design professionals want to see their creation brought to its full fruition with all of the function and splendor they had envisioned. The contractor wants to maximize his profit and have a happy (and potentially, repeat) customer. The partnering process provides the vehicle for identifying and emphasizing the similarities of these common goals through a cooperative effort.

Most often a formal workshop is conducted to introduce and educate all the participants to the partnering process. This workshop can be facilitated by a consultant who makes sure that all participants are involved and are made a part of the project team. The partnering workshop is a forum and opportunity to initiate the key elements of partnering, which are:

- **Commitment**—Everyone involved must be committed to the overall success of the project, including the highest managerial levels of the owner, contractor, and design professional.
- **Equity**—Everyone's perspective and interests are considered in the creation of mutual goals for a successful project by utilizing a win-win philosophy.
- **Trust**—Open communication about motives, risks and individual goals create a better understanding of those involved. With a mutual understanding of problems, risks, and a goals, trust can be developed and nurtured.
- **Development of Mutual Goals and Objectives**—Jointly developed goals and objectives allow unclouded thinking toward project decisions. This creates a joint investment in the project by all parties.
- **Implementation**—All parties jointly participate in the implementation of their mutual goals and objectives.
- **Continuous evaluation**—Like anything else, partnering needs attention and work in order to be successful. Difficulties need to be addressed and dealt with as they occur. Successes need to be analyzed and repeated.
- **Timely responsiveness**—Mechanisms for quick communication are delineated and incorporated. Issue resolution is handled effectively and expeditiously.

One of the most important products produced during the

workshop is the partnering charter or mission statement. Through a series of exercises during the workshop, the participants will create a blueprint of the partnership. The charter should include a general statement of intent as well as shared goals and expectations for the project. Goals should be specific, so that it is easy to evaluate the success of the partnership.

Consider the following, an actual mission statement and partnering charter from one of our recent projects.

We, the partnership, agree to cooperate and are united in our commitment to a profitable, high quality, safe project, within budget and on time. We commit to resolving issues in a noncombative manner and at the level they are raised. We commit to simple, professionally researched/prepared/answered and nonbureaucratic correspondence. We commit to meeting or improving the April 29, 1994, project schedule completion date by good planning, quick responses, good coordination, and avoiding unreasonable expectations. We commit to achieving the quality specified in the contract documents through a commitment to excellence in construction. Alternatives will be carefully reviewed without paradigm paralysis. We commit to monitoring our partnering progress and bringing related parties into the partnering process.

This charter was signed by all the participants and distributed. You can see a great articulation of values and objectives in this charter, which acted as the glue of commonality for all the participants.

Development of an issue resolution process is also an extremely important outcome of the partnering workshop. Team members collectively agree to a methodology and strategy that will be utilized when disputes arise. Having a clear and concise process to follow for issue resolution allows the team members to feel comfortable that their concerns will be honestly considered. During the partnering workshop, a line of communication is established to be used in the event of unresolved issues. The value of this structure alone is worth the partnering workshop itself.

Partnering is an opportunity for all the stakeholders to meet face to face and discuss their mutual goals and objectives. Often in the past, incriminating letters have travelled in both directions to state what an individual isn't following or doing. When the participants have met in person, there is less tendency to communicate in a negative manner. More often than not, instead of a letter, a simple phone call for clarification can be conducted. Please understand that partnering does not, in any way, abrogate the contract. It simply facilitates communication and mutual understanding between the participants.

What does partnering accomplish? It reduces turf building. There is a reduced exposure to litigation. There is a sharing of the risk by all parties. It allows the energies of all the participants to focus on common issues. Ideas are shared and promulgated. Opportunity for innovation is substantially increased. Mutual goals and objectives are set out at the beginning with the realization that there is a great deal of commonality. Joint satisfaction is a significant byproduct.



Most importantly, there is an incredible increase in communication among the people doing the project. Partnering is not a panacea, but it isn't Pandora's box either. It can be an excellent tool to assist in the pursuit of good project management.

### WHAT IS TEAM BUILDING?

Team building is a component of partnering, but it can be applied independently of the partnering process. Team building can be utilized to understand your colleagues and how they function. It is the "why we do what we do" aspect of our everyday lives. If we can understand what makes people tick and realize that to sell ideas to others it helps to understand the way they want to be sold, then our job of people management is simplified immensely. We need to learn how to appeal to each team member's style and pattern of behavior.

Though we are talking about complex psychologies, behavioral styles are quite simple. A basic understanding of behavioral styles is all that is needed to be armed with the most sophisticated of team building technologies. There are four basic behavioral styles: the dominator or driver, the influencer or expressive, the steady or amiable, and the critic or analytical. The Myers-Briggs Personality Profile and the work of Larry Wilson and Dr. Paul Mok can be helpful in showing the characteristics and attributes of the different behavioral styles. There are distinct differences in the way people make decisions. If you can identify the decision-making style of your counterpart, then you can approach that person in the same style.

A personal example is noteworthy in terms of how people interact and relate. I retained the services of Nicole Shapiro and Associates to do a management review of my organization. I told her that I often felt frustrated in my relationship with my boss because when I would present an idea or ask a question, he would invariably ask me to prepare a quick written summary of the situation and what issues were on the table. I felt that these issues could be dealt with during the course of our normal meetings and that the written summary was simply busy work. What I discovered was that my boss possessed a critical, analytical behavioral style. These people make decisions slowly, deliberately, and with lots of detailed backup; consequently, the requests for the summarization of issue points. My boss wanted me to give him the information in a manner that he was comfortable with in order to be able to make a decision. I had expected him to be able to deal with the issue collaboratively and immediately. Once I realized this, I approached future issues in an analytic style. I continue to be amazed at the difference this has made in my ability to communicate with my boss.

If you apply the determination of the behavior styles uniformly to all of your communication with your project colleagues, think of the results you will achieve. It takes practice, but with a concerted effort you will begin to feel tangible results. The most difficult aspect is to determine precisely what behavior style a person possesses. However, identification of a few key characteristics will assist you in generally being able to assign a behavior type to most individuals.

In the partnering workshops we conducted, we utilized a behavior style evaluation questionnaire that, upon completion, identifies each individual's general behavioral style.

There is not a right or a wrong in the process, nor is one style better than another. It is simply an analysis of the way people are likely to act and behave in their work environments.

Remember that the goal is to be aware of all of the assets and liabilities of the team members. If you can promote the positive aspects and diminish the negative ones, you will be part of a strong project team. A well-functioning team has participants that communicate openly and frankly. They actively listen to one another. An attempt is made to recognize personal styles and to stretch to meet the needs of others. Team members share in the problem-solving process. There is a freedom to confront each other's assumptions without inhibiting further contributions. Conflict is regarded as a healthy and necessary part of the problem solving process.

### What do people want on a team?

- To be informed
- To be respected
- To be listened to
- To have their needs met
- To feel safe
- To have a sense of control
- To belong
- To be recognized and rewarded
- To feel competent
- To have a sense of power
- To feel job satisfaction

### What can cause a team to not work well?

- People doing it "their way"
- Different values and norms
- Lack of clear direction and focus
- Lack of good leadership
- Hoarding of information
- Unwillingness to change
- Lack of accountability
- Lack of commitment
- Lack of adequate resources

There are obviously many different factors to successful team-building. Knowing as much as possible about your team members is critical and essential if you really want to have an effective team. The analogy of a sports team with its specialists, whether they are quarterbacks, pitchers, goalies, or guards, holds true for successful project teams. Each person has a role and it is the project manager's duty to make sure that the roles and responsibilities are appropriately assigned.

Partnering and team building are awesome tools when applied effectively. There are great gains to be had by the increased communication alone. I encourage you to start a little bit at a time. The customer will be the ultimate beneficiary of these processes because they will result in a higher quality project. These are not management practices that can be applied overnight, but they certainly can be applied over time. I read somewhere that this process was likened to "teaching an elephant to dance; it is going to take a great deal of time and perseverance, but success is possible."



## APPA Answers

Maxine Mauldin

### Customer Service

Customer service is an area in which we all can improve. The way in which you effectively meet your customers' expectations—whether it's direct or indirect service to the customer—is a reflection of you and your department as a whole. From that first contact to your office about a water leak in the library or a painting project in the dean's office, you must assure the customer that your department will deliver on its promises, leaving the customer with the satisfaction of knowing the job will be done properly. This problem or project is important to your customer at the time they place the service call, and to them it requires your immediate attention. Establishing open lines of communication is an important relationship between the department and the customer.

YES, emotions at one time or another are a factor in your reaction to the customer. The customer, even though she or he is not angry at you, may act that way toward you. You as a customer service person must not take it personally. Attitude plays an important part in how you handle the matter.

Instead of trying to explain why, where, and whose fault it is, the customer just wants to be taken care of. Assure the customer that the problem will be resolved. Immediately investigate the problem and keep the customer informed of the progress. The customer will respect your honesty and persistence in getting the job done. Keep in mind that no job is too large or small when a customer needs help. If it's important to the customer, it is important to you. Build a positive image and show that your department can be trusted and is dependable.

Maxine Mauldin is APPA's information services manager.

Knowing that a project was serviced well, and in a timely matter, is only part of customer service. Having the means to track your customer's reaction to a job performed by your department is essential to you as the department head. Not only will this information let you know if your customers are being satisfied, but how prompt and productive your staff person was. This can be helpful when evaluating that individual later in his or her career.

In the February 1993 APPA Newsletter, we solicited members as to how they were determining the levels of their own customer service as it relates to their department's performance. Many of our members responded by sending us examples of different types of response cards, questionnaires, surveys, etc., that they used for feedback. The Information Services Department has started a file for sharing this information entitled "Customer Satisfaction Reply." If you would like to have copies of these forms or would like to send us your forms for sharing with others, please contact me at APPA.

Here is just an example of a few we received:

- *University of California, Riverside.* "Tell Us How We're Doing!!," a 8.5 x 3.5 response card, is given after each job is completed, and is trackable by the job number. The performance is rated on a scale of 5-outstanding to 1-unsatisfactory. This card also has a comments area and a "I have a concern and would like a reply" section. This is effective, because now the facilities department has an open invitation to that department's concerns.

- *University of Missouri, Rolla.* With the exception of the construction projects, this institution uses an annual evaluation form. These forms are set up based on departments. This gives them a year-to-year comparison to see if they are improving.

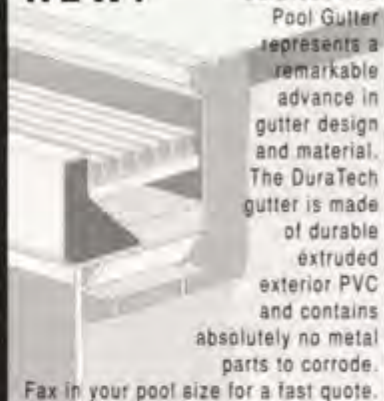
- *Vanderbilt University.* This institution used a telephone survey that contacts faculty as well as students. The results are compiled into a statistical report complete with graphics. Some main sections included satisfaction levels, key drivers, and areas for improvement.

We have lots of other feedback methods from other member institutions. We would like to thank all the institutions who sent their forms in, which helps your colleagues and prevents them from having to reinvent the wheel.

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## Global Exchange

Abraham Dines

### The Weizmann Institute of Science

The Weizmann Institute of Science grew out of the Daniel Sieff Research Institute, founded in 1934 by Dr. Chaim Weizmann, a distinguished scientist and the first President of the State of Israel. This year, we are celebrating the Weizmann Institute's sixtieth anniversary.

*Abraham Dines is division director for the physical plant construction and maintenance division for The Weizmann Institute of Science in Rehovot, Israel.*

#### Location

The Weizmann Institute is located in the town of Rehovot, fourteen miles south of Tel-Aviv and thirty-five miles northwest of Jerusalem.

#### The Campus

The campus of the Weizmann Institute has 300 acres including 1,600,000 square feet in buildings, among them about 200 staff residences and about 260 acres of lawns and landscaped gardens.

#### The Faculties

The institute is organized into five faculties: mathematical sciences, physics, chemistry, biophysics-biochemistry, and biology. It also includes the Feinberg Graduate School, the Science Teaching Department, Canadian Institute for the Energies and Applied Research-Solar Energy Research, and the Center for Semi-

conductor Science and Submicron Research.

#### The Scientific Community

The institute numbers about 2,300 people, which includes more than 400 scientists and researchers; 1,200 engineers, technicians, and laboratory assistants; approximately 600 graduate students; more than 100 postdoctoral fellows; and an average of 100 visiting scientists from more than twenty countries each year.

#### The Climate

Our climate is subtropical, necessitating the use of air conditioning for about eight months per year. Most of our cooling and heating is done via water circulation systems.

#### Energy Sources

Our energy sources include:

- Electricity—22/3.3 kV; 22/0.4



*A view of part of the campus of the Weizmann Institute of Science: The K. B. Weissman Institute of Physical Science, (right); Ritual, a sculpture by Bruno Giorgi, (center); The Koffler Accelerator of the Canada Centre of Nuclear Physics, (background).*



kV, 38 MWatts/year consumption,

- Light fuel and gas oil—about 525,000 gallons/year consumption, and
- Water—about 1,000,000 cubic meters consumption. Most of our water consumption is covered by our own wells.

### Construction and Physical Plant Maintenance Division

Our construction and physical plant maintenance division encompasses the buildings, grounds, and utility systems maintenance and construction. This includes the following:

- Building and premises maintenance.
- Electromechanical systems operation and maintenance.
- Telephone computer network maintenance and development.
- Gardens and landscape maintenance and development.
- Fire alarm and protection maintenance and development.
- Road, fences, parking places, street lighting maintenance, and development.
- Construction modifications—adapting building space for different purposes.
- New construction development.
- Energy management and control.
- Campus security.

Our division numbers about 250 workers including engineers, technicians, technical staff, clerks, and other workers. About seventy are engaged in maintenance, about ten in construction modifications and adapting building space, about five in new construction development, about forty in gardens and landscape maintenance, about fifteen clerks and technical staff, and about 110 cleaning staff.

We are striving to ensure excellent service. This means focusing on institute needs and a genuine concern for institute member satisfaction. It means making and keeping commitments. Every WIS member is a "customer," whether he or she is a scientist, lab technician, student, building custodian, or tenant in the guest house who is happy because the air conditioner works on the first hot hours of the day. Satisfied customers are more dedicated



*The Koffler Accelerator of The Canada Centre of Nuclear Physics.*

and effective WIS members. Successful customer service requires dedicated and continuing attention to needs, providing for every aspect of the service engineering community.

Our institute service rules are:

1. Make it easy for people to complain—listen and respond.
2. Know your clients and their needs. Make the impossible possible. Show them how to do what they want or why it can't be done now.
3. Make sure people know their jobs well, then make sure they perform well.
4. Make a commitment of excellence to people and keep it.

Excellent service is a key component toward maintaining excellent installations. Among our major goals we strive to emphasize energy saving and environment protection. ■

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commitment. The shrimp they served at the luncheon were the size of baby whales.

Presently, PowerPC machines run Mac, Windows, and DOS programs by means of the SoftWindows software emulator from Insignia's Solutions. Using just this software emulation, Apple's Product Manager Ross Ely said that PowerMac users running Windows "can expect performance levels ranging from a fast 386DX to a 486SX25." SoftWindows requires 16 Mbytes of RAM and runs Windows only in standard mode. Later computers will have hardware emulation built into the system; that will result in significant performance increases.

While Apple and IBM must provide emulation to avoid abandoning the huge installed base of DOS and Mac users, future machines will exclusively run graphic operating systems. Over the next two years you will see UNIX, Windows NT, Next, and OS/2 operat-



PowerPC 601 module

ing systems rise to prominence. Computers encumbered by DOS's sickly 640K memory limits and anemic twelve-character file names will make good doorstops or boat anchors.

Apple unquestionably hopes to repeat the revolution it inspired ten years ago with the release of the original Macintosh. However, even with the PowerPC chips' lower price, higher performance, and seamless compatibility, analysts predicts it will take two years for the PowerPC boxes to outsell the still popular 486, Pentium, and 68K machines. In the meantime, Intel will fight back with lower prices and higher performance. ■

## Coming Events

### APPA Events

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

Jul. 10-12—1994 Educational Conference & 81st Annual Meeting, San Antonio, TX.

Aug. 21-26—Institute for Facilities Management, Denver, CO.

Jan. 22-27—Institute for Facilities Management, Austin, TX.

### Regional Meetings

Sep. 24-27—Rocky Mountain, Boulder, CO. Contact: Paul Tabolt, University of Colorado/Boulder, 303-492-7120.

Sep. 29-Oct. 1—Australasian, Adelaide, South Australia. Contact: Angus Moir, Flinders University of South Australia, 61 8 201-2383.

Oct. 8-12—Southeastern, Louisville, KY. Contact: Michael Besspiata, Southern Baptist Theological Seminary, 502-897-4103.

Oct. 9-12—Midwest, West Lafayette, IN. Contact: Donald Hufford, Purdue University, 317-494-1423.

Oct. 16-19—Central, Kansas City, MO. Contact: Mike Reuck, William Jewell College, 816-781-7700 ext. 5507.

Oct. 22-26—Pacific Coast, Lake Tahoe, NV. Contact: Nick Cimino, Truckee Meadows Community College, 702-673-7100.

Oct. 23-26—Eastern, Pittsburgh, PA. Contact: Bernard Geishauser, St. Francis College, 814-472-3251.

### Other Events

Jul. 19-21—3rd Annual Midwest Grounds Management Conference, Normal, IL. Contact: Chuck Scott, Director of Grounds and Maintenance and Recycling, Illinois State University, 9100 Grounds Maintenance, Normal, IL 61790-9100; 309-438-2032.

Aug. 28-Sep. 1—9th World Conference on Cooperative Education, Kingston, Jamaica. Contact: Jennifer Yee-Sing, 1995 Conference Secretary, College of Arts, Science & Technology, 237 Old Hope Road, Kingston 6; 809-927-1680 ext. 8.

Aug. 5—How to Comply with the Clean Air Act & New CFC Requirements. Milwaukee, WI. Contact: Environmental Resource Center, 101 Center Pointe Drive, Cary, NC 27513-5706; 800-537-2372.

Sep. 13-15—HVAC Controls, Birmingham, AL. Contact: Louis LeBlanc, Program Coordinator, Technical Resources Institute, 25 Woods Lake Road, Suite 405, Greenville, SC 29607.

Sep. 20-23—Housekeeping Management School, Orlando, FL. Contact: Roesel, Kent & Associates, 4343 Shallowford Road, B1, Marietta, GA 30062; 404-642-2365.

Sep. 21-22—IEEC Energy Expo '94, Milwaukee, WI. Contact: Brian Douglas, Show

Manager, IEEC Energy Expo, P.O. Box 1026, Lilburn, GA 30226; 404-279-4386.

Sep. 25-29—National Association of Elevator Contractors 45th Annual Meeting, Orlando, FL. Contact: NAEC at 404-760-9714.

Sep. 26-30—Copper Roofing Installer Training Program, Denver, CO. Contact: Susan E. Kaminski, Administrative Manager, Roofing Industry Educational Institute, 14 Inverness Drive, East, Building H, Suite 110, Englewood, CO 80112-5608; 303-790-7200.

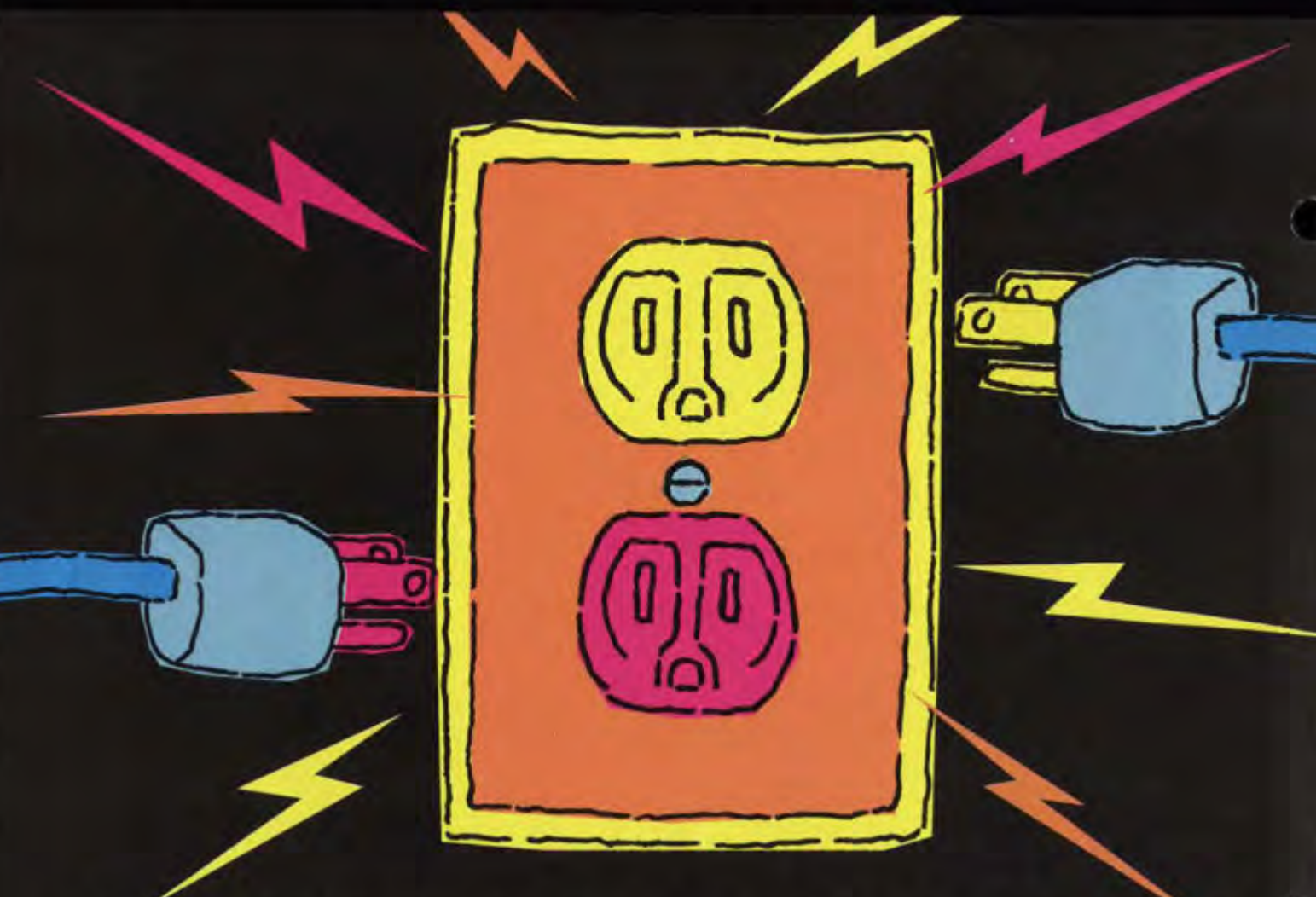
Oct. 2-4—FM '94 Reengineering for Success, Cambridge, MA. Contact: International Society of Facilities Executives, 336 Main Street, Room E-28-100, Cambridge, MA 02142-1014; 617-253-7252.

Oct. 7-9—Basic Roof Consulting, Tampa, FL; St. Louis, MO; Phoenix, AZ. Contact: Roof Consultants Institute, 7424 Chapel Hill Road, Raleigh, NC 27607; 800-828-1902.

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