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FEATURES

DEPARTMENTS

Facilities Manager

From The Editor

Steve Glazner

Redefining the Facilities Organization will mean something different for each facilities administrator. This issue of *Facilities Manager* takes a look at some of the components of facilities management that are being affected by budgetary, societal, and state and federal pressures. On the benchmarking front, for instance, Maggie Kinnaman aptly describes APPA's ground breaking work in attempting to normalize or standardize effectiveness ratios through its Strategic Assessment Model, which was introduced last summer at the Philadelphia Educational Conference and during the regional meetings last fall.

APPA President-Elect Ron Flinn describes the controversial subject of privatization and how Michigan State University has recognized that there are benefits and detriments to both sides of the issue. Mo Qayoumi provides a valuable introduction to activity based management and asks us not to be so dependent upon traditional budgeting methods that have driven our institutions for so long.

We asked Kathleen Mulligan to comment on the relative value to educational facilities organizations of the Malcolm Baldrige Award Criteria for Education, which a number of schools are considering adopting on an institution-wide basis. Her article describes the program and compares the criteria for education with those previously developed for business.

Another way that institutions and their facilities operations are being redefined each day is the subject of Walter Simpson's article on environmental stewardship and the green campus. Energy savings and their innovative uses continue to provide valid opportunities for institutions to ease budget restrictions as well as help our environment.

Also on the environmental front is our introduction of a new column, Regulatory Action. This column will take a different topic each month and provide an update on regulations both current and planned. Each issue will be written by an attorney, consultant, or other industry professional with expertise on that particular subject. We thank Peter de la Cruz, of the Washington, D.C. law firm of Keller and Heckman, for serving as our inaugural contributor to Regulatory Action. Future columns will discuss RCRA reform, asbestos amendments, confined spaces, and other pertinent topics.

With this issue, Dr. John M. Casey, P.E., begins his service as book review editor for *Facilities Manager*. He will identify books to be reviewed in future issues, solicit reviews from members and others, and provide readers with short summaries of books and other resources that you should add to your reference shelf—or those that you should avoid.

John is a long-time APPA member currently working as manager of the engineering department at the University of Georgia's physical plant division. He earned a doctorate degree in education in 1994 from the University of Georgia, where his dissertation was an historical evaluation of APPA's contributions to higher education since its inception in 1914. We're extremely pleased to have John assist us as our book review editor.

Finally, we're making a small but important change to *Facilities Manager*. Beginning with this issue, the magazine will be dated by month, not by season. This change is in response to our many international readers in the southern hemisphere who bristled and shivered every time they read our "summer" issue in the middle of their winter. We continue to listen to our members' and readers' needs as we strive to be your association of choice and live up to our vision as a Global Partner in Learning. ∎

NACUBO Study Shows Endowments Grow 15.5 Percent

College and university endowment pools earned an average return of 15.5 percent in the fiscal year ending June 30, 1995, according to preliminary results of the NACUBO Endowment Study (NES). Endowments are essential to higher education institutions (and their facilities managers) because they generate funds for operating expenses, as well as funding for financial aid. This return is the highest since 1986. Final figures from the NES will be available in early 1996. For more information contact the National Association of College and University Business Officers at 202-861-2529. ■

Taking Control of Change at the APPA Leadership Symposium

The changes that have rocked higher education in recent years—student demographics, federal funding, technology, public accountability—have shaken existing cultures and practices to their foundations and placed new requirements on senior management. As higher education institutions struggle to adapt to a world that seems to reinvent itself daily, facilities officers are being challenged to play key leadership roles within their institutions. APPA invites you to take control of change by attending the Leadership Symposium: Effecting and Managing Change in Higher Education, March 4-5, 1996, in Boston, Massachusetts.

Taught by experienced key administrators and leaders, the APPA Leadership Symposium promises to give attendees proven, results-based information to help you succeed in leading your organization through change.

After the symposium, you'll go back to your campus with:
- Principles and techniques that can be used to increase the chances of success.
- Pointers to avoid the common mistakes that are made early in change efforts and that can doom a project to failure from the start.
- Key principles and sources of information for managing change.
- Guidelines to evaluate how prepared an organization is to assimilate major change.
- Steps you can take to increase your own capacity as an agent of change.

Space is limited, so register early and take advantage of the early-bird discount. Registration fees are $495 (early registration postmarked on or before February 22), or $525 (postmarked after February 22). For more information, or to obtain a registration form, visit the APPANet home page at http://www.appa.org, or call APPA at 703-684-1446. ■

The Ten Most Deadly Demotivators

These nagging daily occurrences common to many organizations trigger negative emotions and lower motivation among staff.

1. POLITICS: Most employees are all too familiar with subjective decision-making that operates according to unwritten "rules of success," having little to do with performance. Under such conditions, the lion's share of rewards, promotions, and resources go to those who are the best at "playing politics."

2. UNCLEAR EXPECTATIONS: Mixed messages and confused priorities often cause employees to work on the wrong tasks and accomplish the wrong

results, only to find out after the fact (usually at performance appraisal time) that they were on the wrong track.

3. UNPRODUCTIVE MEETINGS: Meetings are important, but too many are unnecessary, disorganized, passive, lengthy, and boring—leaving employees, according to one observer, "feeling powerless as another meeting wanders into oblivion."

4. CONSTANT CHANGE: Change is vital to organizational success, but today's workplace is turbulent enough without unnecessary changes, which employees deride as "programs of the month" and which are often adopted and discontinued without any follow-up whatsoever.

5. DISHONESTY: Whether it involves making a false claim, covering up a mistake, omitting a key fact, saying one thing but doing another, or stating an outright lie, nothing demotivates employees like being deceived by their organization.

6. WITHHOLDING INFORMATION: One of the most common employee complaints is "not being informed." How many times have you heard, "I wish I had known that earlier" or "The company doesn't keep us informed about what's happening"? Lack of information makes employees feel stupid and distrusted.

7. DISCOURAGING RESPONSES: Too many organizations and managers say they want employees' ideas, but then ignore them. Most employees are familiar with discouraging phrases (such as "It can't be done here"), and many suggestion systems are "black holes" into which suggestions seem to disappear, never to be seen again. Just consider how many millions of great ideas were killed by this demotivator alone, not to mention the devastating impact it has had on workers' self-esteem.

8. UNFAIRNESS: Nothing offends employees like preferential treatment, special favors, and perks given to some but not to others. Most workers become particularly irate when they learn of astronomical management compensation packages, while excellent employees are paid only a few dollars more than those who do the minimum.

9. BEING TAKEN FOR GRANTED: Employees everywhere report that they receive little or no positive feedback or recognition, not even for their outstanding efforts.

10. BEING FORCED TO DO POOR-QUALITY WORK: Short-term time and cost constraints too often force quality compromises. Being robbed of the right to pride in workmanship is demoralizing and demeaning to employees. As one discouraged worker lamented: "We all knew the product was garbage, but it was shipped anyway....We left work each day feeling awful."

(Source: Dean R. Spitzer, Ph.D., *SuperMotivation* [New York: AMA-COM, 1995].)

■

Executive Summary

Wayne E. Leroy, CAE

Redefining the Facilities Organization With APPA's Help

This issue of *Facilities Manager* provides an opportunity to combine some of the paramount issues being discussed within higher education that also are having a major impact on facilities. We only need to reflect on our activities of the past few weeks or review our "to-do" list for the next few weeks to realize we are indeed in times of change, and that those changes are resulting in redefining facilities organizations.

In the brief space of this column I would like to focus on three areas and discuss their impact for redefining the facilities organization: baseline information, customer awareness, and leadership action.

Baseline Information. For any organization to redefine itself, it must first know what and where it is. To get to new levels of thinking, service, or future actions, organizations must have baseline information. For several years APPA has provided a "toolkit of materials" that enables institutions to assimilate a diverse amount of baseline information. Books and surveys such as *Facilities Audit Workbook* and *The Decaying American Campus* have provided methodologies for institutions to assess their individual needs for capital renewal and deferred maintenance. If it is beneficial, institutions can aggregate their needs by geographic area, type of institutions, funding source, or other criteria that will help an institution to better comprehend a fundamental

Wayne Leroy is APPA's executive vice president.

baseline of information—the condition of their facilities. APPA's recent partnership with NACUBO and Sallie Mae will soon result in updated CRDM data. An executive summary and full report will be published shortly.

Another APPA tool for many years has been the *Comparative Costs and Staffing Report for College and University Facilities*. This biennial report for more than twenty years has provided information regarding the various aspects involved in the maintenance, operations, and staffing components comprising facilities organizations. The *1993-94 Comparative Costs and Staffing Report*, now available from APPA, contains data submitted by more than 500 institutions of higher education.

During the last few years one of the areas of hottest debate emanating from the various higher education constituency groups has been to develop methods for assessing how well individual institutions are doing things and to "benchmark" those key indicators with the best practices for that particular activity. The Strategic Assessment Model (SAM) is APPA's newest initiative in this effort. SAM is a dynamic new partnership between APPA and American Management Systems designed to identify and measure those key performance indicators necessary for redefining facilities organizations. See Maggie Kinnaman's article in this issue for more information on APPA's Strategic Assessment Model. (Note: If your institution has not completed the SAM survey, you are encouraged to contact the APPA office for a copy.)

Customer Awareness. Like many of the issues discussed above in Baseline Information, Customer Awareness is something that facilities organizations have been grappling with for the last couple of years. Many hours have been spent in staff meetings and other professional development training sessions discussing and identifying the "campus facilities customer." Most of those discussions have resulted in long lists of external customers being identified with groups such as faculty members, deans, students, campus administrators, alumni, parents, and many others.

Recently, some of the discussions have begun to focus on the internal customer—those individuals within the facilities organization whose lives and works daily intertwine with and affect our own job. It is this group of people on whom we must rely for their cooperation and support to achieve excellent performance or, in many instances, even to get our job done.

To obtain a complete focus on customer awareness, facilities organizations are implementing a three-level program.

1. **Customer Service.** This involves implementing programs and services that take care of customer needs in a quick, efficient, and courteous manner. This first step enhances the understanding of various campus groups of the services and activities performed by the facilities, and their importance to the mission of the institution.

2. **Customer Satisfaction.** This second level of customer awareness is created by doing all those things indicated in customer service, but this second step must be something "felt" by the customer. The customer must feel that the service/activity adds value.

3. **Customer Sovereignty.** This highest level of customer awareness is the total commitment to the service provider of the customer—loyalty. At this highest phase of customer awareness, the customer does not even consider going elsewhere for service, because all needs are being provided in courteous, reliable manner. There is perceived value, and above all there is trust between the customer and provider.

Leadership Action. Redefining the facilities organizations on most campuses occurs because someone, something, or various combinations of circumstances dictate doing things differently. And this means change. In recent months APPA has provided an abundance of materials to assist in understanding and coping with change. Some of those products and services are publications such as *Rightsizing Effectively, Building Quality: TQM for Campus Facilities Managers,* and *Perspectives on Leadership in Facilities Management.* The new *Basic Tools for Facility Supervisors* program on supervisory development, produced in partnership with Ogden Services Corporation, serves as an excellent means to provide new and/or additional skills to facilities supervisors and work teams.

APPA's educational programs for leadership development—the result of partnership efforts with the Covey Leadership Center and Marriott Services Corporation—are providing facilities professionals new skills to redefine their facilities organizations. And many of APPA's other educational programs are incorporating leadership skills and activities into their curriculums.

But all of this comes down to one ingredient...*Somebody!* That one person, or a small group of individuals, who will take the initiative and lead others to make something happen at their institution—to put on the mantle of leadership and redefine educational facilities organizations. ∎

H. Val Peterson

Ban Those Rude Phrases

Bank tellers in the town of Jinan, a coastal Shandong province in China, are biting their tongues a lot these days. The city's bank has banned ninety "uncivilized sentences" and phrases in an attempt to provide "service with a smile."

Some of the forbidden responses include:

- "I don't know"
- "That's not my responsibility"
- "What's the rush?"
- "Can't you see I'm busy"
- "Wait over there"
- "If you don't like it, talk to the management" and
- "Go complain if you want to complain."

This move was initiated by the bank's higher-ups to counter the complaint that service in China is notoriously bad. It seems that the idea of the customer being king is an alien concept to employees that deal with the public. Store clerks are too busy chatting with colleagues or reading newspapers to be bothered with helping customers. People who make phone inquiries are routinely hung up on.

As most of us know, bank procedures can be complicated and confusing, requiring multiple steps for something as simple as making a deposit or withdrawal. Evidently, tellers in China frequently ignore customers or refuse to look up when customers try to get instructions.

Part of the problem has been attributed to China's communist form of government, which considers service to others as demeaning. The bank considered that a change was necessary since larger numbers of foreigners not indoctrinated into the communist way of thinking were demanding better service. These days, customers most everywhere are listened to and changes made to meet their demands.

As you read this material, did you (as did I) have a slight twinge of guilt in realizing that the situation described can apply to facilities operations, and that certain employee attitudes exist outside the banking world and are a whole lot closer to home than China? Elements of these attitudes exist to some degree or another in most organizations and yes, even within facilities management operations.

Who has not heard or received a complaint about some of the following phrases? Or, heaven forbid, have you possibly used some of these yourself?

- "Fill out a work order request form and we will take care of it"
- "Our budget doesn't cover that sort of thing"

- "What's the beef, the cost seems reasonable to me"
- "Our policy doesn't allow us to do that"
- "We've always done it that way"
- "The person in charge is not here today"
- "We will get to it next week or the week after for sure" or
- "Due to budget cuts, we no longer provide that service."

Let's face it, our customers (students, professors, academic staff, and others) are demanding better service—both away from work and on the job. I fear that sometimes as service providers we take our customers for granted. In a facilities management organization, individuals sometimes assume that one can work in relative anonymity because they are part of a larger organization. One can rationalize that the significance of his or her work will never be noticed. But it *does* get noticed!

In the business world, satisfying customers is the secret of success. Believe it or not, it is also the secret of success for a good facilities management organization. This also means that the secret for individual success for employees within the organization is how well they satisfy the customers—whether this is the campus community in general or only those people in a particular building or area where the individual is assigned to work. Only when each of us, and our coworkers as well, commit to provide customer-oriented service and then follow through in that commitment, do we give our customers their "money's worth."

Each facilities management organization would do well to analyze its customers' responses to see if there are any "uncivilized sentences" or phrases that should be banned. Customer service starts with the right attitude, and the right attitude is exhibited by "customer-friendly" responses.

Good luck! ∎

Val Peterson is director of facilities management at Arizona State University in Tempe, Arizona. He is also an APPA Past President.

It's Just That Simple.

Universities, nationwide, have gone back to the basics by becoming EPA Green Lights partners. Lighting efficiency upgrades which have already been implemented by over 1,600 organizations have enabled partners to cut their lighting electric bills by 50% per year, on average. Voluntary participation in the Green Lights program allows participants to invest precious financial resources on other priorities and reduce air pollution at the same time. To find out how you can make profitable improvements to your lighting systems and take advantage of the free tools and services provided by EPA, call the Green Lights Hotline at 202-775-6650.

* The Kennedy School of Government at Harvard University has upgraded 69% of its buildings.
** University of Georgia has upgraded 4% of its buildings.
*** Tufts has upgraded 9% of its buildings.

Perspective

Charles E. Polinger

Feedback: Crucial to Quality Management

*"I shot an arrow into the air,
it fell to earth I know not where."*
—Henry Wadsworth Longfellow

This whimsical rhyme, simple as it might seem, reflects a world without proper feedback. A world in which we shoot commands into the air, but never know what their impact will be. Did the arrow hit the target? Did we meet our goal? We do not know. This is the key problem of management without proper feedback.

Feedback goes by many different names, and perhaps another word expresses its meaning more clearly. Webster describes it as the return of a part of the output to the input. In this sense, it is a closing of a loop, or making contact with the origin. In a management situation, feedback is the act of responding with the status to the originator. Some may simply call it communication, but that is only part of the story.

Feedback is the means by which managers determine whether or not their instructions were carried out and if the desired results were achieved. It tells if further action is needed or if the celebrations for success can begin. If failure occurred we should learn from feedback what is needed next time to avoid falling short. After all, few are in business to purposely oversee a total catastrophe. When feedback tells us we have failed, the follow-through should include the corrected action.

Feedback is far reaching and it can scarcely be ignored by anyone other than the most laid-back leader. Let's examine the many different forms of feedback.

The obvious form manifests itself in the casual early Monday morning phone call to a staff member to find out that no one has started a most critical project because they thought you or someone else was going to do it. Or, during the weekend, the building caught fire and burned down, and they all thought someone else had informed you. Don't we all love the feedback we get from our higher-level managers, who enjoy surprising us with, "Did anyone get hurt from the crane that fell of the roof?" *What crane? What roof?* Why didn't someone tell you about it? This is feedback of the worst kind.

Some managers overcome this "failure to communicate" by having regular project status meetings. Others use checklists that compare current status to a schedule. Pert charts are a good tool used in feedback. Accountants like to regularly compare expenditures against the budget for an idea on how things are going. In this day of high technology, computer programs give feedback on project delays and problems, so that early correction can be taken. But it is vitally important that your staff members keep you "in the loop" and recognize that you need regular feedback in order to make solid, well-informed decisions.

Quality management gurus dictate that we must make changes during the process, and not wait until the end to find out we could have saved thousands of dollars by spending a few earlier on in the process. For this reason, we need constant feedback during the process, and not only at the end, during a final inspection.

What other forms of feedback are important to a manager? Of course, in a quality management—or the "customer comes first"—environment we need constant and reliable feedback from the people we serve. We need to know if the services are well rendered

and welcomed by the public. One form of feedback is the number of customers who voluntarily seek our services; i.e., there is competition, but customers prefer us. Dollar volume of sales is a clear statement that we are doing something right, at least at this time.

Many of us have resorted to "customer surveys" which, if properly designed, tell us what the customer likes and does not like about our service. Caution is needed, however, because we need to ask first: 1) does the survey give the information we really need and reflect the customer's attitude?, or 2) does the survey serve to annoy the customer?

Most managers agree that customer surveys tell the customer that we care and are willing to make changes to satisfy them and improve our service. When surveys become empty pieces of paper that we simply collect and then ignore, they soon become meaningless or have a negative impact. One other problem with surveys is that often, only disgruntled customers take time to fill them out, and the results become skewed. Actions in response to such surveys may be futile or, worse, may hit the wrong target.

A successful manager needs to be in the loop in several areas at any given time. He or she needs constant input from and to suppliers, other managers, the customer, and employees.

How about our employees? Don't they need some form of feedback to tell them if they are on the right track? How do they know if their performance meets your expectations? Most workplaces resort to some sort of semi-annual or annual performance evaluation system to give employees an indication of their performance. But what about the interim periods during the year? Employees need constant, but genuine, feedback on performance. Just like our example of quality management, by giving feedback throughout the course of the year, we can make minor adjustments in employee behavior that will avoid more costly problems or worker dissatisfaction later.

Employee feedback from the manager can come in many forms and does not have to be taxing on the manager. Quarterly or semi-annual reviews suffice in some cases in keeping the employee going in the right direction. But, just as effective is the unscheduled reward or recognition

from the manager for doing the job right, or completing the work ahead of schedule. To the employee, a simple "way to go" coming from a higher level is sometimes all it takes to keep the momentum and boost morale.

Feedback is the key to successful management. The manager must determine how much feedback is necessary to keep informed and ensure that

things are not going off track. Too little information leaves too much area for things to go wrong. Too much information amounts to micromanagement and lack of employee independence.

Feedback is the most efficient means a manager can have to tell if the process is going well—to tell if the customer is satisfied. Feedback tells us if the arrow shot into the air hits the mark. ∎

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* matrices illustrating where the TQM effort should begin, who should be involved, and to what degree, based on your school's structure and mission.

BENCHMARKING
With APPA'S
Strategic Assessment Model

by Margaret P. Kinnaman

In today's facilities management arena, managers are faced with a sea of ever increasing challenges that include diminishing resources, more sophisticated customer expectations, and a demand for greater accountability. In such a powder keg environment, daydreaming has been known to take over and provide a temporary escape. Many of us fantasize about the good old days when our word was all it took to convince the customer that we were doing a good job. How things have changed! For some of us, I'm sure we're feeling as if all of our customers are from Missouri, the "Show Me" state. Our word as facilities professionals has been replaced with demands for data, comparisons, and benchmarks. Some of us try to find relief by seeking a quick fix, which Stephen Covey tells us does not exist. We need to do first things first and take things in some logical order dictated by the laws of nature. So what alternatives are available to us to cope with the realities of the workplace?

APPA has a vision for perhaps just what the doctor ordered. It's not a quick fix but instead a tool that is the result of much research and deliberation. This tool will enable facilities managers to track organizational performance along a continuum of key performance indicators, all graphically represented on one page. And that's not all. It also enables the manager to make comparisons to the performance of peers. In addition, this tool allows the manager to establish improvement goals for the year and plot progress toward those goals.

Finally, the tool is highly effective in justifying funding requests to deans, presidents and boards of regents. Decision makers can see at a glance the cost of being Number One. Have I piqued your interest yet?

For the past year APPA has been hard at work in partnership with American Management Systems (AMS) and a consortium of nine facilities professionals to develop their vision into just such a tool that you can use to plot your performance, compare your performance to that of your peers, establish organizational improvement goals, and market your performance to your governing boards. This new tool has been named APPA's Strategic Assessment Model, or SAM for short. I'd like to tell you a little bit about SAM's birth, her future, and the part that we're asking you to play in her development.

SAM was born in June 1995 in Arlington, Virginia after two-and-a-half days of intense deliberation between APPA staff, consortium members, and our AMS partners. Members of the group included:

- Doug Christensen, Brigham Young University
- John Harrod, University of Wisconsin/Madison
- Jack Hug, University of California/San Diego
- Henry Hutchens, North Carolina State University
- Gary Kent, Indiana University
- Maggie Kinnaman, University of Maryland/Baltimore
- Kathleen Mulligan, Oregon State University
- Bill Rose, University of Massachusetts/Amherst

Maggie Kinnaman is director for business administration and support services for the University of Maryland at Baltimore. She is currently President of the Eastern Region of APPA. In addition, Kinnaman serves on APPA's Publications Advisory Board and is a member of the Strategic Assessment Model consortium.

- Pete van der Have, University of Utah
- Dave Smith and Dave Peirce, AMS
- Wayne Leroy, Lander Medlin, and Steve Glazner, APPA.

The first question for which we sought an answer was just who might care about the success of this project; basically, who are our stakeholders? We found that many people, including Mom and Dad, students, faculty, and others, had vested interests in ensuring that the caretakers of the facilities of our colleges and universities are taking their stewardship role seriously.

We then tackled the tough problem of identifying benchmarks that we're currently using within our organizations. Our work resulted in the identification of approximately forty-one potential benchmarks representing a huge array of numbers and ratios. It quickly became apparent that, although many of us are using these benchmarks, few of us are using common definitions and hence comparisons are difficult at best.

After a great deal of discussion, the group agreed that we needed to develop some criteria for the selection of a core group of benchmarks, basically our "short list." This short list had the potential of being considered as universal benchmarks used by many organizations. Additionally, we envision in the future the development of a "pick list" of benchmarks that could lend flexibility and customization to the project and allow an organization to selectively pick those

Figure 1:

Fifteen Core Benchmarks

- Organizational Strategy
- Plant Renewal Expenditures as a Percentage of Current Replacement Value
- Plant Adaptation Expenditures as a Percentage of Current Replacement Value
- Maintenance Expenditures as a Percentage of Current Replacement Value
- Deferred Maintenance Expenditures as a Percentage of Current Replacement Value
- Annual Facility Operating Expenditures as a Percentage of Gross Institutional Expenditures
- Annual Facility Operating Expenditures Per Gross Square Foot
- Load
- Safety
- Energy Consumption
- Percentage of Work Tasks Covered by Defined Standards
- Training Costs as Percentage of Total Personnel Compensation
- Percent Customer Services for which Customer Satisfaction is Measured on an Annual Basis
- Percent of Stakeholder Groups Measured Annually for Customer Satisfaction
- Continuous Improvement

Figure 2:
Breakthrough—Carnegie-Mellon Software Process Assessment Model

Level	Characteristic	Key Challenges	Result
5 Optimizing	Improvement fed back into process	Still human intensive process Maintain organization at optimizing level	Productivity & Quality
4 Managed	(Quantitative) Measured process	Changing technology Problem analysis Problem prevention	
3 Defined	(Qualitative) Process defined and Institutionalized	Process measurement Process analysis Quantitative quality plans	
2 Repeatable	(Intuitive) Process dependent on Individuals	Training Technical practices – reviews, testing Process focus – standards, process groups	
1 Initial	(Ad hoc/chaotic)	Project management Project planning Configuration management Software quality assurance	Risk

Figure 3:
Levels of Effectiveness
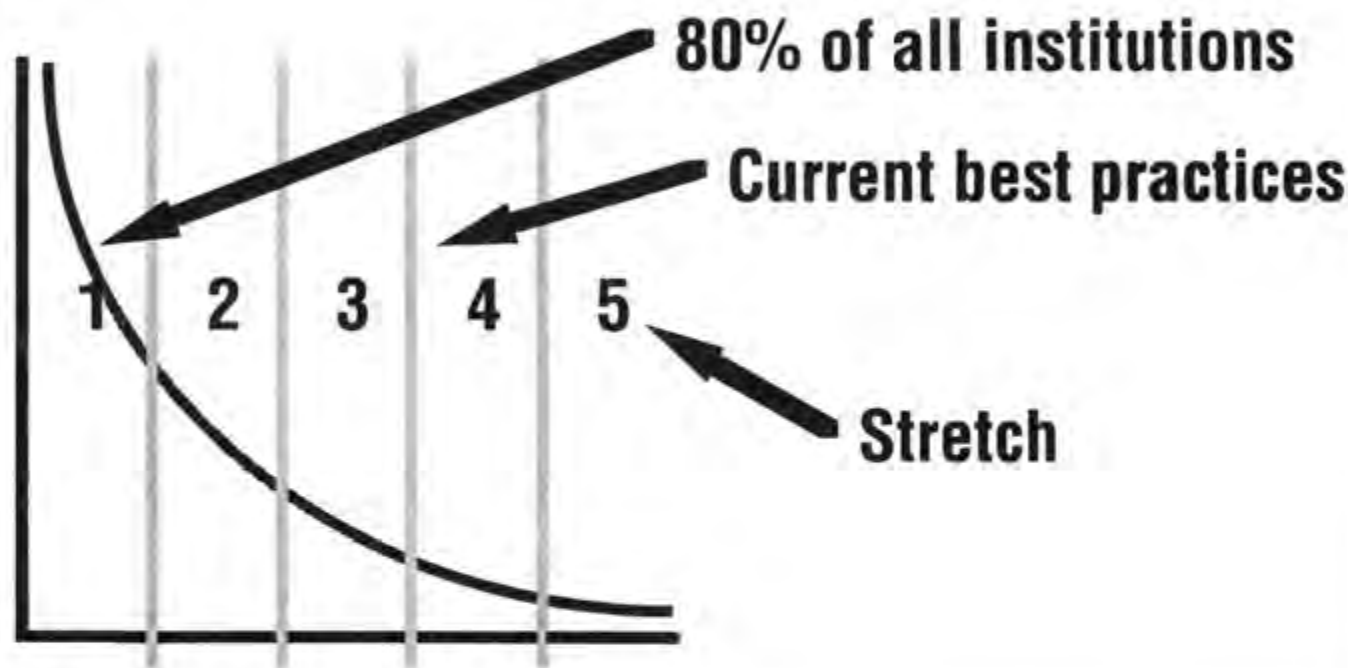
benchmarks that best match the unique needs of the institution. The criteria that we developed for the selection of our short list of benchmarks are as follows:

- Should apply to 80 percent of participating population
- Availability of information
- Common definition, ease of understanding
- Impact if not used
- Significant value and usefulness
- Universal
- Scalable.

The consortium looked at each of the forty-one potential benchmarks, weighed each against the criteria, and came up with a set of fifteen core benchmarks (see Figure 1).

So now what? We had a core of fifteen benchmarks, but how best to describe them within a structure? AMS introduced a model that had been developed at Carnegie-Mellon University for software assessment. (See Figure 2; and for more information, see AMS vice president Dave Smith's benchmarking article in the Spring 1995 *Facilities Manager*.) The group felt that the Carnegie-Mellon model presented many strengths, such as the ability to show overall organiza-

tional performance on one page, the ability to plot improvement against a goal, and the ability to compare performance with those of our peers. Because of the model's flexibility it was adopted for our SAM structure.

To put meat on the bones of SAM, we then had to identify and define the vertical axis, levels of effectiveness one through five. In order to do this the group had to decide which of two range definitions to use. The curve in the first plan was a typical bell-shaped curve with 80 percent of the organizations falling between levels 2 and 4, and best practices at level 5. The curve in the second plan is an exponential curve with 80 percent of our organizations falling in level 1, best practices at level 4, and stretch goals at level 5. The group chose this second plan, the exponential model (see Figure 3). We felt that this approach will most likely be used by facilities organizations to improve their performance, and it is open ended with the flexibility of adding a level 6 as use of the model increases and stretch goals improve.

Still facing the consortium was the task of defining the matrix column headings. To assist us in this process, one of our consortium members, Jack Hug of the University of California at San Diego, introduced a 1992 *Harvard Business Review* article by Robert Kaplan describing a "balanced score card" structure for

Figure 4:
Financial Perspective

Financial Benchmarks	Annual Facility Operating Expenditures as a Percentage of CRV	Annual Plant Renewal Expenditures as a Percentage of CRV	Annual Plant Adaptation Expenditures as a Percentage of CRV	Annual Facility Operating Expenditures as a Percentage of GIE	Deferred Maintenance Backlog (in dollars) as a Percentage of CRV	Annual Facility Operating Expenditures Per Gross Square Foot
5 (Stretch Values)	> 6.5%	> 4%	> 2%	> 15%	5 - 0%	> $8.00
4 (Best Practices)	5 - < 6.5%	3 - < 4%	1.5 - < 2%	12 - < 15%	10 - > 5%	$6 - $8.00
3	4.5 - < 5%	2 - < 3%	1 - < 1.5%	10 - < 12%	15 - > 10%	$4 - $5.99
2	4 - < 4.5%	1 - < 2%	.5 - < 1%	8 - < 10%	20 - > 15%	$3 - $3.99
1	< 4%	< 1%	< .5%	< 8%	> 20%	< $3.00

organizational assessment that looks at an organization from a number of different perspectives. First, and at the core, is an organization's strategy. Other important components include the organization's financial performance, effectiveness of its internal processes, its ability to innovate and learn, and finally the customer's perspective of the organization. The group felt that this model presented an effective, balanced way for assessing our organizations, and therefore adopted the five categories as the column headings for our matrix.

So, from the original Carnegie-Mellon model, we organized our fifteen core benchmarks under the newly identified column headings. Now came the tough part of the model. Within a couple of hours we basically had to make our collective best guess at the ranges of levels of performance for each of the fifteen benchmarks. Again, keep in mind that our guesses took into consideration the previously identified definitions of levels of effectiveness—80 percent of our organizations would perform at level 1, best practices would occur at level 4, and stretch goals would be at level 5.

Given this background information, let's now start to build the model. Because the heart of this model is an organization's strategy, the consortium identified one qualitative benchmark that could be used by organizations to assess their

effectiveness within this category. The ranges were identified as follows:

5 Interdependent Planning and Budget
4 Integrated Strategic Plan
3 Clearly Defined Goals and Objectives
2 Communicated and Effective Mission
1 Mission Statement

Remember, we're saying that 80 percent of organizations would fall in level 1, presence of a mission statement.

Next are the seven financial benchmarks. Most are ratios in which the denominator is the current replacement value of the physical plant. The consortium's best guess of ranges are shown in Figure 4. As an example for cost per square foot (and based upon initial feedback we've received), the range goes from $3.00 per square foot for level 1 performance to greater than $8.00 per square foot for level 5 performance. Some may make the observation, why would an organization's stretch goals for cost per square foot be $8.00 per square foot versus $3.00 per square foot. Isn't less expensive better? We discussed this concept at great length and developed the opinion that cost per square foot in today's facilities environment is driven by available funding, and many of us have had to drastically cut

levels of service in order to work within our pool of diminishing resources. The thought process was that the ideal would be a greater cost per square foot, indicating that the organization was funded at a level adequate to offer the full range of services. This benchmark was not intended to be an efficiency measure. Rather, it was intended to measure effectiveness and help institutions both defend current funding levels and request additional funds. However, we may delete the cost-per-square-foot benchmark completely, since it is the only one based on actual dollars and may not be a universal benchmark. We'd like to hear your thoughts on this matter.

For strength of internal processes we developed three benchmarks related to safety, energy, and percentage of tasks performed for which standards or guidelines are in place.

Under customer satisfaction three benchmarks were identified. They include percentage of services that are measured, percentage of stakeholders that are surveyed, and utilization of the results of those surveys for continuous improvement initiatives.

Under the last column, innovation and learning, one benchmark was identified as the ratio of training dollars over total personnel compensation dollars. This ratio will measure the relative proportion of the maintenance budget that is reinvested into training. As an example, our best guess was that the levels of effectiveness 1 through 5 went from less than 2 percent at level 1 to greater than 5 percent at level 5.

The results of the consortium's efforts can be found in the Strategic Assessment Model in Figure 5, which can be used by colleges and universities to plot their organizational performance along a range of key benchmarks. But now the real challenge presents itself—how to get feedback regarding the model and how to raise levels of awareness about its existence. We introduced SAM to 130 enthusiastic members at APPA's 1995 Educational Conference and Annual Meeting in Philadelphia. We asked for volunteers who would be willing to complete a survey for their organization to give us feedback regarding the appropriateness of the benchmarks, clarity of definitions, and validation of the levels of effectiveness (basically our best guess) for each of the benchmarks.

Approximately ninety people indicated their willingness to participate. Surveys, along with carefully considered definitions, were mailed to willing participants in August. To date, more than three dozen organizations have responded; yet even with these few responses we were able to make changes to the ranges of a couple of benchmarks (see Figure 6). As an example, under the internal processes column heading,

Figure 5:

STRATEGIC ASSESSMENT MODEL – APPA BENCHMARKING SURVEY

Please circle the most appropriate value on the form for each benchmark indicator for your facility.
NOTE: All values and ratios are estimated and tentative.

Level	Strategy	Financial Perspective		Internal Processes		Innovation & Learning	Customer Satisfaction	
5	Interdependent Planning and Budget	Renewal $/CRV Plant Adaptation $/CRV Maintenance $/CRV Deferred Maintenance $/CRV Facility $/GIE $ Cost/Square Foot Load	> 4% > 2% > 6.5% 0 - 5% > 15% > $8.00 all costs, work hrs reduced	Safety Energy % Task/Stds	≤ 2% ASHRAE > 90%	Trng Costs > 5%	% Services Measured % Stakeholder Measured Continuous Improvement	100% 100% Yes
4	Integrated Strategic Plan	Renewal $/CRV Plant Adaptation $/CRV Maintenance $/CRV Deferred Maintenance $/CRV Facility $/GIE $ Cost/Square Foot Load	3 - < 4% 1.5 - < 2% 5 - < 6.5% > 5 - 10% 12 - < 15% $6.00 - $8.00 all labor & overhead	Safety Energy % Task/Stds	10% 3xASHRAE 60 - 90%	Trng Costs 5%	% Services Measured % Stakeholder Measured Continuous Improvement	75% 75% Yes
3	Clearly Defined Goals and Objectives	Renewal $/CRV Plant Adaptation $/CRV Maintenance $/CRV Deferred Maintenance $/CRV Facility $/GIE $ Cost/Square Foot Load	2 - < 3% 1 - < 1.5% 4.5 - < 5% > 10 - 15% 10 - < 12% $4.00 - $6.00 labor, fringes, vehicles, small tools, & uniforms	Safety Energy % Task/Stds	15% 5xASHRAE 30 - 60%	Trng Costs 4%	% Services Measured % Stakeholder Measured Continuous Imp'mt	50% 50% Some
2	Mission Communicated and Effective	Renewal $/CRV Plant Adaptation $/CRV Maintenance $/CRV Deferred Maintenance $/CRV Facility $/GIE $ Cost/Square Foot Load	1 - < 2% 0.5 - < 1% 4 - < 4.5% > 15 - 20% 8 - < 10% $3.00 - $4.00 labor rate plus fringe benefits	Safety Energy % Task/Stds	20% 6xASHRAE 10 - 30%	Trng Costs 3%	% Services Measured % Stakeholder Measured Continuous Improvement	25% 25% No
1	Mission Statement	Renewal $/CRV Plant Adaptation $/CRV Maintenance $/CRV Deferred Maintenance $/CRV Facility $/GIE $ Cost/Square Foot Load	< 1% < 0.5% < 4% > 20% < 8% < $3.00 basic labor rate	Safety Energy % Task/Stds	≥ 25% > 6 ASHRAE ≤ 10%	Trng Costs 0 - 2%	% Services Measured % Stakeholder Measured Continuous Improvement	0% 0% No

	Additional Financial Indicators	Additional Process Benchmarks	Additional Innovation & Learning Benchmarks	Additional Customer Satisfaction Benchmarks
Please write in any recommendations for additional benchmark indicators you wish to be considered (optional)				

Please mail or fax the results to:

Steve Glazner, APPA
1446 Duke Street
Alexandria, Virginia 22314-3492
Fax Number: 703-549-2772

Name: _____

Institution: _____

Figure 6:
APPA SAM Beta Survey Data

Level	Strategy	Financial Perspective		Post Survey	Internal Processes		Post Survey	Innovation & Learning	Post Survey	Customer Satisfaction		Post Survey
5	Interdependent Planning and Budget	Renewal $/CRV Plant Adaptation $/CRV Maintenance $/CRV Deferred Maintenance $/CRV Facility $/GIE $ Cost/Square Foot Load	> 4% > 2% > 5.5% 0 - 5% > 15% > $8.00 all costs, work hrs reduced	8 - 3% > $11 < $22	Safety Energy % Task/Stdn	1.7% ASHRAE > 90%	5-3% <ASHRAE	Trng Costs > 5%	> 8%	% Services Measured % Stakeholder Measured Continuous Improvement	100% 100% Yes	> 90%
4	Integrated Strategic Plan	Renewal $/CRV Plant Adaptation $/CRV Maintenance $/CRV Deferred Maintenance $/CRV Facility $/GIE $ Cost/Square Foot Load	3 - <4% 1.5 - <2% 5 - <6.5% > 5 - 10% 12 - <15% $6.00 - $8.00 all labor & overhead	> 1 - 3% $9 - 11 $22 - 24	Safety Energy % Task/Stdn	10% 2xASHRAE 60 - 90%	.5 - 1% ASHRAE 75 - 90%	Trng Costs 5%	5%	% Services Measured % Stakeholder Measured Continuous Improvement	75% 75% Yes	80 - 90%
3	Clearly Defined Goals and Objectives	Renewal $/CRV Plant Adaptation $/CRV Maintenance $/CRV Deferred Maintenance $/CRV Facility $/GIE $ Cost/Square Foot Load	2 - <3% 1 - <1.5% 4.5 - <5% > 10 - 15% 10 - <12% $4.00 - $6.00 labor, fringes, vehicles, small tools, & uniforms	> 3 - 5% $7 - 9 $24 - 26	Safety Energy % Task/Stdn	15% 5xASHRAE 30 - 60%	1 - 1.5% 2xASHRAE 50 - 75%	Trng Costs 4%	5%	% Services Measured % Stakeholder Measured Continuous Improvement	50% 50% Some	40 - 80%
2	Mission Communicated and Effective	Renewal $/CRV Plant Adaptation $/CRV Maintenance $/CRV Deferred Maintenance $/CRV Facility $/GIE $ Cost/Square Foot Load	1 - <2% 0.5 - <1% 4 - <4.5% > 15 - 20% 8 - <10% $3.00 - $4.00 labor rate plus fringe benefits	> 5 - 12% $5 - 7 $26 - 28	Safety Energy % Task/Stdn	20% 6xASHRAE 10 - 30%	1.5 - 2% 3xASHRAE 25 - 50%	Trng Costs 3%	5%	% Services Measured % Stakeholder Measured Continuous Improvement	25% 25% No	20 - 40%
1	Mission Statement	Renewal $/CRV Plant Adaptation $/CRV Maintenance $/CRV Deferred Maintenance $/CRV Facility $/GIE $ Cost/Square Foot Load	< 1% < 0.5% < 4% > 20% < 8% < $3.00 basic labor rate	> 12% $5 $28	Safety Energy % Task/Stdn	> 25% > 6 ASHRAE < 10%	≥ 2% > 4ASHRAE ≤ 20%	Trng Costs 0 - 2%	< 5%	% Services Measured % Stakeholder Measured Continuous Improvement	0% 0% No	< 20%

specifically the safety benchmark, we were measuring job injury time as a percentage of total available hours (excluding paid leave for annual, sick, holiday, etc.). Our best guess for level 1 performance was greater than or equal to 25 percent and level 5 performance as less than or equal to 2 percent. Feedback from our respondents indicated that the ranges should be level 1 greater than equal to 2 percent and level 5 less than equal to .5 percent. You can see the importance of the beta test and can appreciate how important your feedback is to SAM's development.

We were somewhat disappointed with the initial response to our August survey mailing but were told by many facilities organizations that they were swamped with the beginning of the school year and a myriad of other surveys. Timing of our request was a problem. In addition, some of you indicated that the information requested was not readily available within the organization. This is definitely something that we need to address, as one of our criteria for selection of our "short list" of benchmarks was that the information had to be easily accessible.

SAM was introduced in greater detail during each of the regional APPA meetings this fall, although the level of participation and information sharing varied from region to region. The folks who did attend the sessions were genuinely interested and in fact had made a first stab at completing the survey and had many questions. During these regional meetings in which SAM was introduced, attendees were given another opportunity to participate in the beta test by completing a survey by December 1. We wanted to give everyone as much opportunity to participate as was possible. The more validation we have, the better the final product. Again, our goal is to do it right and not look for the quick fix.

Once the beta test is complete and we have validation on benchmarks, clarification around definitions, and have confidence in the accuracy of our ranges of performance for each benchmark, what happens next? An APPA-wide survey will

be conducted that will capture and display all of the raw data for all APPA organizations. Additionally, a tool will be provided that will assist organizations in graphically representing their organizational results on the SAM matrix.

We hope to also capture the truth behind best practices so that organizations striving to achieve higher levels of performance can fully understand the processes that are used to achieve best practices. This is a very important part

of this project as it helps to encourage organizations to use this tool for self-improvement rather than comparison purposes. As we all know, the same benchmarks can be used to build either a case for excellence or justify a case for privatization. The numbers by themselves can be easily manipulated. We want to provide best practice information that will help to bring truth to those numbers.

When we feel that we have solidified the first group of benchmarks and ratios, we will look at a second level of benchmarks that can be developed and used selectively by organizations. This second round of benchmarks, a "pick list," could include such things as:

- Overtime as a percentage of total labor
- Frequency of callbacks
- Actual cost versus estimated cost
- Response time by type of work order
- Completed work orders by type each month.

We again would appreciate your feedback regarding the appropriateness of these benchmarks.

The SAM consortium and APPA's Information Services Committee are looking at how the Comparative Costs and Staffing report, which provides specific cost data, can compement and support SAM, which is global and attempts to normalize comparisons and indexing. In addition, APPA and NACUBO are discussing how SAM's benchmarks and ratios can be incorporated into NACUBO's benchmarking survey.

So SAM has been born, her future discussed, and your key role in the development process laid out. Now the most important part of all, your participation is called for. Feedback that we have received to date has been extremely supportive. Many have indicated that SAM is just the kind of tool that will help us cope with the realities of our complex facilities environments. The concerns that have been expressed relate to definition and interpretation. It is now your turn to help us make this vision of a facilities Strategic Assessment Model our shared reality. Please actively participate in SAM's development; she needs your nurturing and attention. ∎

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PRIVATIZATION
in Today's
Facilities Operation

by Ronald T. Flinn
• • • • • • • • • • • • • • • •

rivatization. A word that is causing more anxiety for some facilities officers than the other heretofore scourge, "budget cut." There is no question the sudden pronouncement by higher administration that they are seriously considering privatizing support services is unnerving. But if it comes as a shock to the facilities officer, one could argue that he or she is out of touch and/or not willing to recognize that change is constant and privatization is now viewed by many administrators as a potential solution to fiscal problems.

Some facilities officers consider privatization as just the most recent buzzword and the discussion by administrators as yet another higher education fad. Not taking this subject seriously is a major mistake. Most institutions face a significant financial dilemma—public universities continue to receive less support from fiscally strapped state governments, and in turn, have increased tuition and fees to keep pace with ever increasing costs. Recent newspaper headlines criticize how much tuition increases are outpricing the rate of inflation and frequently quote students, parents, and the general public as lamenting that "college has become too costly." Governing boards of universities are pressing the administration to find ways to contain costs. All sorts of techniques are being reviewed, such as encouraging senior faculty to retire early so they can be replaced by lower salaried junior faculty; using more graduate assistants and part time non-tenured faculty; increasing class sizes, etc. Obviously all operating costs will be reviewed, and all avenues for relief will be discussed and explored. The interest in privatization within higher education is confirmed by an informal 1994 survey of the Big 10 Business Officers, in which most reported they had developed, or were in the process of developing, privatization guidelines.

Recent newspaper articles herald stories of ongoing privatization efforts.

■ *Wall Street Journal*, May 1, 1995

Is KP Dead? U.S. Military Turns to Civilian Workers for Support Services. Brown & Root Cooks Meals, Hauls Garbage in Haiti As Army Faces Change.

■ *Detroit News*, June 29, 1995, referring to Central Michigan University

CMU, employees fighting over privatization. Food service layoffs leave workers wondering if they're next to go.

Various trade associations also relate the tale.

■ The American Institute of Plant Engineers reported on August 16, 1995:

AIPE Survey reveals downsizing, outsourcing are prevalent. Facilities Engineering and Maintenance Functions Hit Hardest. A significant number of facilities downsized and/or outsourced their engineering and maintenance operations last year according to a recent survey....

■ The October 1995 *Engineering Times* published by the National Society of Professional Engineers reports:

Plant Sale Marks Privatization Watershed. Shock waves from the first sale of publicly owned wastewater treatment plant to a private company set off the frantic scribbling of privatization Richter scales across the country in early August.

So what is one to do?

First, Get the Facts

Recognize that privatization is not a new or revolutionary concept. In fact, corporations obtaining support services from without is more the norm than having such services in-house.

Ron Flinn is assistant vice president for physical plant at Michigan State University, East Lansing, Michigan. He is currently APPA's President-Elect.

On the other hand, higher education followed the traditional pattern of establishing in-house custodial teams and added skilled trades as the institutions grew in size and complexity. Initially, they received low to moderate pay and benefits, but through unionization and/or societal pressures, salaries and fringe benefits have grown in many cases to equal or exceed the wages paid in the private sector. The explosion of growth, both in the number of institutions and their size, which began immediately after World War II and continued into the 1970s, has created a large potential market for facilities management contractors. Various market factors caused many corporations to establish units which claim to be expert facility managers, and they are vigorously marketing and advertising. The sales pitch is obvious—the same or better quality job done at a lower cost.

At meetings of facilities officers, such as APPA, one hears many stories of privatization, some successes and some failures. An institution in California reports significant cost reductions by contracting custodial services. Two institutions in Michigan have returned to in-house staff after several years of their facilities being managed by a contractor. One institution was shocked to learn the contractor had taken all the maintenance records upon their departure. The administration at a small college in Nebraska was chagrined to learn that one of the contractor's techniques to reduce costs was not to mow the grass until students returned for fall semester. Obtaining the details of such events, rationale for the decision, and results after implementation, etc., are important data to possess to properly discuss the pros and cons of privatization.

Definition

It may be of value to clarify the definition of privatization. The following definition was developed at Michigan State University in its "Privatization Guidelines Development Document."

"Privatization," in the context of these guidelines, is a decision by the university to completely separate the work of an entire functional unit of the University from regular university employees to private sector entities."

This definition presumes that the work is still needed by the university, and does not apply to reductions in force or to subcontracting of activities which the university has done in the past, is doing currently, or will do in the future related to:

- changes in the volume or character of the university's service needs;
- internal efficiency improvements;
- reallocation of work between university units or otherwise within the university structure;
- changes in contractual or other support or agency relationships, or mutual programming arrangements, which the university may have with other separately incorporated entities;
- changes due to value-added services provided by private-sector entities serving the university, and which represent only a component of a function needed by the university.

An "entire functional unit" of the university is one that has a single functional purpose, is organized for management as a single operational unit, and, if privatized, would represent the elimination of all internal university provision of the given functional work.

Whether we're talking privatization or subcontracting as defined above, the real question is do you and/or higher administration think there is possibly a need to change? One must make a very candid appraisal. Do your customers view your service as adequate? Are there others who could provide it at a lower cost? Are you and your staff in frequent contact with customers and do they understand the status of your budgets and related service levels? Does the team enjoy good customer relations; i.e., is the faculty supportive? Do they view the physical plant as the folks they want in their buildings, or is there so little contact that the two groups are strangers? The importance of having strong and solid customer support in today's climate cannot be over emphasized.

Be Proactive

If the candid appraisal reveals a highly productive in-house staff providing a quality job at a low cost, the team is at minimal risk. However, it is a rare situation that requires no improvement or enhancement. In the past, facilities officers have not seen the need to be public relations experts. In today's competitive environment, one needs to realize a large number of "super" salespeople are assailing our institutions with claims of better service at lower prices. Thus, the wise facilities officer will implement an information campaign to ensure that the entire campus is aware of the factual profile of the physical plant team. The world has to be frequently
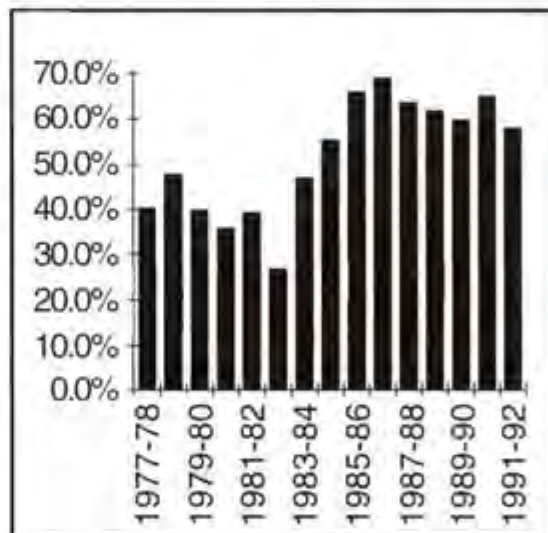
Figure 1
Contracted maintenance, alterations, and improvement dollars as a percentage of total maintenance, alterations, and improvement dollars.

reminded that a great job is being performed. The facilities team also needs to be reminded, "Keep up the good work!!"

When privatization became a buzzword in 1992, the MSU physical plant published a one sheet document, "Privatization-Two Sides of the Story." Printing each view on opposite sides of the sheet helped dramatize the two sides of the story and has been very effective in showing any interested party in how much outsourcing is done. (This activity would now be described as subcontracting under the recently developed definitions shown earlier.) In order to convey the flavor of this document, the first portion and closing statement of each side is displayed below.

Figure 2
"Area Maintained" is square feet times 10^5. "Staffing" is a head count of Physical Plant full-time regular employees.

Privatization—Two Sides of the Story

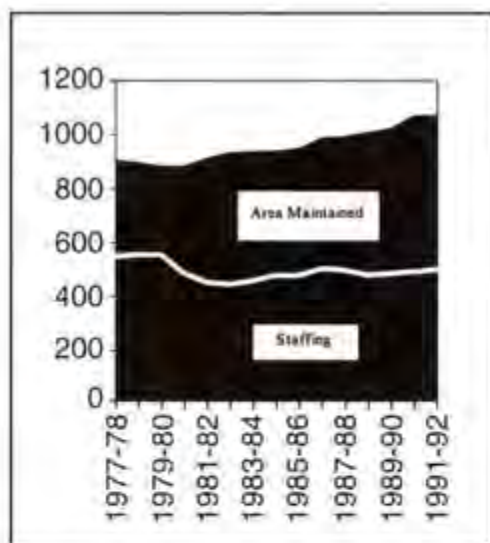Carefully managed, limited privatization is an economical alternative for higher education support services. While there are supportive services and products an institution can provide itself, other services and products are best purchased on the market. The key is careful management, comparison, and contracting.

Consider these examples of privatization drawn from the facilities management experience of Michigan State University's Physical Plant Division:

- The majority of MSU's facility maintenance, alterations, and improvements business—now worth almost $24 million, excluding major construction—is contracted to private firms; see Figure 1. Private contracting enables the Division to retain its internal construction skills and to provide those employees with a measure of protection against the cyclical nature of construction work. This is in substantial contrast to many public institutions....

Clearly, privatization is one important method of holding down the costs of services necessary to supporting higher education. But dogmatic, sweeping generalizations cannot serve. See the reverse side of this sheet for details of services which the Physical Plant Division has retained.

Privatization—The Other Side: Retaining Economical Services

Although privatization can be an economical alternative for supporting higher education, circumstances and situations can dictate that an institution retain its own capacity to provide a wide variety of services, while retaining a small, efficient organization. MSU's Physical Plant Division has remained small (see Figure 2), while providing core services efficiently. Consider these examples:

- Although outside contractors provide a majority of campus maintenance, alteration, and improvement work, faculty and administrators appreciate the expertise and speed of Maintenance Services' Alterations and Improvements Crew. This crew is competitive with outside contractors in cost, quality, and speed. Customers report that the crew is

more flexible and accommodating than outside contractors. Retaining the capability for such work helps keep contract costs low and quality high....

Clearly the balance between a proper level of privatization and economical use of an institution's own resources requires proactive management and leadership. Carefully managed, limited privatization is an economical alternative, but not a panacea, for providing necessary support services.

If the reader is interested in the entire document it can be accessed on APPANet (http://www.appa.org).

If the candid analysis reveals, regrettably, that the in-house staff is in fact at risk, the facilities officer then has the responsibility to share this information with the staff. If they are unresponsive, entrenched, convinced they do not need to change, one must explore alternatives, including privatization. If that is the conclusion, the facilities officer must take the initiative and become the "Change Master." Rather than being viewed as part of the problem, the facilities officer must come forward with the best solution to providing the necessary services at the lowest possible cost.

Move Forward

The challenge to replace an in-house staff with contractors will be substantially more difficult if the employees are unionized. However, only a few localities in the country have environments that preclude such a change. An essential aspect of a successful campaign is humane treatment of the incumbents. It is difficult for a university community to tolerate a major change in employee relations when it appears the administration is being unnecessarily callous with the individuals. Taken to the extreme, the effort to change could be reversed, resulting in a workforce totally demoralized with a bunker mentality.

A campus in Ohio was very successful in moving from a totally in-house, unionized custodial staff to being totally contracted. They accomplished this without conflict by servicing a new building via a contractor, and as attrition (retirements, transfers, etc.) reduced the in-house staff, additional buildings were assigned to contractors. This took nearly twenty years and shows the need for long-range planning and consistent follow through. The university has also been able to satisfy a minority set-aside program by using a diverse group of contractors.

Providing plant services by contract requires that one is well trained in contract administration. The details of this subject are too vast to be covered in this article, but here are a few tips from experienced facilities officers:

- Request for proposals must thoroughly describe the activity to be performed; in other words, the specifications must be thorough and detailed.
- It is essential that there is more than one contractor in the area capable of performing the work.
- You must be prepared and staffed to do frequent inspections of the contractor's work to assure compliance; in other words, inspect what you expect.
- Be aware that theft problems will undoubtedly increase.
- Always remember, contractors are profit oriented.

Privatization must be viewed as just another tool available to the facilities officer for fulfilling the institution's mission and providing the environment necessary for quality teaching, research, and public service. ∎

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Using
Activity Based Management
as a Vehicle for Managing
Change

by Mohammad H. Qayoumi, Ph.D., P.E.

For the past half a century, organizations have been using financial accounting information to direct their management decisions for all aspects of the enterprise.

Consequently, the financial accounting system became the primary source of management information. This approach focused on managing cost by means of cost-based budgets, standards, and variances established at the department level. In such a system, many of the volume-sensitive cost drivers are attached to the overhead cost as an economical means of ensuring a proper match between revenues and expenses only at the macro level. For instance, items such as setup costs, engineering charges, and material handling—which are triggered based on number of batches or number of engineering charges rather than output value—were aggregated. This approach created a systematic distortion for the individual product.

By the early 1980s we recognized that such traditional costing methods tend to over- or underestimate the costs of products or services based on static or misleading measures, thus resulting in erroneous decisions. Specifically, the weakness of traditional costing is because decisions are usually based on outdated strategies that are not linked to current institutional objectives. These decisions tend to be inflexible with a short-term focus that result in encouraging suboptimization. In addition, financial preference measures overshadow operational performance measures.

Today, organizations are focused on processes and activities costs, as well as performance measurements for quality attributes such as customer satisfaction, reliability, cycle time, flexibility, and productivity. In other words, the critical success factor of any enterprise require continuous involvement in managing all activities to ensure that a high-quality service is provided in the most efficient and effective manner. This means that using Generally Accepted Accounting Principles (GAAP) are not useful in planning, managing, controlling, and directing activities, because they do not provide information on how an activity is accomplished. Recognizing these problems triggered the development of activity based costing (ABC) and activity based management (ABM).

Activity Based Management

ABM is based on the assertion that the cases of productivity and cost in most organizations are too complex to know or control by referring to management accounting reports. Instead, institutions must track costs in relation to the activities performed. Conventional costing assumes that products/services cause cost. By contrast, ABM assumes that activities cause cost, and cost objects create the demand for activities. This means the tracing and assigning of costs to products/services must be decoupled and computed in two stages. In other words, ABM indicates the not-so-salient difference between usage of resources versus spending on resources.

Spending on resources refers to the funds expended on total available capacity, while usage refers to only the portion of that resource utilized. If you cut the usage of resources without reducing spending on labor and overhead, there will not be any change in the bottom line. This concept is particularly important in the current environment where the overhead cost for most services consists of an ever increasing percentage of the total cost. Therefore, the traditional overhead allocation system does not give us the insights needed for reducing overall cost for productivity improvements.

The ABM approach cuts across different functional areas depending on specific processes. The approach is two dimensional with a process view and a cost assignment view. The cost assignment view determines the resources consumed by activities via resource drivers. The process view provides information on how the series of activities are linked to perform a specific goal. Since process analysis is closely related to activity analysis, the achievement of cost savings and produc-

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tivity improvement at the process level requires the evaluation of every activity within the process. In other words, by identifying non-value-added steps one can investigate further to see whether the activity can be eliminated or, at a minimum, find why it is unavoidable. The cost drivers consists of factors that determine the workload and effort that determine the activity.

The performance measures should be drawn from the institutional vision and the set of enduring objectives that the organization is striving for. An excellent model has been proposed in the *Harvard Business Review* by Robert S. Kaplan, which calls for developing a balanced score card approach. Kaplan assigns the following four dimensions to the institutional objectives with specific measure:

- *Financial Perspective:* "If we succeed how will we look to our stakeholders?"
- *Customer Perspective:* "To achieve our vision, how must we look to our customers?"
- *Internal Perspective:* "To satisfy our customers what management processes must we excel at?"
- *Organizational Learning:* "To achieve our vision, how must our organization learn and improve?"

Every activity in the process is a customer of another activity and in turn has its own customers. In other words, the activities are part of a customer chain all working together to provide value to the outside customer. After the activities have been defined, the next phase of ABM is to do a value analysis for every activity. The purpose of this step is to determine whether we are adding any value in every step and for whom we are adding the value, and is this a value that the customer is wishing to pay for? In higher education, rather than using a binary "value-added/non-value-added" label for every activity, a more appropriate approach is dividing the activities into four categories of essential, incremental, sustaining, and waste.

Essential activities are those that add value for the internal and external customers. Thus, we would like to maximize our efforts and resources for these activities. Incremental activities provide value only to the supplier when there is no stated requirement from the customer. We need to assess whether it is truly a necessary step to perform. Sustaining activities are those that are performed in response to internal and external regulations, such as EPA, IRS, or state mandates. These are required activities that add no value to the internal and external customers. We need to evaluate the basis for the requirements and minimize the level of efforts applied here. A waste activity is performed because of an incapable or outdated process. These activities should be eliminated entirely.

With ABM key output measures such as productivity, quality, cycle time, and customer satisfaction can be assessed and monitored in an integrated way. This is helpful because if these parameters are viewed individually and in isolation, one can easily get a distorted picture or be tempted to suboptimize one particular parameter at the cost of others. For instance, if we only concentrate on productivity without seeing the impact on quality, we could be increasing rework and scrap that which will not help the bottom line. Also, if customers are not satisfied with the final product or service, all of the other efforts could be self-defeating. This means that ABM links cost management with continuous improvement, and at the same time drives changes in the organization's mental model and practices where merging activities will become a focal point of cost management.

ABM is more than a system. It is a management process. It benefits strategic and operational decisions as well as stimulating process improvement. More importantly, ABM involves a comprehensive paradigm shift in management, one that involves moving away from the traditional functional view of the organization and structures toward one that facilitates a cross-functional view of the effectiveness of activities and business processes. It helps strategic and operational decisions in addition to serving as a platform for change.

Change Management

Change is accomplished by people, not by systems. It is important to identify the specific role that organizational leadership must play in implementing ABM, especially in analysis and action processes. Moreover, the results will only become meaningful if recommendations are implemented, because a new way of counting resources and expenses by itself does not fundamentally change an organization. This entails active sponsorship of the program and implement recommendations based on outcomes. As ABM can objectively identify areas or specific individuals who are not very efficient, these individuals will try to discredit the methodology.

The prerequisite for creating an environment that will be hospitable for change necessitates understanding the new concepts, believing the new concepts are valid and useful, commitment to implementation, and creating internal commitment.

This can be accomplished by providing training opportunities so employees will appreciate strength of ABM or traditional costing systems. This should include showing gaps in existing theory in practice, articulating the new theory that will correct the gap, identifying examples how the new approach benefit the organization, and identify organizational barriers inherent in the institutional culture.

To analyze organizational barriers, Chris Argyris, MIT professor and prolific writer on organizational change, divides human theory of control in two parts, espoused theory and theory-in-use. Espoused theory relates to basic beliefs, values, and attitudes of individuals. Theory-in-use deals with what humans actually use when they act. Since in most organizational cultures we are taught not to embarrass anyone, organizational defenses take over. In other words, there develops an underground dynamics that generate a number of "undiscussable" issues in the organization. Worse than that, the undiscussability of such issues also remains undiscussable.

This behavior is reinforced by the ladder of inference, meaning that our mental models are full of self-generated beliefs that are largely untested. These beliefs have been adapted based on conclusions from experience and observations. To elaborate on the ladder of inference as humans observe raw data (lowest step in the ladder), data is selected and a meaning is given to the data based on former personal

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and cultural experiences. Moving up on the ladder, an assumption is inferred and a conclusion is drawn. This forms the basis of the beliefs that humans adapt when a particular action is taken (highest step in the ladder).

Our beliefs affect what data we select in the future. Since the human mind works so automatically and quickly, we normally interact at the higher levels of inference. This shapes our mental models and fails to see changes if they do not fit our current paradigm. This is an underlying reason for defensive reasoning.

To overcome this challenge, the staff needs to be trained in true dialogue—where creative confrontation and healthy disagreement are brought forward, in place of amicable shallow concerns. There needs to be an agreement that divergent thinking provides creative potentials. This requires changing defensive routines that reinforce barri-

ers and develop new norms and organizational culture. In other words, stop taking for granted what is being taken for granted.

Bringing a meaningful change and implementing ABM as a new system can be implemented in a three-step process. The first step consists of data gathering and analysis, which includes six tasks: activities identification, tracing cost to each activity, activity value analysis, determining output measures, selecting appropriate cost drivers, and finally, trace costs to products or services. At the conclusion of this phase, a well defined structure will be in place. This will be the basis of the second step, which deals with implementation of appropriate procedures, methods, and systems. The last step is maintaining the system which, by definition, is an ongoing process. This step is critical in keeping the system in synch with today's realities. In other words, as changes happen over time, it is impor-

tant to update the system to reflect these changes.

An important success factor for implementing ABM is ample communication to everyone who will be affected. Otherwise, individuals left in the dark will presume that the primary reason for ABM implementation will eliminate their jobs. Naturally, they will not be supportive of the new system. In addition, the implementation require a cross-functional team comprising of the most capable individuals in the organization who are innovative. They are also risk takers who have the respect of their peers.

Conclusion

People do not instinctively resist new ideas. They resist change. Therefore, any major initiative like ABM that affects the organizational culture will face resistance. Perhaps nobody opposes getting more accurate, more timely, and more useful information. Yet many organizations attempting ABM have faced problems implementing the new system. This is because most people would rather live with a problem they cannot solve than accept a solution they cannot understand. Needless to say, management commitment is a prerequisite for the successful implementation of ABM. The commitment needed is more fundamental than merely reallocating resources. What is needed is a change of management's mind-set from ongoing to managing activities supported by willingness to pursue a strategy to improve the activities of core business processes. If we accept the theory that "belief determines behavior," ignoring the barriers mentioned will drastically reduce the chance of success in implementing ABM.

The purpose of this article is not to claim that traditional cost accounting does not work. However, the world that it was created for is quickly disappearing, and that is why ABM responds. Also, the reality of organizational life states that people have been managing expenses rather than the behavior that derives expenses. ABM is trying to address the latter by not only looking at the codified knowledge, which is explicit, but also look at tacit knowledge, which is implicit, latent, obscured, and often ignored in its path for organizational transformation. ■

Assessing the Malcolm Baldrige National Quality Award Criteria for Education

by Kathleen Mulligan

everal university facilities managers recently mentioned that they were looking forward to the introduction of the Baldrige Award Education Pilot Criteria for 1995. Their assumption was that the Education Criteria would be more applicable to their operations than the Baldrige Award Criteria used for business. Without question, the Education Pilot Criteria address the mission and orientation of education far better than the general Baldrige Award Criteria, and provide guidelines that focus on educational excellence and performance. However, which criteria and guidelines best suit college and university facilities operations?

Background on the National Quality Award

The Malcolm Baldrige National Quality Award was established in 1987 by public law. The Award promotes:

- Awareness of quality as an increasingly important element in competitiveness;
- Understanding of the requirements of performance excellence; and
- Sharing of information on successful performance strategies and the benefits derived from implementation of theses strategies.

Eligibility is limited to for-profit organizations, although it might be extended in the future to nonprofits. Interest in strengthening education led to the establishment of a Baldrige Award category for education.

The original Award Criteria are designed to help business-

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es increase their competitiveness through focus on two key goals: "delivery of ever-improving value to customers; and improvement of overall operational performance."

Customer-driven quality is the primary focus of the criteria, and must address all stakeholders—customers, employees, suppliers, stockholders, the public, and the community. Additionally, the criteria emphasize continuous improvement, which needs to be an integral part of the way the company and its work units function.

A significant use of the Award Criteria and Scoring Guidelines is as a means of organizational self-assessment. With an emphasis on quality improvement and benchmarking, the Award Criteria provide an opportunity to measure our organization against established norms. With some modification and adaptation, the core values and concepts contained in the Criteria can be utilized for assessing almost any organization's success. Importantly, one does not need to apply for the award to be able to derive benefit from the program.

Recognizing the growing interest that educators have in the quality movement, and a national goal to strengthen education, the Baldrige Award Program launched its Education Pilot Program on December 16, 1994. The Education Pilot Program is in the process of evaluating the criteria, and further refining the categories and other aspects of the program. Although no awards will be presented in the 1995 pilot program, nineteen pilot applications were accepted. Site visits to three education organizations were to begin October 1995. The success of the trial program, the level of support from education, and the availability of long-term funding will help determine whether the Malcolm Baldrige National Quality Award should be expanded to include education.

Award Criteria Framework

In both the Malcolm Baldrige National Quality Award and the Education Pilot Criteria 1995, the core values and concepts are set forth in seven categories:

1.0 Leadership

2.0 Information and Analysis

3.0 Strategic Quality Planning

4.0 Human Resource Development and Management

5.0 Management of Process Quality

6.0 Quality and Operational Results

7.0 Customer Focus and Satisfaction

The Baldrige Award Framework is shown in Figure 1, and the Education Pilot Criteria Framework is shown in Figure 2.

As can be seen from these figures, the goals and the measures of progress for the two types of criteria differ, while using a common framework. The Education Pilot Criteria focus on student success, educational climate, and school performance. The Baldrige Award Criteria focus on delivering ever-improving customer value and company performance. Students are the school's customers, and student performance is an indicator of the school's product and service quality; so,

in some ways, the differences may be in the semantics. However, a facilities organization would need to decide which criteria it could best use for self-assessment, and which goals they could realistically achieve.

The Education Pilot criteria focus so extensively upon the education mission and student performance that it would seem difficult to find much applicability to a support service within the school, such as the facilities operations. For example, let's compare Criteria Item 1.2 "Leadership System and Organization" in the Education Pilot to the Baldrige Award.

Education Pilot Criteria: Item 1.2 Leadership System and Organization

"Describe how the school's student focus and performance expectations are integrated into the school's leadership system, organization, and policies."

NOTES in the Education Pilot Criteria explain that:

"The 'school's leadership system' refers to overall direction and supervision throughout the school;

"The term 'school' as used in the Criteria refers to the Pilot Program participation unit. The participation unit might actually be a school, a school district, or a major academic unit within a college or university.

"Performance improvement goals and trends...refer to all aspects of school performance, including education, research, and business operations."

As can be seen from this example, the primary focus of the Education Pilot is upon the school organization as a whole, or upon one of its major academic units. This type of criterion is not directly applicable to the management of a support unit, such as the facilities operation, in that it is too broad in scope, and includes items outside the control of the support units. Almost all the criteria in the Education Pilot are far broader than a support unit level, and concentrate on improving student performance, faculty capabilities, and school program performance. While the facilities operation supports those goals, it can hardly measure its success against them.

In comparison to Item 1.2 above, the Baldrige Award Criteria for the same item is significantly more flexible in scope.

Baldrige Award Criteria: Item 1.2 Leadership System and Organization

"Describe how the company's customer focus and performance expectations are integrated into the company's leadership system and organization."
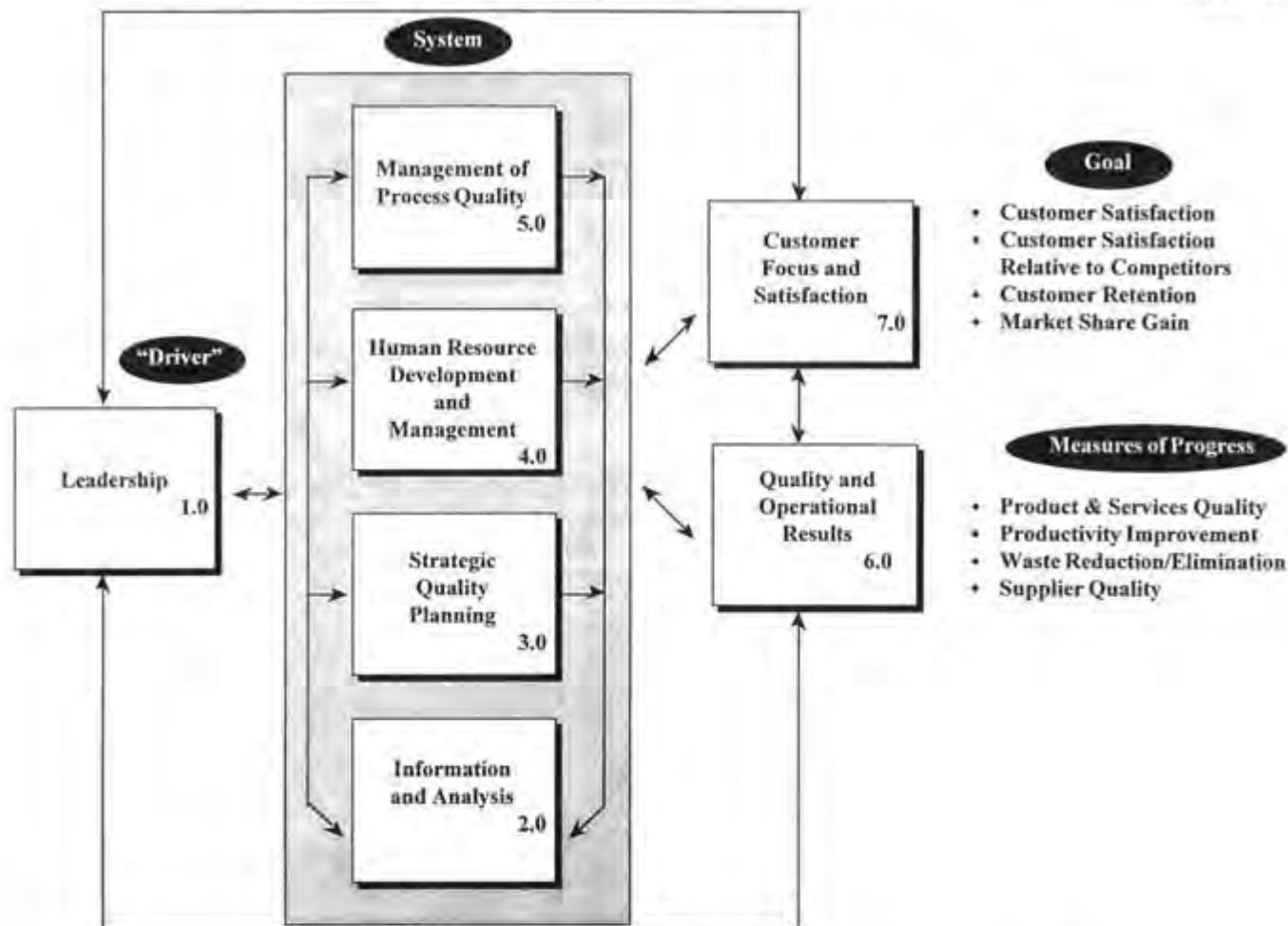
This type of criterion, as compared to the Education Pilot, can readily be adapted to a facilities operation, by interpreting the term "company" to mean the facilities department. Thus, the department does not have to be reviewed within the context of the university or college, but can instead assess the quality and success of its efforts in relationship to its customers and to its goals.

Plant and facilities management are mentioned in only one criterion in the Education Pilot, in Item 5.0 Educational and Business Process Management.

BALDRIGE AWARD CRITERIA FRAMEWORK
Dynamic Relationships

Figure 1

System

Management of Process Quality 5.0

Human Resource Development and Management 4.0

"Driver"

Leadership 1.0

Strategic Quality Planning 3.0

Information and Analysis 2.0

Customer Focus and Satisfaction 7.0

Quality and Operational Results 6.0

Goal
* Customer Satisfaction
* Customer Satisfaction Relative to Competitors
* Customer Retention
* Market Share Gain

Measures of Progress
* Product & Services Quality
* Productivity Improvement
* Waste Reduction/Elimination
* Supplier Quality

Education Pilot Criteria: Item 5.6 Business Operations Management

"Describe how the school's key business operations are managed so that current requirements are met and operational performance is continuously improved."

While this one criterion applies to facilities management, among other academic business operations, it does not provide the framework for designing, implementing, and assessing a process for managing the facilities operations, in the comprehensive way that the Baldrige Award Criteria does. Use of the appropriate criteria and performance model for the facilities operation will benefit the educational institution as a whole.

At this point, it is worth mentioning another quality program—the President's Quality Award Program. This program was created in 1988 to recognize quality and standards of excellence in the federal agencies, and continues to be limited to the federal government. The criteria for evaluation is almost identical to the Baldrige Award Criteria. Earlier in this article, we compared Item 1.2 in the Education Pilot Criteria to the Baldrige Award Criteria. In comparing Item 1.2 in the President's Quality Award Program, the criteria, areas to address, and the notes are the same as the Baldrige Award

Criteria. The prime difference in the materials between the two programs is that the President's Quality Award Program provides a far more extensive system of Scoring Guidelines than does the Baldrige Award.

In the Facilities Services Department at Oregon State University, we have used the President's Quality Award Program Scoring Guidelines, modifying them somewhat to meet our departmental terminology and purposes. These modified guidelines have become the "OSU Facilities Services Quality and Productivity Improvement Goals." These goals form a foundation for our strategic planning, our action plans, and our self-assessment activities. Use of these goals has provided a common understanding of our departmental vision, and enhanced teamwork and cooperation in achieving that vision.
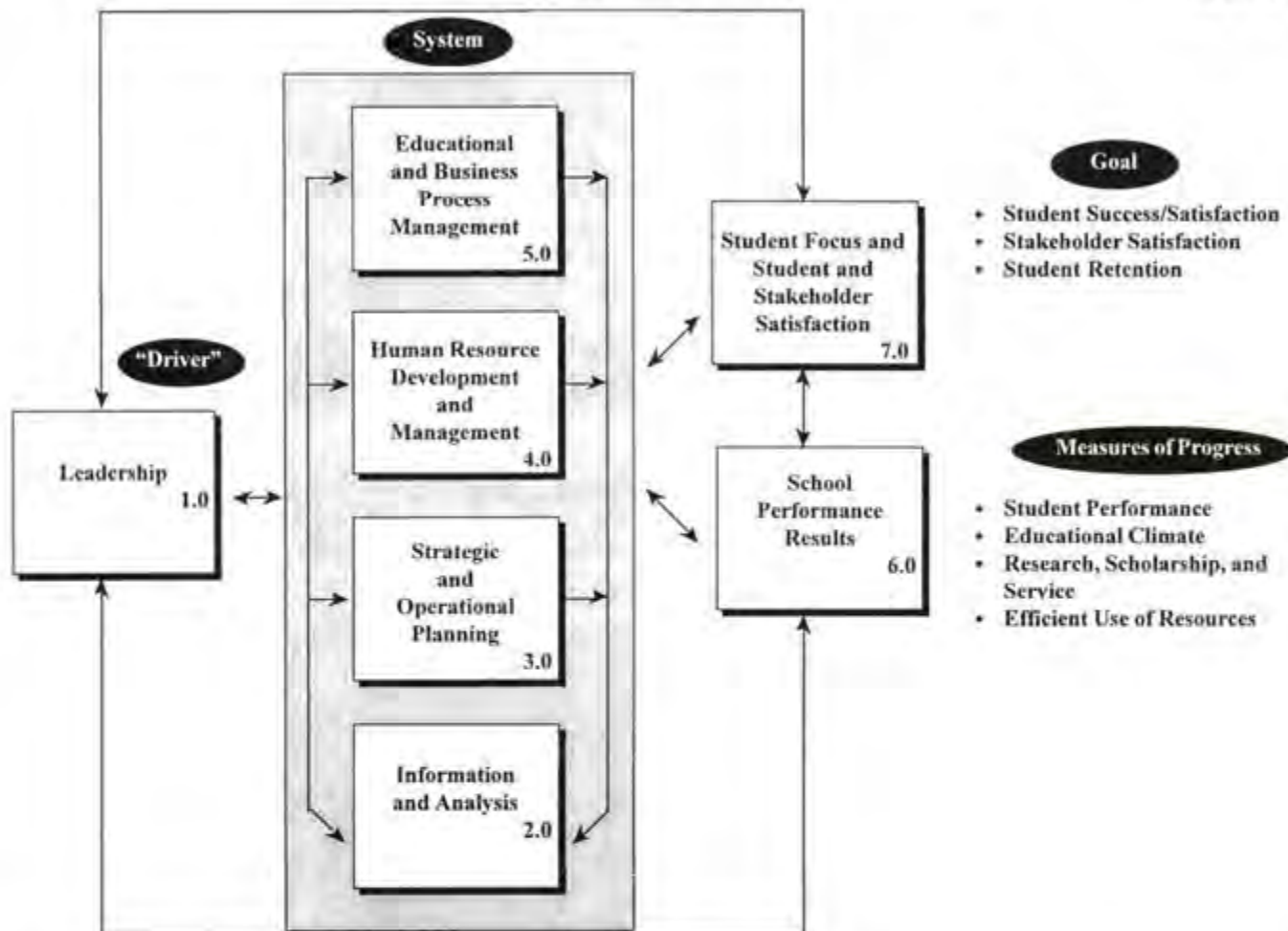
Summary

One major benefit of the 1995 Education Pilot Criteria, the Baldrige Award Criteria, and its offshoot, the President's Quality Award Program is that they are all based on the same framework, and can be integrated to provide a complete package of quality assessment for an educational institution.

The 1995 Education Pilot Criteria has offered educational

EDUCATION PILOT CRITERIA FRAMEWORK
Dynamic Relationships

Figure 2

System

Educational and Business Process Management 5.0

Human Resource Development and Management 4.0

"Driver"

Leadership 1.0

Strategic and Operational Planning 3.0

Information and Analysis 2.0

Student Focus and Student and Stakeholder Satisfaction 7.0

Goal

- Student Success/Satisfaction
- Stakeholder Satisfaction
- Student Retention

School Performance Results 6.0

Measures of Progress

- Student Performance
- Educational Climate
- Research, Scholarship, and Service
- Efficient Use of Resources

institutions the opportunity to participate in the nationally recognized Baldrige Award program, albeit on a pilot basis. In doing so, the institutions will have common criteria to use to evaluate their overall effectiveness and improvement, particularly in the areas of student performance. By using the criteria and focusing on their results-oriented goals, colleges and universities can improve their educational services, and facilitate the sharing of best practices. Use of a common framework of criteria between those sectors using the Baldrige Award Criteria and education institutions using the Education Pilot Criteria may also foster more cooperation and information exchange.

However, the 1995 Education Pilot Criteria focus so extensively upon teaching and learning that they are not effective as an evaluation tool for a facilities operation. The goals are too oriented to the overall organization to be achievable by any support operation.

The 1995 Malcolm Baldrige National Quality Award Criteria is flexible enough in its orientation to provide a framework that can readily be adapted to the facilities organization. The criteria can be used as guidelines to define measures of performance, to develop strategic plans, and to continually improve customer satisfaction. The scoring system

and evaluation factors make it useful as a tool for organizational self-assessment and measuring one's progress in quality management. While one may not be able to win any national award using this or the Education Criteria, one might best be able build a successful organization using the Baldrige Award Criteria. ∎

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Environmental Stewardship and the Green Campus

by Walter Simpson, CEM

uch has happened since the first Earth Day took place in 1970. Our awareness and knowledge about environmental issues have increased dramatically, and we have taken many constructive steps to address the environmental problems that threaten the quality of our lives. Yet, if we want to leave a legacy to our children and grandchildren for which we can be proud, this is no time for complacency.

As "spaceship earth" rushes into the next century, global environmental risks and dangers threaten to escalate. The key elements are population, consumption, and technology. For example:

- What will happen as our planet's human population doubles in the next fifty years? Can the earth sustain such increased demands for resources and subsequent increased waste and pollution?

- What will be the impact of the industrialization of highly populous countries, such as China, given current reliance on coal-burning, which maximizes acid-rain and global warming emissions?

- What will be the consequences to natural systems if the rest of the world adopts our economic system and lifestyle? Are we setting the proper example? Is American-style affluence sustainable over the long run?

These are vexing questions that suggest precarious times ahead. A decent future is contingent upon environmental stewardship. In this area, colleges and universities have a special responsibility. According to Oberlin College professor David Orr, the environmental crisis is at heart a crisis of ideas. As such, higher education is deeply implicated in the crisis and strenuously obliged to address it.

Institutions of higher learning are in a unique position to instill environmental knowledge and concern. Moreover, scientific research conducted at colleges and universities can help solve technical problems associated with the environmental crisis. While environmental teaching and research are of paramount importance, this article is written specifically for facilities managers and will focus on the significant contributions they can make to environmental stewardship through the "greening" of campus operations.

Think Globally, Act Locally

The good news is that campus greening is blooming! Many campuses in the United States, Canada, and elsewhere have started the greening process and are now actively implementing important changes in the way they conduct day-to-day business. For the leaders of this vital movement, environmental stewardship has become a priority.

In 1994, under the auspices of the Heinz Family Foundation, 450 faculty, students, and administrative staff delegates from twenty-two countries and all fifty U.S. states met at Yale University for a Campus Earth Summit, creating a "Blueprint for a Green Campus." More than 200 college and university presidents from over forty countries have committed their campuses to academic and operational environmental responsibility through affiliation with the Tufts University-based Secretariat of University Presidents for a Sustainable Future.

The seven-year-old National Wildlife Federation (NWF) Campus Ecology program is expanding its efforts to involve campus administrators as well as its traditional base of stu-

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dents and faculty. A recently published book, *Ecodemia: Campus Environmental Stewardship at the Turn of the 21st Century* by NWF's Julian Keniry (reviewed elsewhere in this issue of *Facilities Manager*), highlights the environmental work of college and university staff and tells the story of successful green campus activities on many campuses nationwide.

Other books, articles, and organizing manuals are available, including the recently published *Earth in Mind: On Education, Environment, and the Human Prospect* by David Orr. The green campus movement is alive and well and growing every day.

Back to Basics: Energy and Recycling

Among the first steps a campus can take toward campus greening is to reinforce, reinvigorate, and expand its existing environmental programs, typically energy conservation and recycling. Most campuses have these programs; they are the foundation of any administrative environmental effort.

Energy consumption produces some of the most significant environmental impacts associated with campus operations. If staff and/or financial resources are not available to advance your energy program, consider employing the services of an energy service company. ESCOs, as they are called, can develop, design, and construct energy efficiency projects that produce positive cash flow and pay for themselves. Energy savings in excess of 20 percent of total consumption are possible.

Enthusiasm about recycling is on the rise in most parts of the country because of the success and proliferation of municipal curbside programs. Unless colleges and universities run recycling programs at least as good as local municipal ones, campus efforts will appear deficient. How much is your campus recycling? The best schools are recycling over 50 percent of their waste stream; that's the target to shoot for!

Since facilities managers have significant control over energy and recycling programs, these are areas where you can really contribute to campus greening. Moreover, enthusiastic campus participation in the rest of the green agenda is unlikely to materialize unless it is evident to all concerned that facilities management is running active, aggressive programs in these two critical areas.

Taking the Green Path

Of course, new initiatives are essential. Environmental stewardship involves examining all facets of campus operation in order to identify environmental impacts and strategies for mitigating those impacts.

Many campuses have organized a campus environmental committee or task force to initiate and coordinate this environmental agenda. While facilities management must play a central role, this needs to be a coalition effort. Ideally, this task force would include representation from key departments and offices comprise faculty and students as well as staff. All members need to be enthusiastic, especially the group's leader or chair. Other key ingredients for a campus environmental task force include regular meetings, some form of institutional memory, and a subcommittee organization. The task force will need access to higher levels of decision-making in order to be effective.

Empowerment is crucial to the success of this kind of group. Task force members need to see results. Reasonable proposals need to become new policies or programs in a reasonable amount of time. Administrative support must be evident and broad minded. To be effective, the task force will need to look wherever it wants in its quest to identify both problems and solutions. No area should be "off-limits."

Another important step toward the green campus is to conduct a campus environmental profile or audit. This can be undertaken by the campus environmental task force, though it need not be. It is common at many colleges and universities for student groups to conduct an audit and present it as a challenge to their school's leadership. But the audit should be honest and pose a challenge regardless of who conducts it. A number of excellent resources are available to assist in the audit process (see "Resources" section below).

The heart of a campus environmental audit is its recommendations. These will typically take the form of proposed campus policies and programs and be grouped by issue areas. A number of generic recommendations are included with this article in the sidebar titled "Steps Toward Sustainability."

Fine-tuning and gaining acceptance and approval of these policies and programs will take time and effort. Since everything cannot be done at once, priorities will have to be established. Scoring some "victories" early on—even if they are small ones—is important, although it is equally important to develop long-range plans to tackle the larger problems.

Getting Serious About Stewardship

Once your campus environmental task force or committee becomes successful in getting its proposals approved, it's then time to address the challenge of implementation. Since most colleges and universities seem to be diverse and decentralized communities of free-spirited individuals, few things get accomplished by fiat or order. That makes implementation hard. What to do?

First, where you have influence and control, use it. Facilities is a good example. While deliberation on new policies and programs in your department may be an open and consultative affair, once facilities managers have reached an implementation decision they can expect results and cooperation from their staff. Gaining cooperation from other segments of the campus community may be more difficult.

Implementation of green policies and programs requires upping the ante on campus environmental awareness activities. This means rethinking and going beyond the traditional publicity campaigns for campus energy conservation and recycling. While helpful, campus mailings, newspaper articles, posters, and stickers won't do the job. Neither will organizing lectures only attended by the "converted." A deeper kind of outreach is required.

A more effective way to reach all segments of the campus community is through a network of "environmental contacts" or "coordinators" who represent the various departments and offices on campus. These individuals serve as informational conduits and liaisons between their areas and the campus' environmental program. They also serve as informal monitors and trouble-shooters. Such a network is time-consuming to establish, especially if it is complete and includes representation from all administrative and academic units, but it is the only way to go in the long run.

An environmental contacts network will need a coordinator—perhaps your energy officer, recycling coordinator, or an assistant. The recruitment process for members of the network should include training, to instill familiarity with the issues and with program objectives and methods. Providing appropriate resource material is also important. And don't forget to include facilities staff—from custodians to trades to

engineering—in this educational outreach process.

Once a campus environmental coordinators network is in place, it has to be "worked" or it will eventually fall apart. This can be done by regular follow-up with network members by the coordinator or, perhaps, by student assistants or volunteers. An occasional network newsletter (printed on recycled paper, of course!) can help, as can providing support and dialogue through an e-mail discussion group.

Holding periodic meetings, perhaps once a semester, can also build the effort. These get-togethers can provide an opportunity to inform and rally your environmental outreach team—as well as give team members a chance to "vent," share success stories, make recommendations, and bond with one another.

Note that some members of your network may need to get release time from their supervisors to participate. That should be relatively easy to obtain since network responsibilities will probably take just an hour or two each week after the environmental program is established. Of course, resolving issues such as release time are easy if campus greening has the blessing of campus administrative and academic leadership.

The Importance of Top Level Leadership

If top level *support* is a prerequisite to achieving some measure of environmental success, top level *involvement and leadership* are essential to achieving excellence in campus greening. Without a clear commitment and active involvement on the part of a college or university president, a campus environmental program will be ineffective past a certain point. The effort will stop well short of genuine environmental stewardship and excellence.

How do you obtain that leadership commitment? Perhaps the most effective way is for the campus environmental task force, in conjunction with well respected sympathetic administrators, faculty, and students, to approach the president and request that he or she sign the Talloires Declaration. This international declaration commits signatories to pursuing environmental education and operations as central institutional priorities. (See "Resources" section for information on how to obtain a copy of this declaration.)

Consideration of the Talloires Declaration could also be initiated by sympathetic members of the college or university board of trustees. Current U.S. and Canadian signatories include the presidents of sixty-seven institutions such as Brown University, University of California/Santa Barbara, Carleton University, University of Florida, University of Massachusetts/Boston, McGill University, Middlebury College, University of North Carolina, University of Pittsburgh, University of Rhode Island, Rutgers University, Tufts University, University of Virginia, and the College of William and Mary.

Green campus initiatives will thrive when members of your campus community know that your president is interested, on board, and involved. Leadership from the president will result in increasing support from vice presidents, directors, and deans. Policy implementation will be expedited, go more smoothly, and be more comprehensive and effective.

One of the ways top level leadership can make things happen is by setting the right example and by practicing green habits. For example, if a president or a vice president starts reusing envelopes, using double-sided copying and 100 percent recycled, non-chlorine-bleached paper for official correspondence, widespread campus use of these ecological practices will be much easier to achieve. Conversely, if a president (or leadership generally) shuns green habits, they may be viewed as unprofessional or eccentric, and institutionalizing them may be impossible.

An obvious step to solidifying, publicizing, and institutionalizing top level support is to incorporate green campus tenets into your college or university mission statement. The campus environmental task force could propose appropriate language to tie the teaching, research, and public service dimensions of your school's mission to environmental responsibility and stewardship.

Of course, green campus language can also be incorporated into the mission statements of individual departments and offices as well. Maintenance or facilities management is an obvious place to start.

Greening TQM and Customer Service

Because facilities management or maintenance departments operate the campus physical plant, they play a critical role in campus greening. Their commitment and leadership are essential. Consequently, it is vitally important that environmental concerns be addressed as facilities total quality management (TQM) and customer service programs are developed. Additionally, facilities managers need to consider how their operations contribute to the environmental education of the student population.

Facilities management's TQM goals or objectives should include campus greening as a fundamental value commitment. To incorporate greening in TQM, questions like these must be considered: How can we make physical plant operations more environmentally responsible? How can we improve our energy, recycling, and other environmental programs? The TQM technique of benchmarking can then be applied to measure green campus performance and progress against the best peer institutions across the country, many of which are profiled in Keniry's *Ecodemia*.

Customer service is another concept borrowed from the private sector to improve campus business operations. Unfortunately, it is possible for customer service to be defined narrowly and end up in conflict with environmental objectives.

Take temperature control, for example. If customer service is raised to an absolute and becomes synonymous with making people happy and minimizing complaints, then conserving energy through proper heating and cooling temperature control will become impossible. Thus, customer service needs to be defined within reasonable limits and viewed in the context of other policies and priorities. A sensible, well-publicized, conscientiously administered temperature policy should be able to coexist with a reasonable customer service program.

But greening goes further and asks us to reexamine the concepts of "customer" and "service." On the one hand, the customer may be the room occupant who claims to be too hot or too cold. On the other hand, according to green campus thinking, the customer is also the wider community—including our children and future generations who are or will be affected by our behavior.

How do you provide excellent customer service to this wider constituency? Surely not by operating a campus in an environmentally irresponsible way. Green operational changes will affect service to your immediate campus customers, but the changes will be perceived positively if the

program is explained and marketed properly.

This customer service theme can be developed further by considering the student, whom we often refer to as our ultimate customer. We address the needs of students by becoming part of their educational experience.

Facilities Role in Eco-Literacy

According to David Orr, the green campus philosophy imposes a moral obligation on all of us who work at educational institutions. We are obliged, he argues, to prepare students for a responsible life on this beautiful though fragile and endangered planet. By this he means graduating students who are environmentally literate and concerned.

Faculty play their part in the classroom. But facilities management departments also have a role to play in this educational process. We do this by setting an example and by creating the right environment for the learning process. Campus operations should be consistent with, reinforce, and enlarge the academic environmental message.

The involvement of facilities management in the education of students can and should be taken one step further. Orr describes an educational process that breaks down the barriers between academic functions and those of campus operations. He envisions an educational experience where the campus itself—its architecture, its physical plant, and its business operations—is pedagogic and becomes a "learning lab" for students.

Through appropriate courses or through extra-curricular activities, students can study the campus and learn to help mitigate negative campus environmental impacts. According to Orr, this kind of hands-on involvement in the workings of the campus empowers students and helps them learn more about how the world works and how to affect it constructively. Of course, facilities management activities must be accessible to students, and facilities staff must be willing to serve as informal teachers if this eco-literacy process is to work.

Fiscal Bottom Lines

It's been said, quite aptly, that if you want to see an organization's priorities, look at its budget. A commitment to campus greening means going beyond "talking the talk." You also have to "walk the talk." That means allocating appropriate campus resources to get the environmental job done.

Staffing of key positions is a critical issue. It is hard to imagine any large campus organizing an effective energy conservation program without at least a full-time energy director or coordinator. Moreover, this individual will need support staff to make energy conservation projects happen.

The same can be said of recycling. A full-time coordinator is a general prerequisite to an effective program; this person would be in addition to the personnel who physically collect the recyclables. Given staffing levels and staffing costs common for other campus business functions, the idea of establishing staff positions completely dedicated to environmentally beneficial activities should not be viewed as controversial or excessive.

We live in an era of budget cutting, downsizing, and privatization. Making that green campus commitment means continuing down the green path even when times get tough. Green positions should be protected when the budget gets tight. If some maintenance functions get privatized, contract provisions mandating full cooperation with campus environmental objectives should be made—even if these add some expense.

For Love or Money

Luckily, environmental stewardship is often good for the budget. This fortunate coincidence has been described as "doing well by doing good." The hallmark of a green campus is waste reduction. Generally, reducing waste will save your campus money while conserving resources and contributing toward environmental protection. Waste reduction is good management from a variety of perspectives.

The financial benefits of energy conservation are well established. Not only do energy saving projects tend to pay for themselves, a portion of the costs of these projects can be offset by utility demand side management (DSM) incentives. Some campuses are discovering that water conservation retrofit projects also save enough to benefit their financial bottom lines. Campus recycling, while less lucrative, can avoid landfill costs and generate income that helps pay the costs of recycling.

But the ability of conserving activities to save money may lead managers and their superiors to view these activities narrowly. While it makes sense to use green campus efforts to save money, a real commitment to environmental responsibility must go beyond doing only those things that save money or pay for themselves.

Colleges and universities spend money and allocate resources to many programs that are costly and are not expected to pay for themselves in a strict dollar sense. Expenditures for these activities and functions are routinely approved because they are viewed as the right thing to do, as important or necessary. Green campus initiatives need to be placed in that category and not evaluated solely on the basis of economics and payback.

The Challenge of "Retail Wheeling"

The North American electric power industry is undergoing a sea change, propelled by a variety of forces including federal legislation. Like the telephone and natural gas industries before it, the electric power industry is in the midst of deregulation. Electric utilities are facing increasing competition from other power producers. Many large electric users are looking to retail wheeling, self-generation, or customized utility contracts as salvation from escalating electric rates and costs—without considering how these arrangements could affect their conservation efforts.

Retail wheeling, where and when it materializes, will permit large electric users to buy cheap power from distant third-party generators and pay local utilities a "wheeling" or transportation charge for delivery to their facility. The end result may be substantially lower electric rates for these users (causing smaller users to pay more).

It's hard to fault colleges and universities for seeking lower electric rates. But as rates go down, so will incentives for energy conservation. For example, if retail wheeling allows you to buy power at 4 cents a kilowatt hour instead of the 8 cents you currently pay, your paybacks for electric energy conservation projects will double. Conservation may still be cost-effective at that rate, but it may look a lot less attractive.

The green campus effort must address this issue directly. Lower rates may encourage more energy use while not changing the fact that wasteful energy consumption significantly contributes to environmental degradation through air pollution, greenhouse gas emissions, and other serious impacts. By failing to reflect the environmental costs of energy use, the new rates pose a real threat to environmental stewardship.

Strategies to keep conservation efforts alive despite lower rates must be identified and explored. What are these strategies? How can energy conservation efforts be sustained?

Sustaining Your Energy Program

Ultimately, environmental stewardship involves a change of values; campuses should be willing to be environmentally responsible even when it's not profitable. This commitment should be applied to energy conservation, though, admittedly, energy projects that are very costly to implement are not as likely to be pursued if the monetary return on investment is not there.

Fortunately, even in the context of lower energy rates or prices, energy conservation and efficiency can still make good financial sense. How so? Because lower energy prices do not necessarily produce the lowest energy bills.

If lower rates are allowed to undermine conservation efforts and encourage energy waste, higher energy consumption may result in inflated energy bills—thus, negating all or some of the hoped for financial benefit of lower rates. Moreover, if needlessly high levels of energy consumption are allowed to persist, campus energy bills will be that much higher when energy prices rebound and rise again (as they inevitably will). Energy efficiency is a hedge against future rate shock and remains fundamental to least-cost energy strategies.

Shifting from simple payback to life cycle evaluation of projects also demonstrates the cost-effectiveness of conservation despite lower energy rates. While lower electric rates may extend the simple payback of a proposed energy conservation project, a life cycle analysis may show that the measure still makes financial sense—given its projected saving over the life of the equipment being installed as well as its quantifiable maintenance, capital improvement, and other benefits.

The challenge of keeping campus energy conservation going in the brave new world of lower rates exists equally if decreased rates are the result of self-generation or lower "buy-out" rates provided by your utility (to prevent you from wheeling or self-generating). If you build your own power plant, proposed conservation projects will be evaluated against your "marginal rates," i.e., what it monetarily costs or benefits you to produce or save the next kilowatt hour. Marginal rates tend to be much lower than average power production costs, so energy conservation project paybacks will definitely slip. Thus, the need for life cycle evaluation.

Buy-out rates from utility companies intent on keeping your business may be structured in a two-tiered fashion, with one block of power being charged at the "full rate" while consumption past that point is at lower marginal rates. Campuses contemplating buy-out contracts based on marginal rates should assess the bargaining leverage they have with their utility and, if possible, use it to dictate terms.

It may be possible to negotiate with the utility a custom contract that includes an adjustment mechanism that permits documented energy efficiency improvements to save at the full rate. By preserving the full financial benefits of energy conservation, you will be maintaining incentives that will keep your program active and aggressive, as it should be. The end result will be both lower energy consumption and costs—along with all the environmental benefits associated with efficiency.

Speaking Out, Joining the Debate

An underlying premise of the green campus movement is serving the wider community. That may mean speaking out publicly concerning the potential "dark side" of utility deregulation.

As the electric power industry is restructured, state public utility commissions need to hear from colleges and universities about the need to maintain demand side management programs and appropriate price structures to encourage energy conservation and efficiency. Moreover, facilities managers and the institutions they represent shouldn't hesitate to speak out against utility rate proposals that they believe are not conducive to environmental stewardship or in the public interest.

As a society, we may end up throwing out the conserving-baby with the bath water if deregulation is not carefully considered. Colleges and universities can play a useful role in this critical debate.

Cultural Change and the Sustainable Society

American colleges and universities exist in a social context, namely a social system that defines the "good life" in terms of materialistic consumption. All of us, on or off campus, have grown up learning that success is affluence. Bigger is better. And immediate gratification is a right.

Without realizing it, we regard the natural world as a collection of resources or commodities to be used, exploited, gobbled up. We are shoppers in one vast global supermarket! Ah, yes, enjoy!

But while our commercial culture has benefits, many aspects of it are not sustainable over the long run. We can't go on consuming at this rate and producing all the inadvertent waste and pollution that goes along with this lifestyle. Ultimately, we need to talk about cultural change if we are going to understand why campus greening will not be easy and if we want to maximize our chances for success.

The green campus movement is about "small is beautiful." It's about frugality and an understanding that less may be more. It's about abandoning selfishness in favor of compassion and service to others. We need to feel in our gut that the world we live in does not belong to us; it belongs to our kids. We must look at what we do today from the perspective of the next generations. Moreover, our empathy must extend to other species, to ecosystems, and to the earth itself.

It will take significant cultural change to make these values dominant. But this is what is necessary to achieve an environmentally sustainable society. Will it be a sacrifice? In some sense, yes. But the gains—including psychological, ethical, and spiritual benefits—will far exceed the losses.

A sustainable society would be one where ongoing human activities do not compromise the prospects of future genera-

> "I propose a different ranking system for colleges based on whether the institution and its graduates move the world in more sustainable directions or not. Do four years at a particular institution instill knowledge, love, and competence toward the natural world, or indifference and ignorance? Are the graduates of this or that college suited for a responsible life on a planet with a biosphere?"
>
> —David Orr
> Environmental Studies,
> Oberlin College

tions—in other words, a society where current human activity could continue, as is, indefinitely without degrading the environment and its ability to support life. That would mean limiting our numbers and demanding considerably less from the environment than we do now. It would entail full recycling of non-renewable resources and much better management of renewable resources. Sustainable energy sources are by definition solar, with efficiency serving as a bridge to that renewable energy future. Waste and pollution would have to be reduced to amounts the earth could naturally recycle on a continuing basis without harm.

Achieving an environmentally sustainable society will require a significant departure from the past. Be well advised: the challenge before us is of truly major proportions. However, every journey begins with first steps. Colleges and universities should be leading the way and aiming for environmental excellence. ∎

STEPS TOWARD SUSTAINABILITY
Suggested Actions for Campus Greening

Solid Waste Reduction and Recycling
- Establish a waste reduction ethic in all areas, including office activities; minimize unnecessary copying, reuse scrap paper and envelopes, etc.
- Set up campus repair and "swap" shops to refurbish, exchange and reuse unwanted items.
- Reduce Third Class junk mail.
- Reduce distribution of phone books.
- Minimize press runs of campus newspapers and other publications, consistent with actual need.
- Perform waste stream analyses to determine recycling potential and progress.
- Implement recycling program_start with paper and cardboard and expand to metal, plastic and glass. Recycle tires, batteries, scrap metal. Compost organic waste.
- Set goal for recycling program of at least 50% of waste stream.

Purchasing and Administrative Services
- Purchase only what is needed.

- Implement environmentally-friendly products purchasing policy, i.e., for products that are durable, reusable, recyclable, made of recycled materials, non-hazardous, energy efficient, produced in an environmentally sound manner, etc.
- Replace white virgin material paper with 100% post-consumer recycled, non-chlorine bleached paper.
- Buy only computers and office equipment compliant with EPA Energy Star program.
- Incorporate environmental standards in all contracts for goods and services.

Energy Conservation
- Create an energy database that documents both energy use and completed energy conservation measures and projects.
- Develop heating and cooling season temperature policies that promote conservation.
- Minimize fan and equipment run times.
- Exploit all cost-effective retrofit opportunities for efficient lighting, HVAC, motors, drives, EMS, etc.
- Make conservation projects happen by using energy service companies (ESCOs), third party financing, and utility demand side management incentives.
- Use life cycle analysis to evaluate conservation projects.
- Organize an ongoing energy awareness program that enlists the support of the campus community and encourages efficient operation of lights, office equipment, etc.

Water
- Implement water conservation program to retrofit inefficient plumbing fixtures, reducing water consumption by 25% or more.
- Avoid water consuming air compressors and "one-pass" air conditioning systems.
- Protect ground water and storm run-off by minimizing use of salt for ice-melting and by implementing automotive oil recycling program for on-campus students.
- Use drought-resistant plantings. Minimize irrigation.

Hazardous Materials
- Meet or exceed legal "haz mat" handling, collection, disposal, and tracking requirements.

- Educate campus hazardous waste generators about minimization and proper disposal techniques. Encourage users to explore less hazardous chemical options.
- Develop a chemical tracking or inventory database; implement a "chemical swapping" program.
- Implement "microscale" chemistry techniques for research and teaching.
- Switch to non/least toxic paints, solvents, and cleaning agents. Switch print shop to soy-based inks.
- Recycle waste fluorescent lamps and ballasts, anti-freeze, solvents, etc.
- Use integrated pest management techniques to minimize use of pesticides. Eliminate use of lawn pesticides.
- Recycle and recover ozone-depleting CFCs. Convert/replace cooling and refrigeration equipment with HCFCs or HFCs.
- Avoid chlorine-based products and incineration of PVC plastics.

Transportation
- Encourage on and off campus transit by carpooling, public transportation, bicycling, walking.
- Convert vehicle fleet to alternative fuel, e.g., natural gas.

Food and Food Service
- Buy regional produce in season.
- Support local organic farms.
- Promote less meat consumption and eating "low on the food chain" for health and environmental reasons.
- Minimize the use of disposable dinnerware.

Campus Land Use
- Redefine campus beauty. Naturalize and promote "natural succession" for unneeded lawn areas. Reduce grass cutting.
- Develop a nature appreciation program.
- Protect woodlands, wetlands, watershed, wildlife.

New Construction
- Don't oversize or build unnecessarily.
- Exceed energy codes. Design for state-of-the-art energy efficiency. Incorporate daylighting and passive solar.
- Evaluate options based on life cycle analysis.
- Include suitable recycling collection space in building design programs.
- Specify environmentally-friendly building products that are energy efficient to produce, made with recy-

cled materials and without hazardous chemicals, etc.

- Recycle construction or demolition waste.

Campus Planning and Design

- Locate campus convenient to population being served and regional public transit system.
- Minimize negative impacts and disruption of natural ecosystems and surroundings. Preserve and enhance greenspace.
- Concentrate buildings and arrange campus walkways and roads to minimize on-campus driving and create a convenient pedestrian campus.
- Allow for solar access in building siting and orientation.
- Use water-efficient plantings; landscape for energy efficiency as well as aesthetics.
- Subject all renovation and expansion plans to an environmental impact analysis and sustainable design principles.

Investment Policies

- Establish environmental criteria for financial investments.
- Use stockholder influence to encourage environmentally responsible business practices.

Teaching and Research

- Strengthen and prioritize undergraduate, graduate, and post-grad environmental studies, research, and policy programs.
- Develop a program to train faculty and teach environmental literacy to all students.
- Expand opportunities for using the campus physical plant and business operations as a "learning lab" for students.
- Develop community environmental education programs and participate in public dialogue on environmental issues.

* * *

Note: see Keniry's *Ecodemia* for additional suggestions and examples of campus environmental action.

Resources for Campus Greening

"Blueprint for a Green Campus: The Campus Earth Summit Initiatives for Higher Education," Heinz Family Foundation, January 1995. 202-939-3316.

The Campus and Environmental Responsibility, edited by David Eagan and David Orr, New Directions in Higher Education series, No. 77, Spring 1992. Jossey-Bass Publishers, 350 Sansome St., San Francisco, CA 94104.

The Campus Ecology Program, National Wildlife Federation, 1400 Sixteenth St., N.W., Washington, DC 20036-2266. 202-797-5435. Can provide resource materials, speakers, workshops, sample campus environmental audits.

Campus Ecology: A Guide to Assessing Environmental Quality and Creating Strategies for Change, April Smith and the Student Environmental Action Coalition, Living Planet Press, 1993. This book explains the campus audit process in detail. Available through the Campus Ecology program of the National Wildlife Federation. Call for pricing (see above).

Campus Green Buying Guide, 1994, Green Seal. 202-331-7337.

Earth in Mind: On Education, Environment, and the Human Prospect, David Orr, Island Press, Washington, DC, 1994.

Ecodemia: Campus Environmental Stewardship at the Turn of the 21st Century, Julian Keniry, National Wildlife Federation, Washington, DC, 1995. $14.95. Call 800-432-6564 to order.

Green Computing, Walter Simpson, 1994. A copy of this 12-page booklet is available for $2 from Conserve UB, University Facilities, 120 Beane Center, SUNY Buffalo, Amherst, NY 14260.

A Primer on Sustainable Building, 1995, Rocky Mountain Institute, 1739 Snowmass Creek Road, Snowmass, CO 81654-9199. $16.95. 970-927-3851.

"Recharging Campus Energy Conservation: ESCOs and Demand Side Management at SUNY Buffalo," Walter Simpson, *Facilities Manager*, Winter 1994, APPA.

"Talloires Declaration," Secretariat of University Presidents for a Sustainable Future, Center for Environmental Management, Tufts University, 474 Boston Avenue, Medford, MA 02155, 617-627-3486. ■

Notes on Mounting a
Wild Goose Chase

by Harry S. Bingham

[Editor's Note: Due to a number of production errors, an early, uncorrected version of the following article appeared in the Fall 1995 Facilities Manager. We are taking this opportunity to reprint the article in its entirety, and we apologize to the author and to our readers for this unfortunate occurrence.]

The popular press and even some political and social commentaries have been used to describe the plight of our citizenry due to the change in the life style of Canada geese. The *Branta canadensis* have now learned that they don't have to fly another 1,000 miles or so south to forage for their winter's keep, or for that matter, head back north in the summer. They have found a wonderful new homeland amidst the lush lawns provided by institutional and corporate campuses, golf courses, park lands, and farmlands where they can be extremely comfortable all year long. The result, of course, is that we humans have found it difficult to coexist amidst the fouled trail that Canada geese leave behind. Many persons, particularly in the northeastern states, have encountered the massive accumulations of droppings that these otherwise handsome animals deposit on lawns, pathways, recreational areas, etc.

About eight years ago I was interviewing for the position of director of facilities management at Rider University in New Jersey, and as I sat with the search committee in the student center I noticed several Canada geese walking across the patio adjacent to the dining area. A member of the committee noticed my surprise and said to me, "If you can solve our geese problem, you can have the job right now!" I knew I had solved some unusual problems related to buildings and grounds in my previous positions, but this was a new one for me. I made no commitment at that time, but subsequently, after obtaining the position, I accepted the challenge.

For several mornings in a row I went to the campus about sunrise and watched the morning flights arrive and land on the small lake that was central to the abundant green space at the heart of the university. The birds would very quickly move to the edge of the lake and waddle upland and commence feeding. If I approached them they would dawdle along as they made their way slowly but surely to the lake. For the first time I realized that Canada geese are essentially grazing animals that are attracted by the open water as a preferred landing area and a place for refuge. Additionally, it was obvious that they didn't consider human beings a huge threat. In contrast, I soon learned how threatening their presence

ROBO-DOG with radio control hand-held device for geese management.

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was to the well-being of a campus setting. Like many aggrieved land owners I adopted the philosophy that we are entitled to the use of our land as much as they are, and I became determined to compete vigorously for it within the law.

I t was a logical deduction that once deprived of their grazing rights, the geese would seek other green pastures. Several ideas came readily to mind, but I knew I surely wasn't the first one to have confronted this problem, so I contacted the state and federal agencies having jurisdiction over our wild and sometimes pesky animal cohabitants. My most helpful source was the Department of Agriculture's Animal Control Division. They sent me a set of regulations prescribing the do's and don'ts of coexistence, along with a list of techniques others have tried to rid their properties of the unwanted creatures. Many courses of action such as the use of fire crackers, balloons, and even a low fence around the lake seemed impractical for our situation. Instead we instituted a program of passive harassment.

When a large number of geese would be sighted in the lake area, three to five grounds keepers would converge on the area and approach the geese on foot to urge them back into the water. This was only a partial fix, since the geese don't immediately up and leave. Therefore, to hasten the exodus, we tried using float lines consisting of empty white bleach bottles spaced along sturdy rope and strung across the lake. When the lines were untied on both shorelines and walked up and down by the grounds people, the geese would become agitated and leave. This can be labor intensive, but the institution did apply this technique with reasonable success for a couple of years.

I was looking for a more cost-effective solution to this continuing problem when I heard that two of the corporate campuses in our area were using border collies to herd the geese into their ponds. I talked to the firm that leases the border collies and learned that their dogs had been specially trained to handle ducks and geese, but came from the same breed that has been herding sheep for hundreds of years. Two demonstrations were held on campus by the breeders and trainers of these wonderfully intelligent dogs. The geese quickly headed for the lake upon seeing the dog, so there was little herding involved in the lakeside demonstration. While we were told that the dogs could also go into the water to agitate the geese and get them airborne, this aspect was never demonstrated. Consequently, it did appear that at least one person from the grounds staff serving as the dog handler would have to devote a considerable amount of time waiting around with the dog to police the lake. Of course, other important considerations were the considerable cost of leasing a dog and the possibility that the dog

might make an error and injure or kill one of the geese, a very serious matter in the eyes of the jurisdictional agencies and a potential source of poor publicity.

The university seriously considered leasing one of the dogs on a trial basis, but by the time the decision was made the geese had started their summer molting season. During June and July there were over 100 geese on campus that were virtually incapable of flying because they were shedding many of their old feathers. Since this was not a good time to harass the geese, it gave time for reflection on the problem at hand. There was a strong suspicion on my part that the herding instinct of the border collies had very little to do with getting the geese into the lake. In the eyes of the geese the dog's size and shape translates into *predator*, and they would be off to the lake as their place of refuge as soon as their acute vision detected the dog. To test this theory, I asked my brother, a graphic artist, to work with me on creating a mechanical dog. We hoped to find a radio-controlled toy amphibious vehicle, but settled for a toy truck chassis (approximately 12 inches by 14 inches in plan view). We mounted on it the facsimile of a border collie-sized dog quickly fashioned out of coat hanger wire, brown paper bags, and tape.

The predator-appearing creation was immediately feared by the geese and sent them scurrying for the lake. Since this mechanical dog did not have amphibious capabilities as we had first hoped, it seemed important to introduce an additional piece of technology. At this point, Phil Voorhees, the present director of facilities management at Rider, volunteered to bring in his son's radio-controlled boat. We found that when this 30" long by 10" wide, low-to-the-water vessel is cruising around the lake, any geese present go ashore. Once they encounter the mechanical dog, they take to the air and leave the campus. If the boat is placed in the water before the dog is sent toward any geese on land, the geese take to the air and avoid settling in the pond. It is a pretty sight to see a flock of geese on the wing at any time, but particularly when they're heading away from your campus!

A second generation of dog was fashioned in place of the paper dog. The newer version was made from three one-gallon bleach bottles and was painted to make it look somewhat dog-like. Some observers say it looks like a pig crossed with a skunk, but the bottom line is that for geese, whose eyeballs weigh more than their brains, it spells *predator*. The dog was respectfully named Robo-Dog and the boat Robo-Boat. They were used approximately twice a day for the first month or two, and then by accident it was determined that a golf cart with a strobe light on top was an effective geese chaser. It also had the capability of being pressed into service more quickly than Robo-Dog to chase the geese into the lake. The geese never allow the cart to get close enough for it to be threatening to life or wing, so it too has become an effective passive harassment tool. Robo-Dog has been retired for the moment, but Robo-Boat is still an important part of the program.

In this day and age, it is not too surprising to find high-tech solutions for just about everything, including geese management. ∎

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Facilities Manager, Volume 11

by Steve Glazner

Steve Glazner is APPA's director of communications and editor of Facilities Manager.

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Regulatory Action

Peter L. de la Cruz

Does "CAM" Spell Relief for Air Emissions Sources?

Many facilities managers are, or will soon be, working with state officials to obtain or renew Clean Air Act operating permits. These operating permits, also known as Title V permits, must include all substantive Clean Air Act requirements applicable to the facility. One key aspect of this process will be the facility's development of a Compliance Assurance Monitoring (CAM) plan.

The 1990 Amendments to the Clean Air Act required enhanced monitoring for all major sources of air pollutants. Initially, enhanced monitoring,[1] became synonymous with continuous emissions monitoring, which conjured notions of facilities spending significant amounts of money and administrative resources for little or no environmental benefit. The U.S. Environmental Protection Agency (EPA or the Agency) recently took action to make the Act's enhanced monitoring requirement more reasonable with its release this fall of a working draft of the CAM (for Compliance Assurance Monitoring) rule.[2] Because of its immediate relationship to operating permits, facilities managers should review the proposed rule and try to incorporate the basic concepts into their overall Clean Air Act compliance activities.

Background

The Clean Air Act requires EPA to mandate enhanced monitoring and compliance certifications for major sources of air pollution.[3] Agency regulations require that facilities certify, at least annually, compliance with applicable requirements of their Title V permits.[4] Facilities must report the results of monitoring no less often than every six months.

Released in October 1993, the initial enhanced monitoring proposal included monitoring efficacy standards and required each facility to demonstrate that it was using the "best monitoring" for its emission sources. This would require a facility to evaluate site-specific factors, such as emission unit and control system design, operating processes at the facility, the demonstrated margin of compliance, and the potential variability of emissions. Consequently, most facilities with add-on control devices, such as scrubbers or baghouses, would have needed continuous emissions monitoring systems.

If a facility wanted to use parameter monitoring, such as temperature or flow rate, it would have been required to make a showing that a known and consistent relationship exists between emissions and proposed parameters. The period for correcting problems was limited and problems would be presumed to be violations. Reporting requirements were extensive, including the number and duration of deviations, classification of each deviation by reason for the deviation, and identification of the periods when the monitor was not operating or not operating properly.

Industry and states were both opposed to the rule as proposed; industry saw it as too economically burdensome with few public health benefits; states saw it as an immense resource drain in an era of tightening budgets. In response to that criticism and the change in Congress last November, the EPA indicated earlier this year that it will not finalize the Enhanced Monitoring rule as proposed.

Instead, EPA circulated a working draft of a rule this fall which suggests a different approach to implementing the statutory monitoring requirement. This "fresh look" focuses on ensuring good operation and maintenance (O&M) monitoring for controls that are required by underlying rules, improving on the monitoring that is required, and gap filling where necessary. The Agency believes that O&M monitoring costs less and is a reasonable surrogate for continuous emissions monitoring. To recognize this change in focus, EPA renamed this rule the Compliance Assurance Monitoring (CAM) rule.

CAM Overview

Applicability. CAM will apply to all sources that are subject to both the Title V operating permit program and to existing New Source Performance Standards (NSPS), National Emissions Standards for Hazardous Air Pollutants (NESHAPs), or regulations implementing State Implementation Plans (SIPs). As new NSPS, NESHAPs, or SIP regulations are promulgated or existing ones amended, EPA will incorporate monitoring requirements and CAM will no longer apply to these rules.

CAM only applies to those emissions units covered by applicable requirements. For example, NSPS or SIP regulations cover certain boilers, but not others. CAM would only apply to the boilers that are covered by the NSPS or SIP. Determining whether CAM applies to a particular emissions point is made on a pollutant-by-pollutant basis for each emissions unit.

Certain emission points are exempt from the CAM rule. For example, units that are subject to a NSPS or NESHAP proposed after November 15, 1990 are exempted from CAM for those emission limitations or standards. Units subject to stratospheric ozone protection requirements under Title VI or Acid Rain Program emission limits under Title IV of the Act are exempt, unless also covered by another applica-

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ble requirement. If an emissions unit is subject to continuous emissions monitoring by an underlying standard, it may be exempt from CAM.

Requirements. CAM establishes a minimum standard of monitoring that all states must require of Title V sources. If the monitoring in a SIP, NESHAP, or NSPS regulation meets the standard, CAM will not impose additional monitoring requirements. If a regulation does not meet those minimum criteria, CAM will fill the gaps. For example, if a regulation lacks a general duty provision to follow good pollution control practices or a general monitoring provision, CAM will fill that gap. CAM will apply to control devices and to processes, if no control devices are used.

The facility's monitoring requirements will be outlined in a document called the "CAM plan" that must be submitted and approved with the Title V permit application. The purpose of these plans is to describe the minimum monitoring methods that are to be implemented to provide reasonable assurance of compliance with applicable requirements and the associated operating, performance, and quality assurance and quality control requirements for those monitoring methods. Some sources may be required to provide data from site-specific testing to show that the monitoring is sufficient. The plan will also include appropriate corrective action periods and a maximum number of discrepancies that may occur in any reporting period, appropriate for the emissions unit and control technology involved.

Compliance with the CAM plan will be a condition of Title V permits. Title V permits, including this permit condition, will be enforceable by the states, the federal government, and citizens.

The CAM rule emphasizes regular maintenance to avoid upsets or malfunctions. If routine monitoring detects a problem, a source will be required to correct the problem within a certain period of time, in most cases before an actual emissions violation occurs. The CAM plan would require that the correction be timely completed. If timely completed, no penalty would be imposed, unless the facility exceeds its maximum number of discrepancies. The draft also allows owners or operators of emissions units to include in their CAM plan a quality improvement plan. If a quality improvement plan is included in the CAM plan, an exceedance of the maximum number of discrepancies triggers implementation of the quality improvement plan.

The purpose of the quality improvement plan is to establish a mechanism to initiate steps that eliminate or reduce the causes of discrepancies of the monitored parameter specified in the CAM plan. The owner or operator is not considered to be in violation of the CAM rule provided that the steps specified in the quality improvement plan are taken. For example, if a facility monitors the temperature of an incinerator to ensure proper combustion and the temperature drops below a certain level, it would indicate to the facility a possible malfunction even though the incinerator may still be able to comply with air emissions requirements at that temperature. If the temperature drops to that level on more than a certain number of occasions, the facility would be required to implement its quality improvement plan.

As with most Clean Air Act requirements, states can be more restrictive or demanding than the U.S. EPA's CAM rule. Based on legislative and regulatory trends, however, we expect that most states will adopt the U.S. EPA rule without significant modification.

An example may serve to illustrate the impact of CAM. Under CAM, a source that is required to have positive pressure fabric filters (e.g., for furnaces or incinerators) by a NSPS or SIP regulation to control particulate matter might be required by CAM to check the filters for holes daily. If a hole is found, a corrective action period would begin and the source would have a specific time period, specified in its permit, to fix the holes.

The EPA has outlined a tentative schedule for the CAM Rulemaking: the rule was to have been formally proposed in December 1995, and EPA plans to issue a final rule in July 1996 ∎

Notes

1. Continuous emissions monitors are devices installed in, on, or near an emissions source and which take readings either continuously or at intervals that are so close together as to be deemed continuous.

2. When this article was written in November 1995, EPA planned to propose a rule in late 1995.

3. Section 114(a)(3) of the Act.

4. Section 503(b)2 of the Act.

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Howard Millman

Chicken Soup for the Soul

Sooner or later you'll tire of Windows' stock screen savers; you may want to switch from mind numbing flying toasters to bouncing balls or maybe even psychedelic color patterns.

Instead, consider using the screen saver to display a wryly humorous or inspirational message. Use your computer's idle time to reinforce a message or quote that you want to add to the arrows already in your quiver. Restated, use this positive reinforcement technique to help counteract the negative influences surrounding about you.

Insights Software makes it easy and affordable. Their line of motivational and inspirational software, SuccessWare (a name that says it all), currently features fourteen titles. Each disk sells for an affordable $15. For the money, you get a collection of fifty or so motivational quotes culled from best-selling books. The lineup of books include *How to Win Friends and Influence People* by Dale Carnegie, *Chicken Soup for the Soul* by Jack Canfield and Mark Victor Hansen, *Awaken the Giant Within* by Anthony Robbins, *The Sky's the Limit* by Dr. Wayne Dyer, and others.

The screen saver technique, an update of the pillow speaker, relies on unobtrusive repetition to help you make the message's suggested goal your own. You can display any or all of

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the messages in a library, edit them or add your own. You can even influence the order they appear in.

Screen Saver or Screen Intruder?

The program offers two operational modes, a screen saver (very practical) and the "Affirmation Generator," (not so practical).

A screen saver, and forgive me if I'm telling you something you already know, is a computer technique that displays a picture or text-based message on your computer's screen during idle periods. Idle meaning that you have not pressed a key or moved the mouse. With all screen savers, including SuccessWare's, you set the number of minutes the system remains idle before the screen saver activates. Usually, it's five or so minutes. Pressing a key or moving the mouse restores the screen to its active mode.

The other choice, Auto Affirmation, intrudes. That's because no matter what you're doing at the moment, the message pops up on the screen. Yes, you can quickly banish it back to the depths, but not until it's disturbed your chain of thought. Perhaps that's its goal; however, the technique eerily reminds me of Big Brother's Businessspeak.

Another difference is that the screen saver randomly rotates through your library of quotes, while Affirmations displays the same one until you change it. You can set the Affirmations popup delay from one minute to two hours.

Ultimately, I disabled Affirmations and happily used SuccessWare strictly as a screen saver—a result I welcomed and expect to profit by.

Both the screen saver messages and Affirmations messages lazily float across the screen. Text appears on your choice of a solid color background or on an eye-catching scenic background. The scenics have no contextual relationship to the quote—the program isn't

that smart.

SuccessWare's libraries include the brightest, most incisive statements that anyone has every said about succeeding in your business and personal life. If you like a particular quote, you can cut and paste them into a Word for Windows document or print them.

Additional goodies include the ability to search the Quote Library to find topics of interest. Also, you can set a sound file to play when the quote appears. Insight provides a couple of

unadorned sound bytes; you will likely want to chose your own. I selected a relaxing harp arpeggio.

Over time, I selected nine quotes for screen savers. The collection, a mix of my own edicts and those of the sages, spanned the gamut from skeptical to sappy, which adequately summarizes my personality.

Quotes range from "If you're not the lead dog, the scenery never changes," to "You have to kiss a lot of frogs until you find your prince." Quotes from Insight that made the cut include "Whether you think you can or think you can't, you're right" (Henry Ford), and "Many people fail before they begin because they fail to ask for what they want,"(Jack Canfield).

Aside from motivational titles, Insight's line also includes health, fitness, business, and spiritual titles to help improve the mind, body, and soul. Each new disk automatically adds its collection of messages to the Quote Library.

For more information on SuccessWare, contact Insights Software at 8405 Pershing Drive, Playa Del Rey, CA 90293; voice 310-577-1185, fax 310-577-1189, e-mail info@motivation.com. ∎

The
Bookshelf

A Guide to a Green Campus

Ecodemia: Campus Environmental Stewardship at the Turn of the 21st Century—Lessons in Smart Management from Administrators, Staff, and Students, by Julian Keniry. Washington, D.C.: National Wildlife Federation, 1995. 222 pp. $14.95, softcover.

The intriguing and overly long title of this timely book well represents its contents. Contained within its 222 pages is a wealth of useful and valuable information, along with pages of repetitious rhetoric which may discourage someone attracted by the title and subject matter. Readers should accept the challenge presented by the format of the book and focus on using the contents to their own advantage. It is worth the effort!

The book is divided into three basic sections: introduction, successful examples, and conclusion. The introductory segment explains why it was written: simply put, it is for and about university and college campuses. The importance of staff and administrators is stressed for the success of procedural changes behind environmental reforms. Readers are introduced to the "purchasers, facilities and personnel managers, housekeepers, office services personnel, and other staff who actually manage most of the vexing logistics—accepting the blame when approaches fail, but receiving little credit when they succeed." This first section acknowledges help from the National Wildlife Federation and other supporters, but focuses on the uniqueness of campus contributions.

The core of this book consists of eight chapters, each of which is further subdivided into three segments. The chapters address specific functional areas such as purchasing, landscaping, energy, transportation, and communication services. Such administrative topics are treated with the same respect as operational areas such as the reduction of hazards and waste minimization.

Each chapter is divided into three sections. The first segment of each chapter discusses values to the community as a whole, the significance in humble acts, and perspectives for enlisting support from executives and the public. While a phrase such as "Where campus concern for global stability and a healthy environment fails to overcome institutional inertia" can be used in a presentation to a governing board, it is the concept of "money in the bank" that often swings management's support to a proposal. The prospect for serious dollar savings can be undeniably alluring to any budget-conscious manager in these days of restricted resources.

The middle of each chapter details pragmatic programs where resources have been invested to reduce pollution, address issues in the most environmentally-sound manner, and save time and money. Practical details like cost-benefit analyses are used to provide real-life examples of ways to work within the serious constraints on time and resources that exist at most institutions of higher learning. The focus is on the details of successful programs and how they have changed their institutions for the better.

The last part of each chapter consists of an amazing list of references and resources that may serve as a vehicle for obtaining additional information about specific programs and activities mentioned in that chapter. An impressive roster of people, associations, campuses, organizations, etc., along with addresses (electronic and traditional) and phone numbers, are presented for use by the reader.

The last section of the book is an attempt to provide guidance for examining "broader issues, such as the roles and responsibilities of upper-level management and the institutionalization of environmentally sound practices." Criteria also are listed for evaluating programs similar to those described in earlier chapters.

This book contains numerous gems of practical "how-to" advice that can be valuable to a variety of campus staff and administrators. It can be easy to find the information wanted or to explore possible new approaches. If readers want to learn more specifics about an environmentally-sound practice or are just curious as to what has been done on another campus, this book may be ideal. They can turn the convoluted structure of this book to their own advantage simply by first referring to the well prepared index.

By using the index in the back of the book, a word or term of interest to the reader can be referenced. Then, the applicable paragraph(s) in the referenced chapter can be read and absorbed. Using a resource in the back of each relevant chapter, it is easy to contact other sources for additional information and useful advice from those who have active experience with a specific program or approach. Next, by using the first section of each relevant chapter, a strategy for developing support from those on campus who may be involved in a given project can be created. When ready to implement the plan, the reader will know that a selected action has a high chance of success and enjoys support from its constituency.

For example, take the topic of energy saving. The middle of chapter four describes several successful programs that might apply to a reader's campus. Specific elements of the comprehensive program of ongoing efficiency improvements at Brevard Community College in Florida could be adapted to most large campuses.

As a direct result of the efforts of Brevard's staff, including the head of plant maintenance and operations, in a single seven-year period the campus electric utility bill went up only $1! These impressive results were produced in spite of the stresses of a 25 percent increase in inflation and the square-footage of the campus.

Or consider the discussion in chapter eight of the revolution in laboratory procedures, as brought about by microscale chemistry techniques. Here is a real-world approach to reducing the generation of hazardous wastes which is ideally suited for academia and where direct dollar savings can be realized almost from the start of implementation. The reader is introduced to Professor Dana Mayo of Bowdoin College who, with the active participation of others, explored practical methods of microscaling experiments in college chemistry laboratories. Using these techniques, the volumes of hazardous substances which need to be purchased, stored, and handled can be reduced dramatically. Solvents used in undergraduate chemistry class dropped from an average of eight liters total to an incredible 100 milliliters. Annual chemical costs at Bowdoin for organic laboratories declined from $8,000 to less than $1,000. This was primarily a result of reduced costs for proper disposal of hazardous wastes generated by students in the laboratories.

There are many such examples, small and large, of programs and activities that have already proven effective. Rather than each campus having to invent its own programs, this book provides a road map for learning from others and building on their successes. The reading and application of only a small part of one chapter can make purchase of the book worthwhile.

Many plant directors, facilities managers, and other operational staff on university and college campuses are committed to the protection of human health and enhancement of the environment. They are on the front lines in a struggle involving shrinking resources and increasingly strident political demands. It sometimes appears as if their responsibilities are awash in a world of "seemingly unsolvable ecological problems." However, they are also uniquely placed to cultivate ecologically-sound campuses for the 21st century while maintaining the economic viability of their communities. This book can help such caring individuals achieve their goals while continuing to serve effectively their institutions of higher education. It describes some of the common ground of ecological responsibility, in theory and in practice, and encourages the reality of environmental stewardship on campus.

—Elizabeth Stowe
Director, Environmental Resources
The California State University System
Los Alamitos, California

Improving Quality on Campus

Once Upon a Campus: Lessons for Improving Quality and Productivity in Higher Education, by Daniel Seymour. Phoeniz, Arizona: American Council on Education and The Oryx Press, 1995. 184 pp. $25, softcover.

Higher education continues to be an active area for proponents of total quality management (TQM) programs. In fact, the ERIC database for higher education publications lists more than five hundred entries since the beginning of this decade, with the maximum number of TQM-related articles or books published during 1993. Almost one dozen of these paeans for productivity were written by Dr. Daniel Seymour, including a 1992 work *On Q: Causing Quality in Higher Education*, which examined institutions that successfully applied TQM on their campuses. *On Q* was well received by members of the academy, and Seymour responded with this companion volume, *Once Upon a Campus*, as part of the American Council on Education's Series on Higher Education.

Daniel Seymour suggests that, based on his study of higher education management methods, college administrators have been unable to correct the "disturbing and dangerous mismatch (that) exists between what American Society needs of higher education and what it is receiving." In response to this statement made in the report from the Wingspread Conference on Higher Education in 1993, Seymour proposes a call to action in *Once Upon a Campus* based on a "performance improvement framework." This framework is designed to allow institutional members to continually think more clearly and uniformly about improving quality and productivity, and is based on five components: direction setting, process design and management, feedback, enablers, and personal involvement.

The author uses concepts found in systems theory, quality management, and organizational behavior to propose a proactive educational environment for institutions that utilize this approach, with student success as the main objective. The book develops from the explanation of the framework through a series of case studies and suggestions included in fourteen "lessons," where each lesson describes one of the five elements of the process's framework. Lessons 1 and 2 are concerned with direction setting, and review institutional aims and customer definitions. Lessons 3 through 6 discuss the ownership, bottlenecks, handoffs, and complexity problems associated with process design and man-

agement. Lesson 7 is devoted to feedback measurement, while lessons 8 through 13 review the leadership and problem solving difficulties faced by the process enablers. Finally, the last lesson proposes a plan for personal involvement based on hope as the essential ingredient of commitment for all to the process.

In Dr. Seymour's introduction, he indicates that he prescribes these lessons "to help make continuous improvement both an institutional strategy and a personal imperative." I found much more evidence to acknowledge the latter than the former in my reading of these lessons. The book clearly develops a process to promote continuous personal improvement through its case studies and discussions of the five elements of the framework for performance improvement. However, I do not feel that the framework's description ensures implementation on an institution-wide basis, in spite of the exceptional and incisive discussion on direction setting in Lesson 1.

Seymour's model is conceptually compact and easy to visualize, a refreshing change from the painfully obtuse and convoluted designs of most present-day business redesign processes. I suspect that this process will be successful only if applied after first being accepted and given an imprimatur by the institutional hierarchy, with the explicit call for cooperation both horizontally and vertically in the entire organization. In a large institution, implementation of this performance improvement framework will require a large staff of individuals committed to its success, a process which will take enormous amounts of time to produce results. Like other TQM or business process reengineering (BPR) interventions, the use of Seymour's model to improve quality and productivity in a higher education institution must be carefully developed and legitimatized to ensure any chance of success.

On balance, this book is an excellent resource for each institution which is involved, either totally or on an individual department basis, in the formal task of improving quality and productivity on campus. The case studies and examples used by the author are real-life and will be recognizable to all who have worked at a higher education institution. Faculty members may object to the "student as a customer" and other business-related analogies used by Dr. Seymour, but as a former professor and administrator he is qualified to use these comparisons in promoting a management model for the academy. *Once Upon a Campus* will make a valuable addition to the library of every APPA institution.

—Dr. John M. Casey, P.E.
Manager, Engineering
Physical Plant Division
University of Georgia
Athens, Georgia

APPA Events

For more information on APPA seminars and programs, contact the APPA Education Department at 703-684-1446, ext. 230 or ext. 231.

*Jan. 14-19—**Institute for Facilities Management.*** Los Angeles, CA. (Regular three-track program, plus special programs in Planning, Design, and Construction; Regulatory Compliance Issues; and Foundations of Leadership, led by the Covey Leadership Center, Jan. 14-17.)

*Mar. 1-2—**Building Commissioning Workshop.*** Atlanta, GA.

*Mar. 4-5—**Leadership Symposium: Effecting and Managing Change in Higher Education.*** Boston, MA.

*Mar. 11-12—**OSHA Compliance Seminar.*** Arlington, VA.

*Apr. 21-26—**The Executive Institute.*** University of Notre Dame. Notre Dame, IN.

*Apr. 29-30—**Planning for Master Planning.*** Atlanta, GA.

*July 21-23—"**Frontiers in Learning.**" APPA's 1996 Educational Conference and 83rd Annual Meeting.* Salt Lake City, UT.

*Sep. 8-13—**Institute for Facilities Management.*** Minneapolis, MN. (Regular three-track program, plus special programs to be announced. Also will include Foundations of Leadership, led by the Covey Leadership Center, Sep. 8-11.)

Other Events

*Jan. 25—**9th Annual Inland Northwest Turf & Landscape Show.*** Spokane, WA. Contact Julie Boyce, 509-535-8305.

*Feb. 8-9—**Information Technologies for Utilities.*** Denver, CO. Contact Infocast, 818-609-9145.

*Feb. 12-13—**Preparing for the New Power Industry.*** Washington, DC. Contact Infocast, 818-609-9145.

*Feb. 15-16—**Identification of Regulated Hazardous Waste.*** San Antonio, TX. Contact Government Institutes, Inc., 301-921-2345.

*Feb. 18-20—**American Council on Education 78th Annual Meeting.*** San Diego, CA. Contact ACE, 202-939-9300.

*Feb. 21-23—**IDEA 9th Annual College/University Conference.*** Palo Alto, CA. Contact Tanya Vetter, program administrator, 202-429-5111.

*Mar. 11—**Instituting a Conservation Enviroment Monitoring Program.*** Trenton, NJ. Contact Ann Craddock, Conservation Center for Art and Historic Artifacts, 215-545-0613.

*Mar. 11-14—**Minority Business, Procurement, and Contracting Symposium.*** Kansas City, MO. Contact the University of Missouri System Division of Management Services, 314-884-7887.

*Mar. 17-20—**National Conference on Higher Education.*** Chicago, IL. Contact the American Association for Higher Education, 202-293-6440.

*Mar. 20-22—**International Conference & Exhibition on Health Facility Planning, Design & Construction.*** San Antonio, TX. Contact the American Society for Healthcare Engineering, 312-422-3800.

*Mar. 26-27—**National Governor's Association and Education Commission of the States Education Summit.*** Palisades, NY. Contact Christie McElhinney, 303-299-3695.

*Apr. 13-18—**11th International Convention and Trade Show,*** Roof Consultants Institute. Richmond, VA. Contact Elaine De'Leon at RCI, 919-859-0742.

*Apr. 15-17—**Indoor Environment '96.*** Baltimore, MD. Contact IAQ Publications, 800-394-0115.

*Apr. 17-18—**Building/New York '96.*** New York, NY. Contact Buildings/NY 96 Customer Service, 203-840-5608 (attendees) or 203-840-5808 (exhibitors).

*Apr. 24-26—**Lead Abatement Training—Inspector.*** Salt Lake City, UT. Contact the University of Utah's Rocky Mountain Center for Occupational and Environmental Health, 801-581-5710.

*Apr. 28-May 2—**RadTech 96: Zero VOC Coatings and Inks.*** Nashville, TN. Contact Chris Dionne, 708-480-9576.

*May 6-10—**Lead Abatement Training for Supervisors and Contractors.*** Salt Lake City, UT. Contact the University of Utah's Rocky Mountain Center for Occupational and Environmental Health, 801-581-5710.
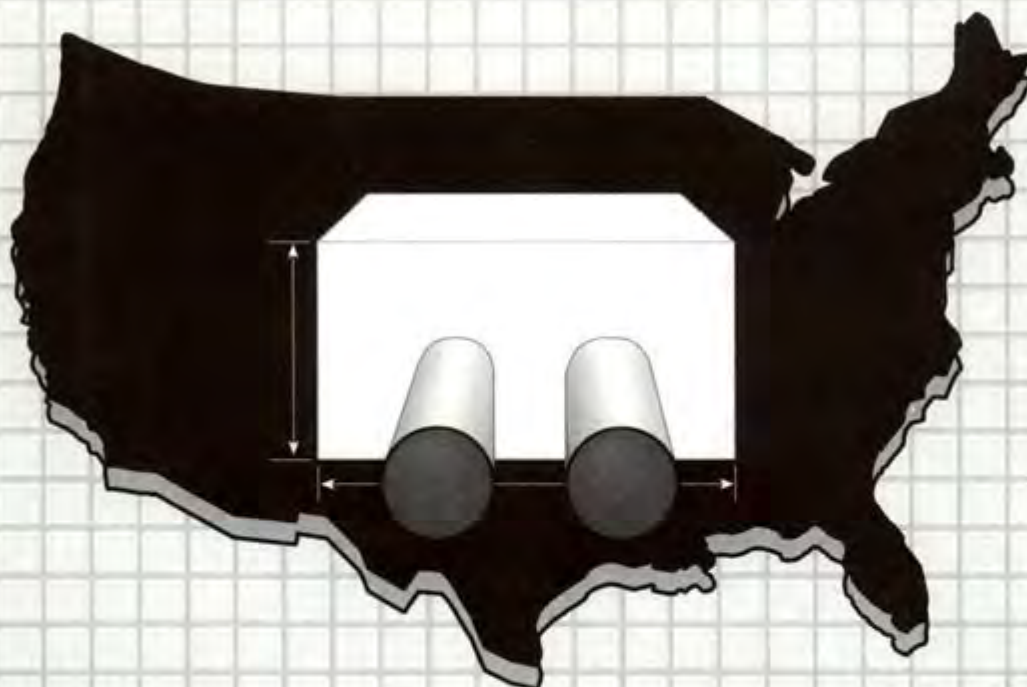
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