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Facilities Manager

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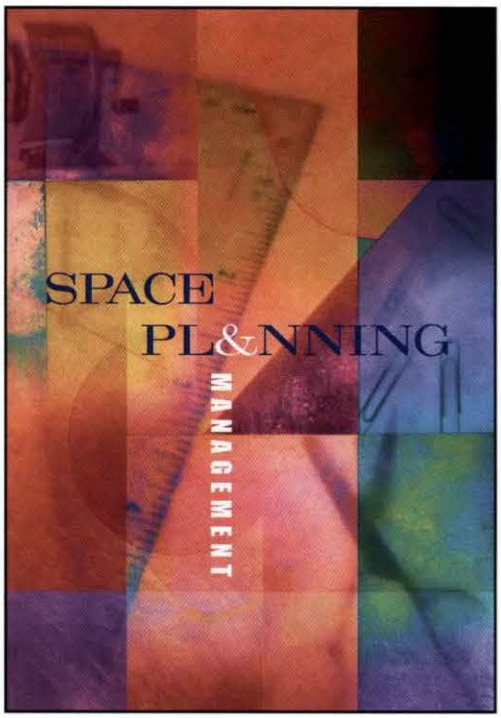

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FEATURES

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Global Partner in Learning

From the Editor

by Steve Glazner

Space planning, management, and utilization. In this

issue, author Ira Fink gives us a timely update on the current state of the art on campus space use and utilization. The concepts and case studies should provide a good starting point if you are in the midst of assessing and programming your valuable campus space.

APPA member Alan Freeman, who is completing his year as president of the Society for College and University Planning (SCUP), shares his success at San Jose State University to leverage his university's real estate holdings, an oftentimes overlooked campus asset.

Thomas Brady, of Fairfax County (Virginia) Public Schools, uses *The Perfect Storm* as a perfect metaphor for the coming together of a number of major influences that forced FCPS to seek and implement radical and innovative measures to improve their facilities planning.

As a change in direction, Fred Gratto of the University of Florida introduces us to a series of wise and common-sense attributes that would comprise a new position on campus, the Vice President of Happiness. After reading his article, you'll know that these attributes can easily apply to all of us who work with others.

And in Maggie Kinnaman's article, you can read about the current status of APPA's Strategic Assessment Model (SAM). More institutions and organizations are adopting the Model in some capacity, and we will be collecting additional case studies to share on our SAM website at www.appa.org/sam.

Don't forget to register to attend the new Educational Facilities Leadership Forum, to be held July 21-23 in Phoenix, Arizona. The educational component has been dynamically revised and will include indepth tracks on six important perspectives: Financial Management, Customer Service, Internal Processes Management, Innovation and Learning, Technology Management, and Knowledge Management. Time is running out, so register today at www.appa.org. We look forward to seeing you in Phoenix!

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Don't Miss These Deadlines

May 24—Register for the Educational Facilities Leadership Forum by this date and save $100 on an Early Bird Registration. For website registration, go to www.appa.org.

June 1—Registration opens for the Institute for Facilities Management, September 8-12, 2002, Norfolk, VA.

June 21—Make your hotel reservations in Phoenix by this date to guarantee the APPA rate. Call 800-233-1234.

Forum Events

July 21—Along with the many Educational Programs you will be attending, take time to attend the Welcome Breakfast and Keynote Speaker address. Start your meeting with a complimentary breakfast and exciting address by Daniel H. Pink, chief speechwriter to Vice President Gore from 1995-97.

PHOENIX 2002
Rising to the Challenge
APPA Educational Conference, July 21 to 23, 2002

July 21-23—Spend time in the Hall of Resources visiting our many Business Partners and learn about new products and services. While you are there, enjoy the on-site demonstrations, games, food, and giveaways. The Hall of Resources is open Sunday July 21 from noon to 3:00 p.m. and on Monday and Tuesday July 22-23 from 11:30 p.m. to 2:30 p.m.

Board Changes

Board member Chris Christofferson has resigned as Vice President for Professional Affairs. Michael Besspiata, Georgetown College, has been selected by the APPA Board to complete the term of office.

Renewal Time is Here!

The Member Services Department is currently renewing all APPA memberships. If you have not yet received your invoice for renewal, please contact Member Services. You can reach Randel Edwards, director of member services,

at randel@appa.org (703-684-1446 ext. 232) or Maxine Mauldin, manager of member services, at mmauldin@appa.org (703-684-1446 ext. 227). Renew today and take advantage of the benefits provided by APPA membership!

Election Results Are In!

APPA's officers for 2002, to be installed during the Educational Facilities Leadership Forum in Phoenix, are as follows:

President
Philip L. Cox, Cornell University

President-Elect
Brooks H. Baker III, University of Alabama/Birmingham

Vice President for Educational Programs
James O. Roberts, Campbell University

Vice President for Information Services
Vickie DeWitt, Kansas State University

Changes to Bylaws
Section IX B Committee Appointments
The President may waive the term limit at his or her discretion. Unfilled terms will be completed by interim appointments.
Article IX, Change in Committee Name/Responsibility
Name Change: From Information Services Committee to Information and Research Committee
Responsibility Change: Developing and providing oversight for the facilities research programs sponsored by the Association.

To read the complete Bylaws, please go to www.appa.org/about/bylaws.html.

Results were tabulated by a Tally Committee composed of Chair Al Guggolz, member emeritus; Patrick Andriuk, Episcopal High School; and Dave Petersen, Fairfax County Public Schools. Many thanks for their service.

President Bush Presents Malcolm Baldrige National Quality Award

Officials from the White House and U.S. Department of Commerce announced that the **University of Wisconsin-Stout** is the first university to receive the prestigious Malcolm Baldrige National Quality Award. The award was presented March 7, 2002.

"This award is among the highest levels of recognition any university in the country can achieve," said UW-Stout Chancellor Charles W. Sorenson. "This is a marvelous tribute to our university, and to our students, faculty, and staff. It is truly one of the greatest events in the history of this institution."

"We are especially pleased to announce the first Baldrige Award winners in the education category," said Commerce Secretary Don Evans. "They will be outstanding role models for 21st century education organizations."

Organizations must submit a report detailing achievements and improvements in seven key areas in order to apply for this award. The seven key areas evaluated are:

- Leadership
- Strategic planning
- Student, stakeholder, and market focus
- Information and analysis
- Faculty and staff focus
- Process management
- Organizational performance results

Congress established the Malcolm Baldrige National Quality Award in 1987 to promote quality awareness, recognize quality and business achievements of U.S. organizations, and publicize these organizations' successful performance strategies.

This award is considered the highest honor for performance excellence and quality achievement and is presented annually to U.S. organizations by the President of the United States. For more details on this prestigious achievement, visit http://www.uwstout.edu/mba/.

Gwinnett County Public Schools One of Four Georgia Oglethorpe Award Winners

Georgia Governor Roy Barnes announced the winners of the 2001 Georgia Oglethorpe Award for Performance Excellence. One of the four winners and a first-time winner in the education category was the Facilities and Operations Division of the **Gwinnett County Public Schools** in Lawrenceville, Georgia.

"This award represents a commitment to hard work and excellent business practices," said Governor Barnes.

"The Georgia Olgethorpe Award is an award you earn," said Victoria Taylor, executive director of Georgia Oglethorpe. "It involves a rigorous self- and third-party organizational assessment and all applicants receive a written feedback report detailing their respective strengths and opportunities for improvement against our criteria, which is the same used by the Malcolm Baldrige National Quality Award."

The Georgia Department of Labor presents the award, which was introduced in 1997. The focus of the award is to raise the performance level of the organizations and people of Georgia.

To learn more about the Georgia Oglethorpe Award for National Excellence, visit goap@bellsouth.net.

School District Wins Two Energy Awards

The U.S. Environmental Protection Agency (EPA) named **Jefferson County (Colorado) Public Schools** an Energy Star Partner of the Year for its outstanding commitment to pollution prevention through implementing strategic energy management, thereby protecting the environment and strengthening the district's bottom line. The school

Continued on page 6

Continued from page 4

district also received the Indoor Air Quality Excellence Award for a national leader in improving the indoor air quality of schools. The ceremony took place March 26, 2002 in Washington D.C.

Top 10 Phoenix Attractions

If you're looking for attractions to see in Phoenix, please read on. Residents of the city were asked to create a list of their favorite places. Here are the top 10 sites according to Phoenicians.

1. **America West Arena, 201 E. Jefferson St., 602-379-7800**
   Home to several sports teams
2. **Arizona Biltmore, 24th Street & Missouri Ave., 602-955-6600**
   Classic architecture inspired by Frank Lloyd Wright
3. **Arizona Center, 3rd & Van Buren Sts., 602-949-4353**

150,000-square-feet of eateries, cocktail lounges, and interesting shops and boutiques

4. **Arizona Mills, US 60 and I-10, 480-491-9700**
   Circular mall/entertainment center
5. **Arizona Mining and Mineral Museum, 1502 W. Washington, 602-255-3791**
   Arizona's mineralogical history on display
6. **Arizona State Capitol Museum, 1700 W. Washington St., 602-542-4581**
   State Capitol, as well as the capitol of the Arizona Territory, displaying historic exhibits
7. **Arizona State University, Apache Blvd., 480-965-0100**
   Attractive campus centering around Old Main, a three-story red brick building dating to 1898
8. **Arizona Temple of the Church of Jesus Christ of Latter-Day Saints, 525 E. Main, 480-964-7164**
   Impressive structure showcasing Mesa's Mormon background
9. **Bank One Ballpark, Fifth and Jefferson Streets, 602-514- 8400**
   Home of the Arizona Diamondbacks
10. **Biltmore Fashion Park, 2502 E. Camelback Rd., 602-955-8401**
    World-class shopping in a beautiful outdoor park setting

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AUDE/OECD Meetings—A Step Toward Global Partnership

by E. Lander Medlin

Picture yourself amidst beautifully appointed buildings, lush gardens, serene lakes, and fresh-cut grass spanning expansive commons. Sounds like your everyday institution of higher learning, doesn't it?! Well it is if you are the Director of Estates at the University of Nottingham located in the heart of England's Sherwood Forest. That was the location of this year's Association of University Directors' of Estates (AUDE) Annual Conference held March 23-27, 2002. What a great time to be there! What a great opportunity for me to represent APPA internationally! It was an idyllic setting with spring bursting from every tree. You couldn't help feeling like you were living on a fine country estate. With the architecture a mixture of old and new, the effect was a mosaic—obviously planned that way to maintain both a rustic and a luxurious feel to the environment. In addition, Chris Jagger, Nottingham's Director of Estates, and his team have transformed an old, run-down 30-acre industrial site into a modern, technologically-savvy and environmentally-friendly facility called the "Jubilee Campus." Although it has a totally different look and feel from the main campus, Jubilee Campus is an equally inviting campus environment and was completed in less than two years from the adoption of the master-plan—a truly impressive effort.

Lander Medlin is APPA's executive vice president. She can be reached at lander@appa.org.

Chris Jagger and his team of professionals (specifically Christopher Strong, Barry Chadwick, and Elaine Eggleston) worked tirelessly to deliver an exemplary program that was engaging, insightful, and timely in its content and delivery. They were gracious hosts attending to every detail ensuring that our stay was both pleasurable and memorable. It was impressive and refreshing to see the comradery the group has developed over time. It was like attending an old family reunion with folks from England, Ireland, Scotland, Wales, and Australia jesting and jousting with one another. The "Scots"—Angus and Donald in their kilts—were a delight. You will, of course, remember Vic and Jackie Slater from their attendance at numerous APPA annual meetings (now called the FORUM). Vic is now AUDE's designated Executive Director. It was great to be with them for the first time on their own turf. We have made wonderful friends we hope to see again in the very near future.

As the official APPA liaison this year and in support of our formalized strategic alliance agreement with AUDE, I was given the opportunity to deliver both a plenary session to all attendees on "Leadership and Motivation" and present a workshop as an overview of the content and benefits of the first track of our Leadership Academy—the Individual Effectiveness Leadership Skills/ 7 Habits program. As a result, I remain convinced that the content and delivery of our Leadership Academy programs are applicable worldwide.

As for my plenary session on leadership and motivation, my premise was: "Leadership is not about your position or vested authority. Leadership is about the influence and personal power you build over time with those with whom you come into contact." Ultimately, it's about relationships and, more important, how effectively you use your *head*, your *hands*, and your *heart* to build lasting relationships. It is also about connecting and engaging your mental, physical, and emotional and spiritual dimensions (your head, your hand, and your heart, respectively) to build effective interpersonal relationships that will improve staff morale and increase your organization's productivity.

To my pleasant surprise, Brigadier Alex Birtwistle, retired (who led the military team providing assistance to the government in the fight against Foot and Mouth disease in Cumbria county) gave the closing address. He emphasized the importance of the "heart" in matters of leadership versus that of management. It was quite satisfying to have your own points reinforced by such a highly acclaimed and well-renown public figure.

Ultimately, leadership cannot be adequately discussed without first establishing the context. In my case, I

explored the impact of a rapidly changing world and the influence of information technology on leadership and the built environment today and well into the future.

It is interesting that the challenges of change and the driving forces I identified as impacting society, the higher education industry, and the facilities profession were very similar to those stated by Lord Dearing in his keynote address. Lord Dearing was the former Chancellor of the University of Nottingham and is an extremely influential individual in the educational and governmental affairs of the United Kingdom. He focused on the need for:

- heightened public scrutiny of the United Kingdom's institutions of higher learning;
- increased environmentally-friendly buildings;
- governmental intervention and its impact on resources;
- an infrastructure that addresses the modernization needs of information technology;
- an assessment of the impact of distance learning on faculty, students, and facilities; and finally,
- the necessity to run our organizations and institutions like a business, seizing opportunities as they arise.

This is a familiar list of challenges and driving forces for those of us on the North American continent and the Australasian region as well.

The conference programming was incredibly informative and further reinforced the importance of our international efforts and the enormous number of similarities in issues and concerns we all face as educational facilities professionals.

My visit abroad also incorporated a fruitful meeting with the Paris headquarters Office of Economic Co-operation and Development (OECD). OECD is primarily a European organization with two programs similar to APPAs that represent educational buildings from a "countries" perspective (PEB) and also from an institutional management level (IMHE). One of APPA's goals is to launch an international symposium on the management, utilization, and construction of facilities as matrixed against the driving forces mentioned by Lord Dearing above. Again, it is uncanny the similarity across the world in the issues and driving forces that are affecting higher education institutions.

Again, it is uncanny the similarity across the world in the issues and driving forces that are affecting higher education institutions.

Therefore, I have a renewed passion and zeal for APPA's vision of "becoming a global partner in learning" having interacted with another significant part of the world. It is even more essential as the "global village" forms in the early 21st century that we look outside ourselves for better practices and new ways of thinking. We can only benefit from these important international influences.

APPA's Diversity

by Phil Cox

I am willing to bet that some of you, who are reading this now, still have not renewed your APPA membership for 2002-03. Whatever the reason for not renewing your membership, you still have a golden opportunity to improve APPA's diversity by adding an associate member from your institution as you send in your renewal.

Diversity is not only the right thing to do from a moral or ethical point of view, it makes good business sense too. By tapping into the talents, experiences, and ideas of a diverse membership, our organization can be more effective in innovations, solving problems, and producing higher quality services for our members. Kevin Sullivan, vice president of human resources for Apple Computers, said, "When you are surrounded by sameness, you get only variations on the same." APPA's stated values include *growth and development*. We are seeking continuous improvement; sameness won't do.

APPA's Strategic Plan, desired outcome #2, "Collaborative Relationship-Building," states, "The organization will engage in symbiotic and collaborative relationships and partnerships. The organization is inclusive and accessible serving facilities professionals, their institutions, and related communities." Similarly, our membership is made up of educational institutions, most of which espouse the value of diversity. I wonder, however, if APPA is adequately reflecting the principles of

our constituent institutions regarding diversity. Are we really inclusive and accessible?

There are many facets to the subject of diversity. Besides some of the more obvious ones such as race, national origin, religion, and gender, there are many others such as age, educational level, family status, physical ability, sexual orientation, culture, employment status, thinking style, etc. Diversity is not something to be accommodated or made room for. Rather, our diversity is something to be celebrated and enjoyed. We should be seizing the many opportunities that are made possible by the wide variety of people who make up our profession.

As you complete your annual membership renewal form, please consider your associate members and ask yourself especially about their race, gender, and age. Do the institutional representatives and associates from your school reflect the various races that contribute to your campus population? What about other historically marginalized and previously excluded segments of your campus population?

What about gender? Are we doing all we can to include women in our association and encourage their active involvement? It was disturbing last spring, when the APPA office called a recently-dropped member to find out why she had not renewed her institution's membership, only to learn that she had quit APPA because she had found it difficult to "break into" her particular region. Despite her wishes to get involved and contribute to the region, she did not feel like she was allowed in. I am sorry to report that she said we look like a "good ol' boys club." She left us and joined another facilities association.

As you review colleagues from your institution who are involved in APPA, please also consider age.

Are the associate members all Baby Boomers or older? If we are not including the Generation Xers in our association, we are going to be facing a huge void in leadership positions as the Baby Boomers move on in a few years. More importantly, we are missing out on enormous contributions that younger thinkers could be bringing to APPA.

If all this sounds like an admonition to get with the times, well I guess it is. After all, don't we want APPA to remain our association of choice? Let me close with a quote by Charles Darwin: "It is not the strongest of the species that survive, nor the most intelligent, but the one most responsive to change."

Phil Cox is APPA's President-Elect and director of facilities management at Cornell University, Ithaca, New York. He can be reached at plc4@cornell.edu.

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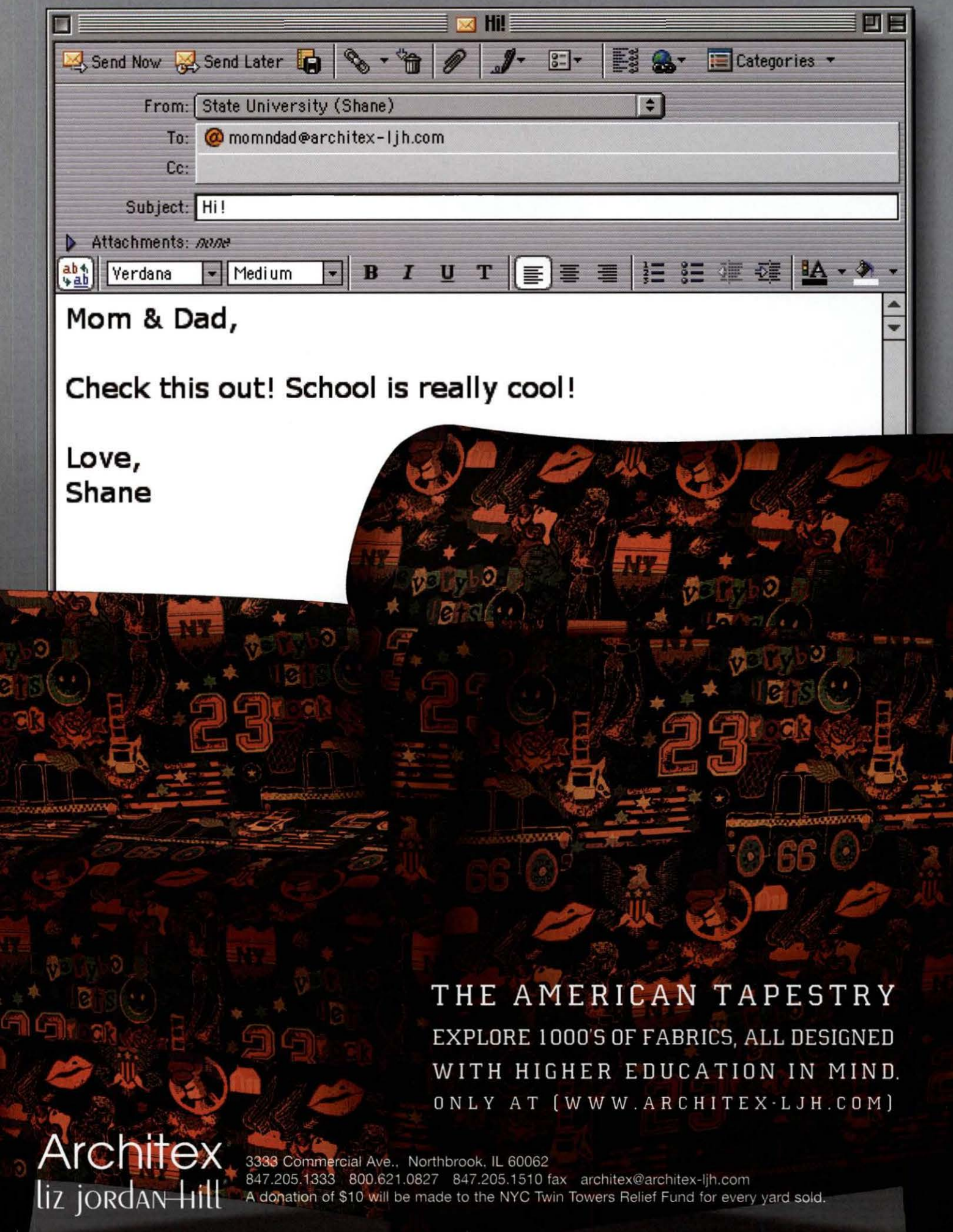
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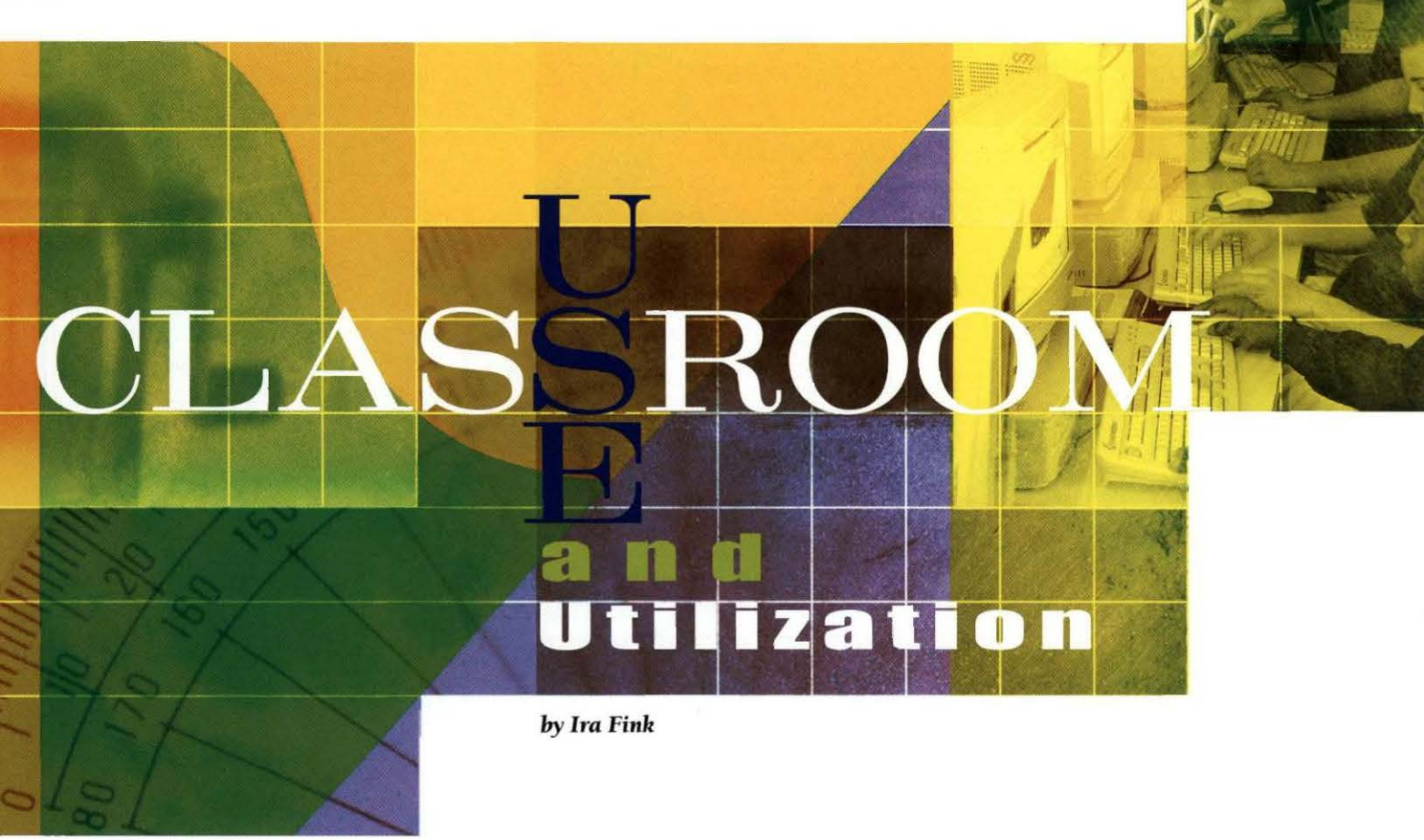


CLASSROOM USE and Utilization

by Ira Fink

Classrooms are at the bottom of the campus hierarchy of space use in terms of campus square footage. At the top of the list are offices. Yet, despite their relative insignificance in comparison to other campus space uses, classrooms are a bell weather of whether or not campus space is being used well and whether or not campus space use is changing.

The third edition of *Campus Planning and Facility Development: A Comprehensive Bibliography*[1] lists nearly 50 publications on classrooms, traditional and contemporary. This list includes publications that describe classroom sizes, shapes, materials and finishes, comfort, technology, uses, and locations. However, not one of these publications analyzes the use and utilization of classrooms and how this is changing. This article seeks to fill that gap in the literature of educational facilities—how are classrooms distributed by size on a campus, how well are they used, and how their use changes with faculty and student needs and desires.

Ira Fink is president of Ira Fink and Associates, Inc., University Planning Consultants, based in Berkeley, California. He can be reached at irafink@ix.netcom.com.

Classroom Space Use

On average, classrooms represent about 5 percent of the space on campus, excluding housing. Based on data from 25 public universities, mainly large research campuses, classrooms range from a low of 3 percent to a high of 12 percent of academic, administrative, and support space on campus, as shown in Table 1. Of the public university campuses in Table 1, those with large amounts of research and support space have the smallest percentage of campus space in classroom use. Those campuses with less research and support space have a higher percentage of their space in classroom uses, but none exceeded 12.4 percent.

Other data suggests that on average, about 16 percent of campus academic space, excluding class laboratories, is in classrooms or scheduled for instructional use among small private liberal arts colleges and universities. This is also shown in Table 1.

Excluding residential facilities, which on some campuses represent one-half of all square footage, offices are the largest users of space. They are followed in the campus hierarchy of space use by research space; by special use facilities, including athletics and recreation; by support facilities, including central services; by general use facilities, including assembly and food services; and then by teaching or class laboratories

Table 1
Distribution of Academic, Administrative and Support Space at 27 Colleges and Universities, Excluding Housing

NCES Room Codes and Room Type	25 Public Universities		2 Private Universities	27 Colleges and Univ
	Average	Range	Average	Average
100 Classrooms	5.2%	3.3 to 12.4%	15.7%	5.3%
200 Teaching Labs	7.0	4.3 to 19.5%	18.3	7.1
250 Research	15.3	8.3 to 24.1%	3.6	15.2
300 Office	22.5	11.0 to 33.1%	23	22.5
400 Library/Study	6.6	4.9 to 12.8%	17.7	6.6
500 Special Use	14.1	1.2 to 25.8%	13.3	14.1
600 General Use	11.2	4.7 to 19.0%	4.6	11.2
700 Support	14.4	5.4 to 26.7%	0.5	14.3
800-900 Health Care/Residential	3.7	0.9 to 5.5%	---	3.7
Total	**100.0%**		**100.0%**	**100.0%**

Source: Ira Fink and Associates, Inc., based upon data from 25 Public Universities and two Private Universities

and libraries. At the end of the list of space use, based on campus square footage, are classrooms.

Understanding Classroom Utilization

This article is based on a number of studies we have conducted to measure classroom utilization at campuses across the United States over the past decade. These campuses include private and public, small and large, urban, suburban and rural. The list includes, for example, the George Washington University, the University of Missouri at Kansas City, the Georgia Institute of Technology, Thomas Jefferson University, John Kennedy University, Denison University, St. Mary's College of California, and the University of North Dakota.

Each of these campuses is in a unique setting and each has its own culture. As a result, each classroom analysis had a different result. These differing results have added to our knowledge of how classroom use is changing. However, the campuses are similar in how they help us understand the distribution of classrooms by size, area per station, and utilization.

Legislative Focus on Classrooms

Many universities face space shortages. Legislative bodies often focus on classroom use, mandating higher and sometimes unreachable expectations of use, in the belief that better use of classrooms would solve those space problems. According to the 1989 California Postsecondary Education Commission Report, *Survey of Space and Utilization Guidelines in the Fifty States*, prepared by MGT Consultants, 26 of the 50 states have guidelines or expectations of classroom use. For example, in public higher education in California, mandated classroom utilization, which is the most restrictive in the nation, is based on use over a 70-hour week, with the expectation that classrooms should be in use from 8:00 a.m. to 10:00 p.m., five days a week.

In reality, it is not possible to use classrooms every hour of the day. First, classroom capacity on all campuses, when simply measured by the multiplication of rooms times the number of stations in the rooms, times the number of hours available for classroom use, would greatly exceed the demand for instructional space. Second, the use of classrooms on many campuses is a market commodity. Unless the campus is highly restrictive in its scheduling, students as well as faculty show preferences for the times of day or evening, and days of the week, they want to be in the classroom. When a campus which is experiencing growth has a shortage of classroom space, or simply wants to reallocate classroom space to other uses, a careful look at the utilization and scheduling of existing classrooms becomes important.

Even if classrooms were in use every hour of the day, as some legislatures expect, the impact on space needs on campus would be negligible. For example, in the University of California system, classrooms and classroom-related space represent only 5 percent of the academic and administrative space inventory. Higher levels of classroom use would have a minor effect on space on campus.

Even with this limited influence, there are still important opportunities to gain better use of instructional space. The first step in achieving better use of classroom space is by measuring and classifying the space to gain an understanding of classroom use and utilization.

ANALYSIS OF CLASSROOM SPACE AND USE

General Purpose Classrooms

For purposes of classroom analysis, "General Purpose" classrooms refers to the basic classrooms owned and maintained by the university, rather than maintained by an individual academic unit. Usually, the registrar's office manages the campus inventory of general purpose classrooms. For purposes of data consistency, these are rooms that would be classified as NCES Room Codes 100 to 199[2].

Classroom Scheduling

Classroom scheduling at most campuses begins with the process of distributing instructional rooms for use in an upcoming term based upon their distribution and use in a prior term. Today there are proprietary computer algorithm programs available to assist campuses in allocating and scheduling classrooms. Still, at many campuses, classroom scheduling continues to be done manually rather than with

an automated scheduling system, in the ongoing effort to match course needs to classroom inventory.

Generally, an academic department reviews its prior term scheduling (including room and building) in comparison to their upcoming course offerings and advises the registrar of any needed change. The requesting faculty identifies the maximum number of students to be accommodated in the course they are offering, the type of room, and their preference for course time of day and days of the week. Where there is an apparent need for change of a classroom, the classroom allocation schedule is revised; where there are no changes, the classroom allocation stays in place from one semester to the following semester. With it, remains the built-in scheduling inefficiencies based on what can be considered a human desire to travel the shortest distance from office to classroom and to teach at a time and place of one's choosing.

Room Scheduling Policy

At many campuses there is no room scheduling policy. There are no classroom committees to oversee the allocation process or assist in seeking scheduling efficiencies. There is also limited activity in terms of enforcing class starting and ending times, or working to optimize the use of the classroom inventory, or setting the campus tone on classroom use and instructional outcomes, i.e., student productivity. The lack of policies and the inherent difficulties of classroom scheduling can lead to inefficient classroom use.

One important policy for a campus to enforce, if it seeks to have efficient use of its classrooms, is that of standard course meetings times. Classes would be expected to start on the hour and extend for 50 minutes. But, at many campuses this policy is not followed. As described later in this article, when class starting or ending times differ from standard meeting times, the result is a classroom schedule as a matter of accommodation rather than optimization. In the process, the efficient allocation of classroom resources is hampered.

Sources of Classroom Data

The first step in seeking greater classroom utilization is based on accurate and comprehensive data. The information and analysis of classroom use should be based on two sources. The first is the campus facilities database used to provide baseline data about the classroom inventory at a campus. The second source is the campus registrar's course record.

The facilities database identifies the type of classroom and its station count. The registrar's records are used to compute weekly room use hours (the number of hours per week a room is in use), and the average percentage of student station occupancy (the average percentage the seats are occupied during any given hour). These two measures are used to measure classroom utilization.

Once raw course-by-course data is provided by the registrar, it can be used as input in a classroom use relational database, and the data tabulated to develop a profile of classroom use (occupancy) and utilization (number of stations occupied during the week).

Distribution of Space by Room Type: An Example

Table 2 describes a typical institutional classroom, seminar, and lecture space inventory and quantifies it, based on the one campus facilities database.

As shown in Table 2, at this campus there are 55 classrooms (NCES Code 111) and 19 classroom service support rooms (NCES Code 115) (storage, closets, projection booths, etc.) which together total nearly 35,000 assignable square feet (ASF).

The 48 lecture rooms (NCES Code 112) total 50,400 ASF. Lecture rooms are identified in the database as large lecture classrooms, although some may have a stage or even entry vestibules. They often have fixed, rather than movable, seating.

Table 2
Classrooms, Seminar Rooms, and Lecture Rooms

Room Type and NCES Code	Number of Rooms	Range of ASF* per Room	Number of Stations (range)	Number of Stations (total)	Average Number of Stations Per Room	Total ASF	ASF per Station
Classrooms (111)	55	267 - 898	4 - 80	1,916	35	32,042	16.7
Lecture Rooms (112)	48	314 - 4,071	24 - 455	3,471	72	50,364	14.5
Classroom Service (115)	19	24 - 810	0	0		2,476	–
Seminar Rooms (120)	100	140 - 877	1 - 28	1,453	15	34,175	23.5
Seminar Service (125)	4	29 - 443	0	0		595	–
Technology Clsrm (130)	3	185 - 1,734	3 - 88	137	46	2,786	20.3
Distance Educ (140)	3	928 - 1,340	49 - 120	249	75	3,451	13.9
Distance Education Service (145)	2	93 - 212	0	0		305	–
Computer Classrooms	8	438 - 905	24 - 34	231	29	5,098	22.1
Total	**242**			**7,457**		**131,292**	**17.2**

Source: Ira Fink and Associates, Inc.

*ASF = assignable square footage.

The 100 seminar rooms in the inventory (NCES Code 120) total more than 34,000 ASF. Seminar rooms are identified in the database as rooms furnished with a conference type table with seating around the table. Enrollment in seminar courses is usually limited to 20 or fewer students, although some seminar rooms seat more.

One factor that is instructive about this data is that at this campus about one of five classrooms and lecture rooms have a companion classroom service room (NCES Code 115) that supports or provides service to these rooms. These could be rooms used for storage, equipment, controls, etc.

Classroom Space

Altogether, there are 131,292 assignable square feet devoted to instructional (non-laboratory) space in the Table 2 example, including classroom service space. With a total academic facilities inventory of 1,340,968 ASF in buildings primarily used for academic purposes (excluding most athletics, recreation, student union and housing), at the campus in this example, the instructional classroom class space, including classroom service space, is about 9.8 percent of total space use.

Classrooms (NCES Codes 100 through 199) at St. Mary's College of California represented 14.3 percent of academic and administrative assignable square footage; at Denison University, they were 16.9 percent; at Georgia Tech, they were 10.1 percent; at George Washington University, 9.9 percent; at the University of North Dakota, 12.4 percent; and at the University of Missouri at Kansas City, 9.8 percent.

As the data in Table 2 show, the amount of classroom space at the larger campuses is in the range of 10 percent of all academic, administrative, and support square footage. This is due in part to a significant amount of campus space being devoted to research and research-related space, which helps to dampen the relative proportion of classroom space. At the smaller campuses, classrooms average about 16 percent of square footage, which is an illustration of the opposite effect. Without considerable space devoted to research, classroom space increases in relative importance as a space use on small liberal arts campuses.

THE SIZE OF A CLASSROOM, when measured in area per station, is a function of the type of furniture in the room. Lecture halls, with fixed seating and defined aisle ways, take up the least amount of square footage per student station.

Classroom Station Size

The size of a classroom, when measured in area per station, is a function of the type of furniture in the room. Lecture halls, with fixed seating and defined aisles, take up the least amount of square footage per student station. Movable tablet arm chair classrooms also take up a modest amount of space per station, but more so than lecture halls. Seminar rooms with fixed tables, or even movable tables and loose chairs, take up the most square feet per student station. The size or square footage area of a student station in a classroom is an important measure to know and understand when programming new classroom space or reallocating existing space.

Among the folklore of higher education that I have been trying to dispel is that the size of a classroom student station is 15 square feet. While this may have worked for high schools in New York City in the 1920s, where it originated,[3] it does not work for higher education today. Generally, higher education classrooms with movable tablet arm furniture average between 18 to 22 assignable square feet per station. Fixed-table rooms that are Americans with Disabilities Act (ADA) compliant require 35 to 40 assignable square feet or more per station since both tables and an instructor's podium take up considerably more space per station than movable furniture, and the room must accommodate and allow a person in a wheelchair to move freely about the room.

As shown in Table 2, classrooms in the campus listed had an average of 35 stations per room and an average area of

Table 3
Classroom Distribution by Station Count, Various Campuses

A	B	C	D	E	F	G
Classroom Stations	Public University	Public University	Public University	Private University	Private University	TOTAL
0 to 9	5.0%	0.0%	2.0%	0.0%	7.6%	3.0%
10 to 19	32.2	1.3	14.3	7.5	21.5	17.4
20 to 29	19.3	8.7	15.3	34.0	34.2	18.6
30 to 39	15.1	21.3	25.1	47.2	16.5	21.8
40 to 49	11.9	24.7	18.2	9.4	12.7	16.4
50 to 74	7.8	28.0	14.8	1.9	3.8	13.2
75 to 99	1.3	6.7	4.4	0.0	1.3	4.3
100 to 249	3.2	5.3	5.9	0.0	1.3	4.0
250 or more	0.9	4.0	0.0	0.0	1.3	1.3
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Total Rooms	218	150	203	53	79	703
Total Stations	7,457	9,141	8,939	1,591	2,571	29,699
Stations/Room	34	61	44	30	33	42
F-T Headcount	11,500	13,000	9,600	2,200	2,100	38,400
Stations/Full-Time Headcount	0.65	0.70	0.93	0.72	1.22	0.77

Source: Ira Fink and Associates, Inc.

16.7 square feet per station. Lecture rooms had an average of 72 stations per room and an average area of 14.5 square feet per station. Seminar rooms had an average of 15 stations per room and an average area of 34.2 square feet per student, an indication of the amount of space the central seminar table occupies in the room.

Classroom Size by Number of Stations

A second important measure of classrooms is the number of student stations in the room and the distribution of rooms by station size.

For comparison purposes, Table 3 describes the distribution of classrooms by the number of stations on five campuses. Among the 703 rooms in the table, there is an average of 42 stations per room. Among the five campuses shown in Table 3, the average classroom size varies from 30 stations per room to 61, with the three public universities having the largest average number of stations per classroom and the two private liberal arts colleges the fewest.

Distribution of Classrooms by Number of Stations

Classroom station count has considerable importance in the utilization of classrooms and use of faculty resources. If the instructional program and pedagogy allows for large enrollment courses, and if rooms with large seating capacity are available, large enrollment classes are offered. If the rooms to accommodate the large enrollments are not available, a course is divided among smaller rooms, with a replication of the course in smaller sections, and with more faculty resources devoted to teach the course.

As a example of the average distribution of rooms by number of stations (seats) in classrooms on five campuses, the data in Table 3 show 20 percent of the rooms have 19 or fewer stations, 19 percent have 20 to 29 stations, 22 percent have 30 to 39 stations, 16 percent have 40 to 49 stations, 13 percent have 50 to 74 stations, 4 percent have 75 to 99 stations, and 5 percent have 100 or more stations. Overall, almost 61 percent of the classrooms have 39 or fewer stations.

In Table 3, only one of the campuses had more than 40 percent of its instructional space in classrooms with 50 stations or more. One campus had about 15 percent of rooms that seat 50 or more, another had about 25 percent, while the two private campuses had, on average, less than 5 percent of space in classrooms seating 50 or more students. In fact, on one private campus, the largest classroom had only 72 stations. The campus with more than 40 percent of its classroom inventory in large rooms, more so than the others, would have the capability to offer larger enrollment courses, which often occurs in introductory or survey courses.

At one of the two private universities shown in Table 3, more than 98 percent of the classroom space had 49 or fewer stations per room. At the smaller end of station count, 42 percent of the classroom had fewer than 29 stations. While the smaller classrooms are an indication of a higher student to faculty ratio at this campus, it did not allow the campus to offer large lecture courses, sponsor large presentations, or enjoy economies of scale in its instructional program.

Classroom Station Capacity Analysis

Classroom station capacity data illustrates three main points about classrooms on campus: first, the large number of rooms on most campuses that seat 49 or fewer students (in the Table 3 example shown, this applied to more than 75 percent of the classrooms); second, the relatively modest number of rooms on campus that seat 100 or more (about 5 percent), that will be important to replace should they be lost through conversion to other uses or replacement; and third, the difficulty in finding a room on many campuses to stage lectures or other assembly activities of 250 or more persons (which averaged 1 percent of classroom inventory).

While the demand for large rooms is not continuous during the week, there is usually a level of interest on most campuses in having programs with a sizable audience and thus a demand for some large rooms. Since there is often a need to convert classrooms to technology-laden spaces, it is important for campuses to maintain, enhance, or add to the large lecture room spaces they have, either as lecture space or as multipurpose instructional and assembly space. Once a campus converts the large instructional rooms to technology-rich rooms, they are seldom returned to lecture-type use.

Station Count per Student Headcount and Classroom Utilization

To help gauge classroom efficiency and utilization, I developed a measure of station count per student head count and compared this result to campus classroom utilization. As shown in Table 3, the station per full-time headcount varied from a low 0.65 stations per full-time head count at one campus to a high of 1.22 stations per head count at another. This variation between campuses is significant, because it provides one direct measure of classroom capacity in relation to enrollment.

As a rule of thumb, if a campus classroom station count exceeds one station per student, there is too much classroom space. Think about it. If a campus had, in inventory, one classroom station for every full-time enrolled student, then every student could be in class at the same time. If this were to happen, all instruction would be complete in a few hours per day, a few days per week, and the classrooms would be empty the remainder of the time.

Since empty classrooms already occur, a measure of classroom station count in the range of 0.75 classroom stations or fewer per full-time daytime enrollment would indicate opportunities for a better allocation of classroom space on a campus. If a campus greatly exceeds the range of 1.0 stations per full-time student, or even 0.75 stations per full-time student, the administration should look to reallocating classrooms to other uses, especially if there is a space crunch.

To test the efficacy of this measure, I used data from Table 3 and from Table 4 (shown in the next section) and compared the two results. Surprisingly, the campus with the lowest number of classroom stations per full-time head count (0.65) also had the lowest daytime classroom utilization (39.3 percent). This is an indication of considerable excess daytime classroom capacity due to large rooms and low course enrollments, as well as fewer classes scheduled on Fridays in comparison to the remainder of the week. The campus with the highest number of classroom stations per head count (1.22) had a moderate level of classroom utilization (65.2 percent). This, however, was based on a 40-hour classroom week used by this campus. If a 45-hour classroom week had been used, this would have resulted in a lower utilization rate of 56.7 percent. While these results could not have been forecast in advance, the data from Table 3 and Table 4 add empirical evidence to the importance of finding the right balance of classroom space on a campus to gain a higher level of classroom utilization.

THINK ABOUT IT. IF A CAMPUS HAD, IN INVENTORY, one classroom station for every full-time enrolled student, then every student could be in class at the same time. If this were to happen, all instruction would be complete in a few hours per day, a few days per week, and the classrooms would be empty the remainder of the time.

MEASURING CLASSROOM USE

Instructional Class Period

Classes at most universities have a similar methodology for defining an instructional period and scheduling classes. Most class scheduling occurs in one-hour increments on Mondays, Wednesdays, and Fridays. A class scheduled as one hour is actually in session for only 50 minutes. Classes normally begin on the hour and end at ten minutes before the hour allowing for nine separate one-hour instructional periods between 8:00 a.m. and 5:00 p.m. On Tuesdays and Thursdays, the class period is usually 90 minutes long. At most colleges and universities, this format would mean 75 minutes of class session and a 15-minute break between classes, allowing six separate 90-minute instructional periods to be scheduled.

I do not know how or where the Monday-Wednesday-Friday or Tuesday-Thursday instructional formats of class periods originated. I also do not know if pedagogically they are good. Perhaps longer instructional periods, or fewer days in class, or both, would be better in terms of student outcomes. As illustrated in the data that follows, on at least one campus, the traditional instructional class period is changing.

Table 4
Classroom Utilization by Building, 8 a.m. to 5 p.m., 5 p.m. to 10 p.m.

A	B	C	D	E	F	G	H	I
Campus Type	Times of Use	No. of Rooms	Total Stations Available	Total Adjusted Classroom Hours Available	Total Hours in Use	Adjusted Available Student Contact Hours	Actual Weekly Student Contact Hours	Room Capacity % Util.
Private Univ	8:30 am-4:30pm	106	2,442	2,841	1,486	39,267	25,610	65.2%
Private Univ	8am - 5pm	63	2,234	1,899	1,523	40,413	28,827	71.3%
	5pm - 10pm	63	1,667	1,055	493	16,753	6,773	40.4%
Public Univ	8am - 5pm	149	7,240	4,492	2,210	130,972	51,426	39.3%
	5pm - 10pm	125	3,398	2,094	1,056	34,150	18,605	54.5%

Ending Times of Classes

While we expect the registrar's class record to show a traditional class schedule, what we found unique in one classroom utilization study was not the variation in class starting times, which occurred at 8:00 a.m., 9:00 a.m., 10:00 a.m., etc., but the number of different class ending times. For example, in addition to the expected nine standard class start and class end time frames on Monday, Wednesday and Friday on this campus, there were 12 other class end times. A class could end at 0:50, 0:55, 0:00, 0:05, 0:10, etc. On Tuesday and Thursday, in addition to the expected six regular daytime class start and class end times, there were 26 other class end times.

While such scheduling is likely to accommodate the faculty and course needs, it plays havoc in establishing a continuous use of instructional space. If, for pedagogical reasons, a class requires more than 50 or 75 minutes of continuous in-class instruction, than it is useful to look at alternative course scheduling which would allow for longer course periods, so long as the next scheduled course to use the room also had need for a longer instructional period.

Starting Time of Classes

In another classroom utilization study, in addition to the nine regular daytime class start times, there were 51 other start times to classes. At this campus, the scheduling of classes, which was done by hand, had become so faculty and course specific, that not only could a class start on the hour, but also at five minutes past the hour, ten minutes past the hour, fifteen minutes, etc. The result was usually an unscheduled or unusable class time during the hour period following the class with the non-standard start (or ending) time. This meant an empty room for the remainder of the hour, and a room that could not be rescheduled until the start of the next full hour.

Effect of Non-Uniform Class Start and End Times

The effect of excessive non-uniform class start or end times throughout the week means that one class is continuing to use a room, thereby preventing another class from being scheduled at a regular start time, leading to lower utilization. Enforcing the criteria that all Monday-Wednesday-Friday, as well as Tuesday-Thursday classes have the same start time (and end time) results in higher classroom efficiency and in gaining additional classroom space without the need to add classrooms.

The campus with the myriad of start times was also finding a reduced number of classes scheduled on Fridays. A policy recommended for this campus at the end of our study would require that a target of 50 percent of the instruction be scheduled during the day, 40 percent in the evening and 10 percent on Fridays, in an effort to use classroom resources more effectively.

The Hour-Long Class

In an interesting contrast, classes at St. Mary's College of California have, by policy, a scheduled instructional period that is longer than at most colleges and universities. A one-hour class actually lasts for an entire 60 minutes, followed by a 10-minute break period for movement to the next class. The St. Mary's academic calendar is divided into eight standard time frames of 8:00 a.m. to 9:00 a.m., 9:10 a.m. to 10:10 a.m., 10:20 a.m. to 11:20 a.m., 11:30 a.m. to 12:30 p.m., etc. This occurs on Mondays, Wednesdays and Fridays.

On Tuesdays and Thursdays, the St. Mary's class period is exactly 90 minutes long. Whereas at other colleges and universities this would mean 75 minutes of teaching and a 15-minute break, at St. Mary's the course is 90 minutes with a 15 minute break between classes. The faculty at this college feel that the additional class time is needed to cover the course material.

Monday-Wednesday Only Classes

One other anomaly of class schedules is the unusual practice of not scheduling classes on Friday. For example, on one campus we identified 149 different daytime courses that met only two times per week.

However, the 149 two-time per week meeting in this example were not Tuesday and Thursday classes, but rather classes that met only on Monday and Wednesday. While this has the immedi-

ate impact of causing empty classrooms on Friday, the negative impact at this campus was offset to a degree by another set of classes scheduled to meet only on Fridays, or in some cases on Fridays and Saturdays. Without replacement courses in a Friday only schedule, the two meeting per week, Monday-Wednesday only class schedule, greatly reduces classroom efficiency.

A second negative impact from classes that meet only Monday-Wednesday, instead of a traditional Monday-Wednesday-Friday, is that the faculty did not conduct the Monday-Wednesday only classes in a one-hour time slot. They conducted their two day-per-week daytime classes in time periods that extended anywhere from 50 minutes, to 1 hour and 15 minutes, to 2 hours and 45 minutes. If this happened often enough, instead of being able to schedule up to nine 1-hour classes on Monday-Wednesday-Friday, the class day would allow only six or fewer 90-minute classes per day. The total result to a campus would be a loss of one-third of the daily classroom station capacity.

While it may be nice to teach only two days a week, the cost to the campus in terms of utilization of classroom resources does not appear to make this a desirable situation. Alternatively, two day-per-week classes may be a better approach pedagogically, in which case the entire method of scheduling and utilization would need reexamination.

One Day per Week Classes

At this same campus, the registrar's record showed a fall course schedule that totaled 1,508 different courses. Of this schedule, 208 courses (16 percent) were scheduled in the evening (starting at 5:00 p.m. or later), and 1,300 (84 percent) were scheduled in the daytime. Of the daytime schedule, 237 courses (18 percent) were considered traditional one-hour long Monday-Wednesday-Friday classes.

What was surprising is that the course schedule, in addition to 149 Monday-Wednesday only classes, also included 407 daytime courses (31 percent of all courses) that met only one day per week, anywhere from 50 minutes to 2 hours and 45 minutes. It is possible that some of these courses met more than once per week, but at different times, thus appearing in the record to meet only once.

While one- or two-day classes per course are not an efficient use of classroom space, it is an occurrence that should not necessarily be dismissed. Perhaps there are pedagogical or even market reasons for its increasing occurrence. Cynically, it would be possible to conclude that it is simply accommodating some of the faculty's desire to be on campus fewer days, or, it may be an effective use of classroom time.

Evening Programs

At city universities, programs in some schools, particularly education, are evening rather than daytime programs and begin at 4:30 p.m. But city universities are not alone in this. Even the education programs at St. Mary's College of California, a suburban residential college, start at 4:30 p.m. as do the graduate programs in education at the University of North Dakota, a somewhat rural area of limited population spread over a large geographic area.

While a 4:30 p.m. class start is an accommodation to those students who are employed and need to attend in the evening, the result is that some day courses that might have been scheduled to begin at 4:00 p.m. cannot occur in rooms that will be used for evening programs. Most academic department evening programs, other than education, begin at 5:00 p.m. or 5:30 p.m. and do not affect the daytime schedule.

Evening Schedule

In contrast to the typical three meeting daytime Monday-Wednesday-Friday course schedule or two meeting Tuesday-Thursday course, evening courses are often specially designed to meet only one evening during the week. For example, on Mondays at one campus there were 44 classes that meet only once per week on Monday evenings, usually for two hours and 45 minutes, either from 6:00 p.m. to 8:45 p.m. or from 7:00 p.m. to 9:45 p.m. On Tuesdays there were 55 classes that meet only on Tuesday evenings. On Wednesdays there were 58 classes that meet only on Wednesdays evenings. On Thursday evenings there were 41 classes that meet only one day a week. And, on Fridays, there were ten scheduled classes that meet only one time in the evening. Interestingly enough, on Saturday there were 85 different scheduled courses throughout the fall semester.

Importance of Evening Programs

What is surprising is that the courses offered after 5:00 p.m or 6:00 p.m. are a very popular meeting time; in fact, at the University of Missouri at Kansas City, the campus schedules more courses to start between 5:00 p.m. and 6:00 p.m. each Monday-Wednesday-Friday, as it does at 9:00 a.m. and 10:00 a.m. on these same days. Even campuses as distinct as St. Mary's College of California and the University of North Dakota have dozens of evening classes.

While education degree programs generally have a late afternoon start time, there are other related class schedule accommodations which are market determined as well. For example, we found one business school program that held classes only from Monday through Thursday, with none on Friday, and a few, occasional Saturday classes.

At city or urban universities, where there is a heavy evening schedule, we found in one study of a city university that 27 percent of the student contact hours were generated after 5:00 p.m. While this allowed the campus to gain considerable use of its classrooms, it also meant the custodial crew had to clean the classroom buildings more often to keep them in service for both daytime and evening classes.

Yet, despite the large number of afternoon and evening courses, in terms of frequency of class times, the majority of courses are scheduled during the daytime 9:00 a.m., 10:00 a.m., 11:00 a.m., and 12:00 noon time slots, whether it be for one day per week, two days or three days or more. While the

three day, one-hour class format has existed in higher education for decades, I do not know if it is the most useful way to provide instruction, or if it too is a space planning icon that should be challenged[4].

MEASURING UTILIZATION

Classroom Use and Classroom Utilization Analysis

Classroom use and classroom utilization are two distinct classroom measures.

Classroom use means simply that the room is occupied. This can occur through scheduled instructional use, such as for a credit course, or can be unscheduled, such as for drop-in study or for a meeting. Generally, only the scheduled assignment of classrooms is recorded at a campus and is used in a classroom utilization analysis.

Classroom utilization is a measurement of the number of stations occupied in relation to the total number of stations contained in the room.

AS A GUIDELINE OR STANDARD, a target utilization or classroom occupancy rate of 60 percent of the seats in a room is considered full utilization. In other words, a classroom is considered to be fully utilized if 60 percent of the stations are occupied over the duration of the instructional week, although on at least one campus, the target is 75 percent classroom station occupancy.

A campus is unusual if its instructional facilities are in use continuously every hour from 8:00 a.m. in the morning until 10:00 p.m. in the evening. At most non-urban universities, daytime courses are usually for undergraduates and normally end by 4:00 p.m. or 5:00 p.m. or even earlier. At some institutions undergraduate students take courses later in the afternoon and into the early evening.

Scheduling

On most campuses, full use of classrooms would see them occupied from 8:00 a.m. to 5:00 p.m. (nine hours per day), from Monday through Friday (five days per week). This would mean there could be as much as 45 hours of scheduled classroom use per room per week.

At the same time, higher education recognizes it is not possible to schedule every instructional room for every hour of the day. It is necessary to allow for lower periods of classroom use, such as in late afternoons, or when the size or shape of a room creates a room that by its configuration may be in low demand. Today, "smart classrooms," with technology equipment built-in, are extremely popular and heavily scheduled, while aging classrooms with blackboards only are losing favor. This too is affecting scheduling and utilization.

Use or Assignment

To account for periods of no classroom use, most institutions target a percentage of available classrooms "in use" as an indication of "full use." These targets or standards can vary widely. One common goal is to target the use of 67 percent of classrooms over a 45-hour week as an indication of full room use, i.e., occupancy by one or more persons. In other words, a classroom would need to be scheduled in use for two-thirds of the 45 hours in the week, or 30 hours, to be considered in full use.

Utilization Measurements

Utilization, by contrast, is a measure of the number of stations (seats) occupied during each class period. Again, it is not possible to schedule an exact class size in every classroom because the demand for certain courses may have smaller enrollments than expected, or the faculty can place a limit on the class size, regardless of classroom capacity, or the classroom inventory itself remains fixed both in size and station count while the enrollment and courses vary from one term to the next.

As a guideline or standard, a target utilization or classroom occupancy rate of 60 percent of the seats in a room is considered full utilization. In other words, a classroom is considered to be fully utilized if 60 percent of the stations are occupied over the duration of the instructional week, although on at least one campus, the target is 75 percent classroom station occupancy.

Classroom Utilization Model

To compute actual classroom use and utilization, we use a classroom utilization model based on data from a registrar's office as input. To test utilization, we run the data using the utilization and use factors noted above. The first factor is a scheduled use of rooms of 67 percent, or classrooms in use 30 hours of a 45-hour week (Monday to Friday, 8 a.m. to 5 p.m.). The second factor is a scheduled 60 percent occupancy of the stations in the room, e.g., 60 percent occupancy of all stations in a room means the classroom spaces are fully

utilized. This is accounted for by measuring classroom contact hours in comparison to classroom capacity. The model is as follows:

1. Each registrar-scheduled course is entered into a relational database from the registrar's printed record which includes Building Name, Building Room, Course Number, Days of the Week of Course Meeting, Course Starting Time and Ending Time, Course Enrollment, and Course Capacity. (Normally, room capacity is fixed by the physical characteristics of the classroom and its designated station count. Course capacity is different than room capacity in that a faculty can limit the course enrollment, which has the effect of reducing the academic station count in the classroom while the room capacity remains fixed.)
2. This digital file is then used as input to a second program that converts the starting and ending class times to a 24-hour clock, calculates the elapsed time of each class and adds ten minutes or fifteen minutes to account for class change times, or in other words, to make a 50-minute class equal one hour and a 75-minute class equal to one and one-half hours.
3. This second data file is then sorted to consolidate and aggregate or sum the information by individual classroom by day of the week. This allows a computation to be made of the number of hours per day a classroom is scheduled for use in comparison to the number of hours the room is available for use.
4. Next, a computation of utilization is made to compare classroom station utilization (course enrollments or contact hours) to classroom capacity. We divide the actual total student contact hours by the total classroom hours available to arrive at classroom utilization.

Daytime Utilization

The models run the classroom data for three time periods: 8:00 a.m to 5:00 p.m., 5:00 p.m. to 10:00 p.m, and a combined 8:00 a.m. to 10:00 p.m. time period.

The results of a typical utilization analysis for the Monday to Friday, 8:00 a.m. to 5:00 p.m. class week using the 67 percent use and 60 percent utilization factors is summarized for three campuses in Table 4. This table shows a daytime room utilization of 39.3 percent at one public university, 71.3 percent at one private university and 65.2 at another private university.

If the instructional space on these campuses had been fully utilized with the classrooms fully scheduled for use 67 percent of the time, and with the stations in each room occupied 60 percent on average, the room utilization capacity would have been 100 percent.

IF THE INSTRUCTIONAL SPACE on these campuses had been fully utilized with the classrooms fully scheduled for use 67 percent of the time, and with the stations in each room occupied 60 percent on average, the room utilization capacity would have been 100 percent.

What is important to note about the data in this table, is that the hours a classroom is in use is not the only indication of utilization. As Table 4 shows, it is the actual student contact hours in comparison to the available student contact hours that is the basis for the measurement of classroom utilization. The available student contact hours have been factored to account for guidelines noted above on the percentage of hours for classroom use and on the percentage of station use within a room.

One unusual finding from these studies is that at one campus the registrar's course scheduling record covered only about two-thirds of the classrooms in the facilities database. There are two explanations to this: first, a number of courses are shown and identified by an identifier of what is known as "TBA" or a room "To Be Announced." In other words the room for the course is not identified until after the start of classes, whereas the registrar's record used for the utilization analysis is the published Schedule of Courses.

Second, some of the rooms shown in the facilities database as classrooms may be in the control of departments who schedule "their" rooms, without entering them into the registrar's Schedule of Courses. Thus, they too are excluded from the utilization analysis.

Another unusual finding is that the registrar's record sometimes shows a classroom with a higher station capacity when it is in daytime, rather than evening, use. In Table 4, the registrar's record for the private university shown with both daytime and evening utilization, included a gymnasium which in the daytime had a capacity of 500 stations and an evening capacity of 30 stations. It is not clear from the record why this occurs.

Evening Utilization

When the evening programs for which registrar-scheduled space is tabulated is added to utilization, the evening utilization in the Table 4 example is very high. As shown, using a 25-hour week (five evenings per week, from 5:00 p.m. to 10:00 p.m.) and using factors of 67 percent of the rooms in use, and 60 percent of the stations in each room occupied, the utilization rate is nearly 55 percent at one public university and more than 40 percent at one private university.

Conclusion

As this discussion has illustrated, following a set pattern of class start and end times, ensuring that Monday-Wednesday-Friday classes do not become Monday-Wednesday classes, or even Monday only classes, and matching classroom to class

size can all serve to increase the level of classroom scheduling efficiency and classroom utilization.

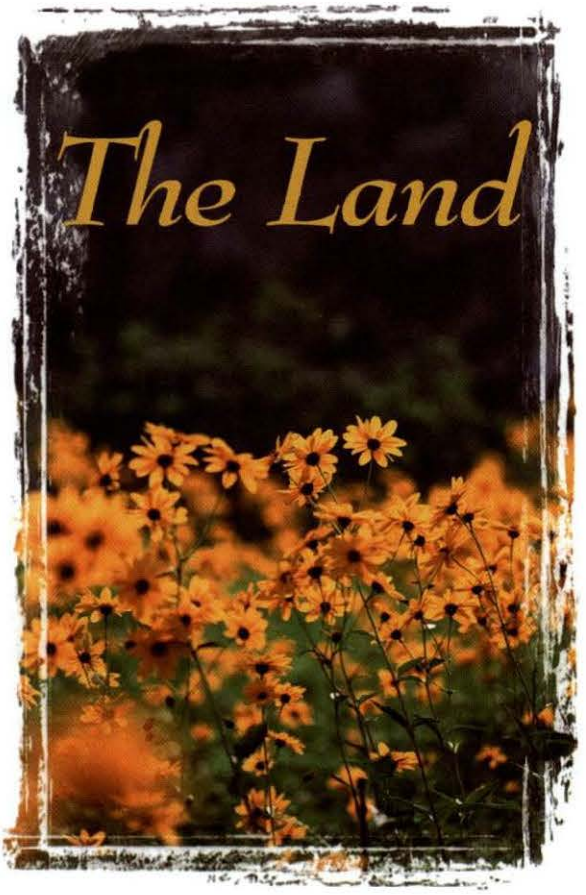
If the goal is one of increasing classroom utilization through better allocation of a campuses resources—both space and money—more efficient classroom scheduling is an answer. If increased classroom utilization occurs, low use classrooms can be converted to meet other campus space needs. In addition, the savings can also be applied to classroom improvements to make the remaining classrooms more technologically sophisticated or by improving the furniture and furnishings in the rooms.

If, on the other hand, higher student productivity is the goal, than a campus needs to test whether the traditional scheduling models are the best response. Perhaps classroom schedules should be more market driven or more accommodating to faculty and student time preferences. If so, it is possible that alternative scheduling models in terms of length of instructional period or days of the week, with fewer, but longer instructional periods, may be a better idea.

References

1. Ira Fink, *Campus Planning and Facility Development: A Comprehensive Bibliography, Third Revised Edition,* Berkeley, California: Ira Fink and Associates, Inc., 1998, 155 pp. See Section VIII, Classrooms and Lecture Halls, pp. 87-92. The forthcoming fourth edition will be available for purchase from APPA Publications at www.appa.org/resources/publications.
2. *Postsecondary Education Facilities Inventory and Classification Manual.* Washington, D.C.: U.S. Department of Education, Office of Educational Research and Improvement, National Center for Education Statistics, November 1992, page 125.
3. For a discussion about the high school genesis of planning standards for higher education, see, Ira Fink, "Throwing Space Standards Out the Window, Part I: Using Space Benchmarking and Faculty Headcount to Predict Space Needs," in APPA's *Facilities Manager*, Volume 14, Number 6, November/December 1998, pp. 41-42.
4. For a discussion about providing space on campus based on faculty head count rather than student head count, see, Ira Fink, "Throwing Space Standards Out the Window, Part I: Using Space Benchmarking and Faculty Headcount to Predict Space Needs," in APPA's *Facilities Manager*, Volume 14, Number 6, November/December 1998, pp. 41-48; Ira Fink, "Throwing Space Standards Out the Window, Part II: Using Space Benchmarking and Faculty Headcount to Predict Space Needs," in APPA's *Facilities Manager*, Volume 15, Number 1, January/February 1999, pp. 22-27, and, Ira Fink, "Benchmarking: A New Approach to Space Planning," *Planning for Higher Education*, Volume 27, Number 3 (Spring 1999), pp. 9-18.

Leveraging One of an Institution's Most Valuable Assets...



By Alan Freeman

Traditionally, capital funding for state and private institutions has followed a very staid and predictable path. For the public institution this path is mainly the use of state obligation bonds. These bond measures are always at the whim of the voters and are not, by any means, a sure and steady source for capital funding.

Depending on the size of the state's public higher education component, the bond measures are generally not substantial enough to support all the needs, not to mention wants, of the state institutions. Furthermore, these scarce resources not only have to support the capital construction of the projects but are also utilized for planning and design.

In addition, many states utilize these bonds to support the mitigation of hazardous material within facilities, telecommunication projects, and seismic upgrades. In addition, all renovation projects are drawn from the same fund source. All these projects drain the funding pool to the point where many campuses wait up to ten years to see a capital project come to fruition. Thus, it makes it difficult for a campus to meet its capital need, in a reasonable time period, especially during growth periods on the campus.

Private institutions must rely on capital funding campaigns. With the exception of the few major, well endowed private institutions, this is a difficult and onerous process. The cost for facilities to remain at the cutting edge of technology and attract the quality faculty and students that the campus desires can often be overwhelming.

Because of the cost of construction, maintaining a current level of technology and providing platforms for new modes of information delivery by the faculty has brought about a great strain on funding capital projects for campuses across the country.

Tied with the above is another major factor facing institutions of higher education: the "second wave" phenomenon of new students and their impact in many states. That is, the children, and in some cases, the grandchildren of the Baby Boomers. In California, the impact of this second wave will have an enormous effect on the capacity of our higher education institutions. One way the state of California is coping with this phenomenon is to have the University of California System and the California State University System go to year-round operations. This reduces the need for additional facilities and better utilizes the state's existing facilities. This can solve only part of the growth problem. It cannot resolve the need to modernize, renovate, and keep up with technology. Those problems remain.

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Value of Land

How then can an urban campus identify the needed capital resources that are required to meet all the current demands and strains on the campus. One answer lies at the very foundation of the campus—THE LAND! A campus often lists its assets in the traditional manner; its facilities, its equipment, its faculty, etc. However, the one overlooked asset is the land upon which the urban campus is built.[1] Depending on the actual location of the campus, with respect to other urban activities, this land has varying degrees of value.

Table 1.
San Jose State University Capital Projects, 1995-99

1995	Garage Access Improvements	$525,000
	Energy Mgmt. System	$154,000
	Fire Alarm (Campuswide)	$65,000
	Wahlquist Life Safety	$1,759,000
	Falling Hazards Mitigation	$307,000
	MacQuarrie Hall Asbestos Abatement	$1,700,000
1996	Pedestrian Mall Landscaping	$3,750,000
	Boiler Retrofit	$1,000,000
	MacQuarrie Hall Asbestos Abatement	$1,660,000
1997	Morris Dailey Seismic Upgrade	$941,000
1998	Duncan Hall Seismic Upgrade	$2,220,000
	Sweeney Hall Seismic Upgrade	$798,000
	Infrastructure Improvements I	$28,090,000
	Stadium Widening*	$2,014,000
1999	Business Classroom Renovation**	$19,217,000
	Child Development Center*	$3,060,000
	Wahlquist Demolition / Relocation	$25,000,000
	New University Police Department*	$4,648,000
	Bike Enclosures*	$220,000
	Campus Gateways*	$1,411,000
	Bldg. BB	$600,000
	Baseball Field Improvements*	$400,000
	Total 1995 - 99	**$99,539,000**

* Nonstate funds, which could either be donor or other fund sources or combination of such
** Combination of state funds (75%) and donor funds (25%)

The value of the land is, of course, closely related to the proximity of the campus to the urban core. The closer the parcel to the core the greater the value of that parcel. Distance to the core location may be mitigated by the connectivity to the core. In urban geography the land values on a diagrammatic basis often take the shape of a spider web with the main corridors of transportation increasing the value of the land along that corridor, even as one moves away from the central business district.

Secondary land value peaks occur at points away from the core but in secondary business/retail parcels. Again, these secondary peaks are always associated with transportation corridors.

An institution in close approximation to the core often provides a transition zone between residential zones and the central urban core itself. This locational aspect is not unique to universities but is shared by many urban institutions. There can be a symbiotic relationship between the university and the core. Many of the graduates of an institution in the field of business and engineering are often employed in corporations located near, or in, the core.

Case Study

San Jose State University is located immediately to the east of the central business district (CBD) of the city of San Jose. The university employs approximately 3,000 faculty and staff and has an enrollment of approximately 27,000 students, making it the fifth largest campus in the California State University System. It is the single largest employment center within the CBD of San Jose. San Jose is the third largest city in California and the eleventh largest in the United States. Most people recognize San Jose as being in the heart (or as city officials like to refer to the city as the capital) of "Silicon Valley."

Between 1989 and 1994 San Jose received approximately $15 million in state bond funds for capital construction. Most would agree that this is not an exorbitant amount to spend on a campus for renovation, growth, and technology over a five-year period.

Between 1995 and 2000 a major jump occurred in the state capital allocation to the campus. This was combined with a number of donor-funded projects. As can be seen in Table 1, the campus realized close to $100 million in capital projects.

Two projects, infrastructure improvements I and business classroom renovation accounted for almost one-half of the funded projects. A third project associated with the new joint library project (Wahlquist demolition and relocation) accounted for an additional quarter of the funding. This was a

major shift from the previous five years. In the year 2000, additional funding in the amount of $57 million was realized for the construction of the library. Finally, an additional $19 million will be allocated to the campus in 2003 for the secondary effect (renovation of the old Clark Library) of the joint library project.

Table 2. Projected Capital Estimated

Projects	Cost
Classroom / Office Development	$400,000,000
New Telephone System	$6,000,000
Network Conversion	$6,000,000
Historic Housing Renovation	$3,000,000
Spartan Complex Renovation	$19,643,000
Science Addition	$34,161,000
Classroom Building	$31,027,000
Duncan Hall Renovation	$67,156,000
Art Building Addition / Renovation	$21,217,000
Performing Arts Theatre	$30,000,000
Art Gallery	$6,000,000
Alumni Center	$4,000,000

However, the university still needs to provide single occupant offices to the faculty, improve outdated classrooms, make technology on campus reflective of its location, and prepare for the wave of new students entering the higher education community of California. Table 2 is a list of projects that the university would like to undertake in the next ten years to meet its programmatic needs. This does not include the housing project now in the design phase that will replace the existing 2,100 beds with a total of over 5,000 beds—funded through bond sales from a 501(c)3.

The estimated cost of the housing project is over $600 million. The combined estimate for the projects listed in Table 2 is approximately $600 million. How can San Jose State acquire funding for all these needed projects when it needs to share the resources of the state bond initiatives with 22 other California State University campuses, the University of California campuses, and the community college system for the state? The answer is simple. The campus will leverage the land upon which it is built.

The classroom/office development project is estimated at $400 million. It is this project that will pay for itself while at the same time generating revenue that can support the remaining projects listed in Table 2 or provide seed money for these projects to meet the university's programmatic needs.

Classroom/Office Development

Working with a real estate attorney on its joint library project, the university was advised of the potential value of its land within the city of San Jose. Although this is not a new concept for a campus, it is new with respect to a land-locked public urban institution.[2] This is something that the university was somewhat aware of, but never realized the full potential as a source of capital funding.

San Jose is the heart of Silicon Valley, and the university lies adjacent to the core (See Map 1 on page 28). Development is moving toward the university on the core's east side. A current city project in the design phase is the Richard Meier Civic Center located one-half block north of the campus. The city's light rail system is proposing construction of an alignment to the immediate north side of the university along San Fernando Street. In addition, Bay Area Rapid Transit (BART) is planned to be located below grade along the same street as that of the light rail. BART will connect San Jose directly to San Francisco and Oakland. Major corporations, such as Adobe, Netscape, and Abovenet have located in the core of San Jose.

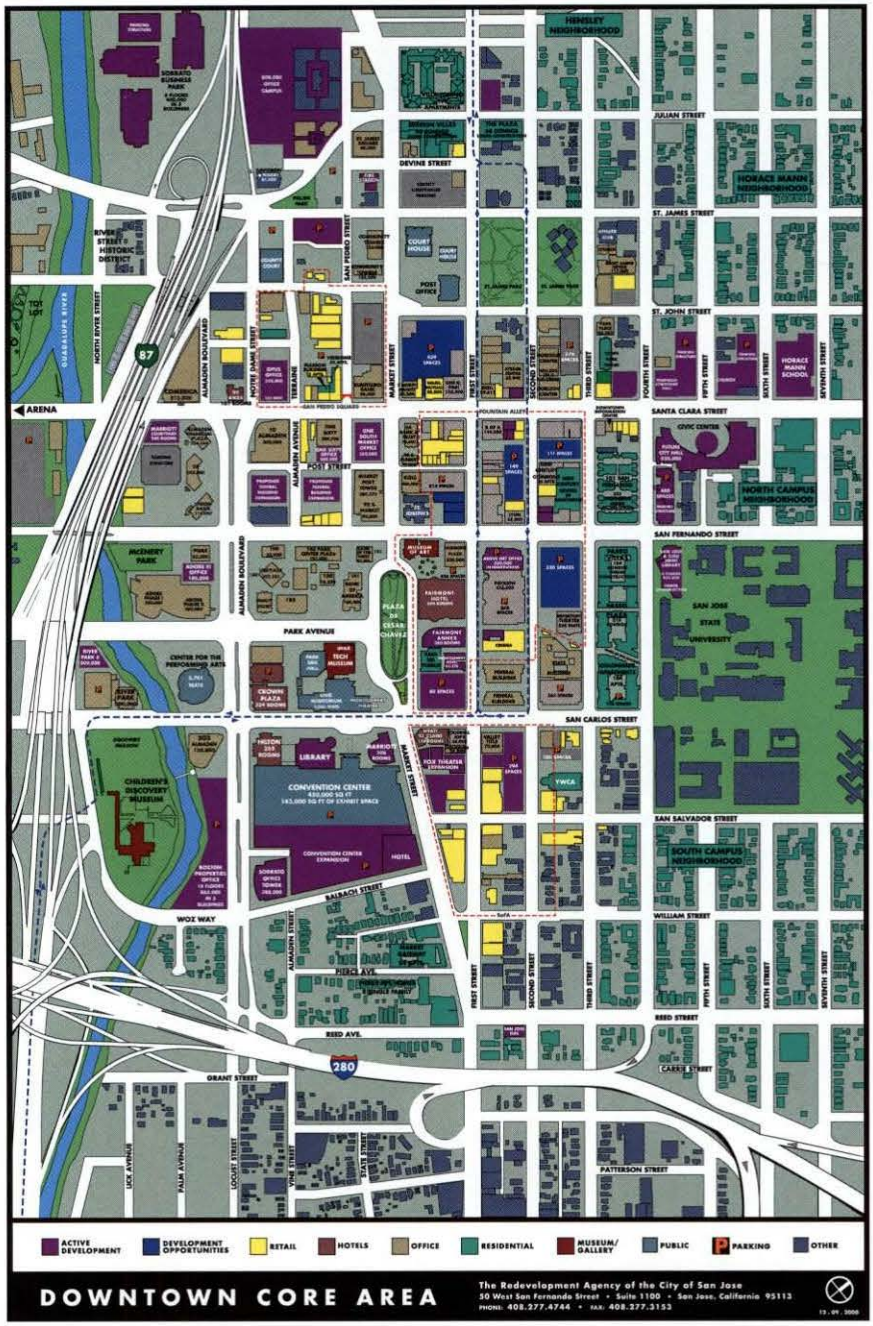
It is along this major corridor, San Fernando Street, that the university is proposing a major classroom/office complex. The project calls for the development of approximately 1.8 million square feet of "Class A" office space. Class A office space is defined as a quality office complex of approximately 350,000 square feet that demands quality location, quality finishes and amenities and, as such, can demand the highest rents.

In addition, the project will generate over 500,000 square feet of replacement classroom/faculty office space. The total project cost will be approximately $620 million.

As the university reviewed the tenant space under construction in Silicon Valley, the same central theme seemed to appear with each corporate development. They were all developing a "corporate campus." Why not provide a true campus for these potential tenants with all the major campus amenities available to the corporation instead of creating an artificial campus. At the same time the university would replace a number of its older, tired buildings with new, state-of-the-art facilities. Instead of one-third of the faculty sharing offices, it could generate enough additional office space to provide each faculty member with his or her own office.

The rent paid by the tenant would be the source of income to retire the bonds needed to build this facility while at the same time generating enough revenue to use seed money or total project funding for many of the proposed university projects.

After discussing the concept at the vice president's facility group, the vice president took the concept to our president. The president agreed that the opportunities this project offered should be investigated further. One of the first actions taken was to undertake a "Development Master Plan." That is, the campus, working with its master plan consultant, reviewed the existing campus master plan and determined those areas on the campus that would be suitable for development while at the same time maintaining the integrity of the campus.[3] The master plan consultant held several charrettes among the faculty and staff to receive input. Working with



Map 1

the Office of Planning, Design, and Construction, the "Development Master Plan" was formulated that identified those sites on campus suitable for development (See Map 2 on page 29). In addition, the university's 5,000-bed housing project was included in the master plan. This document then was prepared and incorporated into an Environmental Impact Report (EIR) in compliance with the California Environmental Quality Act (CEQA).

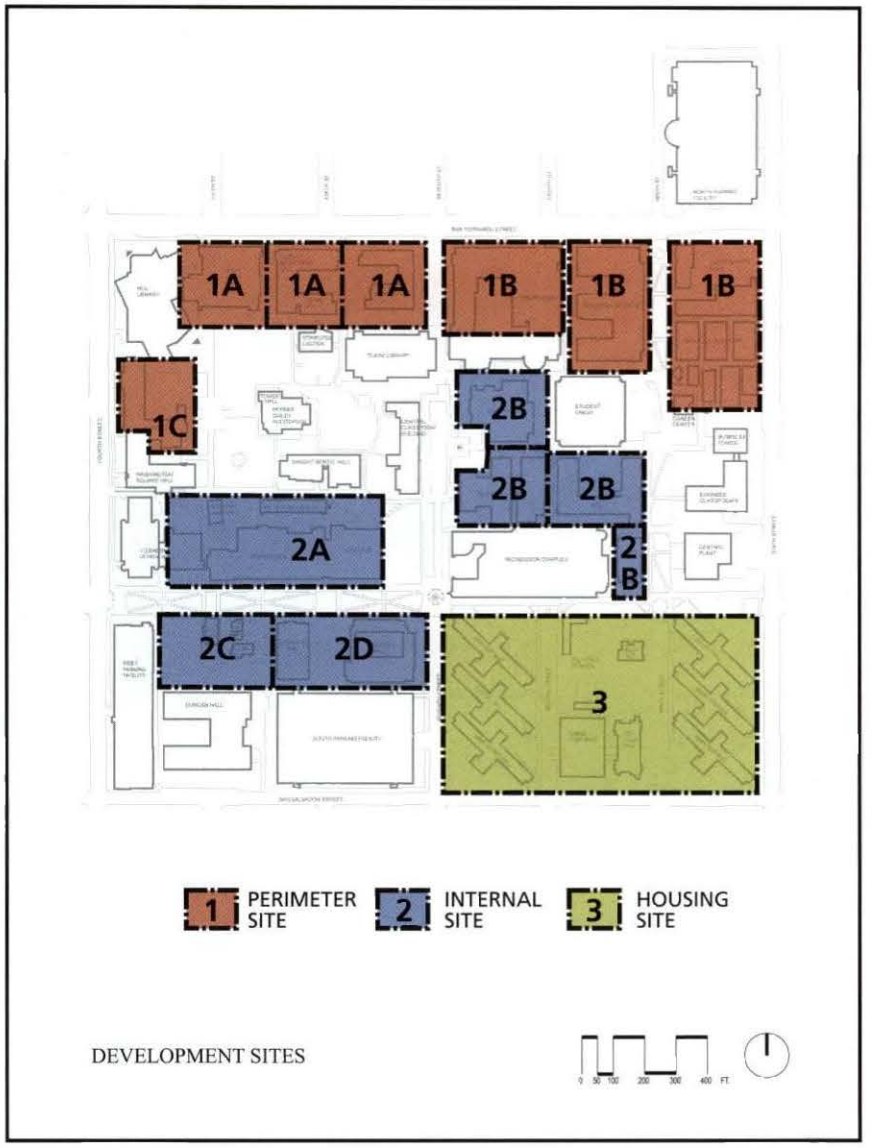
Concurrent to the work on the EIR a developer was selected following interviews with six California developers. The team now consisted of the vice president for administration and finance's facility group, the real estate attorney, and the developer. Once the developer was selected, a Request for Qualification (RFQ) was prepared in order to select an architect for the initial design of the classroom/office complex. After reviewing the RFQs and interviewing a short list of firms, a major architectural firm from San Francisco was selected as the shell architect. Working with the team and the master plan consultant, it was decided that the project could sustain approximately 1.8 million square feet of tenant office space distributed in five "Class A" buildings and over 500,000 square feet of replacement classroom/faculty office space, for a total of 2.3 million square feet of new construction.

A *pro forma* was developed in order to ascertain the feasibility of the project based on initial estimates and revenues. The project used an estimated lease rate slightly below that of the private sector market. This proved to be a viable *pro forma* budget and the team proceeded. The budget was such that the university—by selling bonds through an auxiliary arm of the institution, a 501(c)3—could construct the project and pay off the bonds in approximately 12 years. This would also provide a generator of funds for the university to use on other capital projects. Thus, the university would be able to leverage its land in order to strongly supplement the state's capital funding.

Numerous charrettes were conducted regarding the configuration and siting of the five buildings. In-depth discussions were conducted about the phasing schedule that would have to be implemented and a great deal of time and energy was devoted to the "parking problem" that would result from such a project. Scenarios and solutions were developed. The ideas were presented to the president and to the Faculty Senate in order that all the university community would be informed and included in the process.

The conceptual project was then presented to the trustee's of the California State University System in order to obtain approval to proceed on a feasibility study. Approval was given and the university, along with its team, proceeded on the project. However, the trustees wanted assurance that the project was affordable before allowing the university to proceed beyond the feasibility phase. The university was fully aware of its position and the indebtedness that it was obligating to the trustees. Based on this understanding, the university knew that it had to have a "tenant in hand" before proceeding into construction.

A tenant was identified. It was a major international corporation looking for a million square feet of contiguous space. Negotiations proceeded with the potential tenant. The tenant was very much intrigued with the idea of having a "corporate campus" located on a university campus. The ability to utilize



Map 2

the engineering and mathematics faculty along with the students was a major bonus for them. The location adjacent to the central city core was an exciting benefit.

Unfortunately for the university, the commercial real estate market in the Silicon Valley contracted in the first quarter of 2001. The tenant withdrew their initial offer. However, they emphasized to the university how extremely interested they were in the plan and would come back once the market turned around.

There is no doubt in anyone's mind that the concept of a shared tenant/classroom/faculty office space located on the campus is a feasible and exciting idea. The university is proceeding to develop a schematic design for the entire build-out in order to be ready to pursue possible tenants when the technology sector turns around in the market. It is the university's desire to build the 1.8 million square feet of "Class A" office and 500,000 square feet of replacement classroom/faculty office space. It is a strong idea whose time has come.

Lessons Learned

What lessons for an urban campus has this experience at San Jose State University provided that can be transferable to other urban institutions? Following are the most obvious points that an urban institution should consider:

- Identify the land assets of the campus
- Bring "on-board" as soon as possible a consultant who can provide professional assistance to the campus in its land assessment and review
- Work with a master plan architect to identify developable parcels of land on the campus
- Determine how much additional space the campus can reasonably accommodate without overwhelming the campus
- Select a design firm to provide a schematic design for the total project that will provide a corporate identity and fit within the campus context
- Identify other market land uses that could collocate on an urban campus and be compatible with the institution's mission.

The benefits of the experience for San Jose State University have been immeasurable. The university has gained a much stronger understanding of its own resources and potential funding opportunities as well as its potential to support capital projects. The university also learned quickly that a campus does not necessarily have the personnel to provide the expertise necessary to undertake a project such as described in this article. That is why it is imperative that the appropriate planning and design professionals be brought into the process early on. This means that the institution has to face some initial costs that could possibly be retrieved from the project once the project becomes reality.

As stated above, San Jose State University firmly believes that this project will become "real" once the technology market returns. The university will be ready to immediately proceed into the market with all initial planning, schematic shell design, and marketing in place.

References

1 Junker, Anthony C. Managing the College's Real Estate. *Planning for Higher Education* 1990;19(1):23-26.
2. Sensbach, Werner. The University as a Real Estate Developer—A New Role for an Old Institution. *Planning for Higher Education* 1988/89;17(1):73-80.
3. Beck Mark W. Campus Facility Site Selection and Matrix Evaluation of Weighted Alternatives: A Methodology. *Planning for Higher Education* 1988/89;17(4):33-39.

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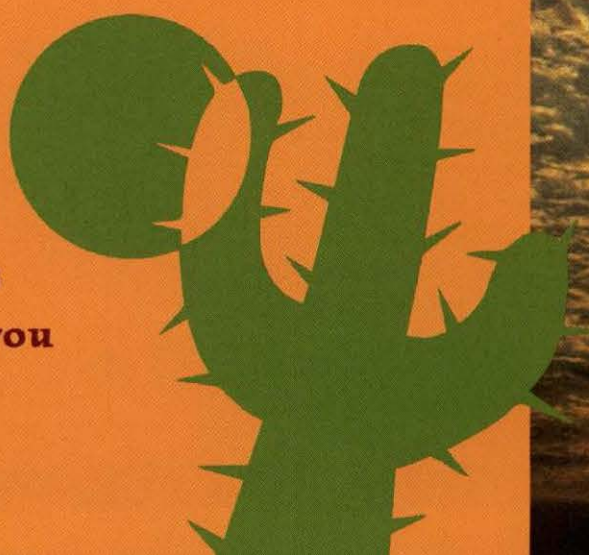

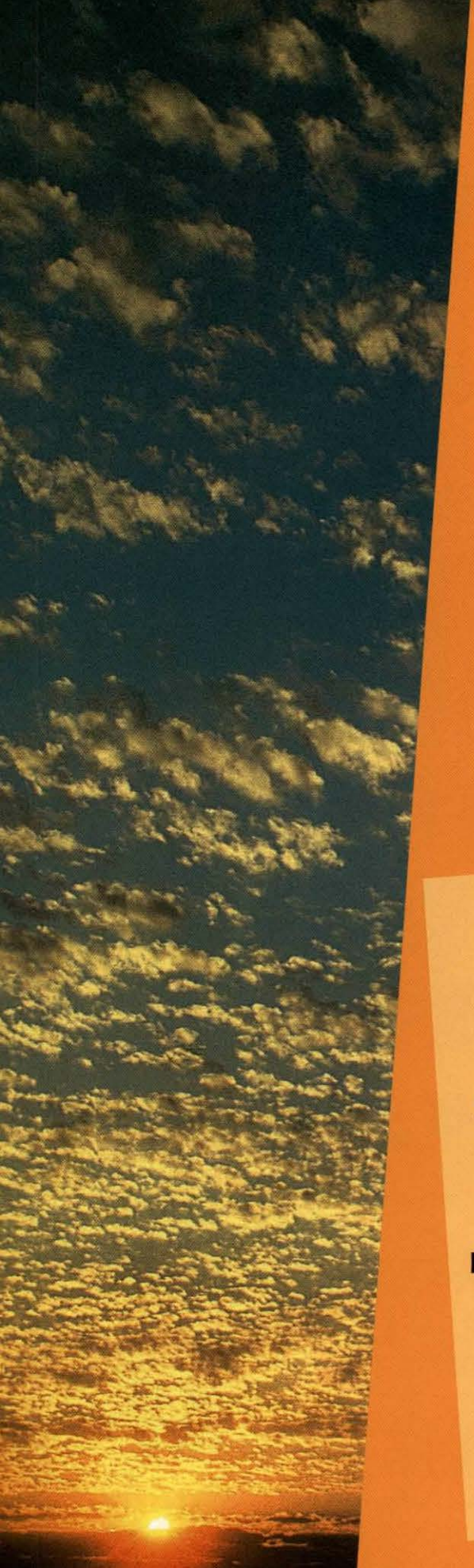

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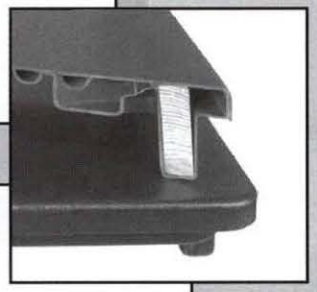

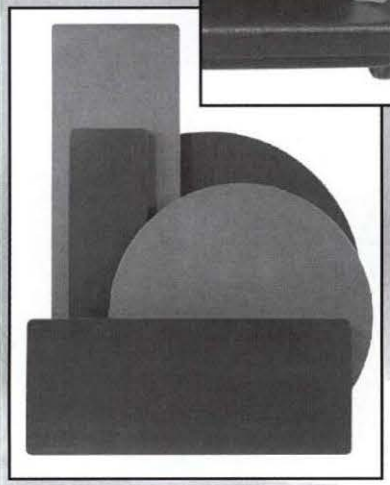

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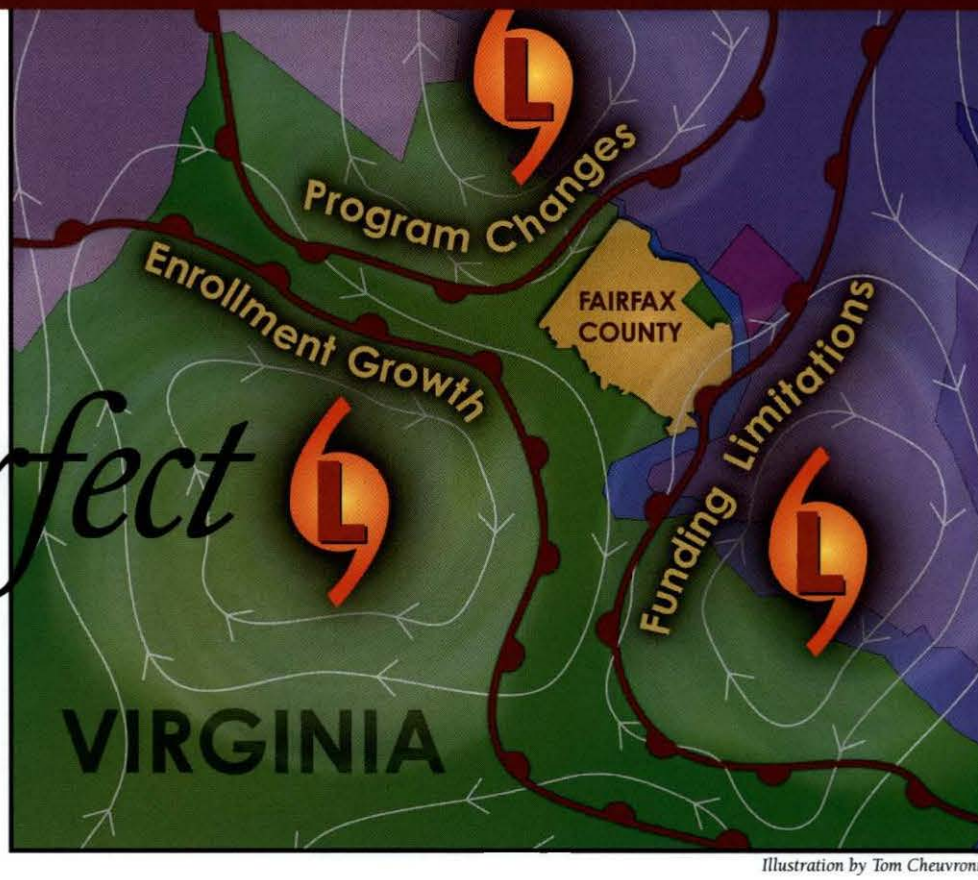

Illustration by Tom Cheuvront

by Thomas Brady

Throughout history, unusual and often unrelated events merge to create a singular impact. One such confluence is the "perfect storm," memorialized in the book and movie of the same title. In one of the rarest events of the last century, three separate weather phenomena aligned themselves and created a path of destruction. Efforts to deal with this emergency needed to be immediate and were made in an information void.

Although certainly a far cry from this meteorological event, the confluence of several factors in Fairfax County Public Schools in 2000/2001 created such a "storm." School personnel in the system, located in Northern Virginia, were familiar with strategies needed to build facilities as the school population grew. Planning decisions were made with input from various sources, including population surveys and housing development applications. Although not foolproof, this system had managed the building of eight new schools over the previous ten years and renovation of, or additions to, 58 others. Now, however, a surge in the school population growth, coupled with program changes and limited funding, exasperated the problem. These varied and unforeseen factors impacted this procedure, and their confluence necessitated a new way of dealing with the facilities issue.

Facilities Services was facing challenges unknown in the past. Proactive leadership in this time of competing resources was an unparalleled opportunity for change. With the resources of a team committed to providing the best for the students in Fairfax County Public Schools, my challenge to all was to be bold in their thinking and creative in their solutions.

This article will delineate the factors that contributed to the facilities crisis, explain the planning process implemented to address them, and offer suggestions for adaptation by other institutions of learning. The focus is on the need to be proactive, to scan the environment for change, and to incorporate collective wisdom in the decisions made to address these changes. It could be everyone's response to "the perfect storm."

Who owns the problem?

As with the *Andrea Gail's* crew efforts to save their ship, at first glance the situation appeared to be a facility problem. Through a radar scan, however, it became clear that this was a system-wide issue affecting over 200 schools. A rescue ship could not save the *Andrea Gail*, and more portable classrooms or trailers were not the solution to the need for more classroom space since the school board had identified as a strategic

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This is his first article for* Facilities Manager. *Jan Mulvaney and Catherine Alifrangis of the office of facilities services provided assistance on this article.

target a reduction of 15 percent in the number of students in such locations.

What factors created the situation?

Had only one or maybe two of the weather phenomena been in place, there probably wouldn't be a story to tell. It is the same with the school dilemma. It was the conflux of myriad factors that created "an emergency." These multiple factors could be grouped in three categories:

- ***Enrollment Growth***
  The school-aged population in Fairfax County, Virginia was growing at an unprecedented rate. The school system's reputation for excellence was a factor in companies relocating to the area. This growth was supported by a healthy economy boosting the housing industry. In addition, the school system was impacted by an influx of immigrants and by families of special education students.
  Example: From September 1998-September 1999, the school population rose by over 4,000 students; enrollment is expected to increase by more than 16,500 students by 2008.
- ***Program Changes***
  Additional space was needed to meet myriad programmatic changes. These two examples, lowered pupil-teacher ratio and a move from half-day to full-day kindergarten, impacted the already taxed classroom shortage.
  Example: Two identical buildings are situated in different parts of the school system. One is in a more middle class area and the building has a capacity of 905. The other is in an area of need with smaller class sizes and other special programs. The capacity for that building is listed as 677.

Fairfax County, Virginia at a Glance

Area	399 square miles
Schools	
Elementary	132
Middle	21
Secondary (7-12)	3
High	21
Students	165,000 +
School-based staff	18,490
Additional staff	1,620

$1,471.2 billion operating budget

- ***Funding Limitations***
  Limited resources to fund additional new construction were not available to meet all the needs. Despite school bond referendums being passed for a period of 24 years, an annual spending cap (debt service ceiling) imposed by the County Board of Supervisors severely limited the number and scope of projects.
  Example: The 1999 Bond was passed for $378 million. With the $130 million cap, it will take three years to spend this amount. Currently the school system is spending the 1997 bond money.

These factors, coupled with previous scrambling for space, a vocal community, and the reality that the system could not keep "plugging the dike" brought the issue to a critical level.

How to approach?

As noted earlier, it became apparent that the school system needed creative and innovative thinking from a wide variety of perspectives, background, and expertise. To meet this need, a process, under the umbrella of instructional accommodations planning, was initiated to:

- Define the problem
- Disseminate information
- Include key decision-makers
- Integrate community perspective and input
- Build consensus among those affected.

What steps were taken?

Step 1: A task force was created to develop an Instructional Accommodations Plan of proposed strategies for addressing the need for more classroom space. Members of the task force included representatives from both school-based leadership

The committee proposed several short- and long-range initiatives. Some were as simple as using childcare rooms for instruction during the day or purchasing mobile wireless "laptop labs" to replace computer labs. Other ideas included using modular units instead of building additions, converting support areas to instructional space, and studying the feasibility of a satellite school at a business location. Each idea is currently being implemented.

and the central office. The joint leadership by both the deputy superintendent and the assistant superintendent of facilities services emphasized the system's commitment to this endeavor.

Step 2: The task force met over a period of four months to identify strategies that were feasible approaches.

Step 3: The leadership of the task force met with all the principals to apprise them of the current dilemma, seek their suggestions and input as to viable solutions, and enlist their support as the school system moved forward in addressing the problem. A facilitator from the system's planning office guided the group to brainstorm ideas, discuss the feasibility of the suggestions, and provide a balanced perspective.

Step 4: Following the meetings described above, all suggestions and input received from the principals were divided into the following categories:

- Short-term initiatives
- Mid-term initiatives
- Long-term initiatives

These initiatives were placed in priority order within each category and selected ideas were presented in an informational meeting to the school board. The school board demonstrated support by voting to move forward to implement the Instructional Accommodations Plan.

Step 5: A special projects manager was selected to work with the assistant superintendent of facilities services to coordinate all aspects of the Instructional Accommodations Plan. Objectives of the plan were developed and included:

- Proactively address ongoing growth.
- Maximize tax dollars for renovations, additions, and new schools.
- Ensure efficient and effective use of available school capacity.
- Reduce the number of students receiving instruction in trailers.
- Incorporate plans into future bond referenda.
- Identify additional funding sources.

Step 6: The special projects manager was responsible for:

- Developing a presentation of the Instructional Accommodations Plan that could be given to elected officials, school personnel, the parent community, and the public at-large to explain the current circumstances.
- Scheduling presentations throughout the year prior to a bond referendum to educate taxpayers about the total needs of the school system to set the stage for a "yes" vote for school construction. Although Fairfax County voters have approved all school bonds since 1978, it is important to involve as often as possible the 75 percent of the voters in the school district who do not have children in school.
- Monitoring progress of short-, mid-, and long-term initiatives to provide a status report to the school board.
- Identifying and supporting subcommittees of the task force to explore mid- to long-range initiatives.

What is the current status?

Everyone living and working in Fairfax County has an investment in "sustaining the high quality of the instructional program." This emphasis is the goal and driving force of the Instructional Accommodation Plan, as well. Two years after the initiation of the process described above, several initiatives have been implemented and several others are in the planning stages.

More importantly, however, the priority focus on the classroom space problem and the involvement of numerous groups (teachers, school-based and central administrators, parents, local and state elected officials, business and industry representatives, and community members) in its solution have heightened awareness in a way that has spawned creative thinking in seemingly unrelated meetings. A team approach to what initially was considered a facilities issue has broadened ownership of both the problem and the solution. The children and taxpayers of Fairfax County are the true beneficiaries.

What Does the Future Hold?

The Perfect Storm was an opportunity for bold action in the face of unprecedented forces. The captain and crew of the *Andrea Gail* did not have adequate warning tools and were taken by surprise at the ferocity of the storm. Although brave risk takers, they reacted and fell just short of riding out the storm and a safe return to home port.

School systems cannot afford to be ill prepared for the countless issues to which they need to react. Those that utilize all the forecasting tools available and formulate a collaborative, proactive plan, however, can successfully negotiate the way.

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Meet the VICE PRESIDENT FOR HAPPINESS

By Frederic Gratto

When it comes to building a successful service organization, the challenge is finding and keeping great people because they are the brainpower who generate good ideas and the firepower who make customer satisfaction a reality. Great people are great contributors because they like to go to work, make things happen when they get there, and can be counted on to do their best. Every organization is only as good as the people in it. One key to success is getting plenty of great people by making it a high priority to find them. Another key to success is helping people feel satisfied with their work and happy on the job. This isn't as difficult as it seems and campus leaders can make this happen by considering nine principles that work well for us at the University of Florida physical plant.

1. Create a Supportive Environment on the Job

"I love to work here!" I've heard this often because the University of Florida is a wonderful place to work. One of the reasons people are happy here is because we understand that they have lives in progress. Work is important, but it's just one of many things people do. Sometimes I get the impression from reading about the private sector or from talking to my friends employed in it, that work is most important, maybe even more important than family. I was impressed, therefore, to learn about the culture at Kinko's.

Paul Orfalea, founder and chairman of this copying company, believes there are three ingredients to a happy life. They are play, work, and love. Employees are introduced to this tripod concept during orientation and it's reinforced throughout training with the company. In the Kinko's organization, the philosophy is, "We trust and care for each other."[1] Because of this healthy perspective, employees are encouraged to develop and maintain all three aspects of their lives and are cautioned not to let work overwhelm them.

Loyalty to an organization and commitment to the job are wonderful, but there are other things just as important, probably more important. At the University of Florida, we understand the Kinko's philosophy and understand the value of family. Because of this, we try to be as user friendly as possible. Sure, we have rules and regulations about leave time and attendance, but we realize that people have lives beyond campus. There are many other things they are interested in, competing needs that require their attention, and personal goals they want to achieve. "In today's marketplace, people don't want to be treated like a commodity. They want to know that someone cares about their dreams."[2]

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People have goals and dreams for themselves, of course, but they are not always realized. An old song by the Moody Blues reminds us that yesterday's dreams are tomorrow's sighs and a golden oldie by Pink Floyd says that hanging on in quiet desperation is the English way. John Mellencamp asserts that life goes on long after the thrill of living is gone. Applied to the workplace, these scenarios probably mean that somebody is not too happy on the job. Our organization works hard to minimize situations like these by nurturing a culture in which people know they are appreciated and that we want them to reach their full potential. Our policies are probably not much different than those at other institutions, but our collective mindset about helping people might be. Our notion is that we ought to help people enjoy time on the job by being as accommodating as possible.

Betty Ford, wife of the former president, probably said it best and nicely sums up our approach to dealing with people: "I don't think there's anything as wonderful in life as being able to help someone else."[3] On any college campus, a clear mission statement and a track record that backs it up are very important because a positive and supportive environment at work makes it likely that people will enjoy being there.

2. *Rock & Roll Up Your Sleeves*

People like to work on our campus and I think one of the reasons is because they have fun doing it. Our work matters and is very conspicuous so people notice it and appreciate the difference it makes. Another reason people like working here is because of the good teamwork between supervisors and workers. There are 144 supervisors in the physical plant and 34 of them are working supervisors. This is an important distinction because effective leaders know that best results come from working with people and by showing them how to be more productive. The supervisors in our organization know how to get the job going and roll up their sleeves to get involved in the task at hand.

Beckley[4] provides an interesting story about the importance of leaders pitching in to help when they can. "Bundled up beyond recognition one bitter winter day, George Washington proceeded down a country road where a corporal and a group of men were building a breastwork of logs. Two tries had failed to roll the last log into place as the corporal stood by, important and smug, goading the men into action. Another attempt, and the log was about to roll back for the third time. Suddenly, Washington sprang forward and with all his might helped push the log into place. He then turned to the man and asked: 'Why don't you help your men with this heavy lifting when they need an extra hand?' The reply: 'Don't you see I'm a corporal?' Throwing open his great coat and showing his uniform, Washington proclaimed: 'I am only the Commander-In-Chief. Next time you have a log too heavy for your men to lift, send for me!' "

Don Shula, former coach of the Miami Dolphins, insisted on being close to the action. He stated, "You can't coach from the press box. You've got to be down on the field with the team. Coaching is an intensely personal business. You can't coach people from a distance, with aloofness. People need to see that you're at least as interested as they are in what's going on."[5] Likewise, we have found that teamwork, especially when it directly involves supervisors, is one key to our success. People appreciate knowing they have our support and that they can count on extra help when it's needed. And, when supervisors and workers take on a challenge together, camaraderie is enhanced, productivity goes up, and organizational willpower makes anything possible. Ken Blanchard probably said it best: "Leadership is not something you do to people. It's something you do with people."[6]

3. *Help People Smile On the Inside*

It's a pretty simple idea: people ought to enjoy what they do at work and the people they do it with. There has to be more to life than just paying bills and enjoying the weekend. Therefore, we try to provide jobs that challenge people, utilize skills, and encourage input. We believe that people appreciate demanding work that stretches them a little bit and we certainly know that many good ideas for worthy projects come from those who turn wrenches, fix roofs, and clean carpet. We make every effort to let people know that feedback is important and that their jobs are essential to what we do. For example, few of us need to understand radiology but all of us need to understand that whatever we do to support it fortifies the mission of this research university.

Work that is thoroughly fulfilling and rewarding is desirable but probably quite rare. Even my job, the best one on campus, leaves me ready to go home sometimes.

Work that is thoroughly fulfilling and rewarding is desirable but probably quite rare. Even my job, the best one on campus, leaves me ready to go home sometimes. Most of the time, however, this is the place to be. The leaders and supervisors in our organization encourage everyone to have this perspective. One of the things we do is survey our team in writing to see how well needs are being met and to learn what people really think. We're a better organization than we used to be because this effort has spread goodwill and helped us make better, informed decisions.

Money pays for the house and the groceries. It is also an indication of whether or not people are appreciated for their unique talents and contributions. Therefore, providing fair compensation commensurate with impact is another way to make people smile on the inside. People are not usually impressed by our credentials or swayed by our intentions. What really matters to them are implementing creative ways to get pay raises even in a rigid state system.

4. *Be Enthusiastic*

A complacent leader drains an organization because others take on the same behavior and this saps energy, dulls attitudes, lowers productivity, and causes a drain on the brain. In contrast, the ripple effect of enthusiasm and a positive outlook is incredible because it energizes people and encourages them to lean forward beyond the boundaries of a job description. More gets done when people think of a job description as a starting point rather than a list of the only things they're allowed to do.

A leader ought to be a yardstick of quality and one measure of quality is the extent to which others are inspired by the tasks at hand. Lee Iacocca said: "Leadership means setting an example. When you find yourself in a position of leadership, people will follow your every move."[7] Enthusiasm is an engine of success because it rubs off on people and is exactly what's needed to make a vision a reality. "The cold logic is unassailable: If you do not *love* what you're doing, if you do not go totally bonkers for your project, your team, your customers, and your company, then why in the world are you doing what you're doing? And why in the world would you expect anybody to follow you?"[8]

5. *Develop and Train Everybody*

At the University of Florida world class athletes compete in a variety of sports. Their excellent teams and high caliber competition result in special entertainment, which the public is happy to pay for. However, when our teams do not perform well, the stadium might not be full if fans are no longer will-

ing to pay to see what they consider less than excellent effort. This concept has application for us in the facilities business as we strive to provide consistently good customer service.

In the world of intercollegiate athletics, one of the reasons teams on both sides of the field are so good is because they practice, practice, practice. Everybody practices, trains, and gets better at what they do. When the fans in the stadium see a kicker attempt a field goal, it certainly isn't the first time he's tried one. Quite likely, he's done it hundreds of times before, in and out of football season. For college athletes to compete at a high level, development and training is a serious business that they stay involved in throughout the entire year. Development and training needs to be an on-going effort for facilities organizations as well. "To perform at their best, a company's employees must be thoroughly trained, and they need the help of more experienced staff members. Moreover, to maintain their competencies, training can't be a one-shot thing; it must be ongoing."[9]

> "The number one reason people leave their jobs is to pursue personal development—the chance to learn something new.

Training employees costs money and takes time—two resources that are often in short supply on a typical college campus. For these reasons and because I saw a lot of people that were trained leave our organization, I wasn't always as interested in employee development as I should have been. My boss apparently noticed this and told me that one thing worse than training people and watching them leave is keeping people and not training them. Since then, I've understood that the goal of learning is to develop habits and skills that benefit organizations *and* individuals. Many of our best people do move on to new opportunities. Nonetheless, training has met their need to learn new things, head-on, and has probably encouraged many of them to stay and make a difference. "The number one reason people leave their jobs is to pursue personal development—the chance to learn something new. If you want to hold on to your best people, you've got to make sure that they're learning, growing, and changing."[10] Training is worth the resources it consumes because it helps people get out of their comfort zones so that they can learn and contribute more and this enriches lives at work every day.

6. Keep Learning

During the period of the Roman Empire, Julius Caesar and others would scour the countryside far and wide seeking to extend the influence of this great dynasty. Wreaking havoc, conquering societies, and taming the wilderness was hard work. It was also highly regarded work and much appreciated by the masses when victorious troops returned to Rome. Wild celebration occurred in the streets as the heroes passed by in wooden chariots. There was one small problem though. Cobblestone streets and hard seats meant the champions had a rough ride. As cushion, laurel leaves were placed on the wooden seats. The thrill of victory didn't last very long after the acclaim died down, however, because the generals soon had to leave to extend the empire once again. They had to do more and get better at their jobs. They couldn't rest on their laurels because performance and results counted more than anything.

Leaders today also need to keep learning and enhance their own performance. Just as the pizza guy does, they need to deliver over and over again. New skills and abilities help leaders get better results, perform at a

higher level, and do what they ought to be doing for themselves and their organizations. Training might be considered a journey without a finish line. Ken Blanchard said it best: "The sign on your bathroom mirror should say, *Getting better all the time.*"[11]

Another reason leaders should take their own need for training very seriously is because of the positive impact it has on an organization. The process of continual learning is referred to as *personal mastery* by Peter Senge and the importance of it is clear in this statement: "The core leadership strategy is simple: be a model. Commit yourself to your own personal mastery. Talking about personal mastery may open people's minds somewhat, but actions always speak louder than words. There's nothing more powerful you can do to encourage others in their quest for personal mastery than to be serious in your own quest."[12]

7. *Listen Carefully*

Listening is sometimes hard to do. It seems easy to listen so we probably don't think we need to pay much attention to this skill. Perhaps we don't consider it a skill and haven't even thought about it much. There is a little snag, however, that makes listening harder than it ought to be. Brains enable us to comprehend much faster than people can talk. Surplus time is available for thinking and this is where the problem starts. Daydreaming, considering the weekend, or concentrating on a response means that leftover time is focused on something other than what people are saying. We can probably hear alright but maybe we just don't listen attentively.

The main thing people need from leaders is attention. A sincere concern for people and a real interest in what interests them shows a genuine desire to understand the unique needs and feelings of others. Influence with people results from a willingness to be influenced by them. Therefore, people are less resistant to change and more likely to be interested in what's happening at work if they believe that leadership really listens and cares about feedback. This is significant because it helps build teamwork. "Intent, tuned-in listening engenders empathy, creates connectedness, and, ultimately, builds cohesiveness."[13]

8. *Feedback and Coaching Enhance Performance*

Many years ago when we moved to Florida, our family received a visit from the Welcome Wagon lady. She told us a little bit about the community and let us know what we might expect regarding life in Gainesville. A similar approach works well in a facilities organization. Since leaders want everyone to be successful on the job, one approach is to make sure that people know what the expectations are. Orientation training helps accomplish this but there is much more that can be done.

It's always nice to meet new people and it is especially important if they are going to be part of the team. One of the things I like to do is stop by to chat with each new employee within the first week of employment. It's good to be able to put a name with a face and our short visits help us know each other a little bit. During our conversations, we discuss what people expect and what the organization wants. New teammates appreciate knowing where they stand and where they're headed. So do employees who have been on the job for years. That's why nurturing relationships and coaching are so important. Lack of information is an obstacle. Since one job of management is to remove obstacles, letting people know how well they're doing and what's expected of them is essential.

When employees understand what they need to do and are coached occasionally as they do it, there are smaller gaps between what's expected and what's delivered. Feedback helps

people do well on the job. It also helps them feel good to get a straight story. This is certainly important because people will probably forget what you said and they may forget what you did. But, they won't forget how you made them feel.

Effective leaders know they need to help people succeed at work. Their own success depends on the success of others. In fact, it's an obligation because nothing happens without those willing to do the work of an organization. "In the world of great managers, the employee is the star. The manager is the agent."[14]

9. Act Like Jim Rockford

About 25 years ago James Garner starred in *The Rockford Files*, a television detective show. The main character, Jim Rockford, was a pretty cool dude, drove a nice Pontiac Firebird, and was obviously the good guy. I liked the show and learned three lessons from it. One thing I noticed was that even though Rockford was a very capable leader, he didn't win every battle. Jim lost plenty of fistfights, arguments, and car chases. He always came to the rescue, though, sooner or later. Often, his first few attempts at solving a case accomplished little. Nonetheless, he kept trying. He also helped himself by sharing information as soon as he got it so that others were equipped to solve problems. Whether he knew it or not, Rockford taught viewers about tenacity and the importance of keeping people informed.

Another leadership tool the show revealed through Jim Rockford is collaboration. He had a network of contacts to help solve problems. Because he nurtured relationships and realized that he couldn't do everything by himself, Rockford accomplished whatever he determined to do. He was successful because he worked well with others and counted on them to help make decisions.

The characteristic most noticeable about Jim Rockford was humility. He didn't draw a lot of attention to himself and despite the fact that he was the boss, he often deferred to the judgement of others. Rockford knew he wasn't always right. He was successful because he was polite, modest, and humble.

Summary

Incredible technology has created a global economy that has made the business world and even college campuses very competitive. Sometimes, there's a perception that the only way an organization can survive and be successful is to shave costs and do whatever is needed to squeeze every penny out of every dollar. In the world of educational facilities, this might mean cutting back on training, an inability or unwillingness to buy necessary equipment, or taking a Scrooge-like attitude toward salaries. Despite the fact there is never enough money to do everything we want to do, there are always ways to create a nourishing environment in which people feel

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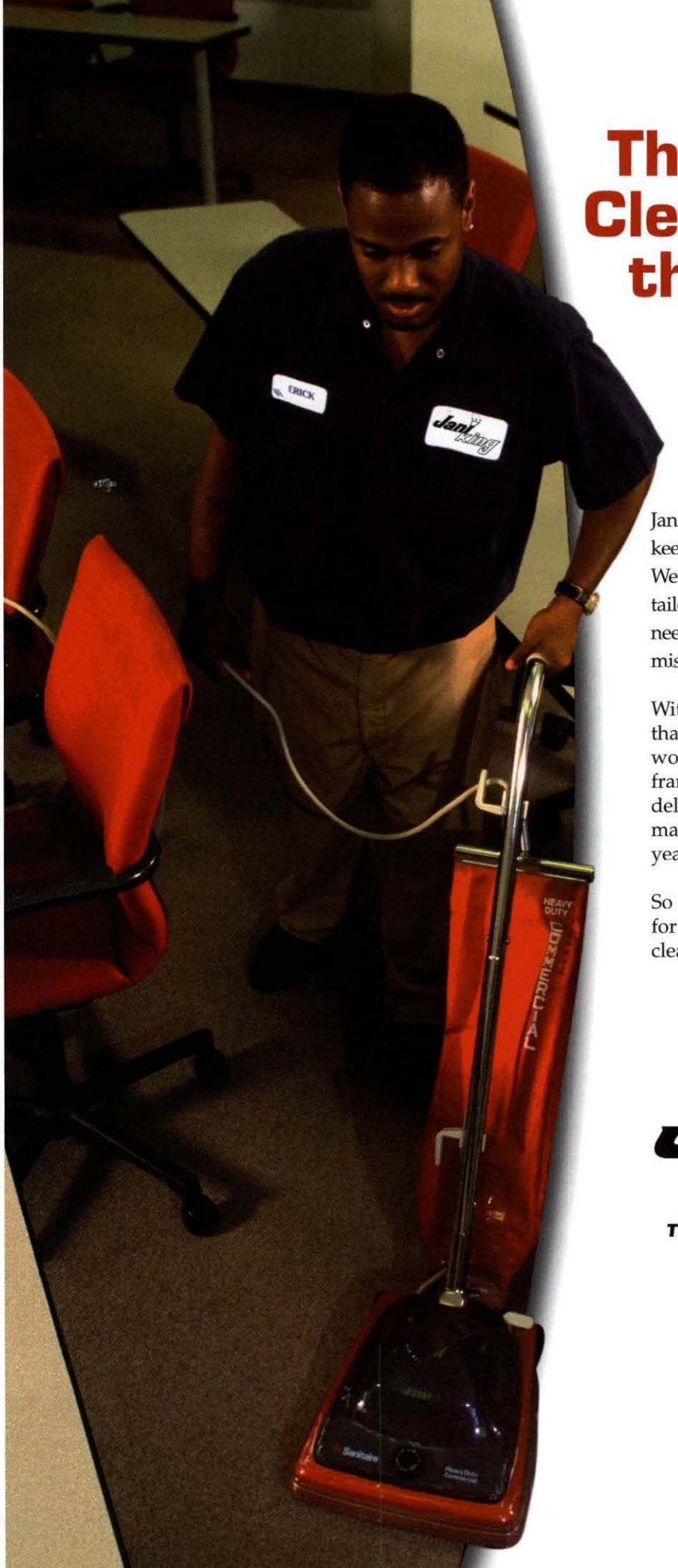

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good about their contributions, keep learning on the job, and are happy while at work. We don't have unlimited resources at the University of Florida but we have found that there is higher goal than the bottom line.

In college many years ago my finance professor said: "Money may not be the most important thing, but it sure is way ahead of whatever is second!" I didn't believe this statement then and I still don't. On our campus, people are the most important asset. We have found that treating people with respect, dealing with them honestly and fairly, and giving them opportunities to grow have affected many lives in positive ways. This has enabled all of us to accomplish more than would have been possible otherwise.

Leaders at the University of Florida physical plant allow employees to do their best and be their best. As a consequence, people actually care about what they do at work each day. What a concept! Perhaps they appreciate their jobs because we do just about everything we can to help them be happy at work. If a job as Vice President for Happiness ever becomes available, I might be qualified for it since I'm part of a team that understands that we can get so much *from* our employees because we do so much *for* our employees.

References

1. Abrams, R. *Wear Clean Underwear*. New York: Dell Publishing, 1999:71.
2. Breen, B and Muoio, A. Peoplepalooza. *Fast Company*. January 2001:84.
3. Gilbert, R. *Bits & Pieces*. February, 2001:21.
4. Beckley, J. *Bits & Pieces*. October, 1971:22.
5. Shula, D and Blanchard, K. *Everyone's A Coach*. Grand Rapids, MI: Zondervan Publishing House, 1995:125.
6. Blanchard, K. *The Heart of a Leader*. Tulsa, OK: Honor Books, 1999:140.
7. Maxwell, J. *The 21 Irrefutable Laws of Leadership*. Nashville, TN: Thomas Nelson Inc., 1998:187.
8. Peters, T. Rule #3, Leadership Is Confusing As Hell. *Fast Company*. March 2001:136.
9. Capodagli, B. and L. Jackson. *The Disney Way*. San Francisco: McGraw-Hill, 1999:131.
10. Breen, B and Muoio, A. Peoplepalooza. *Fast Company*. January, 2001:87.
11. Blanchard, K. *The Heart of a Leader*. Tulsa, OK: Honor Books, 1999:115.
12. Senge, P. *The Fifth Discipline*. New York: Doubleday, 1990:173.
13. Peters, T. Rule #3, Leadership Is Confusing As Hell. *Fast Company*. March 2001:140.
14. Buckingham, M and Coffman, C. *First, Break All the Rules*. New York: Simon & Schuster, 1999:230.

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Gazing into the Future of APPA's Strategic Assessment Model

by Maggie Kinnaman

In late 1999 the Strategic Assessment Model (SAM) was made accessible to you via the APPA website. Much more has been accomplished since then, and I'd like to share those accomplishments and future plans with you. But before we get started let's take a moment to revisit the original charge from the APPA Board of Directors to the SAM Task Force. The charge was articulated as establishing an inventory of reliable and meaningful performance indicators that would greatly increase the credibility of the facilities management professional, while providing stewardship over his or her institution's greatest and most costly resource.

STRATEGIC ASSESSMENT MODEL
For Continuous Improvement

SAM Defined

The SAM Task force responded to the charge by defining the Strategic Assessment Model as follows:

The APPA Strategic Assessment Model is an essential tool that can be used to achieve organizational excellence through continuous improvement. SAM enables the facilities professional to assess an organization's financial performance, the effectiveness of its primary processes, the readiness of its employees to embrace the challenges of the future, and its ability to delight customers. The facilities professional can utilize the model for self-improvement, peer comparison, or benchmarking. Think of SAM as your vehicle that takes you on a journey from today's realities to future excellence.

In a nutshell, SAM consists of two components, a data collection piece and a self-assessment tool that allows an institution to self rate using a qualitative scale, rating organizational effectiveness 1 through 5. We believe that by using the combination of trending quantitative performance indicators and the qualitative criteria for determining levels of organizational effectiveness, SAM has become a strategic tool. SAM can help an institution determine its current level of organizational effectiveness, recognize what is required to move to the next level, and develop strategies and action plans for improving in each of the scorecard perspectives.

SAM provides facilities managers with a tool that helps get the attention of and bridge the communication gap that often exists between the facilities manager and our campus decision makers. The model helps to tell the facilities story in the lan-

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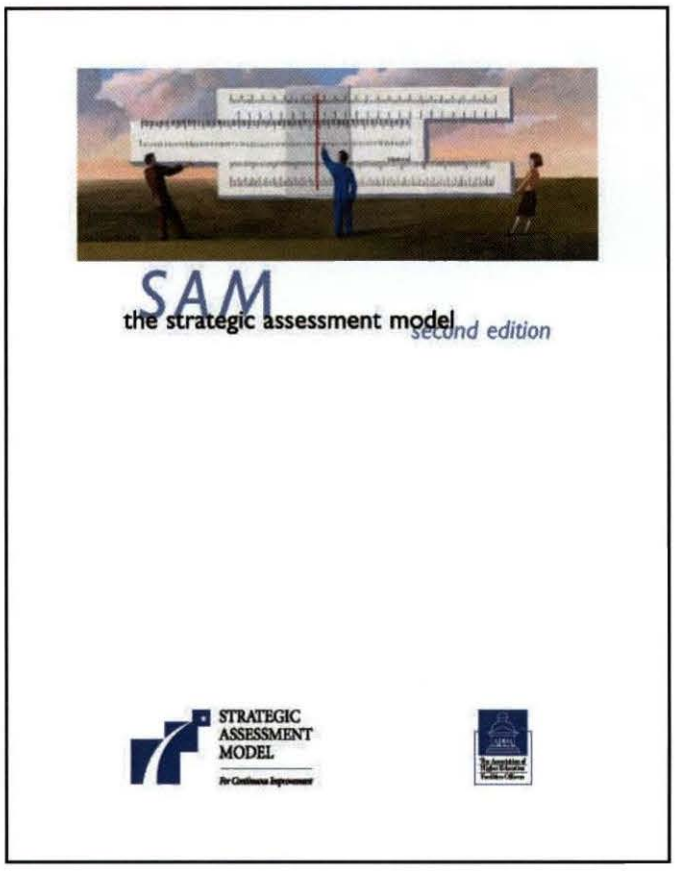
guage of business by collecting data in such a way that an institution can see at a glance how their facilities performance fares with the performance of others within the profession.

Project Success, Defined

In 1999 the task force identified four measures of success for this project. Keep these in mind as you read through the accomplishments and see how we've fared. The measures are:

- ❑ The identification of ranges of performance for the facilities profession through use of the model's performance indicators.
- ❑ SAM becomes a critical and credible tool that can track facilities effectiveness over time.
- ❑ The identification of performance indicators that can serve as a platform for initiating a process of benchmarking.
- ❑ SAM is fully integrated with other APPA programs.



Accomplishments

The model was updated in 2000 and rolled out at the APPA Educational Conference & Annual Meeting in Fort Worth, Texas. Preliminary 1999 survey results were made available to our members during that presentation. Final results of the 1999 survey were sent to participants in the fall of 2000. During the fall of 2000, SAM presentations were made to every region as well as to our strategic alliance partners in the United Kingdom (AUDE, the Association of University Directors of Estates).

In early 2001 SAM presentations were made to the Council for Higher Education Management Associations (CHEMA), an umbrella organization of 34 associations within higher education administration. The second edition of the SAM publication was made available during the 2001 APPA Educational Conference held in Montreal, Canada. This publication not only explained the details of the model, it captured numerous case studies from members currently using SAM in some form. These case studies included representation from Australia and the United Kingdom. To order a copy, visit www.appa.org/resources/publications.

Also during the Montreal conference, the SAM Task Force presented an implementation process to more than 80 attendees. In addition, SAM Task Force members were invited to present at a Western States NACUBO meeting in the fall of 2001. What an honor it was for facilities folks to present to our higher education business officers.

With the SAM Task Force having substantially completed its charge, the task force was realigned as a subcommittee under the purview of APPA's Information Services Committee. This alignment has proven quite useful and will help APPA consolidate its data collection efforts.

Current Activities Focus on Data Collection

Let's talk a bit about the process and importance of data collection in the SAM survey and other such activities. APPA, "your Association of Choice," is focused on providing you with the resources, tools, and networking experiences that can lead to greater competency and enhanced credibility as a facilities professional.

One of the most important resources that APPA can provide its members is relevant data that is collected across our profession. Armed with such data, you will be better able to present a picture of your effectiveness. The data can present information addressing an institution's current performance, performance over time, or performance in relation to that of others. Only the institution can determine what is good or bad performance given the context of its facilities strategy.

APPA's job is to coordinate the data collection activity, develop questions that are clear and relevant, make the survey process as painless as possible, give our members timely access to information derived from the data, and provide the resources that can respond to requests for customized analyses.

So, where do you come in? You are the most important ingredient, the source of the data and the only reason we're doing any of this. Without your active participation the best planning and technology accomplishes nothing. In addition, in today's world your very survival depends upon your ability to capture and quantify what you do and demonstrate good stewardship of the resources made available to you. In addition, data leads to information, information leads to knowledge, and hopefully knowledge leads to wisdom. We must take the first step and collect data in order to garner knowledge about ourselves and others.

What is standing in your way? APPA has over 1,300 member institutions and survey participants number about 200. That's only 15 percent. I know from my perspective, when I

complete a survey, there are a couple of things that really encourage me. The first is that the data is available within my institution. That's an easy one for me as I'm the finance officer for our facilities department, so I have the raw material to work with. The second thing is that the survey instrument is user friendly. The ideal would be that I sign into the Web survey site once per year, I have a choice of data collection projects. I choose the one that is strategically most important for my institution, data from prior year input is loaded (if available), the definitions of the data points are clear, and most importantly, I get results from the survey as soon as possible. What does that mean to me? Well, those who know me also know that patience is not one of my virtues. Therefore, as soon as possible means that minutes after I hit the submit button I would get preliminary reports through the Web. Sounds pretty futuristic, doesn't it?

How is this vision of data collection achieved? In the past you may have participated in the Comparative Costs and Staffing survey or the Strategic Assessment Model survey. Although the surveys are different, they do share some demographic information. What if we created a vehicle that allowed us to collect data every year, within a two- to three-month window? This data would be used to create a number of deliverables: CCAS, SAM, CRDM data, research projects, etc.

Hopefully this vision sounds good to you because APPA is well on its way to accomplishing just that. In a few months we will roll out our next data collection effort. Our partner, Prism Computer Corporation, has been developing a Web-based survey that will allow you to sign into the system one time, choose either SAM, CCAS, or both, and complete the associated survey data points. If you're completing the SAM portion of the survey, you will be able to input your information and immediately view the results of your data input in comparison to others who have completed the survey. This will all be available to you immediately through the website. In these times of instant gratification, this is just what we're all looking for.

Other Future Activities

The SAM Subcommittee will be making a presentation to members at APPA's 2002 Educational Facilities Leadership Forum to be held July 21-23 in Phoenix, Arizona. We will be focusing our presentation on the importance of measurement and how the SAM tool can assist members.

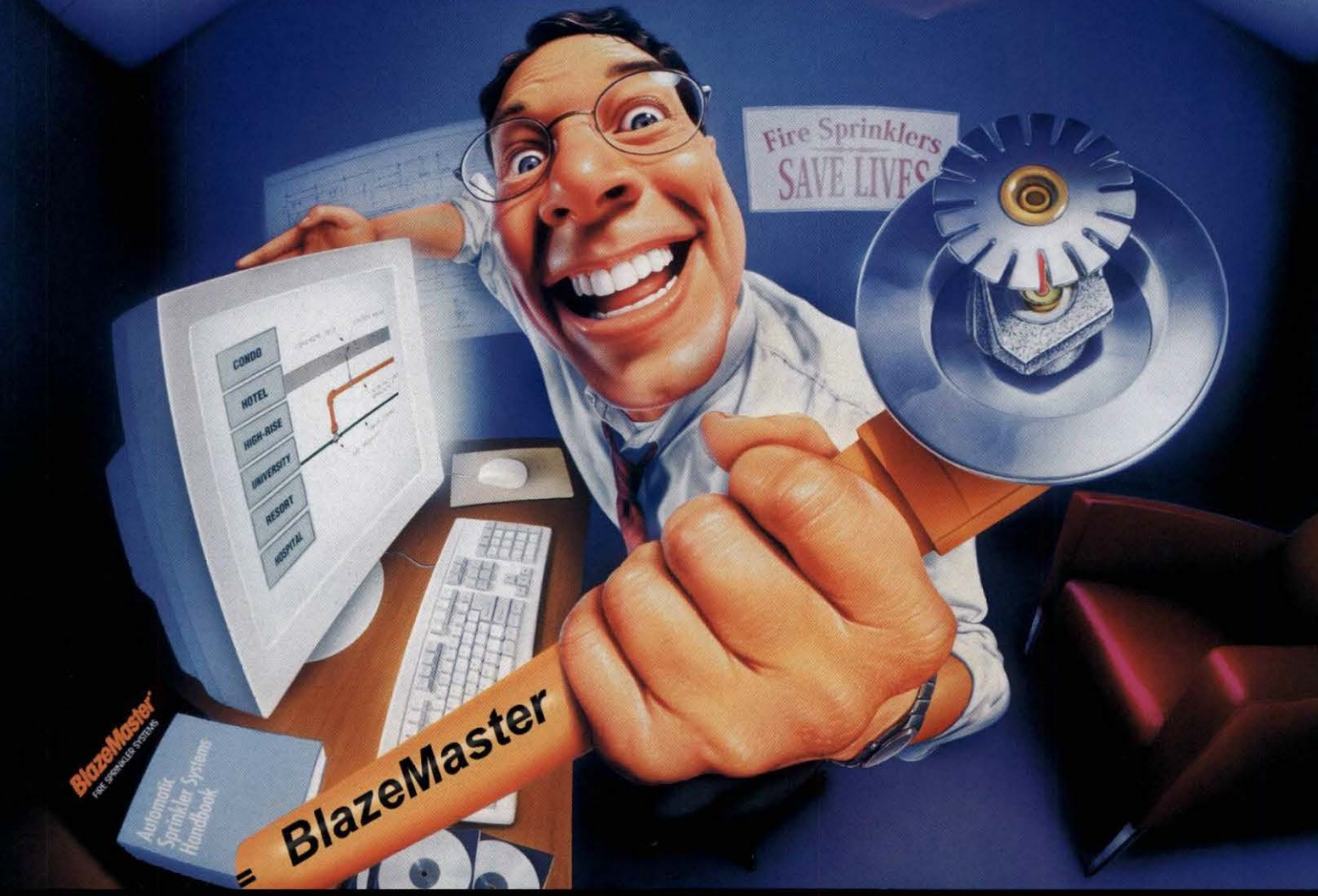
We are also looking at the feasibility of creating a companion piece to the book, *The Strategic Assessment Model, second edition.* This piece would be focused exclusively on the implementation of SAM within your institution—a road map to greater effectiveness.

Convergence Within APPA

I must also make a very exciting observation. Refer back to the section on project success defined. The last bullet says that success will be achieved when SAM is fully integrated into APPA's programs. APPA's Educational Forum structure revolves around the Balanced Scorecard framework as does the new Facilities Management Evaluation Program and the Award for Excellence. All stress the value of measurement using such tools as SAM and an institution's ability to learn from its data collection efforts.

All in all from where I sit, patience has paid off and a good idea as captured by the Strategic Assessment Model in 1995 is starting to pay real dividends in the evolution of APPA's resources and tools. APPA members who start the journey to continuous improvement and organizational excellence will have available to them tools that are consistent in their approach and encourage similar direction.

The goal is to provide members with the resources, tools, and networking experiences that will help them to become more competent and credible within their respective institutions. These are exciting and challenging times for all of us and I'm confident that APPA is truly working hard to become your Association of Choice.



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Using APPA's Tools to Assess Your Organization's Performance

by James E. Christenson

The society that scorns excellence in plumbing because plumbing is a humble activity, and tolerates shoddiness in philosophy because philosophy is an exalted activity, will have neither good plumbing, nor good philosophy. Neither its pipes nor its theories will hold water.

—John Gardner, Former Secretary of Health, Education, and Welfare

Are you getting the results you want from your organization? Is your organization producing the results your president wants? Most importantly, are you delighting your customers? Do you know where on the spectrum between "shoddy" and "excellent" your plumbing—and every other service—is? If you do know and if everything is not excellent, do you know how to get there?

"Too many questions," you say. Yes, but aren't these the questions that a leader of any organization should ask periodically? In the September/October 2001 issue of *Facilities Manager*, the title of the Field Notes column was "Situation Assessment and What To Do Next." In that article I suggested that you hunt down the situations where "is" does not equal "should" and then touched on ways to improve the match. This time, I'm going to deviate from my usual pattern and spend a bit of time advertising three of APPA's excellent assessment tools that are available to all of you: Strategic Assessment Model (SAM), Facilities Management Evaluation Program (FMEP), and Award for Excellence (AFE).

Jim Christenson is an APPA member emeritus and can be reached at jchriste@umich.edu.

I'm doing this now because I just returned from the March 8-9, 2002 meeting that focused on these tools. The task force chartered by APPA consisted of some of APPA's great past presidents—Doug Christensen, Val Peterson, Charlie Jenkins, and Jack Hug—plus David Cain, Rich Bowen, and representatives of APPA business partner 3D/International. Another reason to focus on these assessment tools is that at this moment they are the best available tools for use by our profession. Improvements will be made in each program. But, just as you can't wait to buy your next car until the perfect, low-cost electric car comes off the assembly line, you can't wait for perfection of these tools. If you are interested in finding out where you stand now and, at future dates, how you have improved, you need to consider putting these tools to work for you as soon as possible.

The specific purposes of the task force were to refine the FMEP, determine how the three evaluation tools should relate to each other, and develop a training program for FMEP evaluators. Between the active or retired facilities management directors on the task force, we had performed more than 30 FMEPs and most team members had worked with SAM and AFE. So there was some understanding of the benefits, frustrations, and opportunities for change.

Each institutional member of APPA should have received a detailed brochure concerning the AFE and a less detailed brochure on the FMEP. Even though the formats of the brochures and the purposes of the programs are different, you will note that the seven basic evaluation criteria are identical. In fact, an FMEP team will normally use the detailed criteria of the AFE to identify the specific areas to be investigated. The general areas of evaluation are:

1. Leadership
2. Strategic and Operational Planning
3. Customer Satisfaction
4. Information Analysis
5. Development and Management of Human Resources
6. Process Management
7. Performance Results

SAM is most fully described in the second edition of the book, *The Strategic Assessment Model* (copyright 2001), with additional information available at www.appa.org/sam/. SAM draws its wisdom from two principal sources: the Kaplan and Norton Balanced Scorecard and the Malcolm Baldrige Quality Award. In relation to the latter, the timing of the task force meeting was interesting. On March 7, 2002, the day before the task force meeting, President Bush presented the Baldrige Award to the University of Wisconsin-Stout—the first higher education recipient ever. The four general categories of measures in SAM are identical to the other evaluation tool, the Balanced Scorecard:

- Financial Perspective
- Customer Perspective
- Internal Processes Perspective
- Innovation and Learning Perspective

It is my personal view that SAM is one framework that every facilities organization can and should use for evaluating themselves.

The point of telling you much of what you already know is to stress the fact that these tools are well-accepted and "experienced" measurement tools and that they are available to facilities managers to respond to the truism that what gets measured gets attention.

The general conclusion of the team that met in early March was that APPA's three measurement tools are all valuable and need only minor improvements at present. The FMEP and the AFE serve as excellent snapshots of the situation at a specific point in time. They have some similarities to accreditation evaluations that most institutions experience. On the other hand, SAM should be used primarily to measure improvement *over time* in your own organization. While there are some SAM criteria that could be used to make valid comparisons with other institutions, each institution is unique enough that many of the criteria should be excluded from such comparisons.

It is my personal view that SAM is one framework that every facilities organization can and should use for evaluating themselves. It costs virtually nothing. No outside team is needed. Most of the raw data should already exist. But don't let the low cost turn you off; the use of SAM can provide insight essential to improvement.

The task force agreed that the FMEP criteria should be the same as the AFE criteria. It is possible that, at some future date, an FMEP will be required before the AFE is considered. That is not the case now. Most importantly, the detailed criteria listed in the AFE brochure can be used for self-evaluation by members of any facilities organization without incurring any out-of-pocket cost. And, since the self-evaluation is one of the first steps in the FMEP, a decision can be made at any time to formalize that self-evaluation and discuss an FMEP with APPA.

The dilemma that the March task force recognized is a curious one. If we market the FMEP and AFE and members realize how valuable these evaluations can be, who will we find for the many teams needed to perform them? The FMEP review usually requires the commitment of three or four APPA members for five days on-site and at least 40 hours for each person (mostly weekend and evening work) at home base before and after the site visit. Facilities professionals already work long hours; they might be reluctant to add this extra burden. Still, many professional facilities managers do volunteer their time for two reasons: 1) to repay what has been learned from the APPA network and 2) to learn and grow by being a member of an FMEP review team.

One result of our work that started in early March will be a training course in how to conduct an FMEP. This can be used by those who have already been members of FMEP teams and want to improve their skills, those who have had no contact with an FMEP and think they would like to become members of a team, those who want to conduct a self-evaluation with or without submitting it as part of an FMEP, and those who plan to ask for an FMEP of their organization. We believe this training will provide improvement in the quality of FMEPs and give more members of the profession the confidence they may need to help with these important evaluations.

Measuring how well you are doing is important to any enterprise. Tools are available literally within arm's reach. Your use of them in your own organization can lead to exceeding your customers' expectations, as we would all like to do. Your help in applying the tools in evaluating another organization would serve your organization and the organization being evaluated, APPA, and yourself. To volunteer to help on an FMEP team, contact APPA at 703-684-1446 and ask to speak with Holly Judd at extension 234.

Correction

In the March/April 2002 Field Notes column by James Christenson, the third sentence was printed incorrectly. It should have read as follows: "The Luxor-Karnak temple complex of ancient Egypt, the temple in Jerusalem built by Herod the Great, Stonehenge, the Taj Mahal, and Neuschwanstein (one of three castles built by 'mad' King Ludwig II) are but a few examples of impressive construction."

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The Bookshelf

Book Review Editor: Theodore J. Weidner, Ph.D., P.E., AIA

In a business as complicated and financially significant as facility management, there must be valuable handbooks and references to assist both the new and long-time manager to do the job effectively. The two books reviewed here prove to be valuable references. One is costly, one less so. But don't let cost be the only criterion used to select your next library purchase.

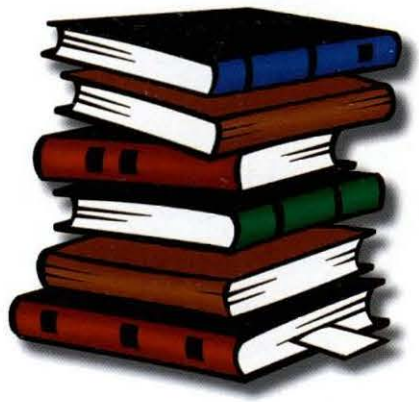
* * *

Facility Design and Management Handbook, edited by Eric Teicholz. New York: McGraw-Hill, 2001. 686 pp, hardcover.

This massive tome

with several noted contributors is intended to bring together the many skill and knowledge sets necessary for facility management. It is not the sort of book one reads from cover to cover. Neither is it a book one refers to when a particular, difficult problem arises and assistance with development of the solution is required. It lies somewhere in between with some chapters more general than others. But that is probably the nature of facility management at this time—a massive compilation of diverse information that cannot be easily codified unless one is willing to make a long career of it.

The book's 31 chapters are organized into five parts, with most fitting



into the areas of planning, analysis and design, implementation and management, or technology. The chapters are packed with information addressing benchmarking and strategic planning issues. A chapter on operations and management really focuses on computerized maintenance management systems (CMMS) and the different information utilized by these systems and available with them. An entire book could be written on the information needs and different ways of managing that information to maintain a campus. The chapter on energy management addresses working in a deregulated market along with techniques to plan and measure conservation projects.

One compelling feature of the book is the inclusion of a CD-ROM which provides many of the forms and outlines discussed and presented in the text. While the CD starts up with software that controls what the user sees, there are some original documents available to customize. These include a customer survey form, an RFP for facility assessment, a benchmarking spreadsheet, several PowerPoint presentations, and assorted figures. However, the book may fall short for many educational facility officers because it focuses on the methods of the International Facilities Management Association and the Building Owners and Managers Association which are of greater value to the rental office market than to education. If one ignores the issues that focus mostly on the office building market and instead concentrates on the general concepts, then the book's value increases. This book will make a valuable addition to a general facility management library, not for everyday use, but as a thorough reference.

* * *

From Concept to Commissioning: Planning, Design, and Construction of Campus Facilities, edited by Donald Guckert. Alexandria, Virginia: APPA, 2002. 128 pp, softcover.

If one will never face

the need to renovate or conduct major maintenance work in an academic building or to get a new facility on a campus while dealing with the differing constraints of limited budget, time, or demand for high quality or greater scope (size), then one really doesn't need this book. However, I have yet to meet a campus facility officer who hasn't faced at least one of these issues and wished that they had the answer to the many important steps in the construction process. This book may provide the answers.

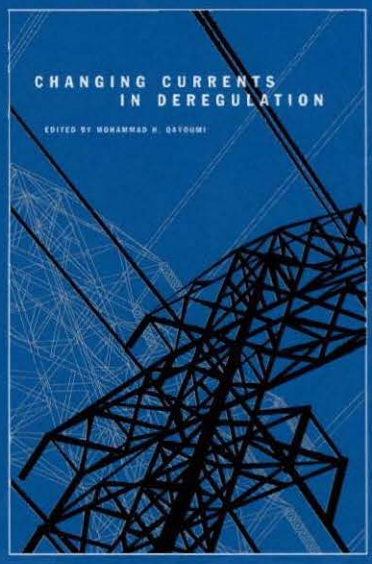
Concept is modestly referred to as an anthology which includes prior works from many contributors. It is organized in a roughly chronological

Continued on page 57

Ted Weidner is associate vice chancellor, facilities and campus services, at the University of Massachusetts/Amherst. He can be reached at tweidner@admin.umass.edu.

CHANGING CURRENTS IN DEREGULATION

This book provides a state-of-the-industry look at electric deregulation in the United States—from the rolling blackouts in California to Pennsylvania's success with electricity restructuring. Because many facilities professionals are unaware or unsure how deregulation will affect their institutions,



Changing Currents in Deregulation answers all the questions that you need to know. Included are a history of the industry, electricity pricing and availability, the role of natural gas, and predictions for future efforts in restructuring. Included in the appendices are essays from individuals working in the field.

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Continued from page 54

manner. First there's the motivating introduction referring to the beautiful, historic campuses in the United States and their unfortunate modern additions that were constructed in the "golden years" of the 1950s and 1960s. In the humor of these visual differences, the concept of thoughtful planning and development of appropriate design boundaries are presented. Master planning is presented in an abbreviated form in another APPA publication, *Planning for Master Planning* by its authors. They demonstrate the importance of integrating the rest of the campus, including its academic mission, into each building project. There are opportunities at this stage to create a uniform campus of traditional architectural styles or to develop a collection of "signature" architectural works.

Architecture and engineering, despite the popular publications about them, are not comprised solely of great design creations; they are about the successful integration of user needs and the physical and financial constraints. *Concept* explains that good design is not accomplished without cooperation or cheaply. The significant elements of good design processes are presented in a way that can be reduced to bullet points for campus executives to understand or used as an important reference for academic project team members. Authority, schedule, decisions, scope creep, and other terms are discussed with their contribution to project success or failure. One point missing from the book is a graphic that shows the time relationship between design changes and resultant cost of the change; as the project progresses in time, the ability to make changes in the design decreases while the cost of each design change increases.

The book ends with chapters on project management, team-building, delivery methods, and commissioning. The fact that these chapters are at the end of the book doesn't mean they come last in the project process. These topics are integral to the earlier chapters' successful implementation in a project. One cannot manage a project without the earlier understandings or concepts; similarly the design process will succeed best if there is a good team in place (either through an orchestrated designer selection process or subsequent team-building effort). Commissioning is integral to the design process and could have been presented in an earlier chapter.

This book is not a complete how-to; there are several other, more detailed, publications that present more information for the practitioner. But *Concept* is an excellent reference for campus executives to understand the construction process and a reminder of what the facility officer should know in greater depth to succeed.

New Products

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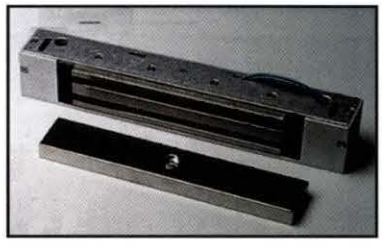

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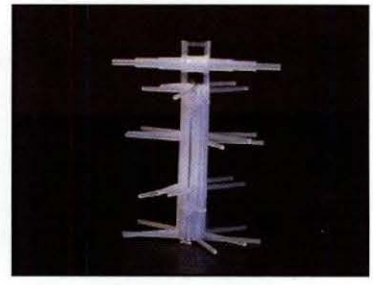

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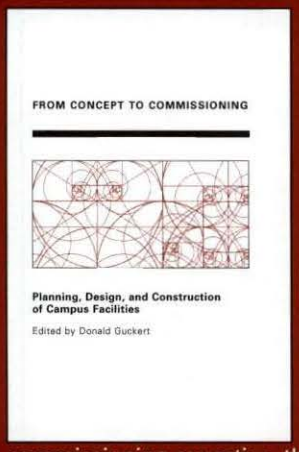
FROM CONCEPT TO COMMISSIONING

Planning, Design, and Construction of Campus Facilities



From Concept to Commissioning is your guide to planning, design, and construction of any campus facility. Whether you are constructing a new sports complex or renovating a dormitory, let this book show you the way.

Based on articles previously published in *Facilities Manager* and written by professionals with years of architecture, engineering, building management, and commissioning expertise, this book will help you understand the entire PD&C process, including campus architecture, master plans, budgets, project and construction management, and commissioning.

From Concept to Commissioning is edited by Don Guckert, the dean of the Planning, Design & Construction track at APPA's Institute for Facilities Management, and the director of planning, design, and construction at the University of Missouri-Columbia. His expertise in the field is folded into this carefully chosen and edited volume to give facilities professionals a broad blueprint of the process, potential problems, solutions, and ideas.

Excerpts from the Preface:

Planning, design, and construction activities represent the most high-profile work performed by facilities managers on a college campus. Unlike other facilities activities, such as maintenance, grounds, custodial services, and utilities, design and construction activities are usually outside the normal routine of operation. As such, they command more attention and interest from students, faculty, staff, alumni, and the public than any other activity within the facilities management organization.

The most successful campus projects are the ones that benefit from the scrutiny, review, and contributions of the interdisciplinary and diverse talents found in facilities management organizations. Members of our profession, regardless of the roles they perform for their campuses, are recognizing the opportunity they have to influence the outcome of a planned, designed, and constructed facility.

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For more information on APPA seminars and programs, visit our website's interactive calendar of events at www.appa.org/news/events.cfm.

Jun 9-13—*Leadership Academy.* Scottsdale, AZ

Jul 21-23—*Educational Facilities Leadership Forum.* Phoenix, AZ.

Sep 8-12—*Institute for Facilities Management.* Norfolk, VA.

Jan 26-30, 2003—*Institute for Facilities Management.* Ft. Worth, TX.

APPA Regional Meetings

Jun 20-21, 2002—MD/DC APPA: Measure Up at Rocky Gap 2. Cumberland, MD. Contact Dennis Bohlayer, 410-704-3392 or dbohlayer@towson.edu.

Sep 15-17, 2002—RMA Regional Meeting. Banff, AB, Canada. Contact Steve Baldick, 403-220-8151 or baldick@ucalgary.ca.

Sep 28-Oct 3—ERAPPA Regional Meeting. St. John's, NF, Canada. Contact Cynthia Whelan, 709-737-3491 or cwhelan@mun.ca or www.housing.mun.ca/conf/erappa.

Sep 28-Oct 1—PCAPPA Regional Meeting. Reno, Nevada. Contact Buzz Nelson, 775-784-6514 or buzz_nelson@vpaf.unr.edu.

Sep 29-Oct 2—CAPPA Regional Meeting. Spearfish, SD. Contact Art Jones, 605-642-6245 or artjones@bhsu.edu.

Sep 29-Oct 2—MAPPA Regional Meeting. Ames, IA. Contact Chris Ahoy, 515-294-8079 or ckahoy@iastate.edu.

Sep 29-Oct 2—AAPPA Regional Meeting. Brisbane, Queensland, Australia. Contact Brian Fenn, 61-07-3864-3778 or b.fenn@qut.edu.au.

Oct 12-15—SRAPPA Regional Meeting. Atlanta, GA. Contact Rita Tyler, 404-727-7487 or rtyler@fmd.emory.edu.

Other Events

Jun 22-25—IDEA's 93rd Annual Conference & Trade Show. Baltimore, MD. Contact IDEA, 508-366-9339 or idea@districtenergy.org.

Jun 24-26—Cleaning & Maintenance Expo. Cleveland, OH. Contact Marion Smith, 518-783-1281, ext. 3152 or www.cmexpo.com.

Jun 26-28—Association of University Engineers 32nd Annual Conference. Penrith, UK, The Lake District. Contact Maria Dominguez, 01772 892652 or Maria@aue.org.uk or www.aue.org.uk.

Jun 30-Jul 5—INDOOR AIR 2002. Monterey, CA. Contact Hal Levin, 831-426-0148 or www.indoorair2002.org.

Jul 11-12—Physical Plant Crafts Association Conference. Los Angeles, CA. Contact Paul Herrera, 505-646-15998 or pherrera@nmsu.edu or www.ppca.net.

July 13-17—SCUP 37: Mision y Cambi/Mission and Change. San Diego, CA. Contact SCUP, 734-998-7932 or www.scup.org or www.scup.org/37.

July 20-23—NACUBO 2002: Business Officers Without Borders. Vancouver, British Columbia, Canada. Contact National Association of College & University Business Officers, 202-681-2500 or www.nacubo.org.

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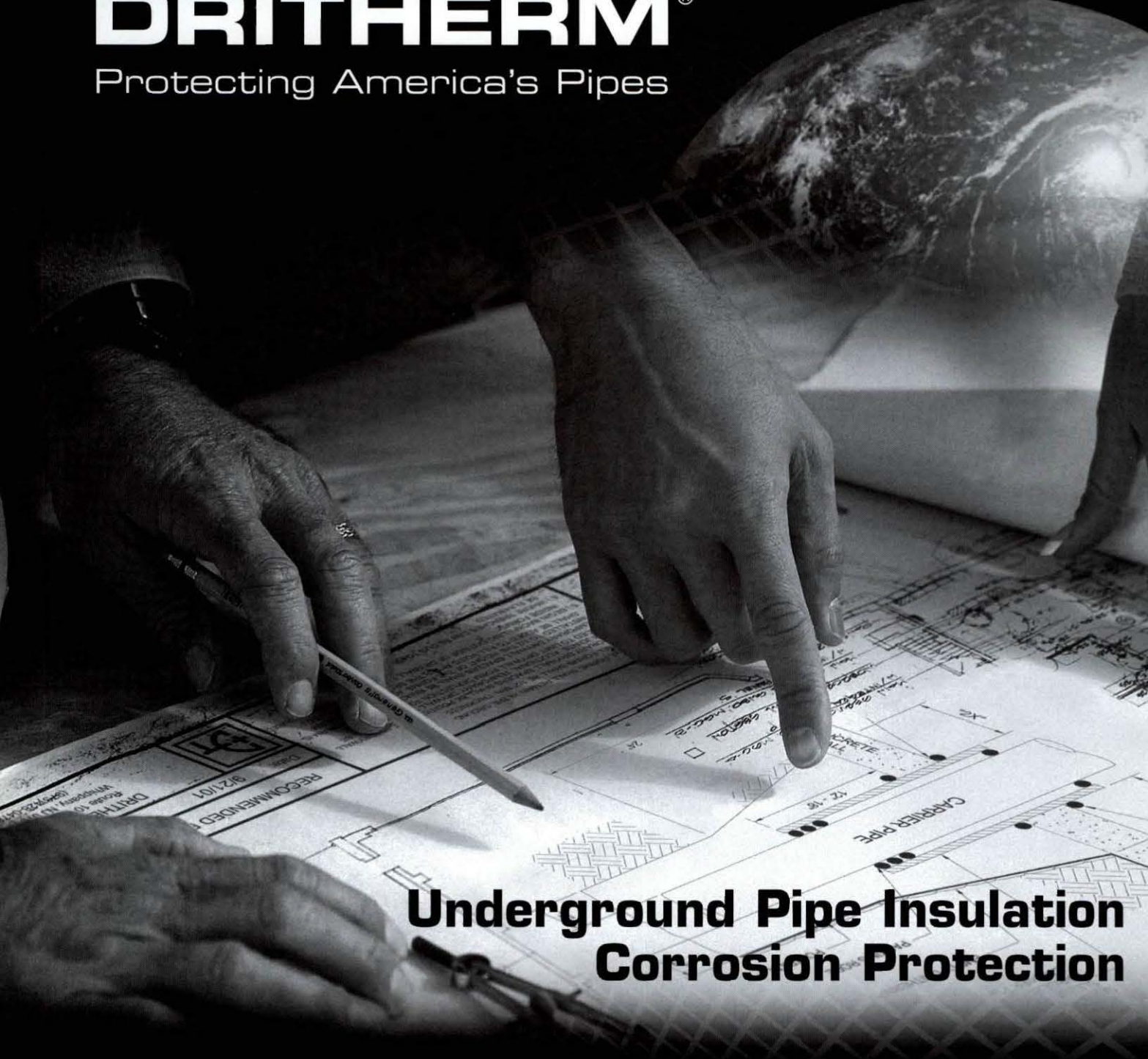

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