

MAY/JUNE 1997

VOLUME 13

NUMBER 3

Facilities Manager

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



Today's Grounds Management



A POWERFUL

NEW

TOOL!

Pow-R-Designer™ ... Reduces System Design and Analysis Time from Days to Hours

Pow-R-Designer is the menu driven, easy-to-use, Microsoft® Windows® 95 based software program for designing low voltage electrical distribution systems...developed by Cutler-Hammer specifically for design-build contractors, consultants, and application engineers. Cutler-Hammer, a world leader in electrical distribution and control products, is proud to offer such a comprehensive software program.

Quickly Create a One-Line Diagram

Pow-R-Designer provides the capability to create a one-line diagram by selecting electrical equipment from the "parts bin," placing them in the drawing, connecting equipment with cable or busway, and assigning a range of electrical specifications to them. You can easily move, copy, delete, or search for these products in your one-line diagram.

Use These Additional Time-Saving Capabilities

- ✦ Short circuit analyses.
- ✦ Voltage drop calculations.
- ✦ Consistency checks.
- ✦ Circuit breaker selections.
- ✦ Product schedules.
- ✦ Export to AutoCAD.
- ✦ Automatic specification creation.

Free Upgrades and Enhancements

Pow-R-Designer users will receive notice when future upgrades become available. Upgrades can also be accessed via the Pow-R-Designer World Wide Web site on the Internet.

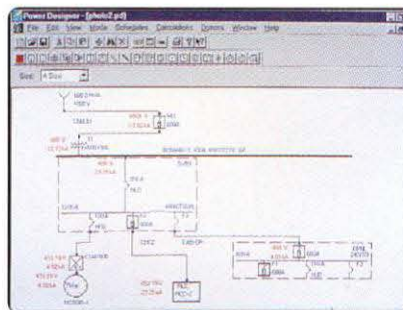
Visit Our Web Site and Download a Free Demo

And a great deal more at
<http://www.pow-r-designer>.

Pow-R-Designer Helps Make Your Life Easier.



Windows® 95
Based
Software



Short circuit currents and actual voltages are quickly and accurately calculated and displayed in red at each node on the one-line diagram.

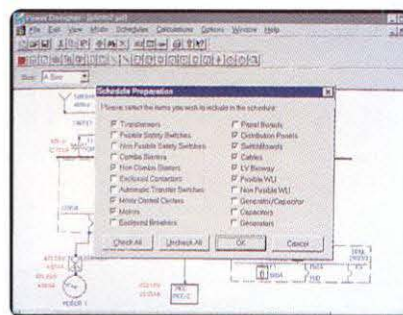
Microsoft and Windows are registered trademarks of Microsoft Corporation. RattMatt is a trademark of Williams Industries.



Easy-to-Order

The Pow-R-Designer cost is \$729 complete and includes a user manual, quick reference guide, RattMatt™ mouse pad, and registration card. Registration is necessary to obtain the free upgrades and enhancements. Order from the Pow-R-Designer Fulfillment Center by phone (1-800-525-2000) with your purchase order number or major credit card number.

A full range of electrical distribution equipment is available to use in designing distribution systems. Additional products are continually added.



Cutler-Hammer

EAT•N

Facilities Manager

The Official Publication of APPA: The Association of Higher Education Facilities Officers

Volume 13 Number 3

May/June 1997

FEATURES

20 Productivity: Are Your Landscape Crews Working Effectively?

by Bill Waddell, ASLA

23 On the Road to Zone Maintenance: Inventorying Your Outdoor Landscape Areas

by R. Marc Fournier, MBA

35 Integrated Pest Management

by John Gillan

42 Pigeon Management

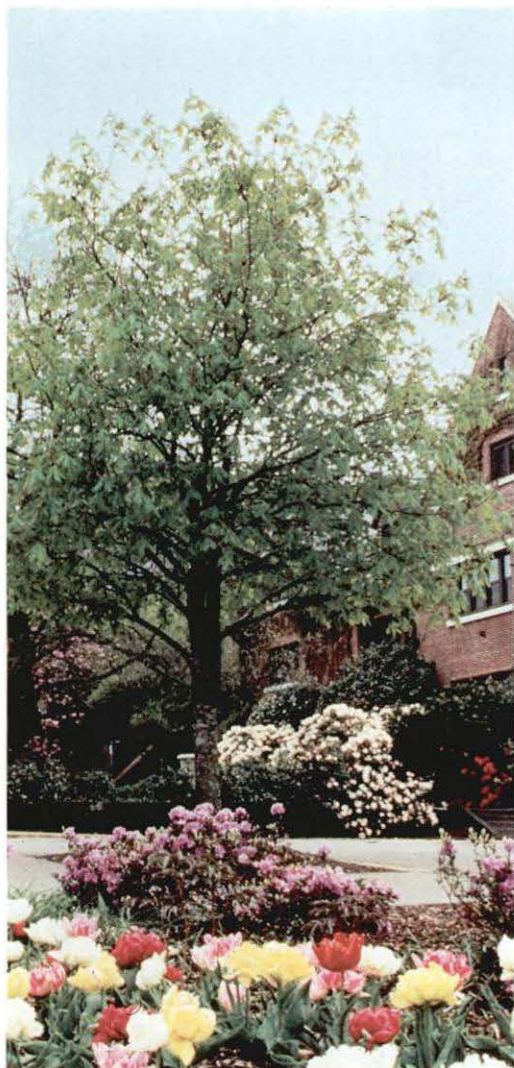
by Dale R. Hodgson & Nathan B. Norman

44 Reducing Liability Enhances the Value of Trees

by Roger Funk, Ph.D.

48 MAPPA and PGMS Sponsor the Sixth Annual Grounds Conference

by Robert A. Getz



14 Are Your Campus Assets Hidden in Plain View?

by Mike Van Yahres & Syd Knight

Departments

From the Editor3

APPA News4

Executive Summary6

Forging a Strategic Alliance with PGMS

by Wayne E. Leroy, CAE

Focus on Management9

Grounds as a Recruiting Tool

by H. Val Peterson

Strategically Planning11

Process, Participation, and Preparation

by James O. Cole & Susan D. Cole

Facility Asset Management50

Strategic Facility Investing

by Matthew C. Adams, PE.

Software & Solutions52

How Can You Move Forward If You Won't

Let Go of the Past?

by Howard Millman

The Bookshelf54

• Facility Management Technology:

Lessons From the U.S. and Japan

• Presidential Leadership: Making a Difference

• Campus Planning

Coming Events60

Advertiser's Index60

We're Keyless in Connecticut...

Yet, the College is Confident

Kristina Dow - Facilities Manager
Trinity College, Hartford, CT



"When we first decided to upgrade our aged masterkey system, we never considered keyless access. We'd always found those systems to be unreliable and not durable. Then we looked at Locknetics and discovered a system whose software emulates a Master Key Plan, and whose hardware is based on extra-heavy-duty cylindrical locksets. Access control is flexible; yet, it's durable enough for a college dorm. The keypad and TouchEntry® electronic key are combined, for the cost of one alone. Now we manage our complex access control environment on a single PC...while eliminating keys in the process!"

From PC to laptop and palmtop, to access point and back, Locknetics Computer-Managed electronic locking devices and LockLink® Access Control Management System extend your control to a universe with tens-of-thousands of users and locations. Locknetics' breakthrough computer-managed electronic locking technology offers a solution for every door at your facility. You can integrate CM5000 cylindrical and CM5400 mortise-style, electromechanical locking devices, SmartExit™ electrified exit devices, and Pentagon intelligent electromagnetic locks, all with SelectEntry™ keypads, into a range of doors, gates and controlled access points.

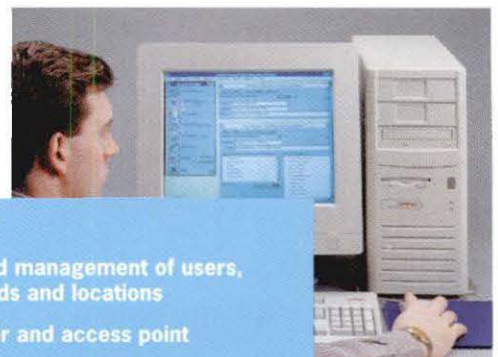
LockLink™ software comprises Locknetics' electronic management database. You can import existing user database files or create your own. LockLink allows you to control Locknetics' powerful SelectEntry™ "one person/one key or one code" technology concept to program the complete range of Locknetics' electronic locks for whoever has access. The systems are standalone. The LockLink database is portable and encrypted for security. The solution is unique and complete!

Call today for free demo disk and system description.

Secure your future with

LOCKNETICS

Security Engineering
a HARROW company



Compare These Features:

- Full access control and management of users, groups, access methods and locations
- Simplified entry of user and access point information
- Full portability for access point update or audit
- Powerful, flexible search, retrieval and reporting
- Easy import/export of files to/ from other computer programs
- Universal access control and management for a range of access devices and facilities
- Unique SelectEntry combines PIN and TouchEntry electronic key technology on each unit

575 Birch Street, Forestville, CT 06010

TEL: 860/584-9158

FAX: 860/584-2136

INTERNET: www.locknetics.com

PRESIDENT: Ronald T. Flinn,
Michigan State University

EXECUTIVE VICE PRESIDENT:
Wayne E. Leroy, Alexandria, Virginia

EDITOR: Steve Glazner

ASSOCIATE EDITOR: Medea Ranck

ASSISTANT EDITOR: Alycia Eck

SUBSCRIPTIONS: Cotrenia Aytch

CREATIVE DIRECTION:

Corporate Design

PRINTING: Corporate Press, Inc.

EDITORIAL OFFICE:

703-684-1446 ext. 236

FAX: 703-549-2772

E-MAIL: steve@appa.org,

medea@appa.org, alycia@appa.org,

cotrenia@appa.org

WEB: www.appa.org

ADVERTISING:

Gerry Van Treeck

Achieve Communications

3221 Prestwick Lane

Northbrook, Illinois 60062

Phone: 847-562-8614

Fax: 847-562-8634

E-mail: gerryvt@concentric.net

Facilities Manager (ISSN 0882-7249) is published six times a year (January, March, May, July, September, and November) by APPA: The Association of Higher Education Facilities Officers, 1643 Prince Street, Alexandria, Virginia 22314-2818. Editorial contributions are welcome and should be sent to this address.

Of APPA's annual membership dues, \$40 pays for the subscription to **Facilities Manager**. Additional annual subscriptions cost \$48 (\$60 for non-U.S. addresses). For information on rates and deadlines for display advertising, telephone 847-562-8614 or 703-684-1446 ext. 238.

Copyright ©1997 by APPA: The Association of Higher Education Facilities Officers. Contents may not be reprinted or reproduced in any form without written permission. The opinions expressed are those of the authors and do not necessarily reflect the views of APPA. Editorial mention of companies or products is for informational purposes only and should not be construed as an endorsement, actual or implied, by the Association.

POSTMASTER: Send address changes to Facilities Manager, 1643 Prince Street, Alexandria, VA 22314-2818.

Competition, productivity, effectiveness—these are absolutely critical ingredients if we are to successfully recruit and retain the highest quality student, faculty member, or department employee at our educational institutions. The quality of both the physical facilities and the natural surroundings of education are important, but so, of course, is the quality of the educational offerings and the people who teach them. A balance of focus is needed.

No one knows the importance of that balance more than the grounds or landscape manager. Photos of our beautiful campuses appear in recruiting material and alumni magazines, but the grounds manager integrates the programming and aesthetic elements in a manner that reflects the mission of the institution. The condition and quality of the grounds reflect how the institution sees itself—and how others actually see the institution.

Today's grounds management is more than "mow, blow, and go," as one of our authors states, but it has been little discussed in previous issues of *Facilities Manager*. We ran an article on tree management some years ago, we discussed integrated pest management a few years later, and we've done a couple of stories on the near-universal problems of geese and grackles. This is the first time we've devoted an entire issue to this core function of most facilities management departments. We will not wait so long to do another.

In our first feature, Mike Van Yahres and Syd Knight asks the question, "Are Your Campus Assets Hidden in Plain View?" They delve

into the topic of competitiveness and how the look and quality of the campus grounds are so important to the success of the institution. Marc Fournier reports on the great strides that UMass Amherst have made in the effectiveness of its grounds management department. Val Peterson's Focus on Management column discusses grounds as a recruiting tool.

John Gillan, of the Professional Grounds Management Society, provides an overview of integrated pest management; we also include a short IPM case study courtesy of Art Slater of the University of California at Berkeley. On another pest front, Dale Hodgson and Nathan Norman write about managing pigeons at the University of Michigan.

Bill Waddell shares useful information on productivity and perception, and the effectiveness of landscape crews, and Roger Funk provides a useful guide to protecting your campus trees while reducing personal and institutional liability.

Finally, we're happy to share with you information on two important-partnerships, both with PGMS. Bob Getz tells us about the excellent program planned for the sixth annual Grounds Conference sponsored by the Midwest region of APPA and PGMS; this year's conference will be held August 6-7 at William Rainey Harper College outside Chicago. And Wayne Leroy announces, in his Executive Summary column, a new strategic alliance between APPA and PGMS that will strengthen and broaden both organizations. We look forward to working with PGMS in a number of mutually beneficial ways. 🏡

Election Results Announced

Joe Spoonemore, director of physical plant at Washington State University, has been elected APPA's President-Elect for the 1997-98 year. Also elected in the recent balloting was Jack Colby, director of physical plant at the University of North Carolina at Greensboro, as APPA's new Vice President for Professional Affairs. Both will assume their new offices during the 1997 Educational Conference and 84th Annual Meeting this July in Orlando. Hod Wells, director of construction management for the Pennsylvania State System of Higher Education, was

reelected to the office of Secretary-Treasurer.

We congratulate these APPA leaders and thank all members who voted. Special thanks to the members of our ad hoc Tally Committee for counting and verifying the ballots: Al Stearns, Prince George's Community College, chair, and members emeritus Al Guggolz and Harry Kriemelmeyer.

Searching for the Best-Maintained Grounds

Grounds Maintenance magazine and the Professional Grounds Management Society are cosponsoring the 25th annual maintenance

awards program. The entry categories include options for school or university grounds, urban universities, and hospitals or institutions. The program intends to complement other national landscape awards programs while challenging those responsible for grounds maintenance to achieve higher levels of excellence. The award program intends to recognize individual professionals responsible for maintaining a well-manicured landscape year round.

To qualify for entry, a landscape must be at least four years old and under continuous maintenance for at least two years. Grand and Honor Awards will be presented in November at the Professional Grounds Management Society's Annual Meeting. For information or to request an official entry form, contact PGMS at 410-584-9754, or write to the Professional Grounds Maintenance Awards, c/o Professional Grounds Management Society, 120 Cockeysville Road, Suite 104, Hunt Valley, Maryland 21031.

Independent College Presidents Respond to Survey

In the February/March issue of the *CIC Independent*, the Council of Independent Colleges reported on its 1996-97 President's Survey. Fifty-three percent of CIC's membership responded to the survey, which queried the college leaders about such issues as enrollment, employment, information technology, and outsourcing/contract services. With regards to outsourcing or contract services, 79 percent outsource food, 29 percent outsource housing, 24 percent out-

FACILITY AUTOMATION

Success Insurance

Purchasing or upgrading maintenance management software? Ready to introduce your staff to the future of maintenance management? But with 300 programs to choose from, where do you get **objective recommendations** to help you choose the programs that will meet today's tracking and planning needs as well as tomorrow's?

Call us. Benefit from our 50 years of combined experience in facility management. You receive affordable, candid & focused recommendations geared to *your* needs. Why? **Because we sell no software or hardware**, a solution to your needs is our sole interest.

Howard Millman, Dan Millman, P.E.
Data System Services..... 914-271-6883



source grounds, and only 2 percent outsource dorms.

The survey also asked respondents to rank ten major issues in order of importance. Those surveyed placed enrollment at the top of this list followed by fundraising, financial aid, technology, finances, image, learning outcomes, planning, facilities, faculty roles/research, restructuring, accreditation, and government. Presidents also noted that they'd like more assistance/education in the areas of government, accreditation, and restructuring.

Association Newsletters Go Online

Joining the ranks of *Inside APPA* and other online association newsletters, the Fall/Winter edition of *CUPA Journal* appeared online in January and plans to take advantage of Internet technology to add value to the traditional printed piece. In October, the College and University Personnel Association surveyed its membership and found that only 25 percent wanted to continue receiving a hardcopy. CUPA decided that the reduction in printed paper copies

represented a significant savings for the association.

Future plans for the online journal include adding a search engine for users to sort through archives of articles and exploring the possibility of an online dialogue or chat room for members. You can visit CUPA's new online publication at www.cupa.org.

APPA's own newsletter, *Inside APPA*, has appeared on APPANet since February 1996; the newsletter went completely electronic a year later in February 1997. The last printed edition of *Inside APPA* went out in December. *Inside APPA* online (www.appa.org/inside) not only provides members with up-to-date information, but offers a guide to APPANet. The Coming Events and Job Express sections of *Inside APPA* are updated weekly, so check the site often.



Miracle-Gro Founder Retires

Horace Hagedorn, creator of the famous Miracle-Gro plant food brand in 1950, has announced his retirement at the age of 82. Hagedorn will still retain his position as Vice Chairman of The Scotts Company Board of Directors. He had been Chairman and CEO of Scotts' Miracle-Gro Products, Inc. since the May 1995 merger of Stern's Miracle-Gro Products, Inc. and The Scotts Company. A native New Yorker, Hagedorn took Miracle-Gro from mail-order to mainstream and introduced such memorable

advertisements as the James Whitmore television commercials and the \$100,000 tomato challenge.

University of Nevada, Reno Goes Geothermal

University of Nevada, Reno and Reno Energy LLC have joined forces in an effort to create the world's largest district heating system by using geothermal heat energy. Blessed with nearby major geothermal reserves, Reno can look forward to predicted heating and cooling costs 35 to 55 percent lower than other, more traditional heating sources like natural gas and oil.

The planned system will tap into the geothermal energy fields near Reno and has the potential to heat 30 million square feet of industrial and commercial space. 🏠



INFORMED* CUSTODIAL STAFFING SOFTWARE In a friendly Microsoft Windows atmosphere:

- Benchmark and justify your staffing level against national norms.
- Perform "what if" scenarios with the "click" of a button
- Establish balanced cleaning areas and multiple shift schedules.

From Jack C. Dudley, PE, Editor and Co-author of the APPA Publication *Custodial Staffing Guidelines for Educational Facilities*, who has refined those methods through added research and on-site consulting. The software, featuring those refinements, has received many excellent reviews by users since its' introductory offering late last year.

Several models are available starting at:

\$179

Call or Write Jack for Details.

* The Institute for Facilities Operations Research and Management Educational Development

5335 South Lakeshore Drive
Racine, Wisconsin 53403
(414) 552-8966

Executive Summary

Forging a Strategic Alliance with PGMS

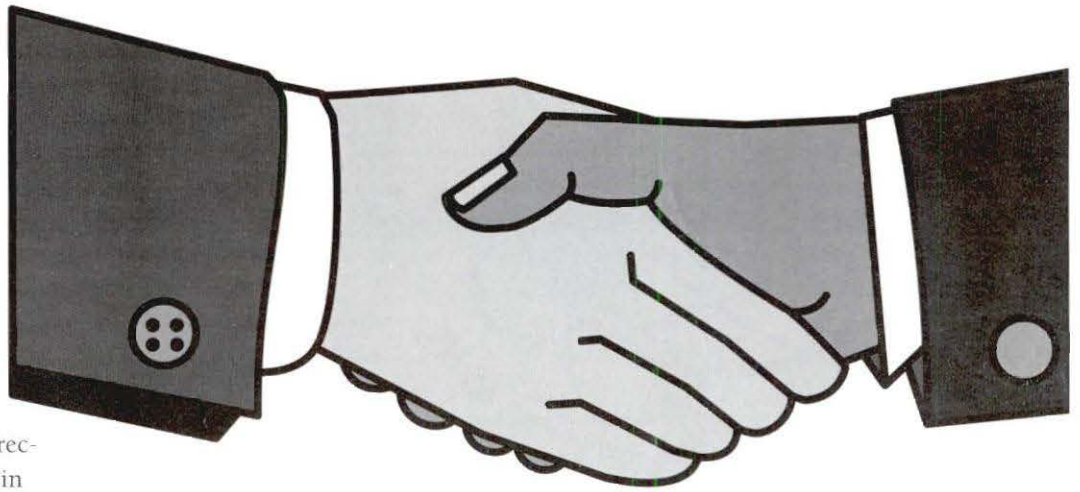
Wayne E. Leroy, CAE

RAPID changes are occurring in the workplace and increased specialization has caused all organizations, APPA included, to pursue partnerships and strategic alliances. In response to this ever-changing environment, APPA engaged in an important strategic planning activity to set its direction and focus for the future in support of its membership—educational facilities professionals. This strategic plan was formally announced at APPA's July 1996 Educational Conference and Annual Meeting in Salt Lake City and highlighted our vision to be a "Global Partner in Learning."

As a result of this activity, APPA began to focus on those external partnerships and alliances that would indeed be most meaningful to the membership. Since grounds management is considered a core management responsibility for the educational facilities professional, an alliance with the Professional Grounds Management Society (PGMS) seemed most beneficial. As it turns out, PGMS was wholeheartedly in favor of such a relationship. Indeed, they were the first to open the door to the possibility and opportunity. We are pleased that this partnership has now begun to flourish.

Since this issue of the magazine focuses on grounds management, it

Wayne Leroy is executive vice president of APPA. He can be reached at leroy@appa.org.



offers the opportunity to highlight our recent efforts to position ourselves as a strategic partner with PGMS to share resources on grounds issues. For those of you who are not aware of the purpose and role of this organization, the following is a description from PGMS literature:

The PGMS is a professional society, established in 1911, of managers of grounds of all specialties and disciplines who have joined together for the purpose of educational and economic advancement. PGMS serves the total range of professionals in the industry. The ultimate goals are to assist the individual grounds manager in developing techniques and management skills to assure an outstanding grounds management program for the organization, agency, department, firm, or employer and upgrade the level of the profession.

According to APPA's *Comparative Costs and Staffing Report*, the higher education enterprise expends in excess of one billion dollars a year on

grounds maintenance and employs more than 35,000 grounds personnel in support of grounds-related activities. As a result, both PGMS and APPA recognize that its members share a common goal to provide grounds management information to their members. Therefore, it is considered both highly valuable and in the best interest of both associations to forge an alliance to work cooperatively on programs and projects that will mutually benefit the members of both associations.

In particular, two of APPA's initiatives—1) to increase the effectiveness of education for APPA stakeholders, and 2) forge stronger links between regions—are directly and positively affected by tapping into the willingness of PGMS members to share their information and talents. Therein lies the opportunity to partner with PGMS in delivering targeted grounds management programs of a high caliber to our members. In like manner, APPA is pleased to offer its quality programs, products, and services to the members of PGMS.

The goals of the newly formed strategic alliance between APPA and PGMS are:

1. Pledge to continue communication between APPA and PGMS at the international level and encourage development and endorsement of these goals and objectives at the regional and local levels by encouraging members attendance and participation in each others' annual conferences, education seminars, and trade shows.
2. Promote the use of sound environmental practices, products, and applications in the workplace by monitoring environmental legislation and regulations, promoting joint research projects, and developing and establishing the use of comprehensive standardized management practices.
3. Promote sound ethical practices that enhance the integrity, quality, and value of member goods and services.
4. Collaborate on mutually agreeable outreach programs to increase the awareness of the grounds management profession specifically, and the facilities management profession in general, to targeted audiences through joint publishing in both print and electronic media.
5. Promote opportunities for cooperative endeavors that are mutually beneficial and reflect positively on the organizations and members through the use of APPA's "learning resource centers" and other new technologies.
6. Recognize each others' organization and members outstanding accomplishments by developing joint awards and identifying award recipients in both print and electronic media.

APPA thanks President Ron Flinn, for his continued support to move in this direction, and John Gillan, executive director for PGMS, for his relentless pursuit of this partnership. We look forward to more exciting

developments in this partnership as Pete van der Have, APPA's Vice President for Information Services, and Kevin O'Donnell, Chair of PGMS' Strategic Partnership Work Group, collaborate in this endeavor.

Finally, as you may recall from the mid-1980s Carnegie Foundation study of higher education, students, parents, faculty, and staff alike make

decisions about their attendance and involvement at a particular institution based on their impression of the quality of the grounds and facilities. Therefore, the importance of grounds to student recruitment and retention and other stakeholders' satisfaction cannot be underestimated nor understated. 🏛️

RSMeans

- **Cost Estimating**
- **Data Applications**
- **Valuation**
- **Staff Training**

Consulting Services Group

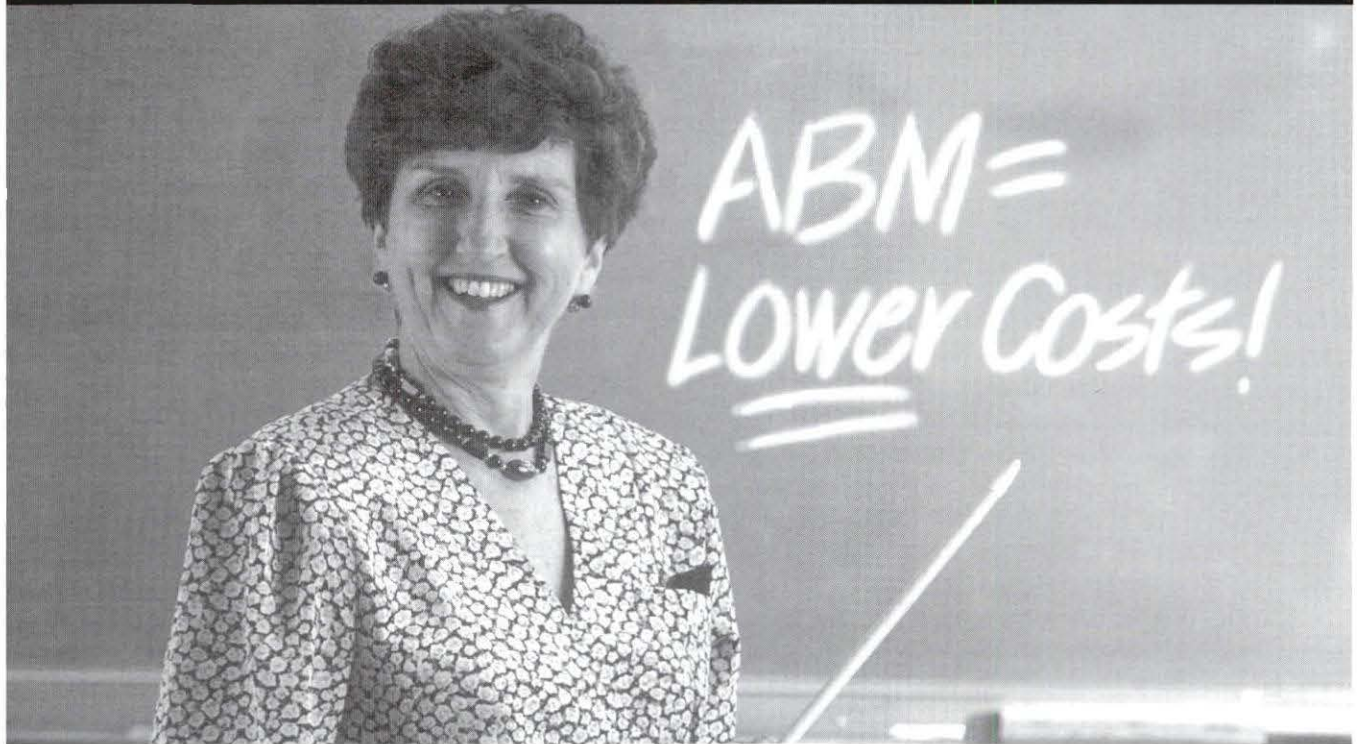
Looking for real savings in construction & facilities cost-management?

We are leaders in the Cost Engineering field with clients like AT&T, Hallmark, Ford, Mobil, the U.S. Dept. of Defense, Brown & Root, and many more.

To discuss your needs, or request our brochure, call Means Consulting Services Group at Ext. 630:

1-800-448-8182
<http://www.rsmeans.com>

We'll Show You How To Cut Campus Maintenance Costs. Without Cutting Corners.



Let ABM Be Your Partner In Cutting Your Campus Maintenance Costs.

For over 86 years, American Building Maintenance Company has provided high-quality contract maintenance services—without the high cost or the liability you would have if workers were employed by the campus.

We've learned our clients' real needs. Studied dozens of ways to save them money. Analyzed costs, productivity and quality levels so well that our clients can save as much as 15% over in-house programs. Without sacrificing quality.

You'll find that our proposals are detailed, accurate, and meet the unique demands of your campus. Building maintenance is all we do—and we've learned to do it very well indeed. More and more institutions are finding that an "operating partnership" with ABM Janitorial Services

for contract custodial, engineering services and grounds care are exactly what they need to operate with today's tight maintenance budgets.

Call today: 415-597-4500, Extension 148. Or write:

Robert Ramirez, Vice President,
ABM College and University Program. It's time.



Robert Ramirez, Vice President
College & University Program
American Building Maintenance Co.
50 Fremont Street, 26th Floor
San Francisco, CA 94105-2230
Fax 415-597-7160

a subsidiary of **ABM** Industries Incorporated

by H. Val Peterson

HAVE you ever stopped to think about the importance of your campus landscape? Is it just grass to mow, leaves to rake, and weeds to pull? If so, why bother?

More and more people are realizing the value of landscapes, but do not necessarily realize that landscapes are important because plants arranged in a harmonious and attractive manner make a major contribution toward enhancing the quality of our lives. A variety of scientific research projects conducted by psychologists, geographers, architects, horticulturists, and landscape architects have measured the impact that plants and landscapes make in our day-to-day lives, and that impact is significant.

In the public sector, landscaping is important from two standpoints. First, attractive landscaping provides a great showplace for potential investors in other properties. Investors seem to be intrigued by intensive and attractive landscaping because it enhances the overall image of the property. Second, landscaping is just good business. Many businesses and developments use landscaping to attract customers. I recently visited the Pier 39 development in San Francisco and was impressed how landscaping is used as a feature to attract customers. They even have specific events that focus on the landscaping, such as Tulipmania which showcases more than 15,000 multi-colored tulips each spring.

Just as landscaping plays a big part in attracting and retaining good tenants and customers in the business

world, the influence of the landscape has also proven to be a very important part of marketing and promotion for many colleges and universities.

Ten years ago, the Carnegie Foundation for the Advancement of Teaching published the results of a study evaluating the college experience in America. The study found that the campus appearance (buildings, trees, well-maintained lawns and walkways) was the most influential factor related to high school senior's decisions on what school to attend. It can be reasonably extrapolated that an attractively landscaped setting also contributes to attracting and retaining staff and faculty as well. Impressions, attitudes, and decisions are shaped by the visual condition of a campus. Typically, the landscape is the first thing seen as the campus is visited and the landscape sometimes makes a first impression that may determine enrollment or employment. It can also enhance the possibility of gifts and donations to the institution. Because the grounds can be one of the best recruiting tools available to the campus, grounds development and care should not be neglected. A campus may well derive its distinction through the fine balance between aesthetically pleasing buildings and a carefully landscaped environment.

Ernest L. Boyer, author of *College: The Undergraduate Experience in America*, says after reviewing a large number of college brochures, "... it would be easy to conclude that about one-half of all college classes are held outside, on a sunny day, by a tree, close to water. ..."

It is obvious that the landscape is an excellent marketing tool, but it also has significant value as an employee benefit. With this in mind, landscaping must be viewed as much more than just filler that connects together campus buildings.

The importance of landscaping on my own campus at Arizona State University has been recognized as a contributing factor in the creation of an environment that is tied to successful learning. In acknowledgment of the importance of its landscape environment, the campus has been designated as an arboretum. I am aware of numerous other college and university campuses that have attractive grounds and landscape that greatly enhance the experience of being there.

Most educators will agree that well-maintained buildings and grounds are essential for a proper learning environment. Research conducted in this area indicates that student achievement test scores are higher where the learning environment is well-maintained and attractive. Cosmetic factors were found to be more important than functional factors. Student performance was even found to be better in classrooms with windows that allowed students to see the landscape environment. The case can be made that academic performance suffers when the inside and outside environments are neglected.

So what does this all mean? It means that the landscape is not just an amenity, but it is an essential marketing and retention tool. It means that the landscape is an asset with value even greater than its monetary worth. It means that the landscape manager's job continues to become more important and highly respected. Finally, looking at the "big picture" one comes to the realization that the actual value of the landscape on a college and university campus escalates the need for expertise, professionalism, and commitment to campus landscape management. 🏡

Val Peterson is director of facilities management at Arizona State University, Tempe, Arizona, and a past APPA President. He can be reached at valpeterson@asu.edu.

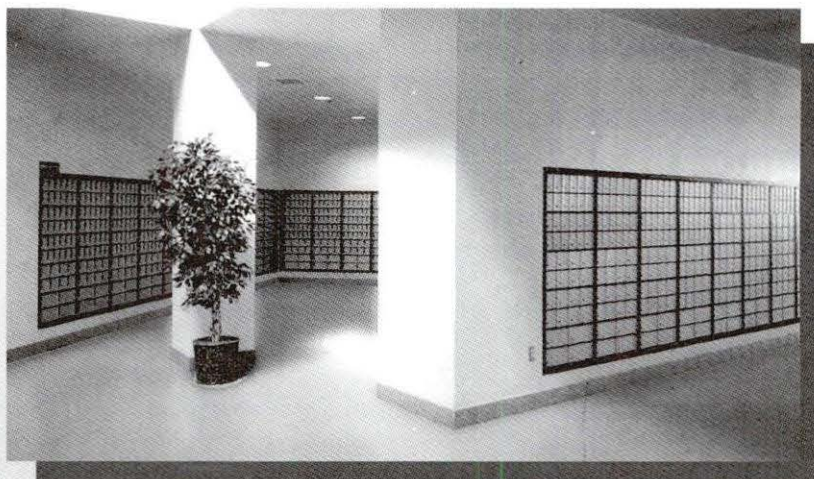
MAILBOXES AND MAILROOM EQUIPMENT

*Attention
School Officials!*

**FREE
CATALOG**

Products Include:

Brass Mailboxes
Aluminum Mailboxes
Free-Standing Mail Centers
Pedestal Boxes
Apartment Mailboxes
Free-Standing Drop Boxes
Wall Mounting Mail Drops
Mail Carts
Stamp Machines
Name Directories
Key Cabinets
Specialty Boxes
Spare Parts
Custom Systems



**Salsbury is the #1 Supplier of Mailboxes
to Colleges & Universities**



**SALSBURY
INDUSTRIES**

People Committed to Quality Since 1936

To order literature, please contact us 24hrs. by phone, fax, or mail.

Salsbury Industries (800) 323-3003
1010 East 62nd Street (213) 232-6181
Los Angeles, CA 90001 Fax (213) 232-7021

Strategically Planning

Process, Participation, and Preparation

by James O. Cole & Susan D. Cole

THIS is the third article in a six-part series on strategic planning. Articles one and two addressed the definition of strategic planning and presented some classic models. The following article focuses on the "how" of strategic planning, and the practicalities of preparing for and executing the steps of the process.

Strategic planning is not a new concept. Popularized in the 1960s, it was a process conducted by top levels of management with the results becoming mandates that drifted down the hierarchical levels of the organization.

Then, in the '80s, organizations found themselves battered by competitors and forced to search out new ways to survive. The instinctive reaction was to change and change quickly. That led to a wave of work force reductions, quality improvements, and flattening of organizational structures in order to reduce costs and increase productivity. But once that had been accomplished, the path to continued viability became less clear. To be competitive is one thing; to gain and hold a *competitive advantage* is quite another.

The benefits of improving in incremental steps are immediate and gratifying but a focus on those improvements assumes that the needs of the future are just an extension of the needs of today. This is an appropriate tactic for the short term.

However, this approach represents continuous improvement, rather than strategic planning.

Strategic planning is less a process of evolution than one of revolution. It is a process of inventing new ways of doing business by challenging the old and by focusing the organization on what it can be as opposed to what it is, which isn't easy.

The following steps are a guideline on how to prepare for an effective strategic planning process. The various terms used in strategic planning are defined in the sidebar.

Step A: Assemble the Team

The first step is to develop a core strategic planning team. Historically, organizational planning has been the exclusive province of top levels of management. They have, after all, the most experience and are the experts of "what is." More importantly, though, they are the ones who can make things happen because they control the organization's resources.

However, an effective strategic planning team also needs the young and inexperienced, with their ability to think creatively and suggest the "just suppose" or "what ifs?" They provide the imagination and innovative thinking. A team with a diversity of ages, talents, areas of expertise, and organizational rank can break through the paradigms that keep the organization stuck within traditional boundaries.

Finally, in an ideal world, team members are the ones who have enthusiasm about having a say in their destiny and that of their organization; these people value a chance to influence the direction of the organization to which they devote the best hours of their day.

Step B: Building the Team

Building a team from a diverse group of individuals is essential. The time devoted to this effort will be rewarded handsomely in execution of the plan and its results. Developing a decision-making process, a code of conduct, and team mission builds cohesion and understanding between team members. It increases team ownership of the ultimate plan and the decisions leading to it.

Step C: Situation Assessment

An organizational or situation assessment is important because it establishes a baseline—a point of embarkation from which the organization begins the strategic process. Evolving from this process is an understanding of the organization's culture and core competencies as derived from the employees' perspectives. Identification and prioritization of the strengths and weaknesses of the organization is a natural outcome, thereby providing the strategic planning process superior data.

A situation assessment is optional; it adds quality to the process and to planning data. However, the planning team can develop and input similar, although not as comprehensive or realistic, data to the plan without investing the time and effort required by a situation analysis.

An additional participation option is to tap into the thinking of people throughout the organization by inviting input for strategic planning from diverse employee groups. Involving as many people in the organization as possible, in strategy-creation idea teams, can be highly effective. Encourage brainstorming sessions by

James Cole is the principal consultant to management, and Susan Cole is president, of CommTech Transformations, Inc., based in Fort Collins, Colorado. The authors can be reached at jocole14@aol.com.

organizing the sessions and educating employees on what is needed for strategic planning. Uninvolved employees will have little buy-in to the process and less to the results. That which is imposed is seldom embraced.

The following provide guidelines as to the preparation for and execution of the necessary steps of a strategic planning workshop based on the classic planning model.

1. Establish the plan's foundations

Among the key foundation elements for the development of a strategic plan are the organization's mission and guiding principles, and the planning time frame.

If the organization already has a high quality mission statement, then the statement only needs a review and recommitment during the workshop. Many organization will utilize the workshop to revisit or, in some situations, completely rework their mission statement. This work provides a key insight into what the organization is "really all about." Participants can prepare for this step, in advance, by considering the answer

Definitions of terms used in Strategic Planning

- ▼ **Mission:** The overarching purpose of the organization; a clear statement of why the organization exists.
- ▼ **Vision:** A clear mental picture of the desired future state of the organization, which must be consistent with the values and mission.
- ▼ **Values:** The enduring beliefs or ground rules that guide the members of an organization—values will not be easily changed or violated. They are the foundations of the culture.
- ▼ **Guiding Principles:** Guidelines for behavior which reflect the management system of the organization; they will be adjusted and refined as circumstances and growing knowledge and understanding of the organization requires. Changes to principles are made only with careful consideration for the values, the employees and the customers.
- ▼ **Goals:** The specific and quantifiable objectives to be accomplished in the planning time frame which will make the vision a reality when they have been achieved.
- ▼ **Strategies:** The broad, programmatic actions that will achieve the goals during the planning time frame.
- ▼ **Tactics:** The multiple actions that break the broad strategies into assignable tasks that can be readily understood, measured, and accomplished.

to the question: "What is the reason that this organization exists?"

If guiding principles and values exist, they should be reviewed. If they do not exist, or they require revision, time should be devoted to developing or refining them during the workshop.

The planning time frame is a realistic estimate of how long it will take to reach the vision. For most facilities management units, given the rate of change of the environment, the time frame should be three to five years.

From this point on, for the activities addressing assumptions, strengths, weaknesses, opportunities, and threats, the planning team must sort out the vital few issues in each category. Effective strategic planning only deals with five to eight issues within each category.

2. Establish the assumptions

Determine the key factors that will affect the competitive position of the organization during the identified time frame—factors like the economy,

emerging technology, labor, competition, evolving customer needs and market changes, or restrictions in the operating environment that are perceived to be beyond the organization's control.

Participants can prepare for this step by individually researching and developing assumptions that they feel are key to the organization's future.

3: Perform the SWOT analysis

Strengths and weaknesses must be identified. These are assets and liabilities that are internal to the organization and over which the organization should have control. Opportunities and threats are also important. These are conditions that tend to be external to the organization and are generally not under the organization's direct control.

Participants can prepare for the SWOT analysis by giving advance thought to their view of the strengths and weaknesses inherent in the organization and to the opportunities and



ATEK IS YOUR ONE SOURCE FOR ALL YOUR EMERGENCY LIGHTING NEEDS

ATEK inc.

CALL OR FAX US TODAY FOR YOUR FREE COPY OF OUR COMPLETE PRODUCT LINE CATALOG

ATEK INC. 133 ROUTE 9 SOUTH, FORKED RIVER, N.J. 08731
CALL TOLL FREE 1-800-611-4509
FAX: 1-609-693-3118

CUSTOM LED SIGNS

threats that the organization may face. Opportunities and threats may deserve some research.

4. Create the vision

The process of working through the previous steps will have had a substantial effect on how people view the possible future of the organization. It is usually relatively efficient, at this point in the process, to brainstorm the components of a vision. Visions may be one short statement (for example, "Global Partner In Learning" is APPA's) or an entire series of statements describing the desired future state. More thorough visions address people, the organizational environment, leadership, decision making, customers and customer service, quality and key measures of success, etc. Participants can prepare for visioning by giving thought as to how and what they want the organization to be in the future.

5. Develop the objectives

Sufficient information has been developed and processed, to this point, to support the development of the objectives that must be achieved for the vision to become reality. In addition to identifying the vital few, objectives must also be prioritized.

6. Establish the strategies

Strategies are the broad, programmatic level, actions necessary to achieve the objectives. Strategies are usually broken down into specific tactics.

Extending the plan into the details of tactics, specific team or individual assignments, time lines and due dates, etc., is part of the strategic planning *implementation and management* process. These issues will be addressed in the next article.

There are a few additional preparation and workshop execution issues to consider:

- *Set the stage for creativity.* Find an "off-site" location in which to

meet. A neutral location provides a comfortable arena for idea sharing and creativity, without frequent interruptions or distractions.

- *Invite a facilitator to assist you and guide the strategic planning process.* This will allow all of the planning team members to fully participate, without having to concern themselves with process or taking notes while searching for strategic innovations.

- *Capture the results of the workshop in a written document.* One of the highest risks of strategic planning is the failure to follow up. A written record of the plan is important in order to set the stage for effective execution, follow up and monitoring.

Strategic planning is an exciting experience. The potential for quality results can be increased through careful preparation for, and skillful management of, the process. 🏢



Over 20 years serving educational and institutional clients

Energetic firm with creative ideas and a fresh approach to providing service

Client based versus project based philosophy

90% of our commissions are with repeat clients

Expertise in master planning and rejuvenation of older facilities

Uniquely qualified for specialty projects

Gunn Levine Associates is a recognized leader in architecture, planning and interior design. We achieved this stature by pursuing a philosophy that blends skillful, enduring planning and design through performance based relationships with our clients.

Gunn Levine Associates

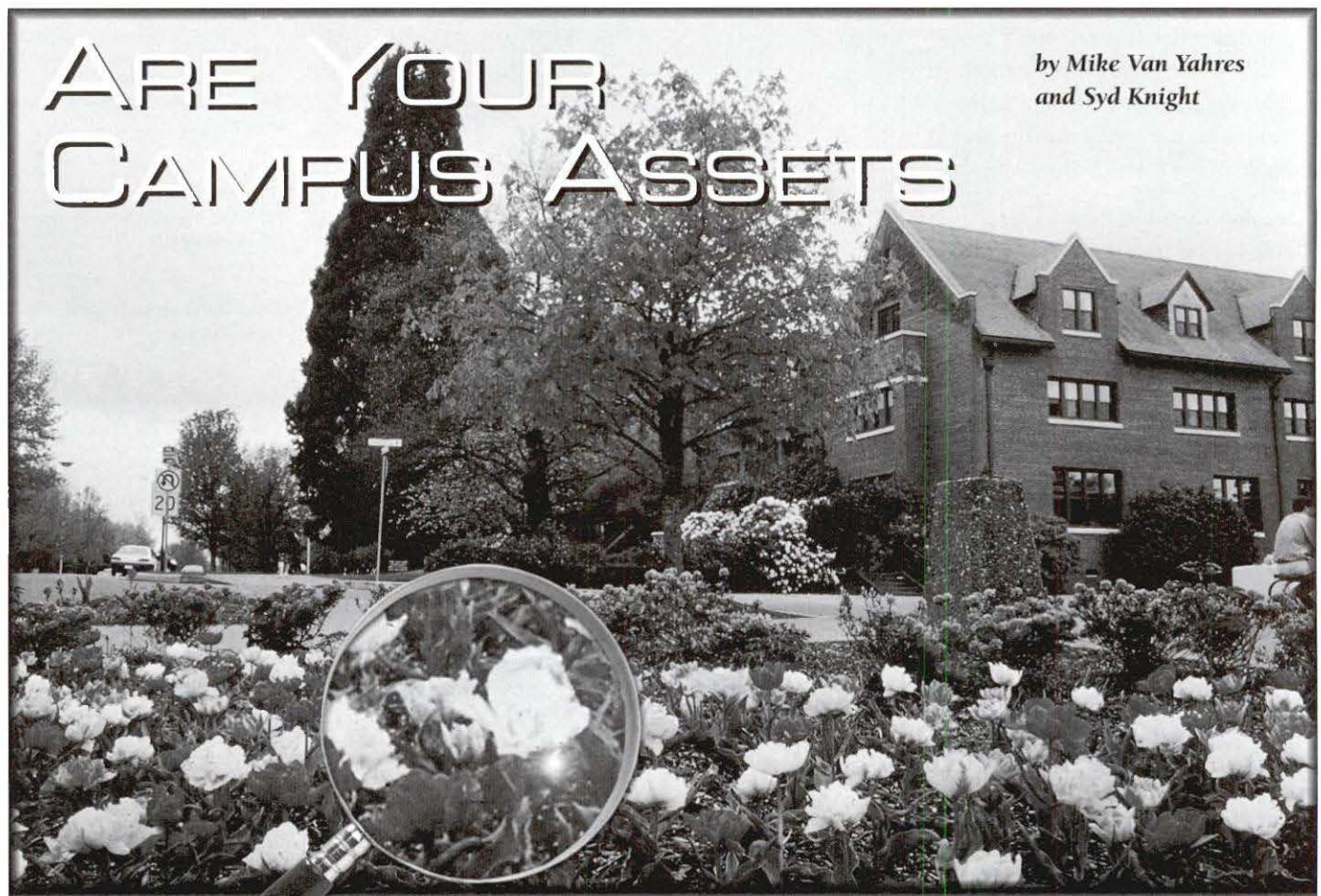
Architects Planners Interior Designers
726 Lothrop Detroit Michigan 48202
313 873.3280 313 873.8090 Fax

Why do so many colleges, universities, and other educational institutions give photographers the responsibility for establishing the image of their campus?

To understand the significance of this question, pick up the promotional brochure, catalog, or video your school sends to prospective students and look carefully at the pictures used to sell the school. It's a pretty sure bet that, regardless of the size and nature of the institution, your prospects will see a version of what has come to be recognized as the Typical College Campus. They'll see impressive architecture in a park-like setting. They'll see venerable "Old Main," a fountain if there is one, and students studying and socializing on broad green lawns under the leafy canopies formed by mature trees.

Do most campuses really look like that? Or are administrators relying on some creative photographic editing? And why does image really matter anyway?

Let us put aside for a moment other equally valid arguments that can be made in favor of the well-designed campus—concerns such as reflection of academic excellence, protection of an often huge capital investment, functional efficiency, the legacy left to future generations, and more. The importance of image, however, can be captured in one word—competitiveness. Every institution of higher education competes in some fashion for prospects—not just students but faculty and staff as well. It is widely recognized that the more appealing the campus, the more successful the school in meeting its recruiting goals. When the Carnegie Foundation for the Advancement of Teaching surveyed high school seniors for its now-classic report on how students chose their college or university, they found that the campus visit was the most important deciding factor. When they asked what influenced them most during their visits, 62 percent responded, "the appearance of the buildings and grounds (Boyer, 1985)."



ARE YOUR CAMPUS ASSETS

by Mike Van Yahres
and Syd Knight

HIDDEN IN PLAIN VIEW?

Mike Van Yahres is chairman, and Syd Knight is senior landscape architect and project manager, of Van Yahres Associates, a landscape architectural firm based in Charlottesville, Virginia.

The irony of the situation is that while most top schools obviously understand competitiveness and recruitment issues, many other institutions seem only marginally aware of the tremendous resources their campuses really provide. The admissions people realize it; they're the ones responsible for the brochures and videos. Meanwhile, the images they include in their mailings, the images people respond to, become less and less representative of the actual state of the campus.

Part of the problem is that the contemporary campus is rarely perceived as a separate entity worthy of the care and attention devoted to every other aspect of the institution. But the campus is more than just the space left over between buildings; it is the rational organization of outdoor spaces and systems and include pavements, walls, fences, lawns, trees, shrubs, utilities, irrigation, signs, furniture, lighting, and structures. The campus identifies the institution; it is the first thing people see when they enter the school, and it is the image they carry when they leave. It's where students and faculty mingle and where so many collegiate activities occur.

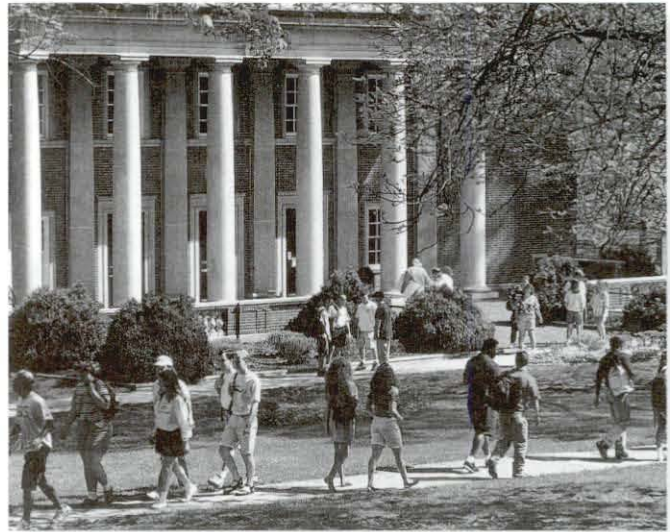
One of the most effective tools our firm has developed to aid schools in understanding and shaping their campuses is the campus assessment. Essentially, an assessment provides a clear and thorough way to evaluate the character, condition, and maintenance of the college or university campus, to compare those findings with the mission, objectives, and budget of the institution and, most importantly, to take action to bring the former in line with the latter. We have found that it is a rare school that cannot save money and show dramatic improvement as a result of this objective process.

Trends in Campus Development

The traditional campus, the one featured in the brochures, is a result of the mission shared by most colleges and universities, including those in the United States from the founding of Harvard College in 1636 until the early part of this century. Since that time, however, the nature of higher education has been changing dramatically, not only as a result of the social, economic, and technological forces that have affected all of society, but also due to deep-seated and continuing debates about the mission and values of the academic community.

The balancing act involved in designing campuses today results in large part from efforts to reconcile the campus in its traditional form with some of the more recent trends in college and university development. Some trends that are having an impact on the physical development of college campuses include:

- *New buildings*, such as student unions, are getting larger as schools attempt to gather more functions under fewer



Fine architecture in a park-like setting represents the embodiment of the American college campus in the public imagination.

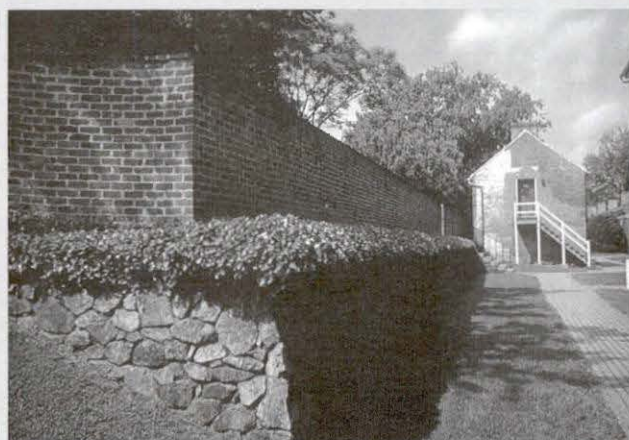
roofs, causing shifts in circulation routes and gathering spaces throughout the entire campus.

- *Transportation issues*, especially those related to parking, have increasingly come to dominate the form of the campus.
- *Satellite campuses*, being both physically and functionally removed from the parent institution, have blurred the physical separation between the college and the surrounding community.
- *Piecemeal development*, brought on by current funding practices, focuses design efforts on individual buildings or segments of the campus while tending to obscure the nature of the campus as a whole.
- *Shrinking budgets*. Our work with school financial officers has led to the observation that for every \$100 spent on the physical facilities of an institution, over \$97 goes to construction and maintenance of buildings, leaving less than \$3 for the rest of the campus. Indeed, the campus grounds are often the first area considered for budget cuts and the least able to absorb them.

While the effects of these trends can be far-reaching, there is nothing about them that is inherently damaging to the campus so long as those effects are clearly understood by all involved. And since factors such as budgetary restraints obviously are not going to go away soon, it is self-defeating to ignore them. It has become more critical than ever to have a clear understanding of your campus and rational goals for its development. The assessment provides this basis for informed, coherent decision making.

Loss of a Coherent Campus Image

Ironically, in efforts to accommodate these trends or to mitigate their effects, many schools have created more

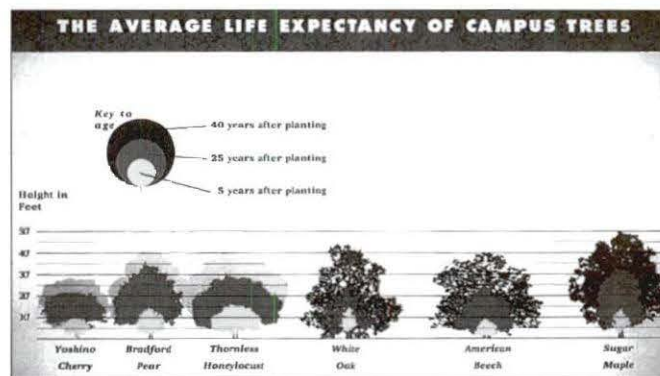


These secondary spaces on separate campuses represent divergent approaches to design, maintenance, and management. The first space has been overdeveloped, confusing the campus' sense of hierarchy and consuming maintenance resources far out of proportion to its importance. It will also soon become overgrown and have to be replaced. In contrast, the other space, simply designed and crafted using fine, durable materials, requires little maintenance and will contribute to the campus for many decades to come.

problems than they have solved. Some of these when considered individually may seem harmful but not necessarily debilitating. But when they occur in combination, as so often is the case, the results can be profound and irreversible—the loss of a coherent campus. Among these issues are:

- **Parking vs. Campus.** Many schools have responded to increased demand for parking simply by paving large amounts of campus open space. In doing so, they tend to regard “campus” and “parking” as mutually exclusive entities instead of considering parking as part of the campus and subject to the same values and standards as the rest of the institution. It is possible to create campus parking that is convenient and efficient yet which complements the visual character of the campus; it simply requires a careful and knowledgeable effort.

- **Inappropriate Design Model.** Despite good intentions, but in the absence of a clear understanding of the design concepts that have guided the development of their campuses, many schools fall back on the development model they see becoming the norm everywhere else: suburban commercial development. It is sadly true that if you could render all of the buildings on a given campus invisible, practically anyone could still identify those built within the past ten to twenty years simply by observing the design of the surrounding campus, especially with regard to the use of plant materials. Many older schools have recently abandoned the long-prevailing practice of keeping open, unpaved areas primarily as mowed lawns with large trees. Shrubs used to be employed sparingly, reserved for important spaces and purposes. Now, regardless of location or relative importance on the campus, buildings are often surrounded by seas of flowering shrubs, bulbs, and annuals in an attempt at horticultural display. The result, aside from a tendency for newer campus plantings to look identical to those at the local shopping mall, is an erosion of the spatial hierarchy so crucial to overall campus legibility and function. It's also a pretty sure bet that no one is taking promotional photos of these areas.
- **Breakdown of the Overall Organization of Spaces.** Well-designed campuses possess a clear sense of spatial order and hierarchy. There should be a well-ordered sequence of spaces, each possessing a special character that defines its importance in relation to the rest of campus. There should also be a definable center to the campus. When someone says, “Meet me in the center of campus,” no further explanation should be necessary. Unfortunately, many schools have seen this spatial clarity eroded by new development to the extent that their campuses have become merely collections of unrelated spaces.
- **Confusing Circulation.** A byproduct of the loss of spatial clarity is that circulation on many campuses is confusing



Many of the trees being planted most frequently on campuses today will decline and require replacement in a relatively short time, while longer-lived species can contribute to the campus for generations.

to visitors, especially prospective students. The moment prospects and their parents arrive on campus, they subconsciously but invariably subject the school to what we've come to call the "moment of truth" test, asking, "Is this a school I admire, where I can imagine myself fitting in? Or is it simply a visit to be endured before looking elsewhere?" Favorable first impressions are often lost at institutions that don't have a clearly defined entrance and obvious paths to important destinations—such as the admissions office and the center of the campus.

- **Inconsistency in Materials and Details.** In the rush to try new materials that may have lower installation costs, the long-term benefits and life cycle costs of the materials traditionally used in the construction of campuses are often ignored. The result is a mishmash of elements and materials, many of which are not cost-effective. The campus and its associated appointments—walkways, lights, bollards, benches, trash receptacles, etc.—should instead be viewed in much the same manner as though they were a building, with a consistency of materials and design carried throughout.
- **Hard-to-Maintain and Short-Lived Plant Material.** Most schools have no trouble thinking well into the future when it comes to their academic missions. In fact, they pride themselves on their history and their desire to take the long view when addressing academic and planning issues. Yet, for all of their foresight in other areas, the trees they plant increasingly tend to be of the shorter-lived varieties, yielding immediate visual impact but representing poor long-term investments. More than 70 percent of the trees planted on campuses today have a life expectancy of less than forty years. What's more, these trees often have far higher maintenance needs than do most longer-lived species. But even short-lived ornamental trees can look like bargains when compared with the shrubs, perennials and annuals mentioned earlier, all of which require greater amounts of labor and the use of products such as fertilizer than do lawns or trees.
- **Inadequate Maintenance.** Many campus spaces are never designed with an eye to the time and money required to

CAMPUS LANDSCAPE MAINTENANCE TIPS

FLOWERS AND SHRUBS

A campus depends on fine architecture, high quality turf and mature trees for most of its visual appeal. Large amounts of flowers and shrubs dramatically raise maintenance requirements while adding relatively little to visual appeal.

PRUNING SHRUBS

If you must prune shrubs on a regular basis to keep them "in bounds," you have the wrong shrubs—remove or replace them.

FLOWER BEDS

Limit flower beds to a few key locations and combine them with permanent plants to reduce maintenance requirements. More flowers are not necessarily better.

ANNUALS AND PERENNIALS

Perennials cost more than annuals to maintain. They bloom for several weeks and require a skilled horticulturist to manage. Annuals can bloom for months and are much easier to maintain.

TREES

Maintain your most important trees first. Trees that are large, highly visible and that have long life expectancies should be maintained more often and to higher standards than less important trees.

BIDDING TREE WORK

Have your arboricultural work executed on a bid, not a crew rate, basis. Contractors will send less trained personnel and second-quality equipment to hourly jobs.

WINTER MAINTENANCE

Save large amounts of tree work for the winter months. Expect a 15 to 20 percent discount and less property damage.

TREE REPLACEMENT

Do not replace trees on a one-for-one basis. Take the opportunity to use new trees to shape campus spaces, guide vehicular and pedestrian traffic, frame views and provide shade.

TREE SELECTION

Seventy percent of the trees being planted on American campuses today have a life span of less than 40 years. Do not repeat this mistake. A good rule of thumb is to make long-lived species (those having life expectancies of at least 100 years) 80 percent of the trees you plant.

MAINTENANCE PLANNING

Plan to use the winter months for special projects such as landscape renovation, tree ring and bed edging, mulching and minor construction projects.

OVERTIME

Most campus landscape maintenance costs are fixed, with labor constituting only a portion of those costs. Paying overtime to motivated and skilled workers is often more cost effective than hiring temporary help during the growing season.

manage and maintain them. As a result, they can easily overwhelm the resources of the facilities staff, negate the effectiveness of what otherwise might be an exemplary design, and harm the school's image by appearing unkempt. Another facet of the budget problems that

habitually affect campus maintenance is that many schools react to budget cuts not by changing what they do but simply by doing less of it. An assessment can point out inefficiencies in maintenance and identify where available resources can be redirected to do more with less.

The Solution: The Assessment

The campus assessment provides a unique opportunity to look at a campus with a fresh eye, then to guide design and maintenance efforts in the directions that make most sense. An assessment must be a clear and concise "State of the Campus Address" that recognizes the campus as an entity—the rational organization of diverse activities. An assessment evaluates what is being done right on a campus and shows how to build on those strengths, and it presents a plan of action to correct practices that do not support the goals and mission of the institution. And equally important, it saves money by specifying how the school's limited resources can be used most effectively.

It is crucial to understand that the assessment is different from a master plan and serves a different purpose. The *master plan* is a means of projecting and guiding future capital development. The *assessment* focuses on past and especially current practices as a tool for improving the existing campus. While most master plans include at least a perfunctory

survey of the current state of the campus, they are not intended to go into the depth allowed by an assessment and should not be seen as a replacement for one. In fact, we recommend that an assessment precede the initiation of a master plan; this gives facilities and planning administrators a fuller understanding and context of their campus before looking into the future.

One additional distinction between assessment and master plan: *cost*. While the cost of a master plan can be \$30,000 to \$100,000 and up, depending on the size of the school (Biehle, 1991), a campus landscape assessment will yield immediately useful information for roughly one-third to one-half of those costs. An assessment should, in fact, pay for itself in a relatively short period by reducing maintenance and management costs as well as by preventing expensive mistakes in new development. More importantly, the assessment will pay direct dividends by guiding the process of creating and maintaining a first-rate campus, bringing all of the attendant recruiting and fund-raising benefits that have been documented in many studies.

Process

In its most complete form, a campus landscape assessment can take three to six months or more to perform, generally by a consulting firm. Whether going through the

Pedal Pick-Up®



The Simple Solution

Pedal Pick-Ups® are the solution to cargo delivery in pedestrian areas where zero-emission vehicles are necessary. They are perfect for use in grounds and building maintenance, for delivering campus mail or picking up recyclables. These "tricycle trucks" are an inexpensive, low-maintenance alternative to conventional trucks and electric vehicles.

Features include:

- 21-speeds, index shifting
- 12 sq. ft. cargo area
- 500 lbs. (quarter ton!) capacity
- Powerful rear hydraulic brake

Main Street Pedi-Cabs has been perfecting the design of human-powered vehicles since 1992.

Main Street Pedi-Cabs, Inc. (303) 295-3822

Pro-Stop®

COLLAPSIBLE BOLLARDS

NOT ALL BOLLARDS ARE CREATED EQUAL

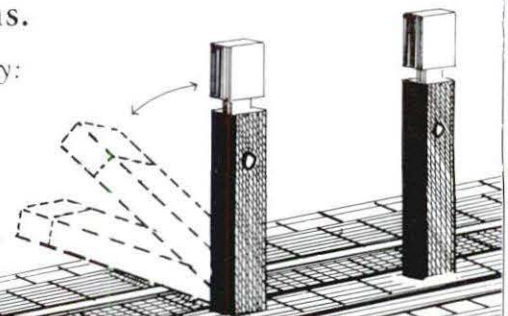
Only Pro-Stop offers all these benefits:

- Collapses with standard hydrant wrench.
- Raises and lowers effortlessly.
- Discourages illegal parking.
- Eliminates hazards caused by chains.
- Increases campus security.
- Protects pedestrians.

For more information, call today:

1-800-BOLLARD
(265-5273)

Prosec, Inc.
P.O. Box 1
Downingtown, PA 19335
Tel (610) 640-9355
Fax (610) 873-1326



REMOVABLE
Pull Out &
Save For Future Reference

Prosec, Inc.

REMOVABLE
Pull Out &
Save For Future Reference



Collapsible Bollards

A "MESSY" PROBLEM . . .

Prior to Pro-Stop, we used posts and chains which were always rusting, a tripping hazard, and usually laying on the ground.

Mark P. Streckenbein
Facilities Management Director

Protecting the environmental integrity of a site and the safety of pedestrians is a major concern of Landscape Architects and Managers of Physical Plants, accounting for the widespread use of permanent and removable barriers. This method of vehicular control, however, often conflicts with the necessity to provide unimpeded access by emergency vehicles. The conventional approach of inserting heavy concrete bollards into holes usually requires chains and locks to close gaps and prevent unauthorized removal. Aside from being cumbersome and ugly, this approach has proven to be very dangerous to both pedestrians and bicyclists, exposing these facilities to a high risk of serious legal consequences.

A SIMPLE AND ATTRACTIVE SOLUTION . . .

I am pleased to advise that we will be incorporating this device a part of the City's Building Code, Fire Code and Street's Code.

Bennett Levin, P.E.
Commissioner, City of Philadelphia

The specification of Pro-Stop® Collapsible Bollards has proven to be the most intelligent response to this problem. These extremely rugged traffic control devices raise and lower instantly, pivoting on a hinge that's attached to a section inserted into the ground – always keeping it securely in-place. Most importantly, unattended 24-hour emergency access is assured because its internal locking mechanism operates with the standard fire hydrant wrench carried by every police, fire, and EMT crew. Constructed using the finest materials, these highly effective barriers install in minutes, require little maintenance, and perform under the toughest of environmental conditions.

Only
PRO-STOP®
offers
you:

UNATTENDED CONTROL OF ACCESS TO ANY SITE

- Keeps out unwanted vehicles, but allows the entry of pedestrians, bicyclists, and emergency crews
- Protects foot traffic
- Discourages illegal parking

EASE-OF-USE AND RELIABILITY

- Simple installation
- Stays secured in-place at all times
- Withstands abuse and vandalism

- Remains operable despite severe weather conditions
- Minimal maintenance

INCOMPARABLE SAFETY

- Elimination of hazards caused by chains
- No broken locks or misplaced keys
- Instantaneous access if needed

Not all
bollards
are created
equal!

SAFETY FIRST, LAST, AND ALWAYS

Personal-Injury Lawsuits by Students are Endangering University Budgets

The Wall Street Journal

There's no doubt about it. The expense associated with the litigation of civil lawsuits has made prevention of personal injuries a critically important consideration when planning and outfitting facilities. Indeed, Pro-Stop® was developed after an unbiased study revealed the absence of safe and effective barriers for controlling access to parking areas, walkways, bike paths, and fire lanes of recreational facilities, educational institutions, housing developments, and other public facilities. By eliminating both the impediments to emergency access and the dangers posed by conventional bollards, chains, and keyed locks, Pro-Stop® users enjoy exclusive reductions in the risk of liability related to safety and security.

Pro-Stop® is manufactured exclusively for:

Prosec, Inc.

P.O. Box 1, Downingtown, PA 19355
Tel: (610) 640-9355 Fax: (610) 873-1326

FEATURES AND SPECIFICATIONS OVERVIEW

Proven in over six years of field tests, Pro-Stop® Bollards are constructed in the U.S.A. using only the finest materials and workmanship. To meet the budgetary and esthetic needs of every installation, Pro-Stop® is available as a Collapsible or Immovable Bollard.

FEATURES

✦ Visible and Attractive

Architectural Design

Pro-Stop's pleasing contemporary design is complemented by a wide selection of durable paints. Upright bollards are seen by bicyclists, pedestrians, motorists, and security patrols.

✦ Extended Life Span

Solid Construction

The outside shell is comprised of heavy gauge steel tubing that's coated with a rust inhibitor. Pro-Stop's proprietary internal mechanism is fabricated from stainless steel.

✦ Reliable Operation

Self-Contained Mechanism

The internal mechanism is protected from rain, ice, or normal debris. Pro-Stop® operates by applying torque to a standard hydrant-type nut (located on the side facing oncoming traffic), which lifts a spring-loaded locking pin inserted into a receptacle base plate. The bollard is then lowered to the ground, remaining attached to a hinge. When replaced in the upright position (no wrench needed), the pin automatically reseats and locks the bollard in place.

✦ Damage Control

Advanced Engineering

Pressure-sensitive zones incorporate break-away parts that minimize permanent damage in the event of an accidental head-on collision with a vehicle.

✦ Easy Installation & Maintenance

"Turnkey" Product

To install, insert bollard into 18" hole, pour in concrete, and backfill to grade level. Grease the locking pin and hinge periodically in order to keep the bollard in good working order.

and benefits

SPECIFICATIONS

Product Numbers

- #IB Immovable Bollard
- #CB-x Collapsible Bollard
x = hydrant nut = Type 1, 2, or 3 (see below)

Weight

- Collapsible Bollard: 70 lbs. (approx.)
- Immovable Bollard: 40 lbs. (approx.)

Dimensions

- External tubing: nominal 18"x6"x3"
- Height above ground: 32" (grade to top)
- Depth below ground: 18"
- Ground clearance (collapsed): 4" (nominal)

Construction Materials

- External tubing: A53 cold rolled steel
- Internal mechanism (collapsible only):
#A36 steel (non-critical parts)
#304 stainless steel (critical parts)

Paint

- Initial Coat: Red oxide rust inhibitor
- Second Coat: Exterior enamel
(Black, White, or Highway Yellow)
Custom-specified colors and Tnemec®
or Scotchlite® paints available at
additional cost

Hydrant Nut

- Type 1 – Three sided, finished flush to surface (Philadelphia style)
- Type 2 – five sided AWWA Standard C-503 (finished 1" above surface)
- Type 3 – Customer-specified (call for quote) (Custom nuts and wrenches upon request)

Locking Pin

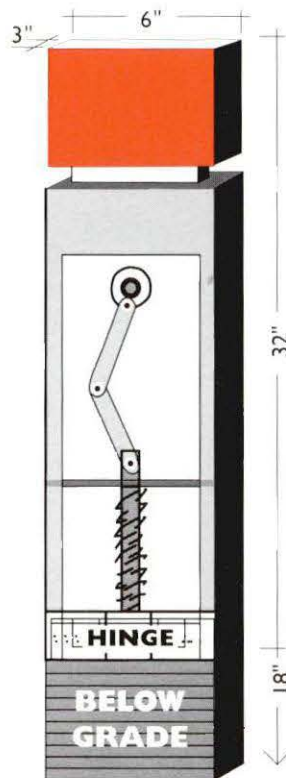
- 1 1/4" diameter, No. 304 stainless steel

Hinge

- 5/8" (OD) cold rolled steel

Scotchlite® is a registered trademark of 3-M.

Tnemec® is a registered trademark of the The Tnemec Company.



Pro-Stop® is manufactured exclusively for:

Prosec, Inc.

P.O. Box 1, Downingtown, PA 19355
Tel: (610) 640-9355 Fax: (610) 873-1326

For more information, visit our web site

<http://www.prostop.com>

or call

1-800-BOLLARD

(265-5273)

Prosec, Inc.

full process or an abbreviated version, there are a number of steps that should be followed without fail:

1. **Overview.** Become familiar with all of the spaces on campus and the operations required to maintain them. Dig into the school's archives in order to locate any information that could detail the development of the campus and impart a historic perspective to the issues that have affected its growth.
2. **Issues and Goals.** Study the school's mission and verify that all those affected (staff, students, faculty, alumni) affirm its continued relevance. School administrators also need to identify the values and goals that are most important to the institution, especially those that have a determining effect on the physical form and function of the campus.
3. **Inventory and Analysis.** Evaluate the elements that make up the campus: pavements, plantings, lawns, lighting, walls, fences, site structures, utilities, irrigation, signs, furniture, and others. What contributions do they make to the campus? Do they enhance or detract from its mission? What materials are used to construct them, and are they of good quality? A parallel investigation looks at the manner in which these elements are organized into systems and spaces, and the types of spaces they create: Entry? Central? Circulation? Service? Are there any other strengths or weaknesses that need to be addressed?
4. **Arboriculture Assessment.** Because of their size and longevity, trees play a key role in campus design. It might be helpful to include in the assessment a thorough examination of the major trees' history, condition, location, and species. This information will lead to a tree maintenance plan that provides specific actions to ensure their continuing health and attractiveness for as long as possible.
5. **Maintenance and Management.** Keep in mind that these are probably the most overlooked components of campus planning and design. This phase of the assessment includes a review of the maintenance equipment, staff, and programs. How is the staff organized? What procedures are followed? How can finances be allocated most efficiently?
6. **Alternatives.** You should be presented with a number of actions that can be taken in order to address the strengths and weaknesses identified earlier. A forecast of the impact those actions will have and assistance in deciding which will best do the job should also be included. Your report should indicate the cost of these actions in both dollars and staff/crew time. And, perhaps most importantly, a summary of the goals identified in the initial stages of the assessment should be included in order to make certain that they are satisfied by the proposed actions.
7. **Guidelines.** This is an optional step in the process. It involves creating a set of guidelines for the future design of the campus elements and spaces analyzed in Step 3 above.


The idea here is to clearly articulate how the school's mission is translated into physical form and how it should be performed in the future in order to prevent recurrence of any problems found in the assessment. While this step starts to bridge the gap to a master plan, it stops short of recommending the specific capital developments a master plan would cover; it functions instead as a yardstick against which those developments may be measured.

8. **Action Plan.** It is imperative that everyone involved remembers that the assessment is a working document. The recommendations it contains will improve the campus and will save the school money—but only if it is used on a daily basis. The assessment should be concise, practical and directive. What are the final recommendations? What priority should be assigned to each? When should each be done and what will the cost be? Who should be responsible for taking action? How should they go about taking action and what considerations do they need to keep in mind as they do?

Some Final Thoughts

The campus landscape assessment is a guide from which any institution can benefit. In a way, an assessment provides an opportunity for a school to live up to its own expectations so that all of its grounds can be as rational, functional, and appealing as the images portrayed in its publications. In the words of *San Francisco Chronicle* architecture critic Allan Temko:

For it is on the campus, as virtually nowhere else in the country, that architectural permanence, rational organization of diverse activities, generous provision of open space and a liberal respect for the arts and sciences...can be seen acting together to provide an organic milieu for civilized life. The campus, at its finest, embodies principles of design which may be fruitfully employed throughout our civilization (Temko, 1993).

Is this a picture of your campus? 

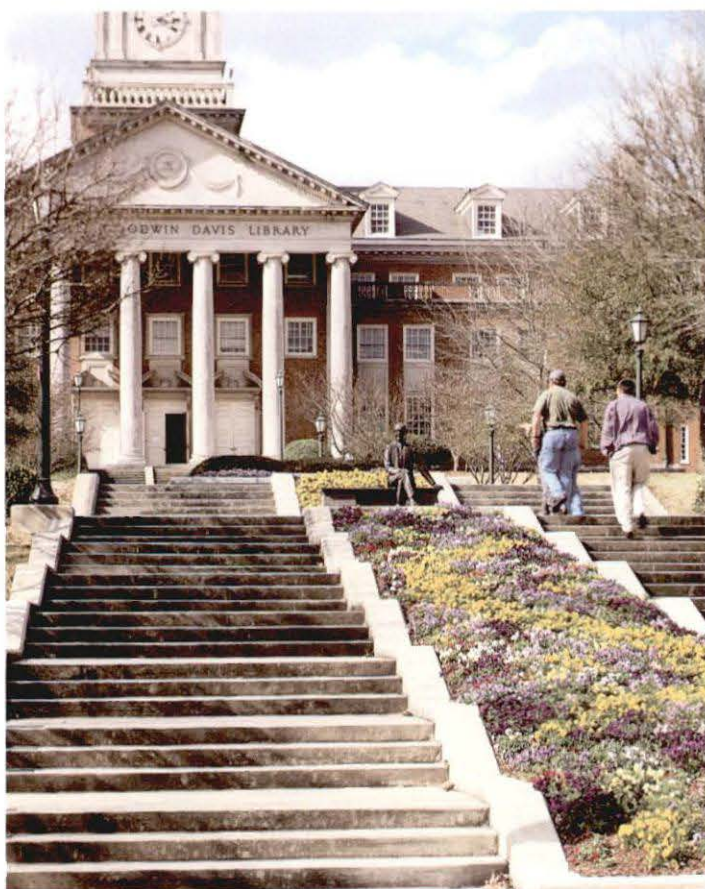
References

- Biehle, J. 1991. Successful Master Planning. *Planning for Higher Education* 19 (2): 21–26.
- Boyer, E.L. 1985. *College: The Undergraduate Experience in America*. The Carnegie Foundation for the Advancement of Teaching. Harper & Row.
- Temko, A. 1993. *No Way to Build a Ballpark and Other Irreverent Essays on Architecture*. Chronicle Books.

PRODUCTIVITY

Are Your Landscape Crews Working Effectively?

by Bill Waddell, ASLA



Winter flowers brighten approach to Harwell Goodwin Davis Library at Sanford University.

As more institutions consider outsourcing basic services to control costs, being efficient and effective with human and financial resources becomes increasingly more important. Because most colleges and universities utilize their landscape maintenance crews for multiple tasks other than strictly landscape, keeping those crews in-house is highly desirable, as long as they are cost-effective. Understanding how to improve productivity is the key to keeping those valuable people adding value.

In an effort to better understand landscape maintenance issues on college campuses, Environmental Design Group commissioned a study with twenty-six colleges and universities in January of this year. The study examined perceptions of two groups, landscape maintenance professionals and vice presidents of business, finance, or administration, about such issues as outsourcing, productivity, consulting services, and the value of landscape.

Among other key findings, participants overwhelmingly believed that the appearance of the facilities and grounds

Bill Waddell is a landscape architect and principal in Environmental Design Group, a landscape maintenance and design/build company based in Birmingham, Alabama.

has a major impact on enrollment, faculty recruitment, and alumni support. Methods for evaluation of landscape maintenance productivity were rudimentary, at best. As a result, there was a very strong interest in knowing how to evaluate landscape maintenance productivity.

Improving productivity of landscape maintenance workers depends on 1) excellent tracking of maintenance processes to establish **baseline productivity standards** for the property, and 2) changing behaviors around how people do their work where necessary. The goal is to encourage workers to use more productive behaviors. The first step is to include them in establishing productivity measurements. Workers are more likely to value and utilize measurements they help create.

Following are some suggestions for evaluating a property to establish productivity measurements.

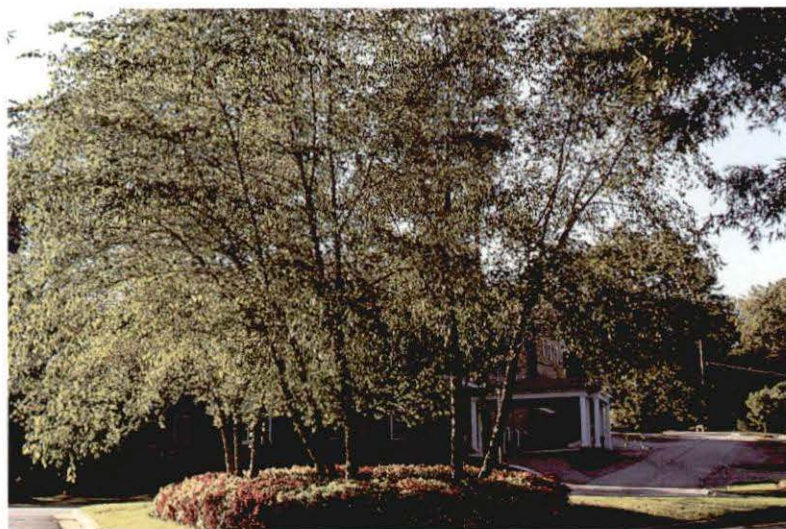
Define Tasks

First, identify the landscape maintenance tasks to be performed, such as litter control, edging, weed eating, blowing, pruning, chemical application, weed control, leaf removal, mowing, snow removal, or mulching.

Apply "Value Engineering"

Many times, we look at properties and discover that maintenance was not considered in the design of the landscape. Those properties are usually more time-consuming, therefore more expensive to maintain. In such cases, look for areas that can be altered to be more efficient without destroying the beauty or quality of the landscape.

Other problems may revolve around the inappropriate use of equipment. Crews might be using a weed eater or a push mower when they should be using a large walk-behind or riding mower. Frequency of tasks, such as edging or blowing, should also be considered. Another possible



Flowers replace mulch at certain locations to enhance beds at tree groups.

maintenance consideration is any area that could be sprayed out and simply mulched or replanted with ground cover or shrubs.

These examples of value engineering may reduce the amount of time spent on maintenance, or they may allow crews to spend more time on maintenance tasks with a higher priority, which improves the quality of the landscape.

Put the Data to Work

Implementing measurements and tracking processes for landscape maintenance is an investment in building a system for productivity. This implementing requires the involvement of those who are closest to the work, i.e., the crew members! Good productivity processes demand a commitment to good record keeping, based upon realistic standards and accurate measurements.

Even more important, improving productivity depends on using the data collected through measurement and tracking to change how maintenance tasks are accomplished.

Productivity translates into less time and less effort, producing better quality using fewer dollars. More efficient, cost-effective productivity processes often result in the same dollars being reallocated from human resource expense to actual upgrades to the landscape. They may further reduce landscaping costs. The added benefit is that maintenance crews who know they are working smarter and getting better results also take more pride in their property, and continue to look for ways to improve their work. 🏰




Athletic turf building receives special planning and maintenance.

Quality • Lightweight

Folding Tables & Chairs

High Strength
ABS Tabletop
18" and 30" Wide
60" Round

Sturdy
Polypropylene
Chairs
7 lbs.



8' x 30" Table
Only 45 lbs.!

1-800-333-2687

 **McCourt**
Manufacturing

1001 North 3rd Street
Fort Smith, AR 72901
FAX 501-783-7608

Call for Samples & Information



On the Road to Zone Maintenance:

Inventorying Your Outdoor Landscape Areas

by R. Marc Fournier, MBA

When I assumed leadership of the Physical Plant Grounds Management Department at the University of Massachusetts Amherst, I discovered that no inventory existed of the outdoor landscape areas that we maintained. I immediately contacted a number of APPA member schools and discovered that most of them also had no inventory of their outdoor grounds areas. Most schools have concentrated their limited resources on inventorying buildings and utilities systems.

Universities and colleges must develop detailed inventories of the outdoor grounds areas in order to maintain the exterior landscapes of their campuses in a cost effective and sustainable manner. Using this data, schools can then develop specific plans for zone or broadcast maintenance to maximize the use of their existing resources.

We decided our first priority in reorganizing the department was the development of this inventory so we would know the extent of our landscape maintenance responsibilities.

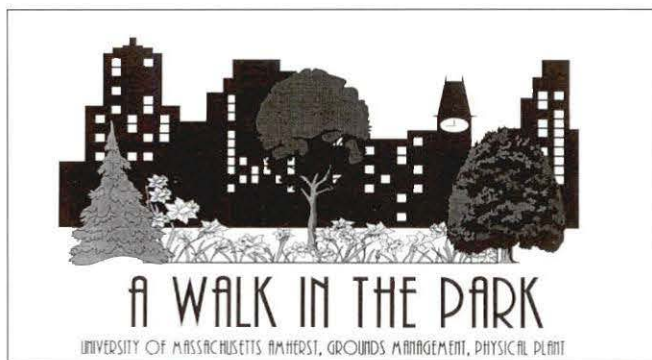
In an ideal world where finances are available, which is not often the case in higher education today, the best way to develop an inventory would be to use a Global

Positioning System (GPS) backpack and develop a database in Geographic Information System (GIS). This type of database can be easily manipulated using software like ArcInfo to perform data queries and produce custom, color-coded, easy-to-read maps containing virtually any combinations of information required for planning landscape maintenance programs.

We reviewed our financial resources and decided, based on our limited funding, that we would develop an interim database that we could then modify and improve using GPS and GIS when finances became available. The following is an overview of the methodology used to develop the landscape maintenance database at UMass Amherst.

Assessing the Situation

Given the current state of funding for Grounds Maintenance operations, it is critical that these operations are conducted by the most efficient and productive methods possible. The development of efficient plans for routine grounds tasks requires a clear understanding of the amount and type of work that needs to be



done and the resources at hand to do that work. This inventory of the grounds of the University of Massachusetts Amherst represents a major step toward that end, and might well be the first such inventory ever conducted at this university. The data presented in this article will finally provide a clear and comprehensive picture of the layout of the grounds of the flagship campus of the University of Massachusetts.

This document is designed to act as an introduction and guide to the use of the database files and maps, and not as a self-contained summary of the findings and conclusions of the grounds inventory. It is one of three components of the Grounds Inventory report, which also includes maps and database files for reference. The database files are by far the most important and valuable portions of this report. Specific parameters can be isolated and analyzed on the computer much more easily and conveniently than they can on paper, making the inclusion of all data in this document unnecessary. Relatively little of the data collected and analyzed during this project is printed for inclusion in this document, simply because the volume of data is such that without the aid of software, trying to navigate the sea of numbers is almost overwhelming. The database files of this report are contained in two Microsoft applications: Excel 5.0 (or a higher version) and Access 2.0 (or higher). The bulk of the data is in the form of Excel spreadsheet files. Specific information from the database files can be obtained using customized searches and queries in Access and Excel.

While a great deal of organization and manipulation of data has been conducted in the preparation of this article, the value of the report is its ability to be customized. Using the database, one can conduct a search based on any of a wide range of parameters, depending on the user's interest. For example, while the number of acres of Priority 1 turf campus-wide is reported in Figure 1, the database also allows a user to determine very easily the acreage of Priority 1

Marc Fournier is assistant director, grounds management, physical plant, University of Massachusetts, Amherst. Special thanks to Eli Sagor, former grounds management special projects coordinator, for his major contributions to this article.

turf contained only within the borders of a specified group of five adjacent maps, and so on. It would be impossible to anticipate all of the queries of this type that might be used, so the user is given the tools to tailor queries to his or her particular needs at any time.

Methods

This inventory of the UMass Amherst grounds was conducted between July and October 1996. A walking survey of the locations and dimensions of turf, banked turf, shrub bed, flower bed, and hedge plots was conducted over a period of approximately 45 days. Forty-scale topographical maps of the campus were marked to indicate what terrain type occupies a given map plot, which is defined as a self-contained area comprised of only a single type of terrain. Plots are not all continuous, and several different patches of turf are often grouped into the same plot.

Generally, plot boundaries follow divisions created by physical landmarks such as buildings, hedge rows, or other terrain types rather than more arbitrary factors. Each plot on the maps was measured with a ruler, and each plot's area was determined in the most appropriate units, either acres (flat and banked turf), square yards (shrubs and flower beds), or linear yards (hedges). Since landscape areas are the focus

(cont. on p. 26)

Figure 1
Map Locations

MAP	BUILDINGS APPEARING ON MAP
B1	Mark's Meadow School
B2	Mark's Meadow School, Furcolo School of Education
B9	Eastman Lane near Sylvan Residential Area, McNamara, Brown, Cashin
B10	Totman Gym, North Athletic Fields, Eastman Lane
B17	Worcester DC, Mary Lyon Hse, Lewis, Thatcher, Old Infirmary, Observatory
B18	Lederle GRC, Knowlton, Arnold, Hamlin, Goessman, Conte Polymer Science, Marcus, Draper, East Experiment Station, West Experiment Station, Crabtree
C1	Guinness, Marston, Bowditch, Marcus, Astronomy, Engineering Shops, Thayer, Paige, Knowles, Stockbridge, Holdsworth
C6	Orchard Hill and Central Residential Area, Brooks, Baker, Van Meter, Dickinson, Webster, Grayson, Greenough, Field
C7	Infirmary, Skinner, Morrill, Wilder, Marshall, Faculty Club, Durfee, French
C8	Tower Library, Hasbrouck, Lawn near pond, Campus Center, Student Union
C9	Campus Parking Garage, Machmer, Physical Plant, Power Plant, Agricultural Engineering, Cold Storage, Flint Lab
C10	Lorden Baseball Field, Commonwealth Ave, Phys Plant W PA
C11	Derby Track, W edge Lorden Field
C14	Van Meter, Chadbourne, Butterfield, Baker, New Africa, Gorman
C15	Franklin DC, across N Pleasant St to near SOM, Clark Hall, Fernald, Wheeler, Brett
C16	FAC, S end of pond, Mem Hall, Hicks Cage, Chapel, Herter
C17	Tobin, S College, Tennis Courts, Farm Shop, Grinnell
C18	Boyden Intramural Athletic Fields, incl tennis courts W of Mullins
D1	Amherst Town Water Treatment Plant, Boyden Intramural Athletic Fields
D6	Haigis Mall, Whitmore, Munson, several large PA
D7	Comm. Ave, Melville, James, Boyden Gym, Lacrosse Field, ROTC
D8	Boyden Intramural Athletic Fields, Mass. Ave
D9	Town Sewage Treatment Plant, W edge Boyden Intramural Athletic Fields, Mass. Ave
D14	Lincoln Apartments
D15	Southwest Residential Area, Prince, Crampton, Coolidge, Mackimmie, Hampden DC, JQ Adams, Adams, Kennedy, JFK, Washington, Berkshire DC, Emerson, James, Pierpont, Moore, University Drive
E3	Cance Hse, Fearing St, University Drive

P A T E N T E D

AIR ELIMINATION

From start-up Spirovent® Air Eliminators scrub the air and bothersome microbubbles from hydronic heating and cooling systems. Spirovent's patented Spirotube® traps bubbles, then quickly releases them through the integral vent. And, there are Spirovents designed to separate dirt, grit, rust and scale as well as air. You'll appreciate the ease of installation and the end of expensive callbacks to replace components or to manually vent air.

Extends System Life

Lowers Energy Expense

Reduces Initial Installation Costs

No Manual Bleed at Start-up

Available in Sizes Up to 36 Inches

Hydronic specialists worldwide turn to Spirotherm for professional heating and cooling system solutions. To learn more about Spirotherm's advanced line of products, call for the name of your local factory representative.

1-800-323-5264

E-mail: info@spirotherm.com
<http://www.spirotherm.com>

Solutions



SPIROTHERM

The World Leader In Air Elimination Technology

(cont. from p. 24)

of this initiative, roads, sidewalks, parking areas, and stairs were not inventoried.

Terrain Types Surveyed

Given the objectives of this project, only plots upon which regular maintenance operations are conducted were inventoried. Although forested areas and other unmaintained terrain types are generally indicated on maps, no attempt was made to quantify them. It should be noted that the reasoning behind the terrain type classifications focused principally on differences in maintenance requirements for different areas rather than on appearance or other factors. The aim was to divide the campus grounds into a small number of easily quantifiable terrain types, within each of which certain generalizations regarding maintenance requirements could be made. For this reason, a plot's appearance was a less important criterion for classification into one of the above classes than its maintenance requirements. This point is important particularly when considering shrub bed and hedge plots, which are inventoried in very different ways, based on maintenance requirements.

There were five terrain types surveyed. For the purpose of this inventory, they are defined as follows:

Turf: Includes only flat turf areas, not banks, which are covered in a separate category. Turf areas that appeared to be safe and reasonable to mow using the standard riding mowing equipment were classified as Turf, and plots that appeared to pose a significant safety risk if such equipment was used on them were classified as Banked Turf.

Banked turf: Any turf area designated to be too steep to mow with standard riding mowing equipment. Banked turf areas can be very large, but are just as frequently very small.

Shrub bed: Includes any mulched area surrounding shrubs. For this study, the word shrub is very loosely defined, and generally any mulched area containing a small, shrub-like bush was included in this terrain type. Since shrub beds are measured in square units (square yards and acres) rather



Photos courtesy of The Campus Chronicle for the University of Massachusetts at Amherst. Stan Sherer, Photographer.

than, say, number of shrubs, the most important criterion for this class was not the presence or number of shrubs, but the type of bedding and the maintenance required for the plot.

Flower bed: Self explanatory. When a flower bed appears within a shrub bed, the two terrain types are generally considered separately, and indicated as such. In certain locations where shrubs and flowers are mixed, it was difficult delineate precisely the boundary between the shrubs and the flowers,

but an effort was made to do so wherever possible.

Hedges: Classification as a hedge plot is made regardless of the type of bedding on the ground. Unlike shrub beds, the sole criterion required for classification as a Hedge plot is the presence of a group of bushes for which regular trimming is a routine maintenance requirement. Hedges are measured in linear yards.

Maps

The original maps, upon which drawings were made and from which all measurements were taken, are stored in the grounds management office. Each turf, banked turf, shrub bed, flower bed, and hedge plot is numbered on its map for reference to the spreadsheet database. The maps might be useful to determine the locations of obstacles within a campus region, or to locate a particular plot. However, since the database includes a brief description of the location of each plot, it is not likely that the maps will often be called upon for reference.

The maps that comprise this report are generally very reliable. However, it is a natural consequence of the nature of this study that locations of obstacles and plot borders will not be exactly accurate in all cases. Where plot lines were drawn free hand, a small degree of error in perspective and scale is unavoidable. While the information on the maps is generally very accurate, there may be some areas in which that is not the case. It should also be noted that the maps reflect the layout of the campus grounds as of late summer 1996. Any construction or landscaping work conducted

Figure 2

Abbreviations

T: Turf
 TB: Banked Turf
 SB: Shrub Bed
 FB: Flower Bed
 HG: Hedge
 PA: Parking Area
 GV: Gravel Area
 SW: Sidewalk
 SW (A): Asphalt Sidewalk
 ***: Fence
 BR: Bike Rack
 H (Red) or HYD: Fire Hydrant
 PT: Picnic Table
 B or BEN: Bench
 P (Red) or LP: Light post
 S (Green) or SIG: Sign
 MT: Mulched Tree
 PM: Parking Meter
 M/D: Memorial/Donated Structure
 H (A): Handicap Ramp with sloped edges
 HR (B): Handicap Ramp with narrowly spaced vertical edges
 G: Outdoor Garbage Containers

after this time will not be reflected on the maps. It is important to consider these limitations while using the maps.

A complete list of abbreviations used on the maps and elsewhere throughout this article is provided in Figure 2.

Obstacles

Since the presence of obstacles within a plot can significantly affect the plot's maintenance requirements, obstacles of eight types were marked on the maps and counted. It is important to note that these items are marked wherever they appear within one of the terrain types inventoried, but their locations are not necessarily recorded if located outside of these areas. For example, a light post in a concrete sidewalk or asphalt parking area will likely not be marked on the map. This grounds inventory is not designed to act as a comprehensive inventory of campus utility poles or other objects. The presence of these items is important to this inventory only where they affect routine grounds maintenance requirements.

The following objects were counted and their locations marked on the maps:

- Fire Hydrants
- Light Posts
- Road Signs

- Bike Racks
- Picnic Tables
- Benches
- Trees
- Parking Meters

Plot Condition and Priority

For all terrain types, two classifications are assigned: Condition and Priority. Conditions are ranked as 1 (excellent), 2 (average), or 3 (poor). These classifications are somewhat arbitrary and are based on general appearance of the plot. Plots are generally assigned a poor condition due to either extensive invasion of weeds, or bare patches from traffic or other causes. Priorities are based on generally based on visibility, and are ranked as 1 (high visibility), 2 (average visibility), or 3 (low visibility). In rare cases, top priority is assigned to plots that are not highly visible, such as the yard of the Chancellor's house.

Results

Figure 3 details campus-wide totals for all parameters inventoried. Breakdowns of totals for each terrain type are listed in more detail in Figure 1 and in much more detail in the database files. Figure 1 includes more extensive data than is presented here. All of the data cited here is included in one of several Excel 5.0 spreadsheet files. The names and contents of each of these files, which are an important part of this report, are given in the next section. Please note that the database files are not printed in their entirety here, and they contain a great deal more information than it seemed

(cont. on p. 29)

Figure 3
Map Totals Form

MAP		ALL	
TURF (yd2):	962492	BANKED TURF (yd2):	81004
TOTAL TURF (ACRES):	196.00	BANKED TURF (ACRES):	17.00
TURF: PRIORITY 1 (ACRES):	40.00	BANKED TURF: PRIORITY 1 (yd2):	7022
TURF: PRIORITY 2 (ACRES):	152.00	BANKED TURF: PRIORITY 2 (yd2):	70144
TURF: PRIORITY 3 (ACRES):	7.00	BANKED TURF: PRIORITY 3 (yd2):	3839
# TURF PLOTS:	705	# BANKED TURF PLOTS:	80
SHRUB BEDS (yd2):	E+04	HEDGES (yd2):	4817
SHRUB BEDS (ACRES):	2	HEDGES: PRIORITY 1 (LIN. YD.):	1495
SHRUB BEDS: PRIORITY 1 (yd2):	5203	HEDGES: PRIORITY 2 (LIN. YD.):	3141
SHRUB BEDS: PRIORITY 2 (yd2):	12353	HEDGES: PRIORITY 3 (LIN. YD.):	184
SHRUB BEDS: PRIORITY 3 (yd2):	702	# HG PLOTS:	157
# SB PLOTS:	131	# HYDRANTS:	114
FLOWER BEDS (yd2):	3373	# LIGHT POSTS:	820
FLOWER BEDS: PRIORITY 1 (yd2):	1043	# SIGNS:	812
FLOWER BEDS: PRIORITY 2 (yd2):	2305	# PICNIC TABLES:	53
FLOWER BEDS: PRIORITY 3 (yd2):	20	# PARK METERS:	179
# FB PLOTS:	50	# BIKE RACKS:	52
BUILDINGS APPEARING ON MAP:	ENTIRE INVENTORIED CAMPUS		

Grounds Management Concerns?

Are you concerned with increased labor costs? Does it seem like your equipment is always in the shop? Are your budgets stretched to the absolute limit? What about staffing challenges? Public safety concerns? Pesticide certification? Training? Equipment storage? And all the while your administration wants more?

Since 1880, Davey has been the recognized leader in tree, shrub and lawn care. And academic campuses nationwide have benefited from the expertise of our commercial grounds management division, a group dedicated to solving the unique problems of large, complex grounds environments. From providing specialized tasks like aerial tree work to handling complete grounds management with our own on-site crews, Davey has the solutions for cost effective grounds management.



Call 1 800 447-1667 x 245 or email info@davey.com
Visit our Website www.davey.com

(cont. from p. 27)

reasonable to include, in print, in this report. For example, the turf sheet alone from the file allplots.xls contains data on over 700 plots and is over twenty-four pages long.

Figure 3 is a printout of the MS Access form Map Totals Form, displaying data totals for all maps.

Database Files

A brief description of the contents of the different database files we developed is listed below. Other colleges and universities can develop their own set of files to better meet their needs.

allplots.xls: This Excel workbook lists all available data for every plot surveyed. There are five separate worksheets, one for each terrain type. For each plot, this file lists the size (square yards, acres, or linear yards, depending on terrain type), condition, priority and location. For Turf and Banked Turf plots, the number of obstacles of each type, total number of obstacles, and obstacle density (number per 100 square yards) are also listed.

maplocat.xls: This Excel worksheet lists all of the maps by number and all of the buildings appearing on each map. To identify the map on which a given building can be found, one can either scan the file manually or use the Finder to search the file for the building name. This file appears in Figure 1.

tot_all.xls: This Excel workbook lists the totals for each terrain type on each map. This file lists all of the same fields as allplots.xls, but also lists the number of plots of each type on each map. There is a separate sheet for each terrain type, and the final sheet, called All Totals, combines all of the data for the other five sheets into a single sheet, which is data-rich but large and cumbersome.

priority.xls: This Excel workbook lists, by map, the totals for each terrain type, broken down into Priorities 1 through 3. Again, there is a separate sheet for each terrain type, and one sheet at the end that includes all of the data from the other five sheets.

(cont. on p. 32)

Introducing MULTI-THERM 500

Everything you wanted in a steam system and less

- Less Heat Loss
- Less Maintenance
- No Corrosion



Featuring

- Carrier pipe insulated with mineral wool or FOAMGLAS® insulation
- Polyurethane foam on outer steel casing provides higher thermal efficiency and retains higher casing temperature, driving out installation moisture, and helping to eliminate inner corrosion.
- Having carrier pipe and casing insulated reduces heat loss and operating costs.
- Fiberglass outer jacket eliminates corrosion* and the need for cathodic protection, reducing cost and eliminating maintenance.
- Contractor friendly system is easy to install with easy to follow written procedures.

*When properly installed

PERMA-PIPE®

Perma-Pipe, Inc.
A Subsidiary of MFRI, Inc.
7720 North Lehigh Avenue
Niles, Illinois 60714
(847) 966-2235

FOAMGLAS® is a registered trademark of
Pittsburgh Corning Corporation

To download our guide specifications
and drawing details, visit our web site at
<http://www.permapipe.com>

Goldilocks

"My dorm's too hot.

The showers are too cold.

A transfer feels just right."



A quality education means a lot more than just great academics. It means terrific dorms. Well-maintained classrooms. A beautiful campus. Building systems

that work properly. And if a college can't deliver, a student will find one that can. Johnson Controls understands how important it is to have a top-notch campus with well-maintained buildings. And we've been delivering just that, for decades, to hundreds of colleges and universities.

We offer a wide range of products, services and campus-wide programs that can help make your facilities look and work better. And more cost-effectively. We even offer performance contracting, where improvements in comfort, productivity and safety are paid for by the savings

they create. For more information, call Mike Ewald at 1-414-274-4197. Also visit our website at www.johnsoncontrols.com. We'll help insure you have just one kind of transfer to think about. The kind that comes in.

**JOHNSON
CONTROLS**

on campus.



(cont. from p. 29)

gr_inv.mdb: This MS Access file contains the entire portion of the database that should be used through MS Access.

grndbkup.mdb: This file is a read-only backup of gr_inv.mdb. Hopefully, will never be opened. MS Access has a glitch that sometimes makes it easy to inadvertently change data and save it that way. In the event that data is changed in the original file and the changes cannot be easily fixed by simply opening the data table (in Access) and changing it back, it will be necessary to use this file. To make changes in this file, such as running new queries, the file will have to be specified as NOT read-only, which is done by selecting the properties of the file from File Manager. It is recommended that this backup

file be updated on a regular basis to save any new tables and queries that are created.

Developing Zone Maintenance Programs

Our Landscape Services staff is now meeting to develop a number of pilot programs to test some of our zone maintenance concepts. Some preliminary concepts from a staff retreat held in March 1997 are included in the accompanying story (see sidebar below).

We are using the new inventory's wealth of information to help guide our decisions and feel it will be a critical planning tool in our comprehensive reorganization of Landscape Services at the University of Massachusetts Amherst. 🏰

The Next Step:

Developing Zone Maintenance Pilot Programs

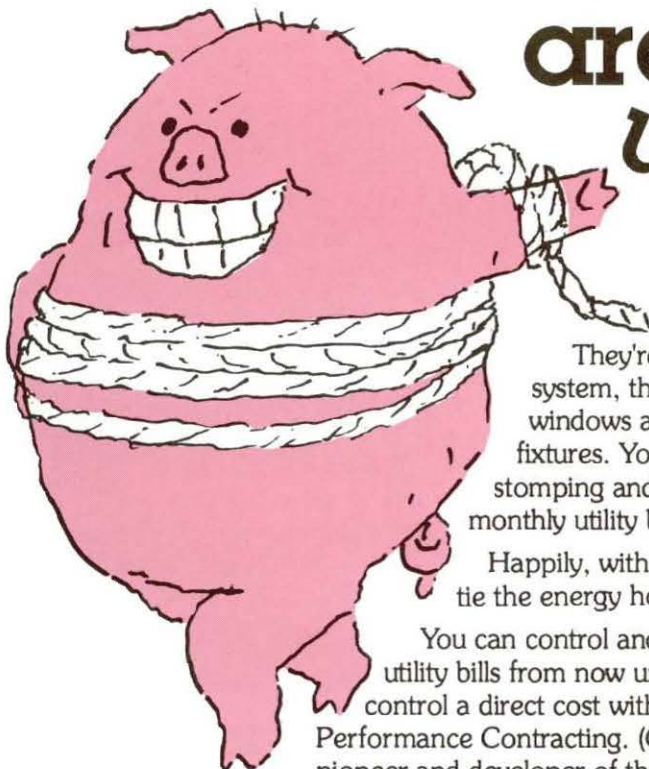
On March 5, 1997, the Landscape Services staff at the University of Massachusetts Amherst held a retreat to develop a department vision and talk about how to reorganize our staff and resources. Here are some preliminary thoughts from the retreat.

- We developed a new department slogan, *A Walk in the Park*, which supports our vision of returning the campus grounds to a "park-like" atmosphere where picnic tables, park benches, bicycle racks, and other features will be unified by a similar color and design and tie together the various areas of campus.
- We plan to reorganize the two current zones into an undetermined number of new zones. Landscape Services staff may be assigned to two new types of functions:
 - **Zone Staff** will be assigned to each of the eight zones where they will provide basic landscape maintenance functions including sweeping, litter picking, emptying trash cans, raking, string trimming, push mowing, weeding, snow blowing, and shoveling. They will build partnerships with building staffs and students in their areas helping to acquire volunteer help and additional support for our landscape maintenance activities.
 - **Specialty Staff** will be centrally dispatched and will support Zone Staff by delivering mulch and other supplies, and perform gang mowing, turf repair, and re-landscaping support services. They will also provide special expertise in disciplines like horticulture, arboriculture, and floriculture. In the future, when we obtain additional staff, some of these Specialty Staff will be assigned to particular zones to mentor Zone Staff in these specialty skills.
- We will use our new inventory of grounds areas as a basic planning tool in deciding how to most effectively assign our staff to the new zones.
- Some functions like spring road and parking lot sweeping, snow removal in some parking lots, fertilization of turf, catch basin cleaning, and tree removal and stump grinding will be performed by off-campus vendors.
- We will also augment our staff by hiring seasonal employees during the summer months. Many of these seasonal employees will be work coop students from university departments including Landscape Contracting, Plant and Soil Sciences, and the Stockbridge School of Agriculture and Urban Forestry.

Many of these concepts will change and evolve as we conduct pilot programs and learn from our experiences during the coming year.

—RMF

Energy Hogs are rooting up your Profits



They're rooting in your HVAC system, they're snuffling at the windows and pawing at the light fixtures. You see the results of their stomping and spoiling in your fat monthly utility bills.

Happily, with CES/Way you can hog tie the energy hogs.

You can control and reduce and whip your utility bills from now until forever. You can control a direct cost with a concept called Performance Contracting. (CES/Way was a pioneer and developer of this concept and has proven it across the country.)

Performance Contracting requires no capital expenditure by you, yet it means significant savings on energy costs for the foreseeable future. It allows you to totally re-engineer your physical plant for energy savings, without spending your own hard-to-get capital.

CES/Way has a nifty idea here. To find out exactly how it works and can work for you, write for our new brochure "Energy Hogs & How To Put Them In Bondage".

You've nothing to lose but high energy bills.



5308 Ashbrook
Houston, Texas 77081
(713)666-3541

	Please send me your "Energy Hogs & How To Put Them In Bondage" brochure.		
	Name _____		Title _____
	Company _____		
	Address _____		
	City _____	State _____	Zip _____



■ How to build, manage, and maintain quality sportsfields

without getting stuck in the mud.

Now you can get the professional help you need for upgrading sportsfields at your facility at a price you can afford. Our unique programs address every aspect of sportsfield improvement, from designing and installing new state-of-the-art natural grass sportsfields, to renovations on a budget, to training your maintenance staff on proper field maintenance techniques.

These programs and services are individually tailored to meet the specific requirements of your facility. There's no other service like it. Call today to explore the possibilities for your:

- Field design and construction management
- Field construction contractor selection assistance
- Field maintenance program development and implementation
- Field management assistance (multi-use / multi-event)
- Field maintenance and management budget development
- On-site technical and motivational training for your staff
- Field equipment and supply recommendations



SportsField

MANAGEMENT SERVICES, INC.

(216) 891-3954

FAX: (216) 891-0854
446 Cranston Drive
Berea, OH 44017

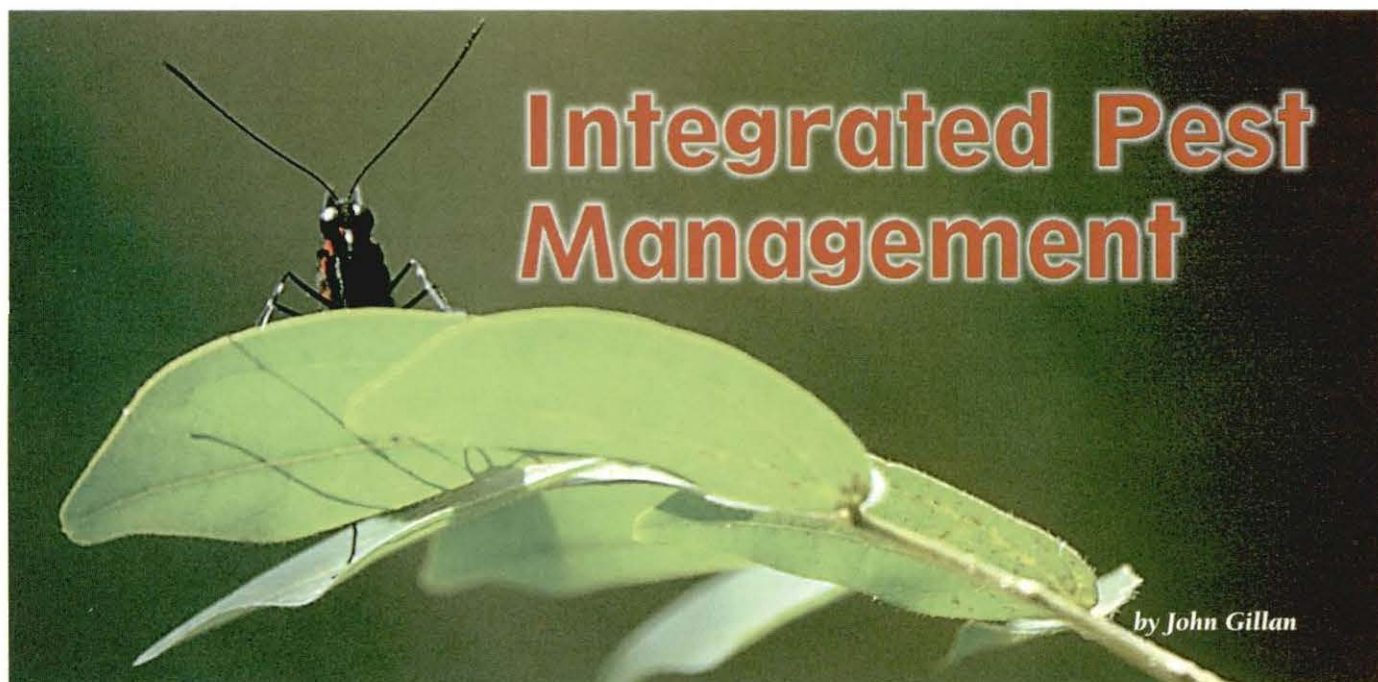
Increasingly, facilities officers and administrators at educational institutions are being called upon to become more and more grounds-knowledgeable. The expectations are higher, and, if there is not a grounds professional on staff, those heightened expectations can be quite daunting. In recent years all institutions are realizing the value of well-maintained grounds. They are anticipated by more in the public and insisted upon by administrations. "You have the grounds," they tell you, "now what are you going to do with them?"

Couple these expectations with today's need for increasingly higher levels of technical knowledge of grounds-related equipment, processes, and sometimes bewildering environmental controls, and the battle is joined. The bottom line: any old fool *can't* do it. It is one thing to think in terms of "mow, blow, and go" when cutting grass, but modern care

When you add to the above list of problems (real or perceived) such concerns as immunity, extermination of desirable species, and even trouble with other animal species, the trial of integrated pest management begins to look worth pursuing.

IPM to the Rescue

Integrated pest management (IPM) is the utilization of chemical, biological, and cultural controls in an organized attempt to prevail in harmony with the native surroundings. It involves a disciplined and knowledgeable approach to reducing the pest population, with emphasis on synchronizing these approaches with the natural environment in order to cause the least amount of disruption to the ecological system.



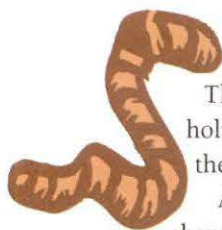
of turf, flowers, woody ornamentals, and trees is quite something else.

Amidst all the pressure and confusion comes Integrated Pest Management (IPM), which is—at once—the height of "new think" in grounds care. IPM can save time and money, as well as lessen environmental concerns. (Just ask your friendly local golf course superintendent about his or her concerns with environmental issues, which center mostly around the use of pesticides. Everyone, including various levels of government and the public, are getting increasingly concerned by such issues as pesticide residues, run-off, and danger to humans.)

John Gillan is executive director of the Professional Grounds Management Society, Hunt Valley, Maryland.

The term "pest" as it applies to grounds care can be defined as anything that is unwanted, such as fungi, virus, weed, or insect. A pesticide is defined as anything that limits unwanted growth. Within the family of pesticides there also is the family of "herbicides" that are used specifically on plants, and not insects, but they are all collectively called pesticides. When you see the little signs placed on lawns following an application by a lawn care company, it could be referring to something applied for either weed or insect control.

The goal of IPM is not to eradicate pests entirely, but rather to manage the population so that economic damage does not occur. Due to the complexity of ecological systems, total elimination of pest population has proven to be environmentally unsound. The balance of nature is sensitive and



intricate, and manipulation of one variable profoundly affects all other variables.

Therefore, the entire system must be regarded holistically, with extreme consideration given to the impact on the delicate interplay within it.

Another goal of IPM is to reduce the use of chemical pesticides. Whereas chemical pesticides are efficient, cost effective, and convenient, they may also create a multitude of complications, as mentioned earlier. Although IPM recognizes the use of chemicals to control pest populations, the emphasis is on taking a selective and responsible approach. IPM stresses conservative and accurate application of chemicals, as well as the employment of naturally derived pesticides. The objective is to reduce the risk of environmental damage, while effectively managing a pest population.

Specific IPM Examples

An example of a natural pesticide is a product called Neme, marketed under the name of Margosan. It is an organic element that is procured from the Indian Margosa tree. It has remarkable capabilities in terms of eliminating approximately fifty different insects, while at the same time being natural and safe.



Another example of natural pesticides are the Safer products. Safer is a large company that produces non-toxic, organic goods such as insecticidal soaps. These insecticides are effectual, and they are also environmentally safe.

A multitude of other natural controls are being developed for specific problems, such as white milky spore for controlling Japanese and other beetles in the grub stage. Once a local population has been infected with the disease inflicted by the spore, it continues to be passed on generation to generation. Again, it is a naturally occurring enemy; the only difference is that it is scientifically applied where it will do the most good.

Cultural Control

Overall, a major strategy of IPM is cultural control. This means starting with proper plant selection based on knowledge of a plant's origin, habitat, and environmental requirements. It also means choosing species and varieties that possess the most resistance and inhibit the rise of potential pest populations. Included in this concept is the use of indicator plants, soil preparation, and other techniques. All of these methods work in conjunction with the natural environment, reducing the need for chemical application or other unnatural and potentially disruptive methods of pest elimination.

Biological control of pests involves introducing anything of a living origin (such as predators, parasites, or diseases) into the environment for the purpose of reducing or controlling an antagonistic species, such as the Japanese beetle control mentioned earlier. An advantage of using this method is that as the pest population is reduced, the host density is usually also reduced. A final advantage is that it is often species-specific, attacking the unwanted organism rather than all organisms. Although biological control is lower than chemical treatment, the benefits merit its implementation.

Overall, IPM is an approach that employs an extensive variety of methods, techniques, and strategies that consider

all environmental factors and conditions. It is highly sophisticated and refined, requiring comprehensive knowledge and expertise. Despite the complexities, it is an important and necessary science that will be further developed and utilized in the future. This is because IPM recognizes and appreciates the imperative balance of nature, while at the same time allowing for manipulation of the environment.

Your Next Steps

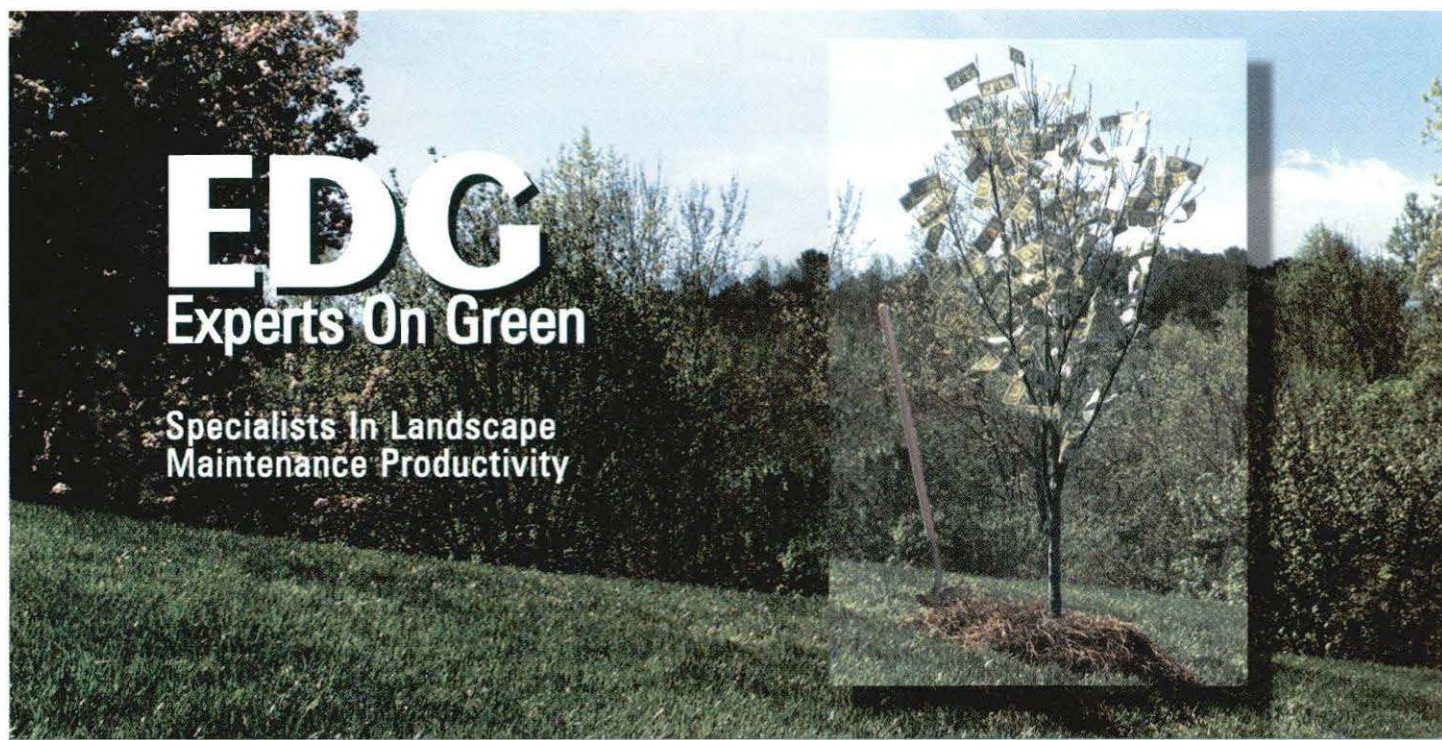
If you work with an on-staff grounds professional, make certain that he or she is fully apprised of what IPM is, and support them in its implementation. If no grounds professional is at hand, your options are to become more knowledgeable and captain the implementation yourself. Another option, of course, is to hire an outside independent landscape contracting firm and together construct a contract that involves the use of IPM in addition to chemical controls.

Also of paramount importance is the overall proper attitude toward the landscape, which begins with selection of appropriate plants (including grasses). With proper selection of plants, you could be making the future of care much easier—and cheaper. The problem, of course, is that all-too-few higher education, government and public works



situations have the benefit of either a full-fledged on-staff grounds professional, or the budget to provide adequate grounds management.

Remember, that grounds management—as compared with mere “mow, blow, and go” maintenance — involves all of those other things such as proper plant selection (grasses, flowers, shrubs, trees) plus completed knowledge of fertilization, other soil amendments and testing, aerating, overseeding of turf, proper tree and shrub pruning, and application of IPM, etc.



EDG

Experts On Green

Specialists In Landscape Maintenance Productivity

ENVIRONMENTAL DESIGN GROUP

CONSULTING-DESIGN-MAINTENANCE-INSTALLATION 1-800-498-0392 ATLANTA-BIRMINGHAM-MEMPHIS-NASHVILLE

An IPM Case Study

The goal was to develop a management program for a landscape pest.

What is the problem?

- Defoliation of campus oaks, tanoaks, and beeches by California oakworm, *Phryganidia California*, on the University of California at Berkeley campus.

Frequency of the problem:

- Severe defoliations every five to seven years.

Size of the problem: How many trees are affected?

- Seven hundred four trees—approximately 15% of all campus trees.

Values affected:

- Fifty-two oaks and beeches of 18 species are used for class demonstrations.
- Leafless trees are less valuable!
- Loss of aesthetic and practical (shade) values of defoliated trees.
- Normally defoliated trees recover completely. Already weakened trees may die.

History of treatments used over the years:

- In former years all susceptible trees were treated twice per year (1,400 treatments) with DDT or calcium arsenate. Both have been banned and are no longer available.
- Malathion and carbaryl (Sevin) sprays were then used.
 - Malathion had a foul odor
 - Carbaryl was a potential health hazard and very destructive to biological controls
- *Bacillus thuringiensis* was the safest available material.
 - Expensive and required more knowledge for effective use.

What resources were available?

- An ad hoc committee was assigned, composed of tenured academic faculty from Forestry and Entomology, two landscape architects, and interested staff and students.
 - Responsibility for evaluating the problem and proposing practical solutions.

What was the problem?

- Excessive treatments.
 - No preventive applications
- *Bacillus thuringiensis* is expensive.
 - Tests indicated that the application rate was too high
 - Ten percent (saving 90% of cost) provided effective control

- *Bacillus thuringiensis* requires proper timing.
 - Developed an easily used sampling program
- Defoliation of trees. How important is it?
 - Developed a rating system
 - First-priority trees are always treated
 - Trees used for class demonstration (52 trees of 18 species)
 - Highly visible trees (362)
 - Second priority—trees of lesser visibility
 - Third priority—in mixed groups of non-host species; reservoirs for biocontrols
 - Fourth priority—never treated

Recommendations reviewed by selected individuals in ten campus departments and were forwarded to the vice-chancellor for business and administrative services.

Records of treatments

- 1975—530 applications
- 1976—720 applications
- 1981—118 applications
- 1987—the outbreak faded and there has been no further defoliation since

Shift in paradigm—now a wasp “problem”

- Naturally occurring umbrella wasp, *Mischocyttarus flavitarsus*, has provided effective suppression of the oakworm populations since 1987.
- Workers gather oakworms, masticate them, and feed the young wasps in the nest.
- Sometimes office employees complain about wasps nesting on the outside of buildings.
- Usually, when they understand how valuable the wasps are for oakworm control, they accept the presence of the nest. We rarely have to remove a nest.
- Wasps inside offices can be lured outside by turning off inside lights and opening windows. The wasps fly toward the light and out the window.
- A vacuum can be used for control if necessary.
- Now the goal is to promote umbrella wasps where they do not have buildings to nest on.

—Arthur Slater
Manager, Pest Management Program
University of California at Berkeley



The problem of inadequate support should not be the focus, however; finding solutions should be. And, the final realization is—use of IPM or not—there is a point beyond which you can not go without knowledge of what to do and how to do it. And you can always count on reduced budgets to affect your program.

But, again, you have the land and need to do something with it. IPM is something whose time has come. If you can do some of the rest of the range of things toward better managing your environment, the application of IPM techniques should be included.

If Hiring is Possible

A grounds professional is responsible for all things directly related to the landscape, including turf, trees, woody ornamentals, flowers, other ground covers, even pavements. And, as such, he or she is responsible for the staff, money, materials, and equipment utilized in getting the job done—to provide a safe, comfortable, and attractive environment that complements the function of the site.

Short of hiring a grounds professional or employing the use of an independent landscape contractor, guidance may be sought from your state land-grant universities or county extension department.

Conclusion

Integrated pest management offers an effective and responsible approach to an important component of grounds maintenance and management. Many universities have extensive IPM programs (some have accompanying Web sites) and would be willing

to share their experiences with you. Among them are Colorado State University, Cornell University, Iowa State University, Montana State University, Purdue University, University of Adelaide, University of California at Berkeley, UC Davis, University of Florida, and University of Wisconsin. In addition, North Carolina State University and the National Science Foundation have developed the Industry/University Center for Integrated Pest Management (ipmwww.ncsu.edu/cipm/cipm_info.html), a cooperative research center. 🏰

Take the TMA™ Challenge CMMS

**FREE
Demo!**

Looking for the most powerful, easy-to-use, full functioned CMMS? Call for the TMA Challenge Demo. Put TMA against any other CMMS, and compare value, function and price. You'll find out why we're King of the CMMS Jungle.

- | | |
|---|--|
| ✓ Preventive Maintenance | ✓ Hand-Held PDA & Pager Interface |
| ✓ Work Order Management | ✓ CAD & CAFM Interface |
| ✓ Inventory Control & Equipment Histories | ✓ TMATalk™ Internet/Intranet Interface |
| ✓ HazMat Tracking | ✓ R.S. Means Data® Interface |
| ✓ Network Ready | ✓ Reporting, Graphing & More |
| ✓ Client/Server Option | ✓ Multi-Platform |
| ✓ TMAil*Link™ Request Option (e-mail) | (Win3x, Win95, NT, Mac OS & OS/2) |

*"Run
With the
Authority..."*



**The Maintenance
Authority...**


TMA Systems, Inc.

918.494.2890 • fax 918.494.4892

Contact TMA Sales at 1.800.862.1130

— Dealer Inquires Welcome —





Introducing
the next generation in
facility management
systems.

System 600 APOGEE

Defies limits.

Industry standards just reached higher.

SYSTEM 600
APOGEE

Believe it. The new System 600 APOGEE provides unlimited single seat operability.

Customer benefit? Your facilities expand...their use changes...in unforeseen ways. System 600 APOGEE is fully scalable to your needs. Imagine, a single system that can control a small school house or an entire city. With a cost effectiveness that defies conventional standards.

We've created a system your facility management needs can't outgrow.

The furthest reach of technology.

Of course, System 600 APOGEE is an open system. And it comes fully armed with protocol exchanges among the

leading names in HVAC, fire alarm and life safety, security, lighting and standard protocols.

Built on Windows NT® technology, this system delivers true multi-tasking and intuitive drag and drop navigation. And there are no limits to the scope of service solutions accompanying every installation.

The new System 600 APOGEE. We rethought every aspect of a facility management system. To defy conventional standards, as it pushes them into a new orbit.

To defy limits, call 800-890-4310.

LANDIS & STAEFA

www.us.landisstaeafa.com

Pigeon Management

As college campuses continue to expand, the question of how to manage excessive pigeon populations is becoming an increasing priority.

by Dale R. Hodgson and Nathan B. Norman

Although pigeons do provide benefits to the environment as scavengers (as well as providing a source of joy to many people), excessive populations can cause a number of problems in the following areas: 1) damages and economic losses, 2) public health and safety, 3) aesthetics (visual and acoustic), 4) inconveniences, and 5) creation of insect breeding sites and serving as hosts of various parasites.

Pigeons, and to a lesser extent, European starlings and English sparrows, cause the majority of local nuisance bird problems. Birds can and do cause aesthetic problems. However, more serious is the economic damage caused by their acidic excrement. Bird excrement causes damage and decay to metal and concrete surfaces, paints and coatings, limestone, marble, and electrical components. In addition, bird droppings may cause health hazards, especially when roosting in large numbers resulting in a great accumulation

of excrement. This accumulated excrement can and does serve as a food source and breeding site for various other insect pests.

Pigeons, sparrows, and starlings are highly social and are associated with humans. Therefore, these three species provide the greatest opportunity for transmitting pathogens to humans. There are five major potential health hazards associated with pigeons:

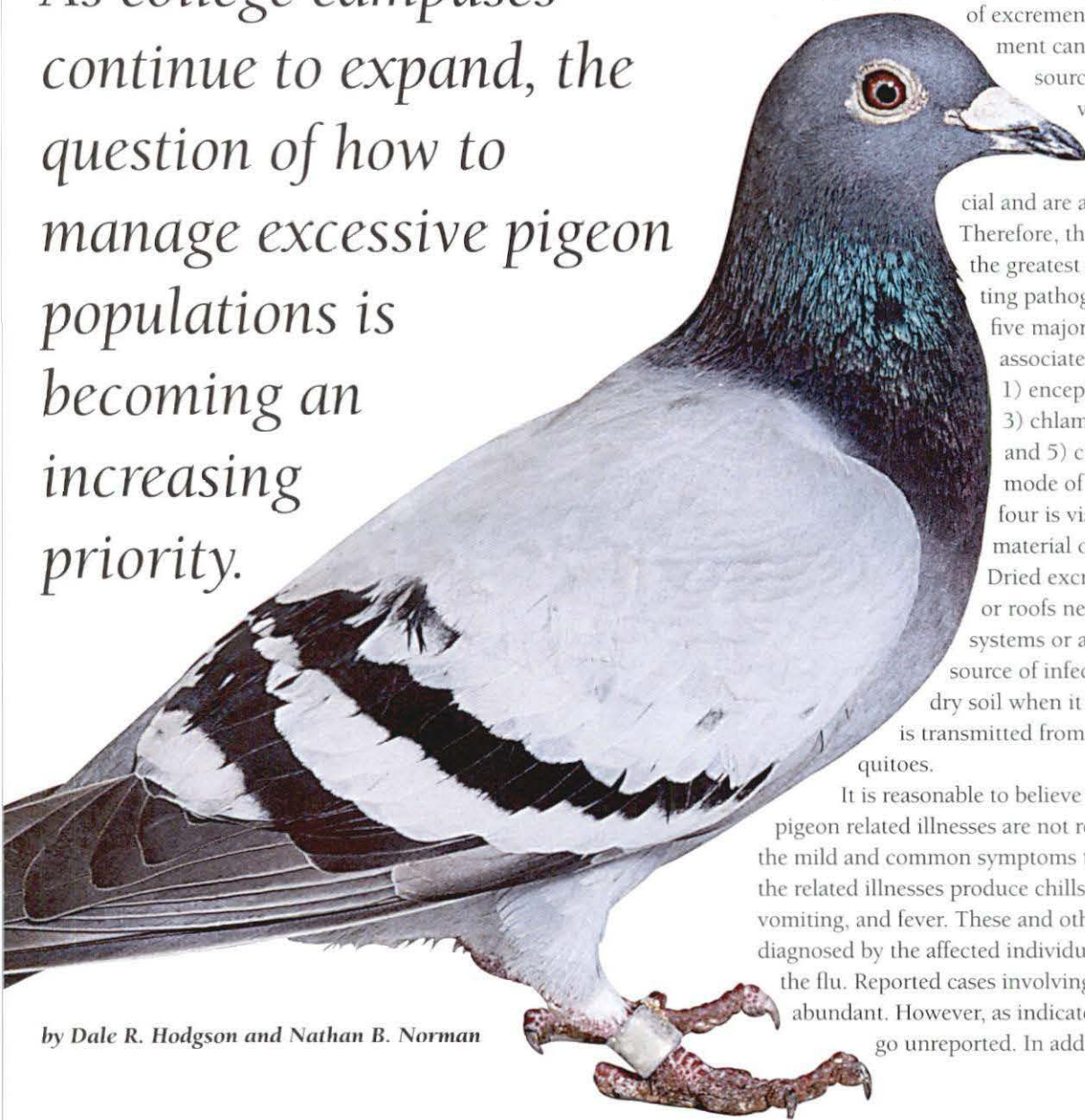
1) encephalitis, 2) salmonellosis, 3) chlamydiosis, 4) histoplasmosis, and 5) cryptococcosis. The main

mode of transmission for the latter four is via inhalation of infected material or dried bird excrement.

Dried excrement on window ledges or roofs near air conditioning systems or air vents is a potential

source of infection as is contaminated dry soil when it is disturbed. Encephalitis is transmitted from birds to humans via mosquitoes.

It is reasonable to believe that many cases of bird or pigeon related illnesses are not recognized as such due to the mild and common symptoms they may produce. Many of the related illnesses produce chills, headaches, diarrhea, vomiting, and fever. These and other symptoms may be misdiagnosed by the affected individual as a cold, an allergy, or the flu. Reported cases involving the above diseases are not abundant. However, as indicated above, many cases may go unreported. In addition, risk minimization





is an important factor. Although rare, death has been associated with all five of the above listed diseases.

Human illness should be a major concern when considering bird management. However, other factors such as structural damage, economic losses, and associated costs for cleanup and repairs can provide strong rationale for managing the pigeon population.

In order to maintain a positive working relationship with the community, it is strongly recommended that the use of toxicants in managing bird populations be utilized only as an extreme last resort if allowed by state, county, and local ordinances. A more integrated, long-term program would be to use the combination of exclusion, mechanical repellents, and trapping in gradually reducing the number of pigeons affecting campus. All of these methods are generally looked upon favorably by city officials, and they often are the *only* management strategies allowable by municipal governments.

Following is a brief outline of each control method:

- **Exclusion.** Netting installed where major problems occur to prevent roosting. Pest management staff should be available to assist with site identification and evaluation. However, due to equipment and material constraints, those trained in working on building exteriors at various heights should perform installation. Fewer roosting sites will cause a population drop due to unsuitable habitat. In addition, deterrents such as Nixilite, Catsclaw, Ecopic and others can be installed where feasible.

Dale Hodgson is pest management specialist/consultant and a Board certified entomologist, and Nathan B. Norman is manager of building services, at the University Michigan, Ann Arbor, Michigan.

- **Repellents.** The installation of Irritape at various locations to frighten flocks and discourage roosting. Irritape is a non-toxic holographic tape that works by producing highly reflective light patterns when moved by air currents. Repellent caulks may also be used where feasible and where local ordinances allow.
- **Trapping.** An ongoing trapping program should be in place to keep pigeon populations at a manageable level. Although somewhat labor intensive, live trapping and humane euthanasia have the following advantages:
 1. Less adverse public reaction.
 2. Only target species will be euthanized.
 3. No risk of secondary poisoning or other environmental contamination as associated with the use of toxicants.
- **Chemosterilants.** Ornitol was the only chemosterilant registered for use in a pigeon management program. The product worked by sterilizing female pigeons for six months, male pigeons for three months. A ten-day pre-baiting period is required (with untreated bait) followed by a ten-day actual treatment period. Applications should be made in spring and fall for a two-year period. A noticeable population drop can be expected at that time. Advantages of using Ornitol were:
 1. Ornitol was the only chemical method allowable under certain city ordinances.
 2. There was little direct mortality. Ornitol is a sterilant, not a toxicant. The product is viewed favorably with several animal rights groups, including the Humane Society of America.
 3. No adverse effect on non-target species. Ornitol may cause temporary sterility in some species, but this is followed by full recovery.

However, chemosterilants may no longer be an option, as the manufacturer has voluntarily removed them from the United States market. However, the product still retains registration in Canada. In addition, the cost of a sterilization program campus wide could be prohibitive, with results not manifesting themselves for a period of years.

A rough population count of pigeons affecting campus should be taken before implementing any bird management program. Once the above control measures have been fully implemented, an ongoing population count should be done in order to evaluate project progress, and to make adjustments in the program as dictated. The ultimate goal of the project is not to eradicate the entire pigeon population, but to reduce the number of birds to a manageable level.

By fully utilizing all the above mentioned management practices, an integrated long-term pigeon management program can be developed that will fulfill the needs of the campus along with maintaining a harmonious relationship with the local community. 🏰

Reducing Liability Enhances the Value of Trees

by Roger Funk, Ph.D.



An accurate inventory and inspection program, utilizing hand-held computers for data collection, helps in planning an effective maintenance program.

All photos by Albin P. Dearing V, The Davey Tree Expert Company.

High school and college administrators realize the importance of environment in attracting potential students. A beautiful campus often gives one institution a distinct advantage over other less attractive options. But what makes a campus beautiful also can lead to potential safety hazards and liabilities.

"Trees add tremendous beauty to a campus, but they also represent one of the greatest potential hazards in the overall landscape," says Kevin O'Donnell, superintendent of grounds, Villanova University. "Trees have the potential to sustain major damage during storms, leaving institutions open to safety and liability issues. While campus visitors can spot ground level hazards and avoid harm, tree-related problems often are out of the normal range of site. We need to take special precautions so trees represent an asset, not a liability."

A well-planned management program and careful maintenance helps. Pruning, fertilization, and other forms of preventive maintenance reduce liability, decrease safety risks, and improve the overall health of a campus' tree inventory.

Trees are an investment, and like any investment, it makes sense to provide the care necessary to keep it a viable one. Replacing dead, neglected trees is costly. It's much more cost effective to maintain a tree than to restore or replace a damaged one.

Any time you can help improve the overall health of a plant, you reduce the stress to the plant. By reducing the stress of a plant, the chances of future problems with insects and diseases are reduced.

Begin at the Beginning

A well-planned maintenance program needs an accurate appraisal. It helps to know what you're working with, so a good place to start is with a tree inventory. Most insect and disease problems are host-specific, and an inventory can help you anticipate future problems. From that inventory, you can develop a management plan that would help you maintain your landscape and trees. The management plan could include everything from fertilization and pruning to installing cables and lightning protection. It depends on the landscape's requirements.

Part of that management plan should include regular inspections. Inspections track potential problems, prevent current problems from escalating out of control and help determine what type of care to provide.

The inventories and inspections take the guesswork out of landscape maintenance. With an inventory and inspection,

Roger Funk is vice president and general manager of The Davey Institute, the research arm of The Davey Tree Expert Company, Kent, Ohio.

you know how many trees you have, the trees' species, the condition they are in, their size, and their location. It helps you budget your time and money more effectively because you'll know exactly what you're working with. You're also using less paper because the information is all at your fingertips in a computer.

Pruning for Protection

A maintenance program—designed by using information gleaned from the inventory—provides the methods necessary to keep trees healthy. One of the most common methods in tree care is pruning. Pruning often involves removing decaying branches, which are potential breeding sites for insects and disease, and helps prevent the spread of decay to healthy wood.

There are safety concerns with unpruned trees. Closely branched tree canopies offer strong wind resistance, which can lead to limb breakage. Broken limbs, as they descend from the tree, can damage the tree, other trees, objects or even worse—pedestrians. A preventive pruning program will minimize such risks, because it increases airflow by allowing air to blow through, instead of against, the tree's canopy.

Proper pruning helps prevent extensive storm damage and creates good structural characteristics in a tree. Trees with weak branch structure and large deadwood tend to have more problems during storms. For example, a huge snowstorm once struck Denver on the last day of summer. Trees that were structurally unsound tended to break in the storm. As a result, thousands of trees were damaged or destroyed by the storm.

Pruning also helps shape a tree that is out of proportion. Done properly, pruning keeps trees healthy, attractive, and protected.

Necessary Nutrients

Fall is a good time to fertilize trees. In the fall, tree root systems are actively growing and increasing their nutrient uptake in preparation for the cooler temperatures. Proper fertilization helps trees recover from disease, insects, and environmental stresses, such as drought and low temperatures.

Campus trees usually must tolerate more stressful growing conditions than forest trees. The soil may be more compacted from foot traffic and maintenance machinery. This compaction inhibits the flow of water and nutrients to tree roots. In human-altered landscapes, trees also compete with grass and other ornamental plants for nutrients.

Supplemental fertilization of trees in lawns actually replaces lost nutrients, providing the tree with nutrients similar to those it would have received in a natural setting. Fertilization helps the tree stay healthy so it can combat

Tree Fertilization: Fact vs. Fiction

Fertilization makes landscape plants stronger, healthier and more attractive. And knowing the difference between fertilization fact and fiction helps keep trees healthy. Tree fertilization myths are plentiful. When seeking tree fertilization advice, be sure to ask a professional arborist.

Fertilization Myth: *I fertilize my lawn, so I don't need to fertilize my trees.*

Fertilization Fact: Lawn fertilization does not provide trees with the nutrients they need to help keep them healthy. Actually, grass competes with trees for nutrients. Both grass and trees need to be maintained separately to stay healthy. Grass and trees require oxygen, water and nutrient from the soil to grow. However, grass roots are more efficient at extracting nutrients from the topsoil than tree roots. Because grass roots are more fibrous and closer to the soil surface, they absorb the fertilizer before it can reach the deeper tree roots. To benefit trees, fertilizer has to be applied below grass roots. Subsurface tree fertilizer is applied in the top 8-12 inches of soil where trees' most active roots grow. This process also may improve soil aeration.

Fertilization Myth: *Trees in the forest aren't fertilized, so my trees don't need to be fertilized.*

Fertilization Fact: Actually, trees in the forest are fertilized. Leaves fall to the forest floor and decay, returning organic matter to the soil. As the leaves decompose, they release nutrients, providing trees with nature's own method of fertilization. In a landscape environment, space surrounding trees is usually occupied by turfgrass, which competes with trees for nutrients. Allowing leaves to accumulate on your lawn is not a viable solution. Not only are the decomposing leaves unsightly, but they will also kill your grass. Fertilization is necessary to replace the nutrients lost when the leaves are removed.

Fertilization Myth: *Older trees don't need to be fertilized.*

Fertilization Fact: The opposite is actually true. Older trees are less self-reliant than younger trees. Young trees grow more rapidly than mature trees. Whatever growth you see above ground is a reflection of what's going on below. As a tree grows, its roots grow outward in search of new nutrients. If roots are not actively growing, there is less opportunity for them to absorb nutrients. Proper fertilization places these nutrients in close proximity to the roots and improve absorption. Also, the distance between the tree's roots and leaves increases with age. As the tree increases in size, more minerals are needed to build and maintain the stem structure. A tree needs the proper amount of nutrients to supply that cellular pipeline, or its health will begin to decline.



Applying fertilizer into the root zone, as shown here, directs valuable nutrients to the place where a tree needs it most—the root system.

insect, disease, and environmental problems. In addition, fertilization has been proven effective in tests. Studies have shown that properly fertilized trees have less problems with leaf diseases, drought, and winter injuries.

Providing Extra Support

In the blink of an eye, lightning can strike down a valuable tree that took years to grow. High winds can cause weak limbs to break off trees, causing damage not only to the tree, but also to whatever objects or people are struck by the falling branches. In addition to pruning, cable and lightning protection helps save trees from excessive storm damage.

Cabling provides a support system for the tree to help prevent trunk splitting and branch breakage during high winds. Trained technicians run cables between and fastened

to upright stems and large branches, usually placing the cables high in the tree's canopy. These systems strengthen trees by transferring part of the weight of a weak branch to a stronger one. Cables are not intended to "hold" tree parts together but instead to keep branches intact as a unit during stressful weather.

Lightning protection systems can help protect your trees from lightning damage. The damage may travel all the way to the tree's roots. The moisture content in the tree's wood will affect the amount of lightning damage. Trees with water-soaked outer bark will tend to have little internal damage because lightning is thought to move down the outside of the tree's bark. However, if a tree has little or no moisture content, the lightning may strike deep within the tree. Water in the wood is rapidly superheated to steam and the sudden gas pressure will cause the wood and bark to explode.

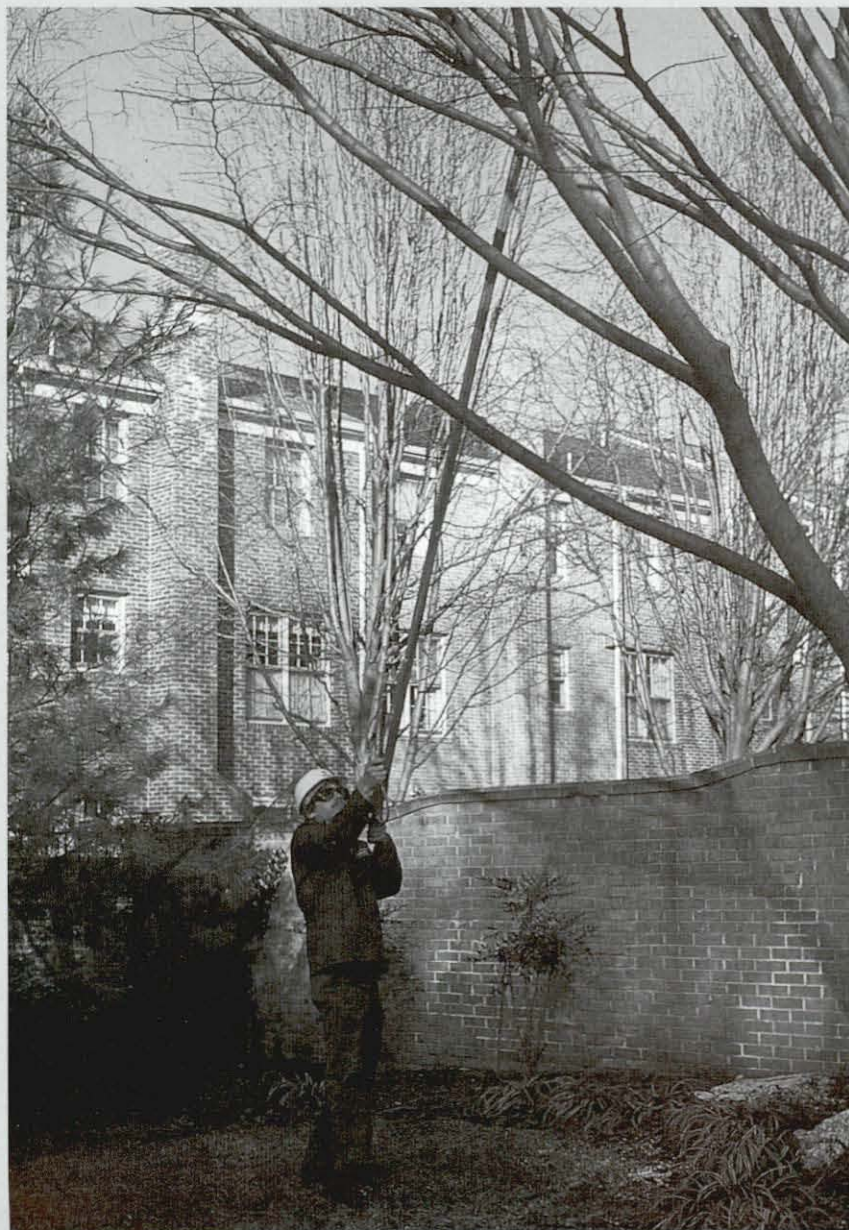
A lightning protection system helps prevent such damage. Copper conductor cables can be placed high in the tree's branches, connected to cable running down the trunk and into the soil beyond the tree's main root area. This system does not prevent the tree from being struck by lightning, but it does direct the electrical current to travel through the tree to ground, saving the tree from destruction.

Proper cabling and rigid bracing are an important part of protection for valuable trees from potential storm damage and wind breakage. This type of preventive maintenance is highly recommended for trees that grow fast or have weak branches or crotches.

Management Solutions

A budgeted tree maintenance program, as part of a campus' total grounds management plan, offers the greatest potential for a healthy and safe campus landscape. Many campuses have large trees that are not easy to replace. A 60-foot oak tree will take a lifetime to grow back. Losing a tree like that alters the look of a campus significantly.

Says Villanova University's O'Donnell, "Many prospective students looking at Villanova also are looking at other campuses. A campus visit, with parents in tow, may or may not include a classroom visit. But it always includes a view of the grounds. In this competitive environment to attract potential students, we depend on our trees and landscape to be beautiful and hazard-free." 🏰



Proper pruning helps protect trees from extensive storm damage by allowing wind to pass through—not against—the tree canopy.

MAPPA and PGMS Sponsor

The Sixth Annual Grounds Conference

by Robert A. Getz

In 1990-91 Roger E. Rowe, associate vice president of Miami University in Oxford, Ohio, came up with the idea of a gathering of grounds professionals. He nurtured that idea through a series of meetings and discussions until it became a reality on the Miami campus in 1992. That was the first in the series of annual Grounds Management Conferences hosted by MAPPA, then known as the Midwest Region of the Association of Physical Plant Administrators, and PGMS, the Professional Grounds Management Society.

That meeting provided an opportunity for grounds professionals to meet to learn of advances within the industry and to share ideas with one another. The feedback was so positive that Roger decided to hold a second conference in 1993 at the Miami campus.

This sharing of knowledge was a successful grassroots effort because it came from a combined, perceived need. Grounds professionals needed an avenue and forum in which to share their common knowledge to address both problems and successes. Problems which required solutions and successes which needed to be shared to encourage others.

Bob Getz is director of physical plant at William Rainey Harper College in Palatine, Illinois.

The following year, the conference moved to Illinois State University in Bloomington, Illinois. Charles Scott, their director of campus services, became the second host of this event for the years 1994 and 1995. Illinois State continued the excellence in education and camaraderie.

They also added a little excitement by providing a tornado during the Steak Fry at the 1994 meeting. Most important, they continued to provide the opportunity to learn and share.

Through these years, the spotlight was shared by PGMS and an individual named John Gillan, executive director of PGMS. Gillan had a very interesting idea, which developed during these meetings. He thought it would be beneficial for both organizations to have PGMS to become the "Green Arm of APPA." Gillan fostered the idea of a joint effort to enhance the professionalism of the grounds professionals within APPA with the expertise available in PGMS.

That direction was encouraged when the conference moved to William Rainey Harper College in Palatine, Illinois. I have had the honor and pleasure of hosting the annual meeting in 1996 and will do so again on August 6-7, 1997. During this time, negotiations to link APPA and PGMS began in earnest. Kevin O'Donnell of Villanova University will be making a presentation at this year's conference. He is the task force chair for PGMS's effort to link with APPA in a joint enterprise to support the grounds

Partial Program

MAPPA/PGMS Grounds Management Conference August 6-7, 1997

- Keynote Address: *Modern Landscape Management: It's More Than Just the Plants!*, Henry T. Wilkinson
- *Composting*, Kevin O'Donnell
- *GIS Technology*, Mike Young & Mark Eboch
- *Estimating Grounds Labor Hours*, Dennis M. Orenchick
- *From Shrubs to Perennials*, Kay Turner
- *Integrated Problem Management for Snow and Ice Control*, Mark Cornwell
- *Creating a Quality Campus from the Bottom Up*, Kenn Rapp
- *Campus Landscape Quality Improvement Team*, Larry Wilson & Bob Vercande
- *Grounds Care: The Basics*, Environmental Design Group
- *Arboretum Community Volunteers*, David A. Webb
- *Making the Most of Your Buying Decision*, Steve Keating
- *Grounds Staffing Guidelines*, Robert A. Getz
- *Creating and Using a Computer-Based Landscape Mapping System*, Peter Wold
- *Use of Crumb Rubber to Prevent Soil Compaction*, Alan Peterson
- *Using Color in the Landscape*, John Ott

professional. See Wayne Leroy's Executive Summary column in this issue of *Facilities Manager* for more information on the APPA/PGMS alliance.

In another interesting development, PGMS is also negotiating through Kevin O'Donnell to become the "Green Arm of APWA," the American Public Works Association. APWA has agreed to advertise the MAPPA/PGMS Grounds Conference to their members for the professional development of their grounds professionals. Thus, you will note the reduced fee for three organizations in the flyers you receive this year. APPA, PGMS, and APWA members will all be offered the reduced fee for participation.

In 1998 and 1999, the conference moves to Western Michigan University and then on to Butler University in 2000 and 2001. A strong tradition is developing. Roger Rowe started a movement that will benefit not only a multitude of APPA members but also those belonging to PGMS and APWA.

In closing, this five-year experience has been exhilarating. It offers all of us a chance to take off from work and walk through the experiences of other campuses. They are not only works of art but spokespersons for their period of time. These conferences are unique in allowing us all to become better caretakers for our campus communities.

For more information or to register, please contact me at 847-925-6350, or by e-mail at rgetz@harper.cc.il.us. 🏠

These prestigious colleges and universities are presently enjoying the benefits of

Strobic Air Tri-Stack™ Systems.

Tri-Stack Systems eliminated re-entrainment problems, ended maintenance headaches, and cut operating costs. In fact, in most cases the systems have paid for themselves out of the first 2.3 years of operation!

ATLANTIC COUNTY COLLEGE • AMHERST COLLEGE • BAYLOR COLLEGE OF MEDICINE • BLOOMSBURG COLLEGE • BOSTON UNIVERSITY • BRIDGEWATER COLLEGE • BRIGHAM & WOMANS • BROWN UNIVERSITY • C.N.U. SCIENCE BUILDING • CARLETON UNIVERSITY • CARNEGIE MELLON • CASPER COLLEGE • CHICAGO STATE UNIVERSITY • PENSACOLA CHRISTIAN • PRINCETON UNIVERSITY • PURDUE UNIVERSITY • RENSSELAER POLYTECHNIC • SARAH LAWRENCE COLLEGE • SETON HALL UNIVERSITY • ST. LOUIS UNIVERSITY • TEMPLE UNIVERSITY • THOMAS JEFFERSON UNIVERSITY • UMASS, AMHERST • UNIVERSITY OF CONCORDIA • UNIVERSITY OF CA • SAN DIEGO • UNIVERSITY OF KANSAS • COLORADO UNIVERSITY • CORNELL UNIVERSITY • CREIGHTON UNIVERSITY • DEKALB COMMUNITY COLLEGE • DELAWARE STATE UNIVERSITY • EMORY UNIVERSITY • FISK UNIVERSITY • FULTON MONTGOMERY • GEORGIA INSTITUTE OF TECHNOLOGY • GEORGIA SOUTHERN UNIVERSITY • HARVARD UNIVERSITY • HOWARD UNIVERSITY • INDIANA STATE UNIVERSITY • IOWA STATE UNIVERSITY • ITAWAMBA COMMUNITY COLLEGE • JOHNSON STATE COLLEGE • KENNESAW STATE COLLEGE • LEWIS & CLARK COLLEGE • MC MASTER UNIVERSITY • MEDICAL COLLEGE OF GEORGIA • MEDICAL UNIVERSITY OF SOUTH CAROLINA • MELLON INSTITUTE • UNIVERSITY OF MARYLAND • UNIVERSITY OF MEDICINE/NJ • UNIVERSITY OF MISSOURI • KANSAS CITY • UNIVERSITY OF MONCTON • UNIVERSITY OF NEW MEXICO • UNIVERSITY OF PENNSYLVANIA • UNIVERSITY OF SOUTH FLORIDA • UNIVERSITY OF MISSOURI • KANSAS CITY • UNIVERSITY OF CA • LAWRENCE-LIVERMORE • UNIVERSITY OF FLORIDA - GAINESVILLE • UNIVERSITY OF NEW MEXICO • UNIVERSITY OF NOTRE DAME • UNIVERSITY OF CHICAGO • UNIVERSITY OF ILLINOIS • UNIVERSITY OF KENTUCKY • UNIVERSITY OF MIAMI • UNIVERSITY OF MICHIGAN • UNIVERSITY OF MISSOURI • UNIVERSITY OF OTTAWA • UNIVERSITY OF PITTSBURGH • UNIVERSITY OF RICHMOND • UNIVERSITY OF TEXAS • MERCER COUNTY COMMUNITY COLLEGE • MICHIGAN STATE UNIVERSITY • MIDDLE GEORGIA COLLEGE • MOTT COMMUNITY COLLEGE • MSU-KRESQUE ART CENTER • MT. VERNON JR. HIGH SCHOOL • NEBRASKA STATE LAB • NORTH WEST COLLEGE • NORTHERN ILLINOIS UNIVERSITY • OHIO UNIVERSITY • OKLAHOMA STATE UNIVERSITY • UNIVERSITY OF VIRGINIA • UTAH HEALTH & SCIENCE • VIRGINIA INSTITUTE • VIRGINIA TECHNICAL INSTITUTE • WASHINGTON & LEE INSTITUTE • WEST VIRGINIA UNIVERSITY • YALE UNIVERSITY • YORK UNIVERSITY • YOUNGSTOWN STATE UNIVERSITY • XAVIER UNIVERSITY



The commanding edge
in fan technology

**Strobic Air
Corporation**

**Now...lab exhaust without deferred
maintenance or re-entrainment
plus these advantages:**

- Roof top safety — virtually maintenance free
- Plume dispersion — constant full volume
- Rugged, light for minimum roof stress
- Low stack height
- Quick payback — approximately two years ROI
- Comply to ANSI 29.5
- UL listed

**Only Strobic Air's
Tri-Stack™ reduces
system pressure
requirements
by 2" w.g.**

Learn more now...

We wrote the guidebook (and produced the video) on safe, efficient laboratory ventilation. Both are yours for the asking. Call or fax for copies, technical data, or applications advice.

For design/applications tips, visit our web site: <http://www.strobicair.com> or E-mail: tristack@strobicair.com



The commanding edge
in fan technology

**Strobic Air
Corporation**

160 Cassell Road
Harleysville, PA 19438
Tel: 1-215-723-4700
Tel: 1-800-SAC-FANS
Fax: 1-215-723-6758

A subsidiary of
**METPRO
CORPORATION**

THE paradigm shift in institutional facility management toward increasingly "business like" operations allows for more aggressive facility renewal strategies. In the private sector, the return on investment for any given project or operation is always of importance. The basic philosophy is that the resources spent by the business are to yield the greatest possible return. In the private sector the "return" is realized as profit. In the institutional world this return is realized as increased resources. The prudent investment of facilities maintenance resources can yield additional resources in the form of cost avoidance, increased facility asset value, economies of scale, off balance sheet financing, and increased departmental effectiveness and efficiency. I haven't been to a facilities operation yet that couldn't use some additional resources.

In the past, most facilities operations conducted facilities audits to compile a list of capital renewal projects and the associated cost estimates. Some facility audits are exhaustive and expensive. The theme of a traditional audit is based on life cycles and safety/code concerns. However, if the resources invested into facilities are to have return, then a different theme must be employed.

Matt Adams is president of M.C. Adams & Associates, a management/engineering consulting firm located in Atlanta, Georgia, specializing in the facility maintenance and management within higher education, school districts, and other institutions. He can be reached at mc.adams@facinet.com.

Recently, Georgia Tech completed an exhaustive facilities analysis. As part of the analysis, the engineers ranked the capital renewal projects in a unique way. Each project and its corresponding cost was ranked with an "Investment Quality Ranking." Robert Thompson, the senior vice president, agreed that the large total of capital renewal backlog needed prioritization beyond the traditional life cycle method. The Investment Quality Ranking or IQR provides one more way for the institution to make qualitative judgments about the large number of proposed renewal projects. Assuming that all of the projects would not or could not be funded, it helps set priorities as to which projects would provide the best return on the investment for Georgia Tech. To that end, the IQR ranking is based on a 1-10 scale. The scale implies the following:

- Project ranked 10—this is a project where the value of the investment that is returned to the institution is at least equal to the cost of the project. In other words, for every dollar spent on a electrical distribution project, the asset value or "return" with respect to that facility increased correspondingly for the institution. The return itself could come in one or more ways.
- Project ranked at 5 or below—projects that are ranked 5 or below are poor investments for the institution. This is not to say that this project may have other factors that lend to its importance. However, in terms of investment, the return is low. A poorly designed facility

that is difficult to maintain does not make good use of its renewal dollars.

There are several major factors that facility professionals can use to make qualitative judgments about each project. Each has weight in the calculation of the return on investment for the institution. The creation of an IQR for any given institution represents an opportunity for the facilities staff and the administration to reach a common language with regards to renewal funding. The large capital backlogs at many institutions seem endless to senior administrators. Mutually agreed upon IQRs serve to make more meaning of the renewal needs of the facility.

Space Valuation—Before a given facility or space is reinvested in its usefulness and efficacy is determined. Is this laboratory functional by today's standards? Is it capable of supporting the needs of the research or teaching faculty? If no, then how much benefit will investment of capital renewal dollars create when put into this facility? Perhaps the facility may need to be utilized for a less intensive space need. If so, capital projects might make better investments within the context of a different space use. At Georgia Tech, this space valuation had a prioritization of its own. At other institutions, the capital renewal backlog associated with a given facility can be put into a "return on investment context" with an IQR. This IQR may be another indicator that a facility should be removed entirely in cases where the space no longer adequately serves any need for

the institution. Sometimes the land is just too valuable for use by or reinvestment into an ineffective building.

Corrective Maintenance

Avoidance—Exhausted systems within a given facility create dramatically increased workloads for the maintenance staff. It has long been known that replacement of poorly designed or failed mechanical systems reduces the maintenance demand of the building. Cost avoidance or redirection of resources is a good return on facility investment. In system replacement situations, the facility operations staff is in a better position to influence or even control the specification process. The new replacement systems are selected with long-term maintenance costs in mind. The return on this investment is identified through effective cost accounting. The maintenance costs associated with each facility are tracked by most good computerized maintenance management systems. When the pressure builds on plant operations to do more with less, the goal of maintenance cost avoidance with respect to capital renewal funding becomes critical.

Energy Demand Savings—There is always an opportunity for resource reallocation with respect to demand-side energy savings. The conservation projects that provide the quickest return on investment provide leverage opportunities to the institution through shared savings or off balance sheet financing. These projects make good business sense and serve to create additional resources for the institution. However, the lower return energy projects also have value to the plant. Outside vendors or energy service companies may not have an interest in some lower return projects, yet the institution may. At Rennselaer Polytechnic Institute, Tom Yurkewicz, the vice president for administration, has gone one step

further. The institute provides funding capacity to the plant for capital projects with longer returns. Some fenestration renewal projects are funded in this way. Put into the context of the overall institution's facilities portfolio, these projects provide meaningful return.

As facilities professional are pressured to show increasing accountability

for the resources spent on the plant, certain rationale must change. The return on investment of capital dollars into a facility is as important to non-profit institutions as it is to the private sector. Facilities management professionals may even consider what Michael Douglas describes in the movie *Wall Street* when he says "greed is good!" 🏢

SVBK CONSULTING GROUP

A KERSTEN-BROWN CORPORATION

Professional Consulting Services for the Utility Industry

- Electric Industry Restructuring & Deregulation
- Fuel Supply Development
- Regulatory Support
- Cogeneration Analyses
- Contract Negotiations
- Project Financing Support
- Strategic Planning
- Aggregation
- Rates and Cost Recovery
- Supply Planning
- Privatization
- Economic Feasibility Studies
- Public Procurement
- Litigation Support

SVBK Corporate Office

205 East. Central Blvd, Ste. 500

Orlando, FL 32801

Telephone (407) 872-1500

Fax (407) 843-3200

E-MAIL svbkcg@magicnet.net

by Howard Millman

"We're going to turn this team around 360 degrees."

—Jason Kidd
of the Dallas Mavericks

AT a moment's notice, any one of us can produce at least a dozen reasons that obstruct change and progress. One of the two largest impediments is comfort. Facilities doomed to endure the most painful transition to implementing or updating a Facility Management System (FMS) are those who already enjoy the modest advantages of a "home-grown" system. The second impediment is cheerleaders, but more about them later.

As the brainchild of the facility's digital ruling class, home-grown systems do things exactly the way its users most want it to. Of course, the system may only provide six out of the fifty or so processes the physical plant needs to operate a cost-effective operation, but it does them well. What's more, maybe only six out of the 95 people in the department can use it but, fortunately, one of the six is always available when anyone outside of the circle needs information.

As lifestyle speaker Anthony Robbins says, you will only act to resolve a problem when the agony of avoiding action exceeds the agony of taking action.

Howard Millman operates the Data System Services Group, a problem-solving consultancy group based in Croton, New York that helps universities and university hospitals automate their facility management process. He can be reached at 914-271-6883 or by e-mail at hmillman@mcimail.com.

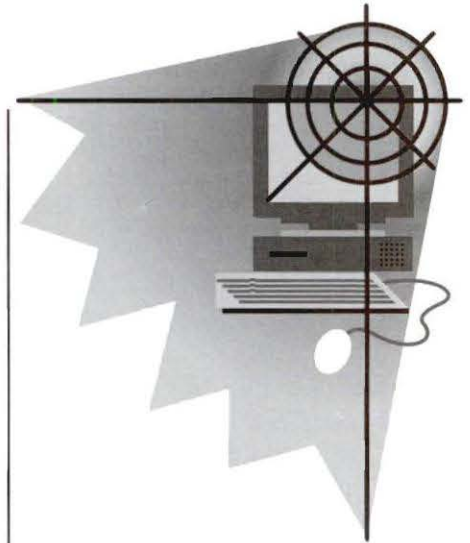
My Little Corner of the World

Unfortunately, these systems possess the "it's uniquely ours" comfort factor and the system administrators find it painful to think of replacing their system with anything else. This is the same mindset that business analysts say contributed to Apple Computer's fall from grace.

Typically, the exercise starts with investigating how to narrow the gap between what you have and what you truly need. One of the first things you discover is that DOS is dead, having reached an evolutionary deadend.

To move into the future you need to convert your application to a Windows format. That conversion alone will cost you more in time and resources than starting from the beginning. On the positive side, commercially available programs will accept the raw data and avoid the need to rekey it. However, only reuse accurate data. I'd rather see you have no data than the wrong data.

The second impediment to change and progress are in-house cheerleaders who steadfastly sing the praises of the existing software's attributes and scowl at competitors. When the physical plant's staff threatens to revolt and implement a new off-the-shelf application (one that really does all the things that need doing), the cheerleader furnishes some overdue changes and successfully defuses the issue. Along the way, incidentally, the champion will likely ask you if you want the new sub-routine "...to generate the ad hoc report using Oracle's multithreaded distributed object code handler to parse the transient data?" Gulp.



Perhaps all you want is a report that rolls up the shops' cost for a project so you can finally track how accurate your estimates are. Maybe you need to know when it's cheaper to replace an air compressor than continuing to fix it or why one mechanic needs four hours to change a ballast while another consistently does it in two, and you don't want to return to college for an advanced degree in order to extract this information.

When analyzing whether you want to acquire a newer technology or stay with your existing software, evaluate not only the new features but how well they are implemented. For example, most home-grown systems serve the needs of the accounting department quite well. Typically, the accounting staff overflows with reports, often more than they need, but few personnel besides the accounting staff can extract any information.

Decision Support Demands Quality Data

In order for managers to find and extract high quality information from such a system, someone has to put it

in. In the old days, say four years ago, it was enough to have the Work Control Center (or whatever name you call it by) enter that information. Typically, the operators would enter and print out the work requests and place them in mailboxes for the shop foreman to pick up on their way to do something else.

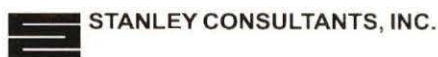
When the mechanics finished the work, they returned the ticket to the Center who keyed in the data (thereby handling it twice or thrice). That's the theory. All too often some tickets are lost, or returned incomplete. Many times when the director or manager needs information to respond to a academic customer about a task's progress or costs, it's not available to them. Someone has to first track down the mechanic who worked on the job. Sound familiar?

Data Creators and Data Consumers

One method for gathering the vital data that the organization needs to function is to include the mechanics in the process. Allow or require them to enter selected data about their daily activities. That requires a highly graphical and intuitive system with online help and descriptive icons that mechanics can feel comfortable with. A combination of features that rules out all DOS-based homegrown.

If your typical manager or foreman need to spend endless hours or days learning the system's commands and menu hierarchy, that software does not belong in your operation.

Investigate replacing it with one of the 300 plus off-the-shelf packages. The reality is that no home-grown system can possibly deliver the wealth of features that it takes to run a cost-effective and responsive physical plant department. 🏠



Do We Have Your Engineering Solution?

APPA SOLUTELY!

Stanley Consultants wishes to recognize our ten-year association with APPA. Together, we have established and maintained a relationship that secures a brighter future for all.

STANLEY CONSULTANTS, INC.
Tel: 319/264-6600
Fax: 319/264-6658
E-Mail: info@stanleygroup.com

Member of The Stanley Consultants Group
International Consultants in
Engineering, Architecture, Planning, and Management

With offices in:
Chicago, IL • Cleveland, OH • Denver, CO • Des Moines, IA
Las Vegas, NV • Madison, WI • Minneapolis, MN • Muscatine, IA
Phoenix, AZ • Salt Lake City, UT • West Palm Beach, FL



HESCO

We're the largest discount wholesale distributor in the USA, stocking over 40,000 items and we ship within 24 hours!

WE STOCK THE LARGEST SELECTION OF VACUUM REPAIR PARTS!

Hoover • Eureka • Sanitaire • Royal
Panasonic • Windsor • Clarke Maintainer
Shop Vac • Advance • Oreck
Koblenz • Elky Pro • Electrolux

WE ALSO HAVE THE LARGEST SELECTION OF CLEANING SUPPLIES TOO!

Rags • Sponges • Buckets • Mops • Trash Liners • Paper Goods
Rubber Gloves • Brushes • Brooms • Feather Dusters • Pails
Trucks Triggers and Bottles Sprayers • Scrapers
Pumps and Motors • Carpet Care Products



7 Convenient Locations Across the USA

Atlanta, GA / Baltimore, MD / Chicago, IL / Columbus, OH
Dallas, TX / Springfield, MA / Phoenix, AZ



1-800-822-7467

24 Hour Fax Ordering, 7 Days a Week: (847) 647-0534

<http://homepage.interaccess.com/~hescoadv>

The Bookshelf

Book Review Editor: Dr. John M. Casey, P.E.

Facility Management Technology: Lessons From the U.S. and Japan, by Eric Teicholz and Takehiko Ikeda. John Wiley & Sons, 1995. 182 pp, hardcover.

ERIC Teicholz and Takehiko Ikeda set out in their book to provide facility managers with some insight and methodology on setting up and using a computer-aided facility management (CAFM) system. However, the rapidly changing environment to which they try to bring some order proved to be quite difficult to codify despite their many years of experience. The method of presentation, consisting of one part identifying major issues and strategies associated with planning, implementing, and managing CAFM, and another part showing with case studies how real-life organizations dealt with CAFM, was too text-bookish and was not the "how-to" manual the book cover seemed to imply. The first part, Understanding CAFM, is of real benefit to facility managers, while the case studies section, was not very germane to the task at hand.

All of us are looking for ways to reengineer and to do more with less, and the computer gurus have promised that the little black box can help us accomplish this formidable task. The authors in Part I were able to shed some light on CAFM and demystify many of the buzz words the techies use to sell the product. One of the key statements made, and one

John Casey is manager of the engineering department of the physical plant division at the University of Georgia, Athens, Georgia. If you are interested in reviewing a book for The Bookshelf, contact Casey at jcaseype@uga.cc.uga.edu.

which I believe all facility managers will accept, was "CAFM is not like purchasing a piece of equipment. It is a living system that is continuously changing."

The authors in Part I provide an excellent resource on CAFM, explaining where it has been, how to manage, implement, and understand CAFM, and where it is going. I found Chapter 3 to be particularly interesting; this chapter discusses the issues associated with CAFM acquisition and management, including the important initial decision to implement a CAFM system. They provide some parameters which are considerations in this decision making process, including area, number of locations, type of facility, cost of space, and functions performed with in-house staff. The authors also discuss the necessity for strategic planning and a facilities master plan. One of the key considerations is the integrating of facility and corporate data to assist the executive leadership in making decisions on property/facility issues and corporate management.

The authors stress that the strategic plan is a "living" document that must be reviewed and updated regularly to reflect the current state of the organization. Surprisingly enough, the corporate lingo in this chapter readily relates to the educational environment. The authors believe that the strategic plan of the organization should also provide for a strategic CAFM plan. This CAFM plan should consider many of the same variables as the organization's strategic plan, such as time frame, frequency, coverage, participants in plan development, benefits and the plan contents (customer demand, standards, technology, financial implications, etc.).

The last part of Chapter 3 is where the book really has value for higher education facility managers. The authors provide a detailed guide on the successful implementation of a CAFM system. They give good explanations of the steps necessary for implementation, and describe some of the issues that must be confronted and overcome to assure success. The guide begins with a discussion on the make up of the implementation team and the selling of management on the need for automation. The authors do not sugarcoat the process, and provide valuable insight into installing an automated facility management system such as their discussion of the common pitfalls encountered during implementation. I had encountered a few of these problems myself, so I was reassured to know that these issues were common to facility managers. Two of the most relevant pitfalls in my experience were trying to do too much too fast, and inadequate personnel for management of the system.

The authors also provide a "to do" list which they feel would make the implementation process work, and would "stack the deck" in a facility manager's favor. This list is worth remembering and is provided below:

- Elicit top management support and commitment; encourage facility management support
- Be open to change
- Develop databases at the appropriate level of detail
- Be realistic about financial and scheduling promises
- Focus on implementation
- Start modestly—don't try and automate everything at once.

The meat of this book is in Chapter 3. What followed in the last two chapters of Part I and the eight case studies in Part II were not as helpful as I had

hoped they would be in understanding facility management technology. Teicholz and Ikeda do some predicting to provide a glimpse of what we can expect to see. They see facility managers becoming the guardians of corporate data, facility management becoming more strategic, CAFM technology encompassing more functions (real estate and property management), and technology moving outside of the building, with CAFM linked to AM/FM (automated mapping/facility management) and GIS (geographic information system) systems.

The case studies in Part II involve a wide variety of corporations both in the United States and Japan. This part of the book is very weak. However, the case study of the Florida Hospital is worth mentioning. This is a not-for-profit institution with five campuses and over 3.7 million square feet. This case study details the applications involved in the CAFM and the software used. The authors hit a home run with this case study and provide some practical insight on how to get a CAFM system implemented. This chapter also provides a list of what had been done right and what might have been done differently.

The other case studies I found less relevant to the higher education arena. There were some interesting points in several of these, but the effort required to find these kernels was almost such that the relevance was lost. The last case study on the Long-Term Credit Bank of Japan has some interesting information in regard to the network infrastructure and cable management systems. This information would be worth sharing with our counterparts in our information technology/information systems units.

The book tries hard, but the authors first describe how dynamic the CAFM area is and then propose static solutions for this environment. From my viewpoint, the book addresses facility management technology in the corporate arena, and this makes it less useful for those of

us in higher education. The authors do provide some needed insight, and Chapter 3 contains positive information. However, I do not believe this book is a necessary resource for our reference shelves, and it is probably more suited for the instructional environment. The authors write well and the book is succinct, but as Siskel and Ebert might say, its use as a practical guide to facility management technology in higher education receives "two thumbs down."

Facility Management Technology is available from John Wiley & Sons, Inc., 605 Third Avenue, New York, NY 10158-0012.

Paul Smith

Assistant Vice Chancellor for
Administrative Services and
Facilities
Pima County Community College
District
Tucson, Arizona

Presidential Leadership: Making a Difference, by James L. Fisher & James V. Koch. American Council on Education and The Oryx Press, 1996. 446 pp, soft-cover, \$34.95.

Presidential Leadership begins with a discussion of transactional and transformational leadership. I almost closed the book and threw it away. After being dragged into a sleepy bog by Dolence and Norris' obtuse *Transforming Higher Education*, I had sworn-off the weighty *T* words. Management consultants eager to stay ahead of each other have moved beyond the *R* words—reengineering, redefining, rightsizing, reinventing, and revitalizing—and leapt over the letter *S*. Soon we will be rushing to the forefront proclaiming a transfiguration through transactional transformationalism. Some, awed by the mystical multisyllabisms, will simply be transfixed. Others, thinking the *T* words are only transitory, will continue to rely on the plodding wisdom of the ages to lead them one step at a time through the morass of daily decisions.



Physical Plant Contracts Now Available

Updated and improved as needed to meet today's standards, each complete document includes: Bid Instructions, Scope of Work, Technical Specifications, Terms and Conditions, and Pricing Schedules. Individual contracts and complete volumes are presented in a professional binder and available on computer diskette using a WordPerfect format.

Construction - Part A: Carpentry Services; Concrete Installation and Replacement Services; Drywall Services; Electrical Services; Excavation Services; Painting Services; Ready Mix Concrete; Resilient Flooring Services; and Suspended Ceiling Tile Services.

Construction - Part B: Crushed Stone Supplies; Doors, Windows, and Hardware Supplies; Electrical Supplies; Lumber and Building Supplies; Masonry Services; Masonry Supplies; Mechanical Services; Mechanical Supplies; and Plaster Services.

Buildings & Grounds: Atrium Plant Maintenance; Electrical Utility Services; Elevator Inspection Services; Elevator Preventive Maintenance Services; HVAC Preventive Maintenance Services; Pest Control Services; Refuse Collection Services; Trash Removal Services; and Tree Trimming Services.

	Hard Copy	w / Diskette
One Volume	\$ 195	\$ 295
Any 2 Volumes	345	445
Complete 3 Volume Set	495	595
Individual Contracts	50	75

To place an order, obtain a current listing of available contracts, or to inquire about customized contract documents please contact:

Contracting Alternatives, Inc.

P. O. Box 1,
Blacksburg, VA 24063-0001
Tel: 540 / 552-3577
Fax: 540 / 552-3218

Other Resources

Planting Design: A Manual of Theory and Practice, by William R. Nelson, Stipes Publishing, hardback, \$23.80.

Planting Design has been acclaimed throughout the academic and professional world as an outstanding book that combines theory with the practical in the art of planting design.

This book serves the needs of the classroom student, the design professional, and the individual interested in self-instruction in the art of planting design and enables them to deal with the principles of design as well as the practical application of these principles. *Planting Design* is available from Stipes Publishing, 10-12 Chester Street, Champaign, IL 61820.

Lawns: Basic Factors, Construction and Maintenance of Fine Turf Areas, by Drs. Jonas Vengris and William A. Torello, Thomson Publications, 195 pp, softcover, \$15.50.

Designed as a textbook or a practical usage manual, this book has been completely brought up-to-date. Care of lawns and turfgrass, from selection of varieties to maintenance of established grass is completely covered. A needed tool for gardeners, landscape designers, and college turfgrass courses.

Available from Thomson Publications, P.O. Box 9335, Fresno, CA 93791.

However, my fear of leaded eyelids induced by weighty words were quickly set aside; *Presidential Leadership* is clear and mostly interesting. Written by past and present university presidents as a solution to current problems in higher education, it sets out a model for presidential leadership in higher education. It is valuable to facilities officers because of its model for leadership and insight into the presidency.

The authors quickly and clearly define transactional and transformational. Transactional leaders are the problem. They are weak. They react to situations, emphasize participative governance, revere process, and are happy getting by without having to take too much grief. Transformational leaders are the solution. They are strong inspiring visionaries who maintain individual accountability and are interested in results. The authors contend that transformational leaders date to the founding of Harvard, and characterized presidents until World War II. It is interesting that most literature on higher educa-

tion traces the germs of current problems to the period following that war.

After setting down the solution to higher education's problems, the authors take flight on a wide ranging exposition of the presidency, from the mystical to the mundane, from Saint Simone to the president's wardrobe. The authors discuss leadership theory, divulge presidential tactics, and debunk total quality management (TQM). The foundation of all that they survey is reliable empirical data. Nearly every assertion is conjoined with a reference to a recent empirical study. The authors do not put faith in anecdotes, but they do titillate.

The part of the book with the most fun is the section on leadership theory. You can replace the title "president" with your own and glide along on charismatic power. Charisma is at the top of the five sources of power that the authors say the president should use. You do not have to be a movie star to have charisma. You only have to set yourself apart. The authors tell you how. Both Koch and Fisher remind us that administrators

are the president's, and by divulging presidential tactics help us provide the support presidents expect. Debunking TQM is simply a matter of clearing the anecdotal wisps with the scythe of empirical data.

Leadership, according to the authors, is the ability of A to get B to do something B might not have done otherwise. To get B moving, power is needed. The authors lead into a discussion of power by drawing on one of their numerous references to scholarly studies and empirical data. The research of psychologist David C. McClelland and his colleague David H. Burnham concluded that "contrary to what one might think, a good manager [or leader] is not one who needs personal success or is people oriented, but one who likes power."

Presidential Leadership then renders five forms of power that should be used in descending order of importance: charismatic, expert, legitimate, reward, and coercive. Leadership theories abound, and they are all entertaining. Some involve judging ourselves against a benchmark of recognized leaders, or musing about the habits of successful people, or considering the newest trends. These theories can be classified as Authoritative, Passive, Inclusive, Exclusive, Prodding, Secretive, Open, or Generous. On and on they go; any of them can probably work. What the authors of *Presidential Leadership* work hard to do is cut out the anecdotes and base their theories on reliable empirical data. As the discussion glides along from personality types, to motivation, and to forms and uses of power, there are numerous references to recent scholarly studies on leadership.

For the bibliography alone, this book is a great find for someone interested in the detailed study of leadership. The authors sum their theories by stating that: "The most effective leader combines charismatic power with expert power from a legitimate power base, adding carefully

measured portions of reward power and little or no coercive power."

When reading *Presidential Leadership* you feel a little like a voyeur. The authors pull back the curtains and let you peek at the president. You see how they pick their clothes. You see their tactics for dealing with their constituents. You see their problems. The only purpose of administrative staff is to support the president and manifest his or her vision. Obscured by memory is the president who taught, led the faculty, assuaged the board, planned for the future, kept the books, designed the buildings, and maintained the grounds. Now presidents must rely on their staff to get results in an environment complicated by size, technology, increased accountability, and the burden of curing society's ills. The authors believe that "administrators must be the presidents and should be seen that way. . . loyalty is as important as competence." Having insight

into their problems, potentialities, and practices help administrators harmonize their work with the will of the president.

It is surprising to find a debunking of TQM in this book, but *Presidential Leadership* does cover a wide variety of subjects, and the authors are trying to help presidents solve today's problems in higher education. The authors do not believe that TQM is a process that can solve those problems, and they employ reliable empirical data to make their case. TQM has had some marginal effect in higher education, but the small strides are overshadowed by the enormous time and costs involved. Although touted loudly by many as the way to make higher education more effective and efficient, evidence of TQM's effect is sparse and largely anecdotal. The authors cite data showing the evidence from commerce is essentially the same. Many companies that have tried it have abandoned it. As Birch indicated in

1994, "There is no correlation between the popularity of a management tool and a firm's financial performance. The IBM-TQM Partnership with Colleges and Universities is ironic. IBM has lost massive amounts of money in recent years and its market share for most of its products have deteriorated." The authors state that: "The original pre-Depression idea of Shewart or of Deming in the 1950s has degenerated into a rather dreamy listing of Peters and Waterman-like promises." TQM is attractive because it spends much time making everyone feel good and helps avoid hard decision making. TQM may provide some benefit to service departments, but service departments are not the problem in higher education. The current problems in higher education concern faculty, governing boards, reduced governmental support, increased responsibility to cure society's ills, and academic philosophy. Both Fisher and

Twice The Work in Half the Time!

Without Breaking Your Back!

E-Z Reacher®

The Model 32S,
our most popular
Litter Pick-Up Tool
is available with
FREE Replacement Cups
for only

\$26.*

*1 add Residents add sales tax

- Other Lengths Available
- Quantity Discounts
- Dealers Welcome
- GSA Approved

E-Z Reacher®

Our Business is Picking Up!

Super Value!

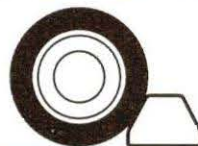
Heavy Vinyl
Collection Bag
with Adjustable Shoulder Strap

\$24

Phone or
FAX Orders to

Arcoa Industries • (800) 748-5529 • Fax (619) 489-0984

SOLID PLASTIC Parking Blocks



Solid plastic is lighter,
stronger and more durable
than concrete.

COMPOSITE Speed Bumps



SAVE TIME with one person
transport and installation.

Our products are mainte-
nance free & made from solid
recycled plastic parts.

THE PARKING BLOCK STORE

FOR STORE CATALOG CALL TOLL FREE:

800-683-9963

a division of
DCV, Inc.



Koch believe that strong leadership is needed to solve those problems.

The authors of *Presidential Leadership* believe in the common benefits of higher education, which form "the best hopes and prospects of society." They also believe in the spiritual benefits, stating that "without truth and beauty, there is no university." They do not believe problems in higher education are unique to our milieu. Every era has had its problems to solve. They do believe that current problems are founded in poor consensus-based transactional leadership. The authors present a specific and detailed model for transformation using a charismatic leader with legitimate power as its hero. *Presidential Leadership* is a clear and concise book written by individuals who care about higher education and have specific proposals for its problems. It is beneficial and recommended to facilities officers as a model for leadership and a fuller understanding of the president that we are bound to support.

Presidential Leadership is available from ACE/Oryx Press, 4041 North Central at Indian School Road, Phoenix, AZ 85012-3397.

Kirby Vahle

Associate Vice President, Facilities
Management
University of Texas Southwestern
Medical Center at Dallas
Dallas, Texas

Campus Planning by Richard P. Dober, AICP. The Society for College and University Planning (SCUP), 1996. 314 pp, softcover.

Campus *Planning*, a reprint of the original 1963 text published by Reinhold Publishing, provides an interesting retrospective of the significant physical changes which occurred in higher education between the late 1950s and early 1970s, often referred to as the "golden age" in higher education. It also provides some rationale as to how our individual campuses came into being. The

book is divided into three parts: a review of noted campuses and the development of these campuses over time; a review of the physical elements of a college from space requirements through utilities; and lastly, a review of campus development plans from the early 1960s. Many facilities officers will find their respective campuses described in these pages.

The original text was not intended to be solely a history of the development of higher education's physical resources, but now, over thirty years later, the history and differences in development cannot be ignored. Part one provides information on campuses which were historically used as examples of campus planning. Part three reviews numerous campus plans which were current in 1963. The author notes, in his 1996 forward, that there were successes as well as disappointments documented by reality in the intervening thirty-three years. Recent efforts by APPA, NACUBO, SCUP, and now Sallie Mae have documented that campus planning should not be limited to development of new academic facilities but should include planning for the campus' renewal. The physical reality of the documented campuses, as well as the financial conditions of the college, university, or state tell the story now, but that is not the author's intent.

Part two of the text contains "planning modules" which outline either analytical methods or rules-of-thumb to perform the preliminary planning and programming of a new campus facility. The functions of instruction, libraries, research, housing, physical education, recreation, circulation, and parking are well documented with examples. For those who are familiar with facilities operations and short-term planning, the text is an excellent resource to develop a perspective and understanding of campus development techniques. While Dober indicates in his foreword that there are "sophisticated computerized modeling" tools now available to per-

form many of the projections needed to plan campus growth, the simplified procedures presented are valuable to describe the process and allow those without access to computerized tools to develop a campus plan in a logical, systematic way.

A more extensive chapter on utilities would benefit the text. There are many options for the delivery of utilities to a new campus which can have the same influence on the future shape of a campus as the other functions discussed. Utilities represent a significant (more so outside of the U.S.) annual operating cost which should be carefully considered when planning any facility. We have learned that utilities are not solely "matters of engineering expertise," they are affected by occupant use of facilities, academic operations, building configuration, and campus organization.

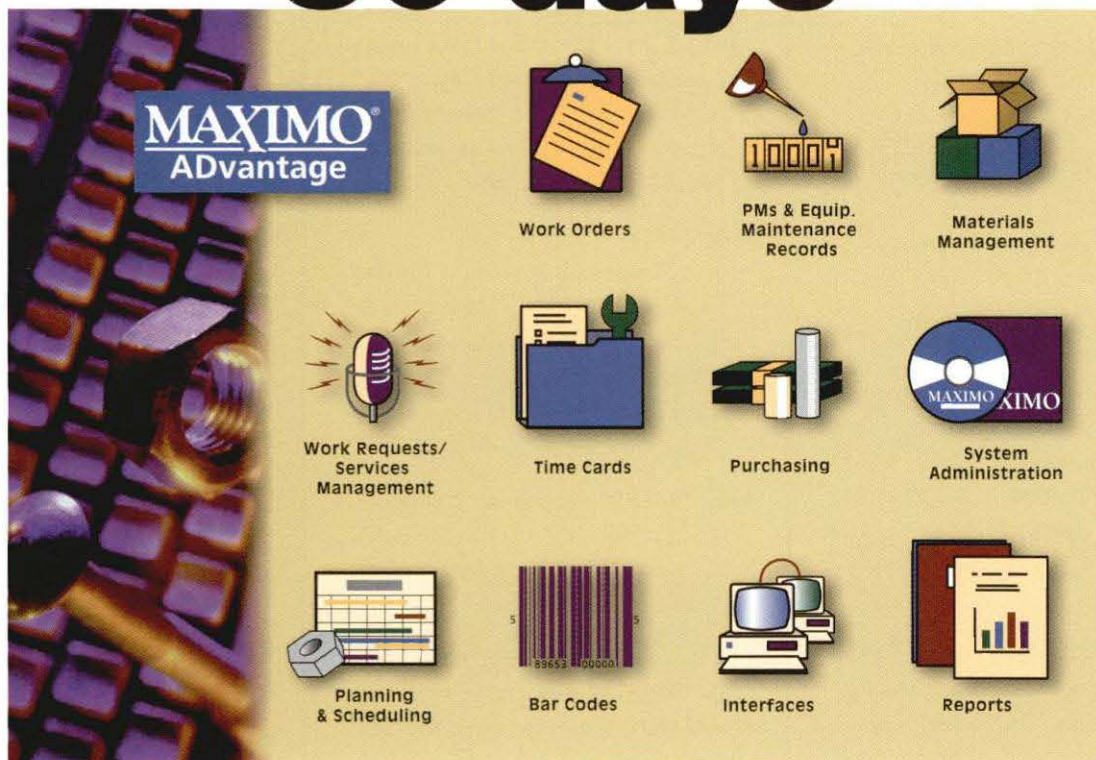
Time has changed campus planning. The era of rapid growth to meet the demands of a growing population has given way to one of facility preservation with responsible growth, innovative use of technology for instruction, and cost containment. That does not diminish the importance of campus planning; it reinforces.

Campus Planning remains an excellent reference for facility officers to assess the physical reality against campus mission and goals. When viewed in retrospect, it provides learning experiences and opportunities to change and ways to view the physical delivery of higher education. It emphasizes the importance of planning and provides facility officers with tools and techniques to respond to changing demands.

Campus Planning may be ordered from APPA Publications, P.O. Box 1201, Alexandria, VA 22313-1201. The cost is \$40 plus \$8 shipping and handling; prepayment is required.

Theodore J. Weidner, PE, AIA
Director of Facilities Planning and
Management
Eastern Illinois University
Charleston, Illinois

GIVE US
30 minutes
WE'LL GIVE YOU
30 days



Thirty minutes. That's all it takes to evaluate **MAXIMO ADvantage**.
No need to load disk after disk or rifle through endless pages of documentation.
No need to spend hours with a tutorial or lose a full day's work.
One CD and thirty minutes. That's all it takes.

Call **1-800-244-3346** for a **free evaluation kit**.

MAXIMO[®]
ADvantage

Maintenance management software

PSDi
Maintaining the future

Coming Events

APPA Events

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

July 13-15—*Educational Conference & 84th Annual Meeting*. Orlando, Florida.

Sept. 14-19—*Institute for Facilities Management*. Toronto, Ontario, Canada.

Jan. 25-30, 1998—*Institute for Facilities Management*. Houston, Texas.

Other Events

May 22-23—*Big Ten Plus Friends/MAPPA Trainer's Conference*. Purdue University, West Lafayette, IN. Contact Bob Beck, 317-494-0193, or Chris Jackman, 317-494-9895.

May 26-30—*National Fire Alarm Code & Automatic Sprinkler Systems Seminar*. Nashville, TN. Contact NFPA 800-344-3555.

May 28-30—*EPA Lighting Upgrade Workshop*. New Brunswick, NJ. Contact 1-888-STAR-YES.

June 9-11—*28th Biennial Congress and International District Heating Expo*. Arnhem, The Netherlands. Contact Euroheat & Power, 41-1-211-3635.

June 11-13—*EPA Lighting Upgrade Workshop*. Los Angeles, CA. Contact 1-888-STAR-YES.

June 14-17—*88th Annual IDEA Conference & Tradeshow*. San Diego, CA. Contact IDEA, 202-429-5111.

June 16-19—*The Advanced RCRA Institute*. Hilton Head, SC. Contact Katjie Swangren at Government Institutes, 301-921-2345.

June 16-19—*A/E/C Systems '97 Facilities Technology Conference*. Philadelphia, PA. Contact A/E/C Systems, 800-451-1196.

June 16-20—*National Fire Alarm Code & Automatic Sprinkler Systems Seminar*. Honolulu, HI. Contact NFPA 800-344-3555.

June 17-18—*BSCAI's 1997 Washington Forum*. Washington, DC. Contact BSCAI's Meeting Department, 800-368-3414.

June 20-26—*Indiana Professional Development Seminar: "30 Years of Tradition and Innovation,"* Bloomington, IN. Contact ACUI, 812-855-8550.

June 23-25—*The U.S. Environmental Laws and Regulations Course*. Albuquerque, NM. Contact Jesus Ferro at Government Institutes, 301-921-2345, ext. 269.

June 24-25—*Construction Specifications Institute (CSI) and the McGraw-Hill Construction Information Group (CGI) conference*. Orlando, FL. Contact CSI Education Programs Manager Roger Doucette, 703-684-0300.

June 28—*BSCAI Regional Seminar*. Indianapolis, IN. Contact BSCAI's Meeting Department, 800-368-3414.

July 12-16th—*SCUP-32*. Chicago, IL. Contact the Society for College and University Planning. 313-998-7027.

July 14-15—*Toxicology for Non-Toxicologists*. Marina del Rey, CA. Contact Jesus Faro at Government Institutes, 301-921-0373, ext. 269.

July 16-17—*The TSCA Compliance Course*. Marina del Rey, CA. Contact Jesus Faro at Government Institutes, 301-921-2345, ext. 269.

July 19-22—*NACUBO Annual Meeting*. Boston, MA. Contact Cindy Monaghan, 313-998-6966.

July 21-22—*OSHA Laws and Regulations*. Hilton Head, SC. Contact Jesus Ferro at Government Institutes, 301-921-2345, ext. 269.

July 23-24—*OSHA Standards Workshop*. Hilton Head, SC. Contact Jesus Ferro at Government Institutes, 301-921-2345, ext. 269.

July 23-25—*EPA Lighting Upgrade Workshop*. Atlanta, GA. Contact 1-888-STAR-YES.

July 23-25—*The U.S. Environmental Laws and Regulations Course*. Chicago, IL. Contact Jesus Ferro at Government Institutes, 301-921-2345, ext. 269.

July 27-30—*CUPA National Convention and Exhibition*. Boston, MA. Contact CUPA National Office, 202-429-0311, ext. 386 or fax, 202-429-0149.

Advertiser's Index

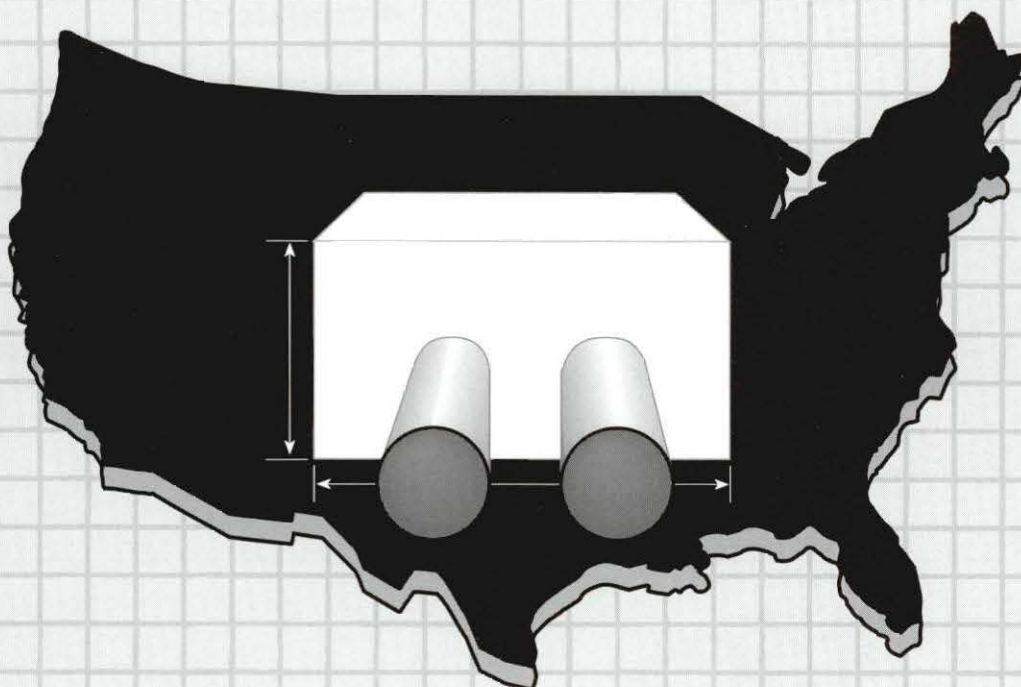
ABM	8
American Thermal Products, Inc.	Cover 4
ARCOA Industries	8
ATEK	12
Contracting Alternatives	56
Cutler-Hammer	Cover 2
Data Systems Services	4
DriTherm	Cover 3
Environmental Design Group	37
Gunn Levine Associates	13
HESCO, Inc.	53
Informed	5
Johnson Controls	30-31
Locknetics Security	2
Main Street PediCabs	18

McCourt Manufacturing	22
O'Brien-Kreitzberg	36
The Parking Block Store	57
PermaPipe	29
ProStop Bollards	18
PSDI	59
R.S. Means Company Inc.	7
Salsbury Mailboxes	10
Savage-Alert	9
SpiroTherm, Inc.	25
Sportsfield Management	34
Stanley Consultants, Inc.	25
Strobic Air	49
SVBK Consulting Group	51
TMA Systems, Inc.	39



Dritherm®

Underground Pipe Insulation / Corrosion Protection



PROTECTING AMERICA'S PIPES

YESTERDAY

TODAY

TOMORROW

- Continuously Manufactured Using Same Formula Since 1967
- Closed Cell - 100% Hydrophobic Design
- Temperature Range: -273°F (Cryogenic) to +480°F (250°C)
- Ideal for New Piping Systems / Repairs / Tanks
- Approved by Department of Defense for New Construction

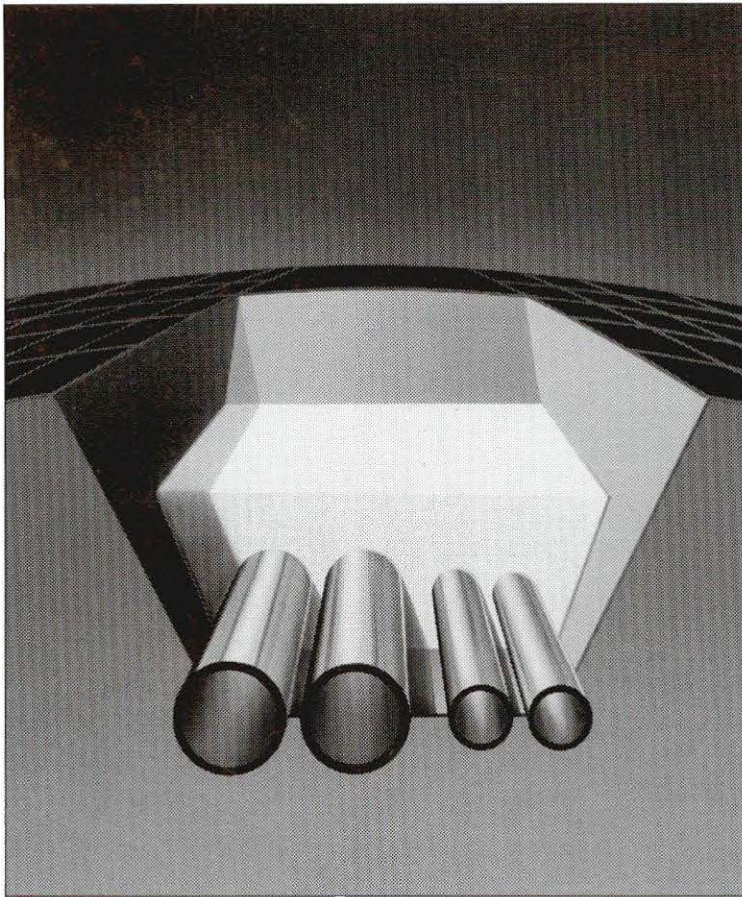
DRITHERM INCORPORATED

P.O. Box 5296

Parsippany, New Jersey 07054

(800)343-4188

FAX (201)428-3391



Gilsulate® 500_{XR}

***Thermal Insulation and
Protection System for
Underground Pipes Operating
at 35° F to 800° F***

- District Heating & Cooling
- Cogeneration
- Retrofit
- Hydrophobic
- Load Bearing
- Computerized Heat Transfer
Calculations and Design Reviews
- Engineered Drawings

*For complete material and design
assistance contact:*

American Thermal Products, Inc.
3371 Bonita Beach Road
Bonita Springs, FL 34134
800-833-3881

Facilities Manager

The Official Publication of APFA: The Association of Higher Education Facilities Officers

1643 Prince Street
Alexandria, Virginia 22314-2818

Nonprofit
Organization
U.S. Postage
PAID
Alexandria, VA
Permit No. 653