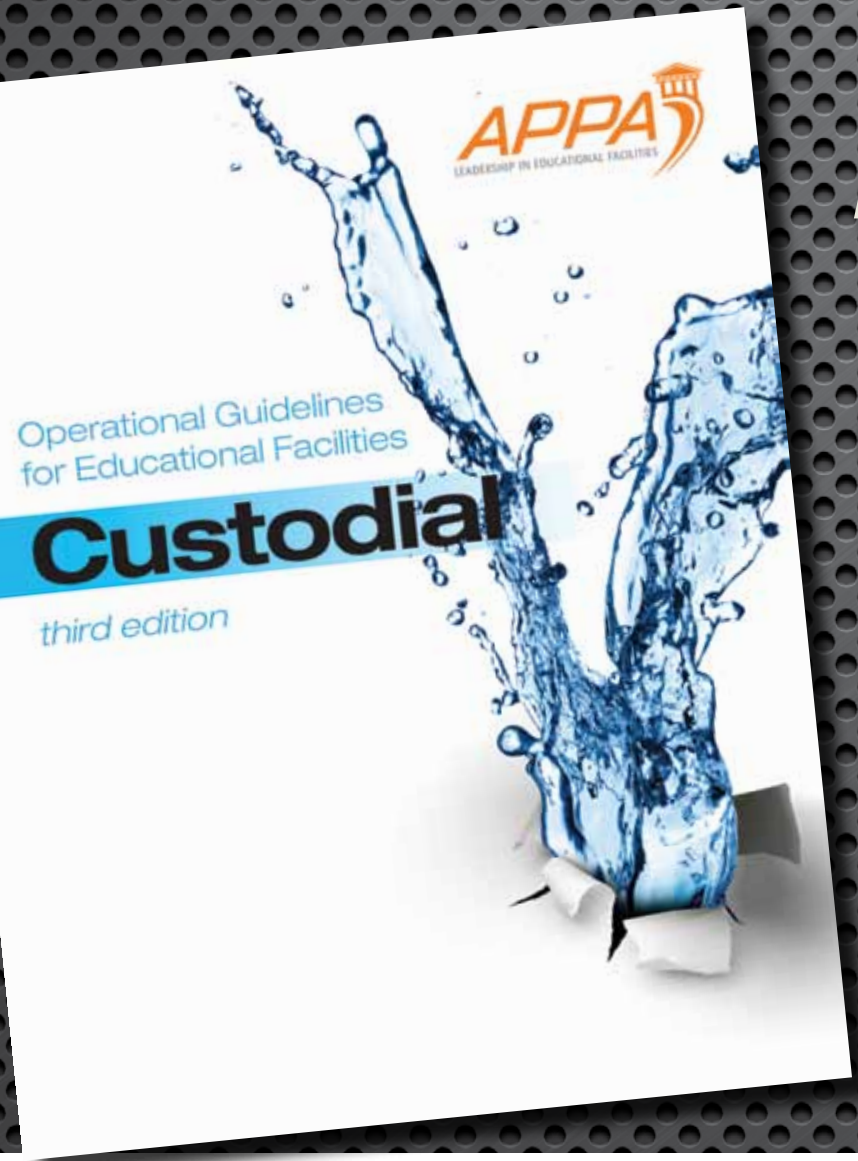


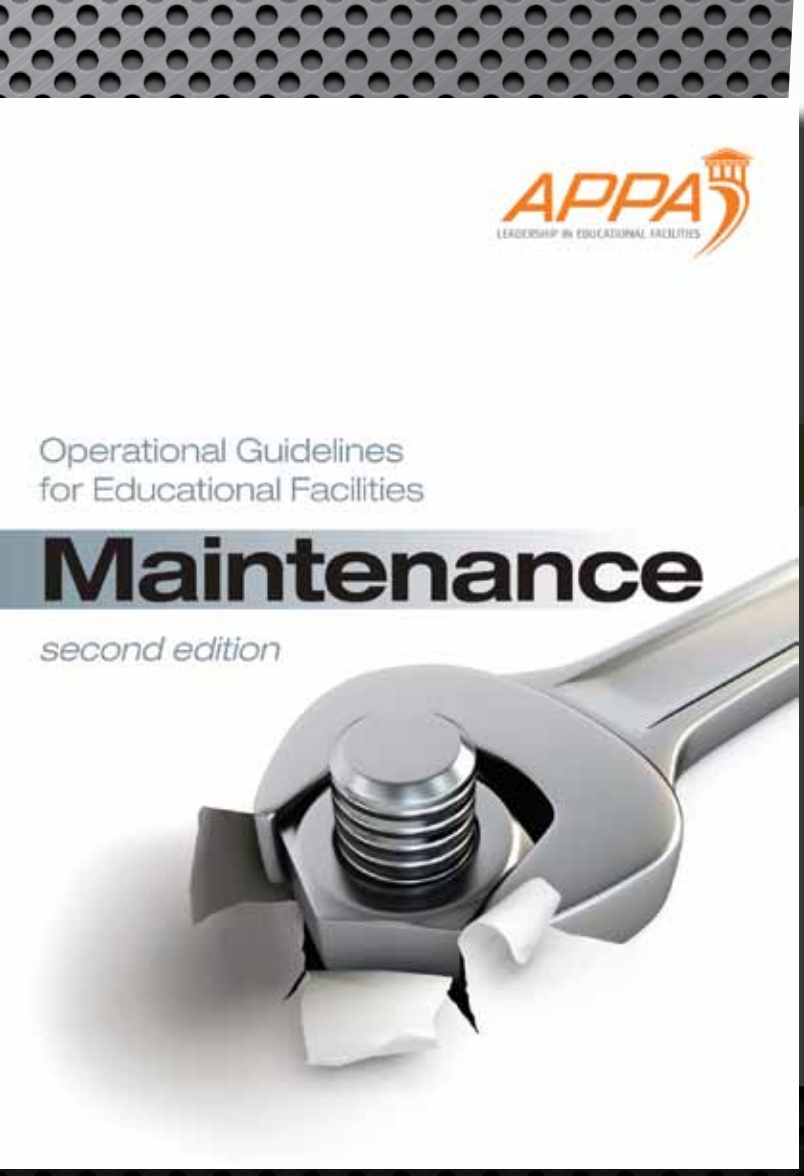
APPA's NEW OPERATIONAL GUIDELINES FOR EDUCATIONAL FACILITIES

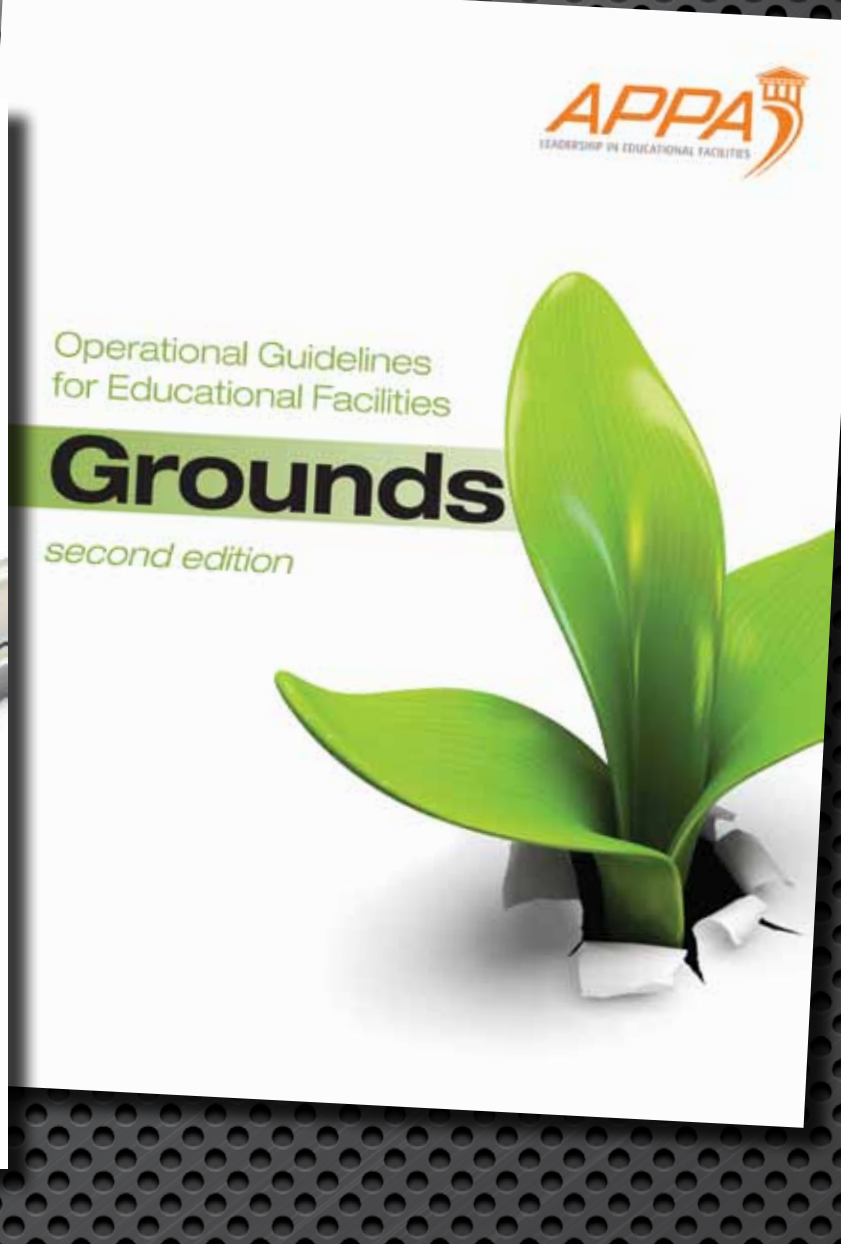
Alan S. Bigger, APPA Fellow

Nearly 25 years ago a group of enlightened APPA members and facilities managers started to discuss an idea and to plant a seed about the need for a document, or series of documents, that would explain the need for staffing facilities operations and the implication of such staffing on levels of service. During the 1980s states and institutions of higher education were facing severe economic issues and the budget axe invariably fell on the facilities management departments of educational institutions. As the demand for increased budget cuts reached seismic proportions, facilities managers scrambled for assistance to validate their staffing requirements and the impact of draconian budget cuts on levels of service. Thus the seed that was planted by the facilities managers in 1987 sprung into a plant, with three leaves, much like a shamrock.

The first leaf of the shamrock was the first edition of APPA's *Custodial Staffing Guidelines for Educational Facilities* published in 1992, then updated and expanded in a second edition published in 1998. This was followed shortly thereafter by APPA's *Operational Guidelines for Grounds Management* in 2001, and APPA's *Maintenance Staffing Guidelines for Educational Facilities* in 2002. These three leaves of the shamrock have become indispensible source publications for proactive leaders that seek to operate and provide efficient and effective services to our stakeholders on campuses across the world.

One of the unique features about a shamrock is that it has three leaves, distinctive leaves, yet tied to one another by a mutual stem. APPA has been that stem through the decades and has fed and nurtured facilities management professionals with cutting-edge publications. The new and improved *Operational Guidelines* for Custodial, Grounds, and Maintenance are an outgrowth of that support. Not only are these books distinctive, there are themes that flow through each book to include staffing guidelines, sustainability, benchmarking, position descriptions, use of computerized maintenance and management systems, and outsourcing options. The books are





operational guidelines for your organization that are easy to read, similar in format, and provide invaluable advice to assist you in guiding your organization during the years ahead. Each book provides advice that is flexible and that can be adapted to your specific organizational needs. The three publications will nurture and nourish your organization during "the best of times and the worst of times."

Each book has chapters about important topics, written by facilities professional that live and breathe operational issues each and every day. A task force was developed for each book headed up by a team leader. For the Maintenance Operational Guidelines, Tom Becker of Philadelphia University headed up the team of authors, and Tom Flood of Elon University guided the Grounds Operational Guidelines project. Casey Wick, formerly of Hamilton College and now at American International Schools, Dhaka, Bangladesh, headed up the Custodial Operational Guidelines group. Without their voluntary hard work, leadership, and dedication these books would not have been published.

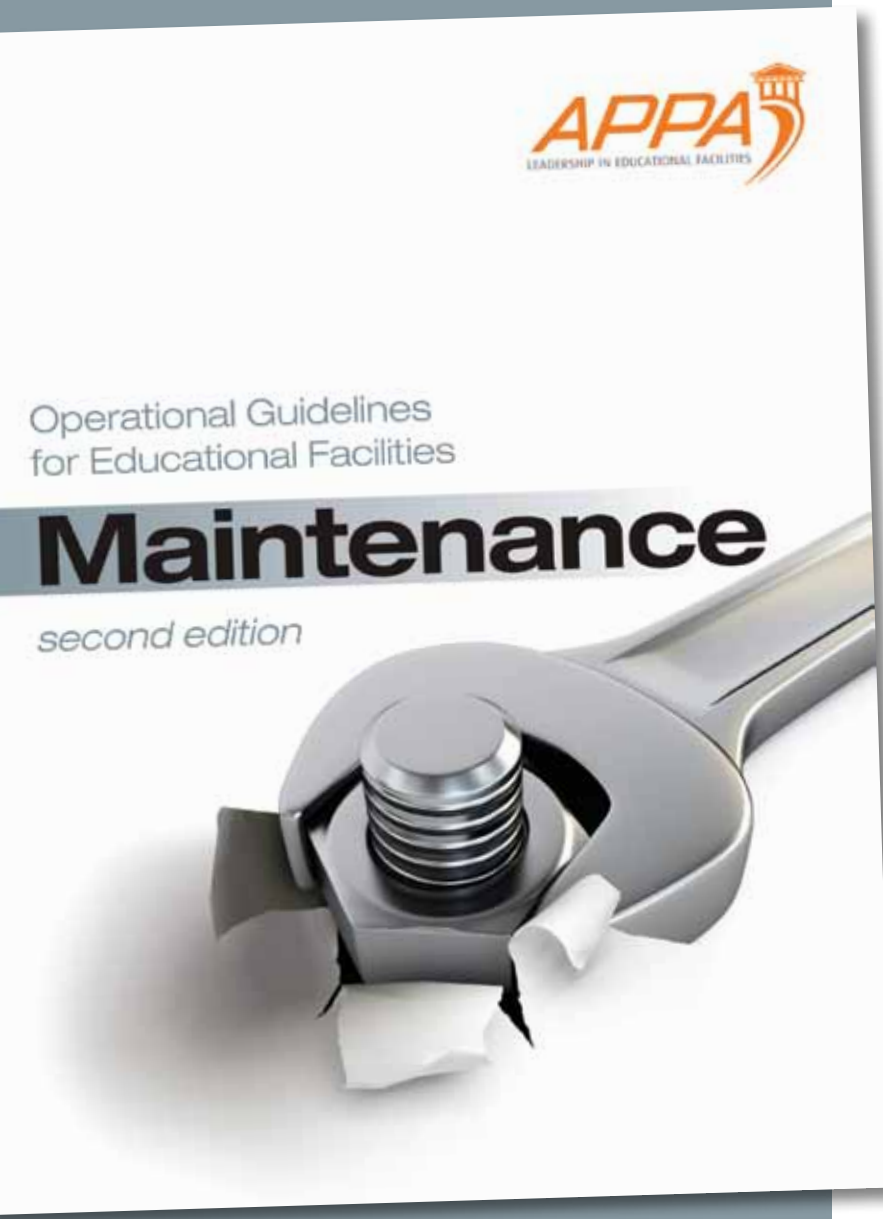
As you read and use the books, we trust that the common threads and vernacular will start to resonate with you and your facilities management team. The revisions to these books was based upon an APPA survey and task force member inputs, and chapters were added, deleted, or modified based upon that input. Much as organizations are a living organism, the guidelines cannot stay static so we encourage your feedback to APPA on improvements for the future. We trust that you find these new books to be beneficial to you and your organization, and may the blessings of the Irish shamrock be with you during the years ahead.

Alan Bigger is a Past APPA President and APPA Member Emeritus based in South Bend, IN. He is the editor-in-chief for the update of APPA's *Operational Guidelines* trilogy. E-mail him at *frugalperson@comcast.net*

Visit the APPA bookstore to pre-order your Guidelines at www.appa.org/bookstore.

WHAT CONSTITUTES MAINTENANCE?

BY J. THOMAS BECKER



In most cases the facilities inventory of an educational institution is its largest fiscal asset. The physical plant or facilities management department is the steward for keeping that asset from becoming a liability. Our principal charge is to make sure that the building inventory maintains its ability to function as intended, that it is safe and legal, and that its life is perpetuated to the greatest extent possible.

Customers' expectations have accelerated exponentially. The electronic age has become intermingled with everyday life. In response to catastrophic events, security systems and building access systems have quickly become more elaborate. The economic crisis has forced our profession to try to improve efficiency in almost all aspects, from energy management to sustainability to staffing assignment.

Material inventories are tighter and not as easily available. Information about our operations is requested to be more transparent. Benchmarking and performance ratios are now expected management tools. Methodologies for implementing ongoing improvement, and having tools in place to measure that improvement, are now looked for when accrediting bodies visit campus.

To quantify performance criteria, both internal and external definitions and measurements need to be consistent. That is by no means an easy task. In most cases, facilities management departments have evolved uniquely within their institutions. Some schools reside almost independent of their surrounding community; others are more interdependent.

MAINTENANCE TYPES

Let's first look at the kinds of activities that many facilities operations perform. Figure 1 is a Venn diagram showing most of the activities, in general terms, of a typical facilities maintenance operation. The large circle represents all maintenance activities the operations and maintenance (O&M) staff may perform in a year. The next smaller circle, entirely within maintenance, is planned work. This includes preventive or predictive maintenance and some corrective work—that which can be scheduled.

Other circles represent emergencies such as power outages and pipe leaks, which cannot be scheduled but are clearly maintenance, and reactive work—those tasks that customers request that have some time requirements associated with them and are not fully within the facilities operation's control to schedule.

Finally, hanging off to the side and trying to be part

of maintenance, is capital work. Many of us don't want to believe it, but some activities performed by maintenance staff clearly add to the remaining life of a building and thus are capital in nature.

Maintenance is also a continuum of activities that range from predicting or preventing failures to capital improvements or renovations, with repairs and "support maintenance" involving operational activities in the middle. The facilities professional must manage resources to meet the needs of the continuum of activities and service the campus. Figure 2 attempts to describe how a typical facilities operation may manage resources along this continuum of activities.

Figure 2 graphs each of the activities identified in the Venn diagram in Figure 1 as a percentage of total resources. If resources are minimal, it is likely that only emergency work can be accomplished. This is representative of APPA Level 5, wherein there are so few people available to perform maintenance work that they are listed in the graph as able to respond only to things such as pipe leaks, heating or air-conditioning failures, and broken windows or locks.

As a facilities operation has more staff (moving to the right on the axis of the graph), it is able to accomplish a greater variety of maintenance activities: planned (predictive/preventive and corrective), emergency, reactive, support, and capital work. When a larger variety of maintenance is completed, the percentage of emergency or critical activities decreases. This occurs naturally even if the number of emergencies remains the same in absolute terms. However, it is likely that if preventive/predictive maintenance work is being done, it has an immediate effect on some of the emergencies (e.g., pipe leaks).

If maintenance is performed in a timely manner, then there will be no or very few unplanned outages that require an emergency response. Examples of these timely interventions include replacing capital equipment at the end of its useful life and scheduling equipment rebuild during off-season times. As more resources are available, the facilities officer is able to assign staff to accomplish a wider variety of work.

Figure 2 does not mandate that work be done. Every facilities professional works with individual definitions based on operating or historical differences at individual institutions. Therefore, each type of task identified in Figures 1 and 2 requires some additional clarification of the differences and fine points. These differences may have little effect on the number of people needed to maintain one campus but a major effect on another. The facilities professional needs discretion to interpret and operate.

Figure 1: Overlaps and Interrelationships in Types of Maintenance

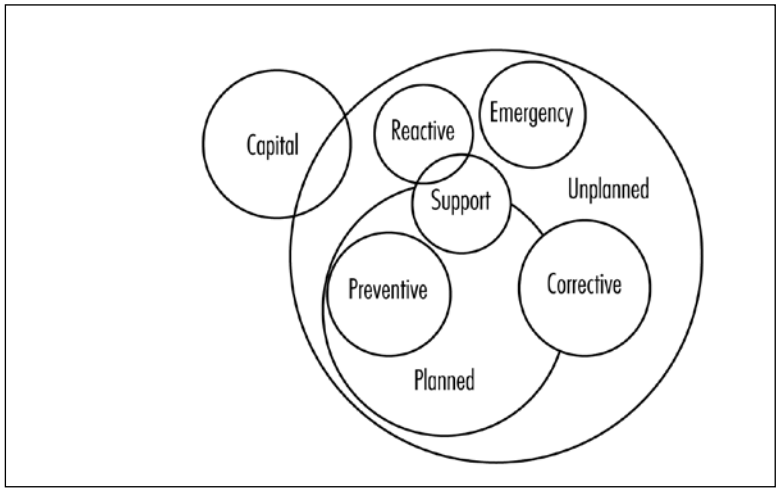
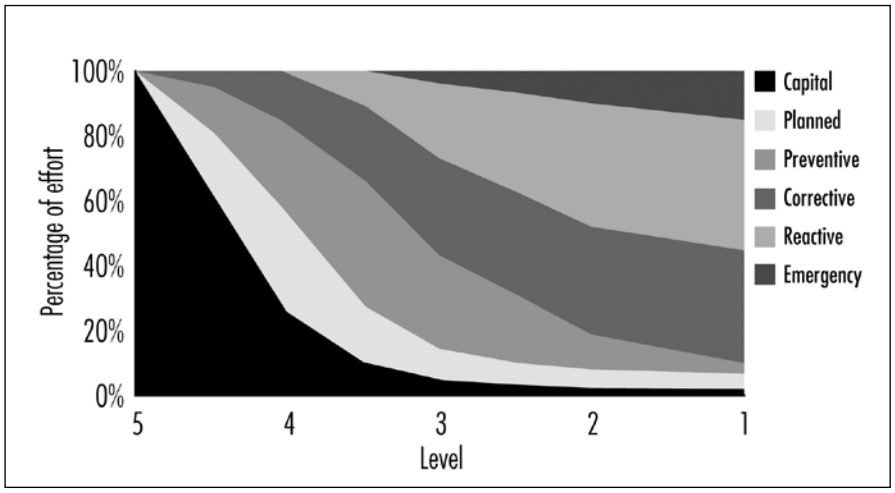


Figure 2: Maintenance Activities as a Percentage of Total Resources



THE QUESTIONS OF MAINTENANCE

So, what are the fine points? What are the major points? Are there examples of the fine and major points? What are the differences between the standard definition of building maintenance and the definition used on your campus? How do the differences affect maintenance trades staffing? How is the budget affected? How is deferred maintenance affected? How can you use this guide to better fund your maintenance budget? What is and is not included in building maintenance?

First, what is not included in building maintenance? Major replacements of equipment or building components that have

reached the end of the anticipated life cycle are not included. A chiller that is 25 to 30 years old and should be replaced, either because it is old or because the amount of annual service it demands is excessive, is not replaced through a maintenance effort. Similarly, a masonry facade that is exhibiting serious water infiltration or has cracks, particularly at corners or in places where expansion joints should have been located, is not a maintenance effort. Both of these projects are considered capital renewal or improvement; they are not annual maintenance. *They both extend the life of the facility, so from an accounting perspective they are capital improvements*. Likewise, custodial activities—cleaning, waxing, washing, and so on—may be maintenance, but they are not considered as trades maintenance in the Maintenance Guidelines publication. Those maintenance activities are discussed in *Operational Guidelines for Educational Facilities: Custodial*. Maintenance activities to the grounds and other exterior features are discussed in *Operational Guidelines for Educational Facilities: Grounds*.

Another category that falls outside the definition of maintenance is improvements (capital), either at the request of a user or because technology has identified a better way of performing a particular function with capital equipment. This category includes the installation of new instructional equipment (movable or fixed) that was not previously present or the installation of energy-efficient light fixtures that have a determinable payback and will assist in financing the project.

A simple description of this category might be, "If it's there and it isn't working correctly, it is maintenance; if it isn't there, it is not maintenance." Individual campuses will differ on these points. One campus participating in our initial data-gathering effort would perform minor improvement work (less than 16 hours and less than $1,000) under the normal maintenance staff and budget; it considers this work more customer-focused service.

Maintenance is not a major project that will extend the life of the component or assembly—that is, it is not life-cycle replacement. Neither is maintenance a project that solely provides for a technical or economic improvement to a facility. While it is easy to list things that are not maintenance, it is more difficult to list things that are maintenance; it is easier to say "no" than to identify how to say "yes." Because this guide is intended to provide answers to the harder questions, the definition of maintenance must be made in a positive way.

TYPICAL MAINTENANCE TASKS

The following are ten illustrative samples of typical tasks expected of the facilities department, followed by the type of maintenance within which the tasks most likely fall.

1. Repair leaking roof and associated damage from storm of July 6 — Capital Maintenance
2. Paint Fine Arts room 105 for new department chair — Support Maintenance
3. Replace broken window in Life Science Building, west entry — Corrective Maintenance
4. Perform eddy current test on chiller in the Physical Science Building — Preventive Maintenance
5. Old Main room 125 is hot — Reactive Maintenance

6. Replace inoperative light fixture in Business College room 2414 — Corrective Maintenance
7. Set up stage and chairs in gymnasium for graduation ceremony, May 6 — Support Maintenance
8. Replace broken exit device at northwest door of Technology Building — Emergency Maintenance
9. Replace door in Education Building; it needs to be a Dutch door now — Support Maintenance
10. Relocate hand-washing sink in food service kitchen to make way for a new oven— Capital Maintenance

Another way of looking at the duties and responsibilities of the maintenance department is to view them within generic operating rules or limitations. These limitations describe the characteristics that make up annual maintenance activities. The characteristics address object, time, and location (what, when, and where). First, maintenance is generally component-nonspecific; it can happen to anything on campus. The maintenance department responds to hundreds of small requests or needs to keep the campus operational. These needs may be the result of vandalism, wear, or general use. For the most part, these requests cannot be planned (other than preventive/predictive maintenance).

Second, the duration of maintenance work (excluding preventive/predictive maintenance) cannot be predicted. Individual maintenance activities may have an identifiable duration that is used to plan where and to what activities workers are to be directed through the day, week, month, and year. However, maintenance does not have an end date or time — it is a continuous activity. Individual tasks will be completed, but the overall effort will go on as long as the campus exists. This is often a difficult concept for different parties to agree on, but it is extremely important to define the scope of maintenance work, particularly if a campus has contracted its maintenance to an outside organization.

Third, maintenance occurs everywhere on campus; it is not limited to a specific site. Individual maintenance tasks may be site-specific, but the overall maintenance activity can occur anywhere. Maintenance personnel are deployed on a 24/7 schedule (depending on priorities and general campus operating rules) to resolve operating issues that affect a wide variety of buildings, equipment, or components.

These three limitations define what constitutes maintenance. The opposite of maintenance is the capital project. A capital project, whether it is a new facility, rehabilitation/renovation, or major repair, is a specific, focused activity. It focuses on a specific piece of equipment or building component, it almost always occurs within a specific time frame that is usually identified and scheduled in advance with a planned completion date, and it occurs in a specific location.

From an accounting perspective, a capital project either increases the value of the campus (e.g., a new building) or extends the useful life of a facility (e.g., a replacement chiller). Some would argue that replacement of an old, large, centrifugal chiller is part of an annual maintenance plan, but the project is specific, of limited duration, and in a fixed location — which means that it is a capital project, not annual maintenance.

It may also be argued that the planned repainting of a building interior is not maintenance, but rather a capital project. It is entirely possible to describe a single effort that is then contracted, executed, and completed without maintenance employees. This is an operating decision for the facilities professional to make. If it is decided that the campus will perform cyclical repainting of building interiors with maintenance forces, then the staffing levels are easily determined by selecting the repaint cycle length. Similar arguments could be made for maintenance efforts to other continuous components, such as masonry, roofing, or flooring. Replacement cycles should be looked at carefully before the choice is made. A replacement cycle may commit the organization to more maintenance work than it can sustain.

STEWARDSHIP AND CUSTOMER SERVICE

As educational facilities professionals, we have a prime obligation to be stewards of these assets and ensure that they provide long-term value. Customer service is a major factor in customer satisfaction. They are not mutually exclusive and, in reality, cannot exist without one another. Our customers expect service with urgency to maintain satisfaction. Without customer satisfaction, a department loses support and likely funding.

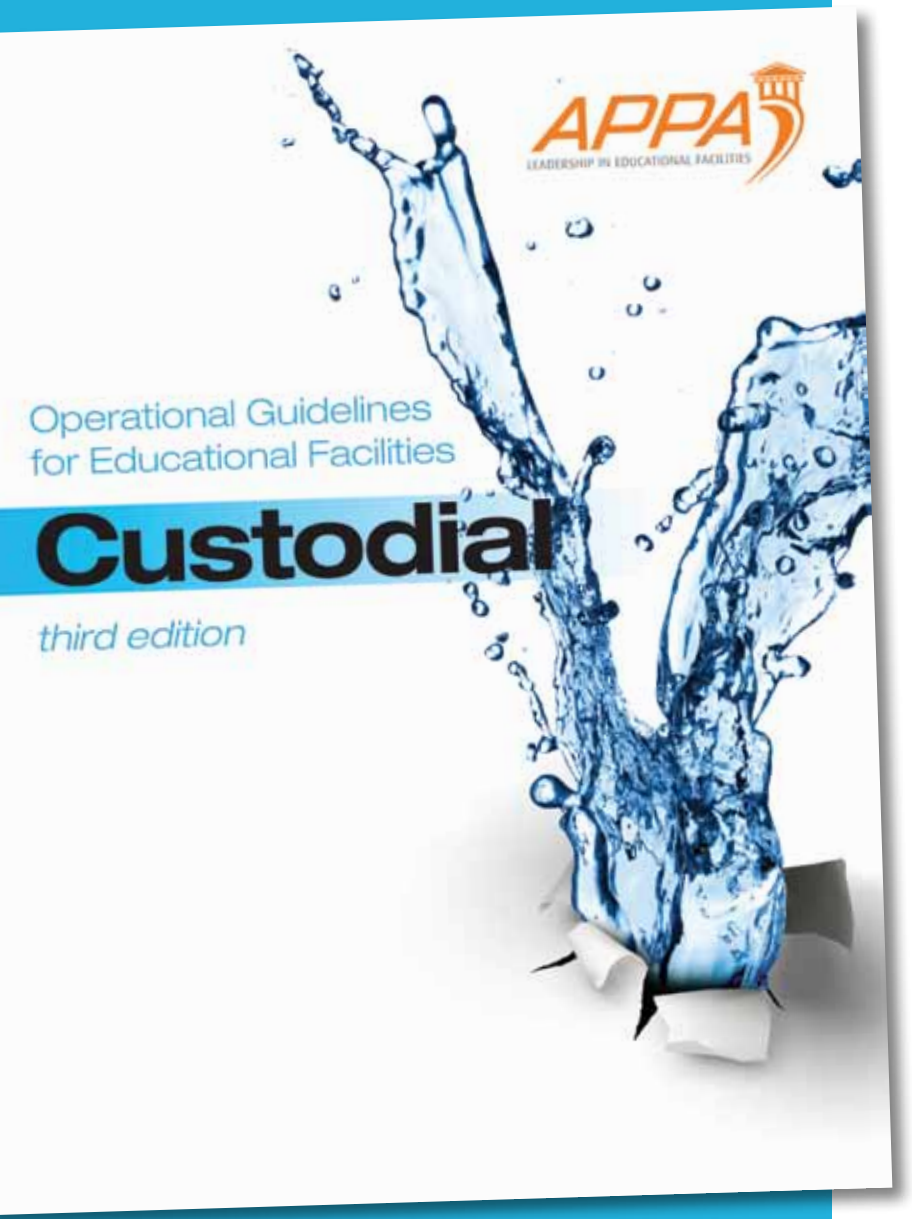
Our facilities departments must lead with highly visible customer service, while tracking performance and still allowing the largest portion of our resources to follow with stewardship functions.

An established, published target level of service expectation—one that the campus community understands and supports—is a facilities manager's best tool for achieving the desired balance.

Tom Becker is associate vice president for operations at Philadelphia University, Philadelphia, PA; he can be reached at *beckert@philau.edu*. He served as task force chair for the second edition of *Operational Guidelines for Educational Facilities: Maintenance*, from which this article was excerpted and adapted.

SETTING STANDARDS FOR CUSTODIAL OPERATIONS

BY CASEY J. WICK



In general, standards serve as fixed mile markers on the path to achieving goals and objectives. They create a measurable system by which to determine progress or regression toward or away from predetermined outcomes. In terms of custodial operations, numerous types of recognized standards are used to measure operational parameters. Among those standards are the following:

Training	Social
Production	Management
Staffing	Ethical
Conduct	Productivity
Appearance	Procedural
Association	Process
Equipment	Regulatory
Safety	Product

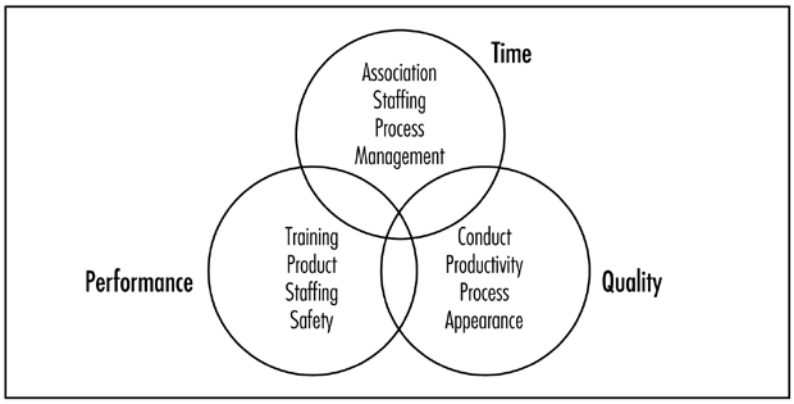
As is evident from the list above, the number and variety of standards associated with custodial work is extensive and can be difficult to comprehend. It is therefore helpful to organize such standards into meaningful groups or categories for the purpose of evaluation and application. Figure 1 illustrates both the overlapping and interdependent nature of standards common to the custodial field. More important, the diagram also illustrates how several standards can be grouped together in broader categories for evaluation and application purposes.

Time Standards include standards based on performance pace and chronological outcomes. In other words, how long will it take to perform one single task or series of tasks? The "Normalized Base Times" identified in the new Custodial Guidelines publication offer custodial managers a powerful tool with which to objectively justify full-time equivalent requests, create reasonable and fair workloads, and facilitate daily and weekly scheduling.

It is important to note that time standards are not related only to task performance. Time standards are also critical factors in circumstances such as chemical dwell time, equipment maintenance schedules, and regulatory compliance matters.

Performance Standards include standards that are designed to objectively define targeted levels of performance or outcomes. Universal examples of performance standards are those relating to safety guidelines and hazard minimization. Such safety and

Figure 2: Maintenance Activities as a Percentage of Total Resources



hazard minimization standards also show how many standards can be categorized into a number of different categories.

For example, while safety standards are certainly performance standards in terms of how a certain task is to be performed and what personal protective equipment is to be used, they also reasonably fit into the category of time standards when consideration is given to time-related occupational exposure limits such as decibel levels. Performance standards related to custodial operations are most frequently thought of in terms of attaining a predetermined and defined level of cleanliness, and therefore establish an understandable and accurate means of evaluating cleaning performance.

In conjunction with such standards, custodial managers are tasked with maintaining an expected level of cleanliness within their respective facilities. The five levels of cleanliness defined in the APPA guidelines describe observable levels of cleanliness that can be used during an inspection to measure performance.

Performance standards not only create a useful means of measuring actual cleaning outcomes, they also facilitate staff training and communication of expectations. Ultimately, they help create a shared understanding of expectations and clear, easily understandable communications.

Quality Standards and performance standards are often viewed as one and the same. However, while performance and quality standards do overlap more than most other types of standards, they should be viewed as distinct and concerned with unique circumstances.

Quality standards are more closely based on a 360-degree perspective on service delivery. For example, a restroom surface that has been cleaned to meet observable cleanliness levels will likely be judged as meeting both performance and quality standards. Yet, even though the surface appears clean, bright, and shiny and there are no visible signs of soil, it may still harbor contaminants and undesirable pathogens (especially if the product used is a neutral cleaner rather than a disinfectant).

Quality standards are designed to take into account the entire service cycle and address all aspects collectively. Likewise, quality standards are useful tools when one takes a holistic approach to service delivery. Facilitating standards such as customer interactions and service follow-through is a primary concern regarding quality standards. Quality standards within custodial operations are the foundation for developing structured and appropriate quality plans and service quality measurements, designing a feedback cycle, and developing an appropriate and functional continuous improvement plan.

Management Standards. Effective management provides the foundation for success in each of the areas cited above. The bottom line is that achieving effective performance and quality demands the implementation of a professional management structure that ensures that a custodial operation has the necessary pieces in place to operate as efficiently as possible and with a full commitment to customer satisfaction. APPA has various programs available to assist in determining the effectiveness of a facilities management organization, including a standardized self-audit program and the Facilities Management Evaluation Program (FMEP).

In addition, ISSA—The Worldwide Cleaning Industry Association—has outlined the primary characteristics of a quality, customer-focused cleaning organization in its Cleaning Industry Management Standard (CIMS). Developed through a consensus-based process, the CIMS program offers a road map for all cleaning service organizations—including both building service contractors and in-house cleaning service providers—in the development of an effective management structure.

For many years, APPA members have utilized industry best practices such as those afforded by the U.S. Green Building Council, Green Seal, and the Environmental Protection Agency. ISSA's CIMS program offers a set of "environmental preferability" criteria that serve as the basis for a comprehensive green cleaning program. Taken together, CIMS and CIMS-Green Building (CIMS-GB) provide a key tool that an institutional custodial department can use to improve the likelihood of success. Institutions that self-perform service can use the CIMS standard to develop and maintain quality management within

their own organizations, while those that use a third-party contracted service can use CIMS/CIMS-GB as a powerful prequalification tool when selecting an outside provider. More information is available at *www.issa.com/cims*.

STANDARDIZATION

Once the general concepts of standards are understood, they can be applied within an institution in a process of standardization. Standardization is generally defined as "establishing common rules and procedures that apply uniformly." Standardization principles are not a new concept. The birth of standardization is rooted in Fredrick W. Taylor's visionary work from the mid- to late-1800s, which forms the basis for what is described in contemporary management theory as Scientific Management.

Scientific Management is defined as developing performance standards on the basis of systematic observation and experimentation. Working primarily in the steel industry, Taylor studied operations and collected extensive data on peak performance standards. He then analyzed the data and used the results to define procedures that would yield the greatest output while minimizing waste. Taylor's methods caused output and quality to increase dramatically while at the same time lowering costs. These two factors—increased productivity and quality coupled with decreased waste—lie at the heart of a standardization program. It must be noted, though, that Taylor's work is generally viewed as obtuse toward employees and considers individuals as economic objects and not as human beings. Management scholars still debate this belief today. However, the positive impact of introducing standards into a cleaning operation has been proven time and again.

IMPLEMENTING STANDARDS

Custodial managers often find determining which standards are valid, appropriate, and effective to be quite a challenge. A well-thought-out and effective standardization program can range from one that is developed completely in-house to one

that has been developed by a not-for-profit trade association or other industry expert. Regardless of the source of the program, thoughtful and committed implementation remains crucial to the successful integration of the system. Defining and adopting a set of standards is only the first step. The timing, scope, and control of the program are as vital to success as adopting appropriate standards.

One thing to keep in mind is that the strategies employed during implementation need to be directly related to the operation in which they will be applied. For example, operations that occur in multiple facilities and at multiple locations face unique challenges as managers seek to achieve implementation across several facilities. The following questions need to be asked: How can widespread implementation be achieved? Is it best to take small steps in all facilities at once or fully transition one facility at a time? What is the best method of tracking results? At its core, implementation should be viewed as guiding the transition and making minor adjustments along the way as necessary. Can this be done effectively across several locations, or would the one facility at a time be a better approach? These are just a few of the many considerations managers must address during and after implementation of a standards program.

SUMMARY

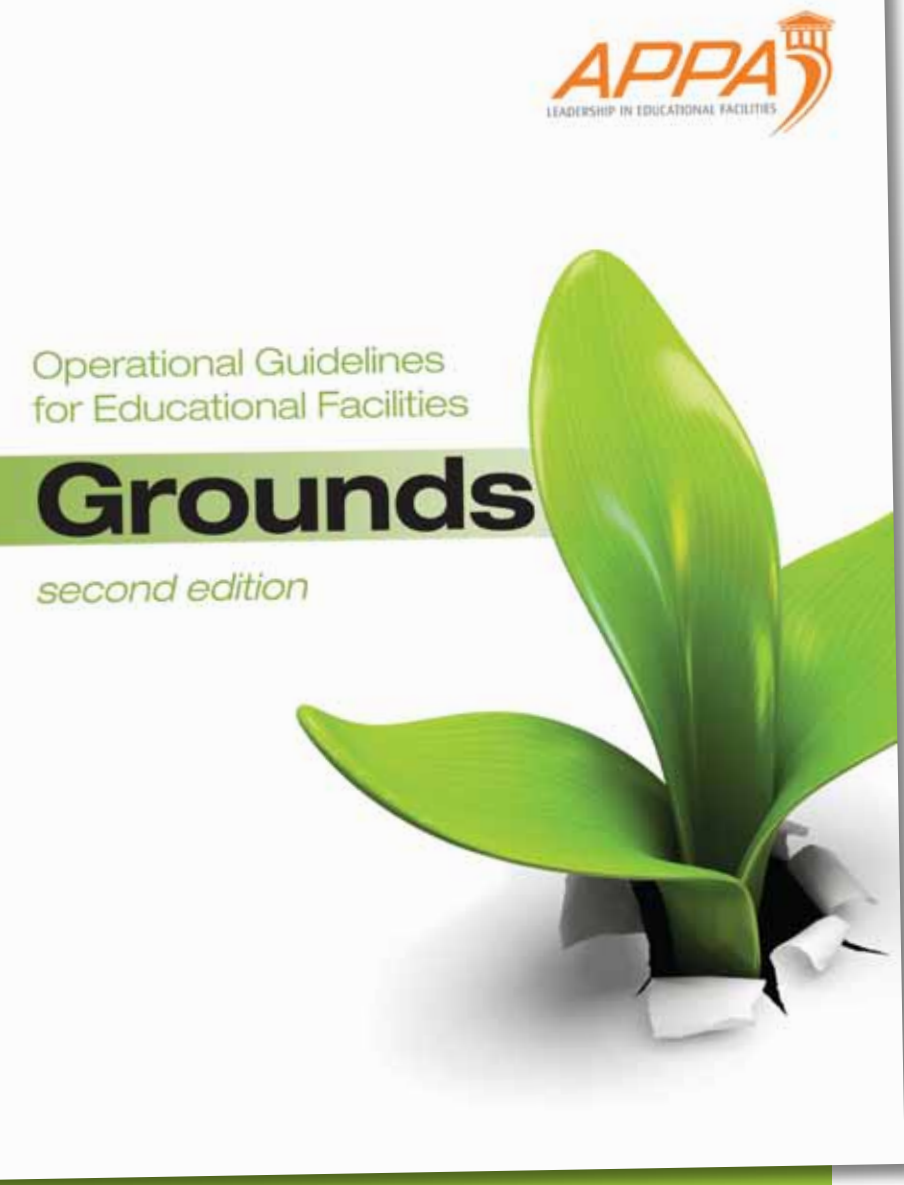
The benefits of developing and implementing a standards program are countless, and effective standardization can yield great returns. Professional cleaning operations are a model environment in which to implement standardization principals. The repetitive nature of the industry creates a situation in which consistently desirable results form the foundation for success. Minimizing variations in performance will improve the overall level of services delivered.

Standards also can become the basis for goal development and cohesive performance efforts among employees. Creating an environment in which all members of an operation know and understand what is expected of them will undoubtedly boost morale and improve cooperative team efforts.

Formerly with Hamilton College in New York, Casey Wick is director of facilities at the American International School, Dhaka, Bangladesh. He can be reached at *caseyjwick@gmail.com*. He served as task force chair for the new APPA book, *Operational Guidelines for Educational Facilities: Custodial*, from which this article was excerpted and adapted.

DESIGNING THE SUCCESSFUL GROUNDS ORGANIZATION

BY FRED GRATTO



Grounds maintenance is conspicuous work. Doing it well requires preparation and organization, whether repairing a road, finishing concrete, scattering salt on icy steps, landscaping a new building, trimming trees, or refurbishing a bus stop. Our jobs are especially difficult because they take place under the watchful eyes of the public, many of whom are weekend gardeners and think they know the best way to do things. Few people, however, have a sustained interest in the art of managing people and directing resources to ensure that a campus is maintained safely and attractively.

But grounds managers do, and they find ways to be helpful and get things accomplished. Effective leaders know and appreciate those who do the work of the organization. "In the world according to great managers, the employee is the star. The manager is the agent," wrote Buckingham & Coffman in *First, Break All the Rules*. Genuine cooperation results when supervisors encourage employees to identify and solve problems. Supervision through cooperation and empowerment requires a fair exchange of responsibilities and benefits so that all can share the fruits of sustained efforts.

There are probably several ways to organize departments and do this, but three are mostly commonly used.

ZONE MAINTENANCE

Most people take care of things better if they own them. For example, people who rent a house may not be too concerned about the impact that pets might have on carpet. Perhaps they move pictures often and are not bothered by all the holes in the walls, because the home is not theirs. Likewise, drivers of renta1 cars might not be as careful as they are with their own vehicles. Squeezing into a tight parking space is no problem. The ding in the door from the other guy might not be such a big concern.

Another observation is that people litter in public spaces, but they probably would not throw trash on the ground in their own yards. People tend to care more about things if they are personally responsible for them. For example, a grounds worker who operates the same mower every day will likely take better care of it. The tires are equally inflated. The blades are changed as needed and the moving parts get greased every day. The condition of a piece of equipment can often reveal the level of attention to detail and tell supervisors a lot about the work habits of the operator. On the other hand, the problem of poorly maintained equipment can develop if mowers or dump trucks, for example, are operated

by different people every day. No one knows who scraped the fender, lost the fire extinguisher, or forgot to check the oil.

As with equipment, a supervisor and crew with responsibility for a specific campus area can nurture a sense of ownership and foster teamwork. Often, people are more interested in their jobs if they have their own areas to take care of. They take pride in improvements made over time and feel good about their contributions. They notice changes from one day to the next, are mindful of unfinished details that must be attended to, and pitch in to help one another. A zone approach to deployment of personnel can also encourage friendly competition.

People like to be the best. They like to win. Certainly, doing as well as or better than peers is important to many of us. Unlike some kinds of work, landscape maintenance is not abstract. Our work is conspicuous, and we can see what has been accomplished at the end of the day. Noticing which landscaped areas look better than others is easy. Peer pressure can be a positive factor if it raises the level of interest and pride that people have in their work. If productivity is increased and the level of grounds maintenance improves, good things are happening.

We are in the service business, and the general public, campus employees, students, and faculty are our customers. It's important for our customers to see us occasionally, and zone maintenance allows this to happen more frequently since the same people are usually in the same areas every day. As a consequence, we can create a favorable impression for our organization when a customer approaches a lead worker or supervisor with a question or request and finds someone who can provide accurate information or make a decision. The level of customer satisfaction increases when an individual's concern is regarded as important enough to be acted on quick1y.

Another positive aspect of zone maintenance is that workers often see the same people every day. As people come to campus in the morning or go about their business throughout the day, they often have routines. They usually arrive to work at the same time each day; probably park in the same location; walk, bike, or jog the same routes; and work in the same building. These situations allow grounds maintenance personnel to have occasional contact with people and develop relationships. This is important because the opportunity to establish rapport, show an interest in the needs of others, and provide timely service is a good situation worth nurturing.

A zone approach to maintenance of campus grounds assigns a specific supervisor and a specific crew to a particular area, and they perform all the necessary tasks in it. Therefore, it is important to develop expertise in several skills so that individuals are qualified to do any job on any team, such as the mowing crew, irrigation crew, tree crew, pruning crew, or horticultural team. When employees have the skills necessary to perform many different tasks, the whole organization benefits because people can solve any problem, meet any challenge, and fill any void—and they know it.

Confidence and can-do attitudes are the logical outcome. This fosters a sense of ownership, ensures continuity, increases job satisfaction, facilitates supervision of jobs, and allows people to demonstrate a sustained commitment toward making the campus a better place. So, providing opportunities and training that increase abilities and create jacks-of-all-trades is good for individuals and the organizations in which they work, especially when zone maintenance is the preferred way to organize the workforce.

The zone approach also offers some potential challenges as well. There may be a tendency for people to create boundaries and the possibility that staff members will reach beyond the beneficial friendly competition and create silos or lose a sense of teamwork with the larger grounds organization. Multiple crews may require additional equipment to accommodate their competing schedules, as weather and horticultural requirements often mean everyone will want to use the same piece of equipment at the same time. New groundskeepers in the zone-based organization may require more training to become proficient in their positions. Consequently, the zone approach is more frequently used on campuses that cover larger geographic areas and have larger staff and more equipment resources.

BROADCAST MAINTENANCE

Having the same crew responsible for the same area of campus every day is also an effective approach to grounds maintenance. The resulting routines and familiarity are good, but so is variety. Doing the same tasks at the same location every day can get physically and mentally tiring. It's refreshing to see and do other things and take on different opportunities and challenges. Too much of the same thing saps energy, dulls attitudes, lowers productivity, and causes a drain on the brain.

Over time we adapt to the sights, sounds, and smells that constantly surround us. Eventually awareness fades, and the constants in our environment become much less noticeable. For example, enter an air-conditioned building on a sultry summer day and a refreshing breeze of cool air greets you. But, within ten seconds or ten strides down the hallway, you probably don't notice it anymore. The same thing happens with beaches, mountains, sunrises, pay raises, fancy cars, life in general, and, unfortunately, with people. We get too used to things. I teach an undergraduate class each semester, and I recently asked one of my students how the university could serve them better. A young lady replied, "Surprise us. We're just in our routines every day and we need something different to get interested in; everybody does."

In the world of facilities management, surprises are generally not something we want. Nonetheless, a change of pace is good, and a broadcast approach to grounds maintenance can provide this somewhat by providing work settings that differ daily or change several times throughout a workweek. For this reason and others, a broadcast approach to campus maintenance works well, because people work in different areas of campus each day. This is helpful because we all like a little difference in our days, whether at work or at home.

A broadcast approach uses teams. For example, the mowing team performs all the mowing in a discrete area and then moves on to another one. The pruning team, irrigation team, and other teams function in this manner also. There is an advantage in having crews of specifically trained people move about campus and do all of a certain type of work. It is common for a mowing team, herbicide crew, or tree crew to handle all needs of these types, rather than have separate crews for each area. This broadcast approach avoids duplication, efficiently uses labor and equipment resources, nurtures cooperation, and allows personnel to respond to problems in a timely manner. Training time for replacement employees is minimal, and people can become highly specialized and effective in their jobs.

The broadcast approach has its potential challenges as well. Once the task becomes too routine, attention wanders and the quality of work tends to slip. For the same reasons, monotony is a real challenge, and employee job satisfaction can diminish over time. While people may take ownership of their task or individual effort, there is less ownership for the appearance of the whole area and less pride in their job, their institution, and potentially themselves.

A COMBINED APPROACH

Another approach to organizing campus grounds maintenance is a combination of assignments in which crews have responsibility for specific areas, yet their efforts are augmented by crews of specialists that move about campus. This approach allows a unified workforce to handle peak demands, such

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as mowing during the rainy season or snow removal during winter months. The appropriate approach to maintenance for any campus and the best methods to be used will vary from one geographical location to another. Also, amount of rainfall, exposure to the sun, soil condition, topography, climate, intended and unintended uses, expectations, and resources all help determine maintenance priorities and regimens. Matching the best maintenance approach to landscaped sites is the essence of effective grounds management.

SUMMARY

The most important component of any service organization is people. This is especially true of grounds management, because effective maintenance is dependent on good supervision and knowledgeable people. The grounds management function, therefore, must have personnel who are competent and committed. They must fully understand the scope of their duties and responsibilities and know the mission of the entire organization. People can do things better when they have opportunities to do the many different and important tasks necessary to maintain campus grounds. We need people who have seen the big picture.

People require less supervision as they become more capable and more self-sufficient, more responsible, more confident, and better able to contribute to the mission. A happy consequence of being more proficient and having more qualifications is that employees are more motivated and qualified for other job opportunities. In the long run, this is good for people and good for the organization, because when there are increased chances for upward mobility, people are more hopeful, more motivated, and more productive.

Fred Gratto is assistant director of physical plant at the University of Florida, Gainesville, FL. He can be reached at *fgratto@ufl.edu*.
This article was excerpted and modified from the new APPA book, *Operational Guidelines for Educational Facilities: Grounds*.

Siemens Strengthens Texas A&M's Tradition of Energy Management

Of the many trends impacting U.S. colleges and universities in the next 10 years, two are converging at a rapid pace. The steady decline in the number of high-school age students, from 21.5 million in 2009 to less than 20 million by 2020, is dove-tailing with the rapidly increasing value 18 and 19 year-olds place on global responsibility. To attract smart, young students, institutions are finding they need to be seen as leaders in energy conservation and other areas of sustainability. Texas A&M University is one institution that has taken this bull by the horns.

As one of the nation's oldest and largest universities, Texas A&M is recognized as a leader in all facets of higher education, from academics to athletics to scientific research. The university has also been a leader in campus energy management, dating back to 1893 when it first began generating a significant portion of its own electricity. Texas A&M continues to look forward, with a new $15 million performance contract and the help of Siemens Industry, to upgrade the efficiency of over 20 campus buildings.

Decreasing Costs While Increasing Enrollment

Texas A&M's proactive approach to managing energy consumption on campus targets two important goals. It wants to further control energy costs and provide a greener, more energy efficient campus for a more environmentally-conscious student body. This effort, spearheaded by the university's Department of Utilities and Energy Management (UEM) team — led by Jim Riley, Director of Utilities and Energy Management, and Les Williams, Associate Director of Utilities and Energy Management — has been a proven success. Since 2002, Texas A&M has been able to reduce energy consumption by 25% despite the fact the campus' total square footage grew by 18%.

Staying Ahead of the Curve

Today, the campus is embarking on an ambitious upgrade of 24 campus facilities to further improve energy management. To do this, it is leveraging a $15 million performance contract made possible through ARRA stimulus funds secured by the Texas State Energy Conservation Office (SECO). The contract allows Texas A&M to fund facility improvements through a low-interest loan paid for by future energy savings.

To implement the performance contract, Texas A&M partnered with the Building Technologies Division of Siemens Industry, Inc. a global leader in building automation and energy efficiency solutions. Siemens was selected in part because of their past successes with Texas A&M energy management initiatives. Additionally, the university felt confident in the ability of Siemens to complete all project work by the end of 2011, a key condition of the funding, according to Riley.

Creating a Better More Efficient Campus

In defining key elements of the building upgrades, Siemens and Texas A&M identified solutions that both reduce energy consumption and create buildings that better meet the needs of its students, according to Williams. The final list of projects calls for improvements to 24 campus buildings. These improvements include:

BAS Building Optimization —
Optimization of the campus' building automation system (BAS) will improve energy efficiency and enable better HVAC control in buildings representing over 1.6 million square feet.

Occupancy Sensors —
Occupancy sensors will be installed in offices, classrooms and common areas to reduce energy consumption and eliminate the wasteful practice of conditioning and lighting spaces when not occupied.

Lighting Retrofits —
Replacing older inefficient lamps will reduce energy consumption dramatically. Texas A&M's 700,000 square foot library will benefit greatly from this upgrade as will campus parking garages, which must remain lit 24/7/365.

Top: Rudder Tower is one of 24 Texas A&M buildings undergoing energy efficiency upgrades.

Bottom, from the left: Jeff Murray, Siemens; Jim Riley, Director Utilities & Energy Management, Texas A&M; Jacob Richardson, Siemens; Les Williams, Associate Director Utilities & Energy Management, Texas A&M

The Impact of Performance Contracting

Once the project is completed in 2011, these building improvements are estimated to generate $1.1 million in annual operations and utility savings. The university and Siemens are working closely with an independent third party assessor, selected by SECO, to ensure performance and savings goals are met. The end result is a more efficient, sustainable campus benefitting the students, budget and the environment.

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