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April 2003

GAPPA News

IMPROVING COMMUNICATIONS & PROCESS EFFECIENCY

20th Annual Meeting of GAPPA

Lee Richey at last year Trade Show. He is given away a door prize.

The Georgia Association of Physical Plant Administrators (GAPPA) is looking forward to another successful annual meeting and trade show May 24 through 28 on Jekyll Island.

Despite the current climate of budget cuts, the tradeshow remains a popular attraction for vendors seeking to do business with Georgia's colleges and universities. Trade Show Chairman Bob Hascall of Emory University reports that this year will bring back many familiar vendors as well as a significant number of new participants. Among those returning is Dale Brown of Stevens & Wilkinson. "As architects and engineers, Stevens & Wilkinson is pleased to participate again at the GAPPA meeting. It allows us an opportunity to share dialogue with many campus planners and discuss current trends," said Dale.

Terry Holstein of Holstein and Associates says one of the benefits of participating in the annual trade show is having the opportunity to meet so many facility directors at one time and present products from around the world. "It's a great value," said Terry.

Among the first time vendors is Tim Martin of Power Engineers who says "We're looking to expand into the higher education market and through our connections discovered that GAPPA would be an ideal vehicle for meeting decision makers."

GAPPA's annual conference and its regular business activities through out the year are supported in large part by the participation of these vendors. The GAPPA Board thanks them for their continued support and requests that our membership support them in the business relationships whenever possible.

All the vendors participating in this year's trade show are:

Duffield Aquatics, Inc.
Dupont
Duro-Last Roofing, Inc.
Duron Paints
EMC Engineers, Inc.
Engineered Restoration
Environmental Corporation of America
Essex Industries
Ewing Irrigation
Facility Group
Georgia Power
Georgia Trane

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The Deferred Maintenance Dilemma

This is an excerpt from an article that was published in March 2003 issue of NACUBO "Business Officer" magazine. The publisher has granted the permission to reprint.

By E. Lander Medlin

Reversing the trend toward accumulated deferred maintenance requires tying facilities needs to the core goals of your institution and pairing long-term financial and facilities planning.

Despite a significant rise in accumulated deferred maintenance backlogs at our nation's colleges and universities, it's not too late to reverse that trend and improve the condition of our campus facilities. To do so requires focus on the connection between the condition of campus facilities and the achievement of academic goals. This focus is critical, considering the enormous growth at higher education institutions during the past 50 years and the operational and instructional challenges this development has posed.

The state of the industry with respect to accumulated deferred maintenance/renewal (ADM/R) was best researched and outlined in the landmark study *A Foundation to Uphold: A Study of Facilities Conditions at U.S. Colleges and Universities* (Kaiser and Davis 1996), written under the auspices of APPA, NACUBO, and Sallie Mae. A range of factors has influenced college and university growth; the statistics within the study bear this growth out.

*Total higher education enrollments increased more than sevenfold, from 2.3 million in 1950 to more than 15 million today.

*Instructional staff increased from 176,000 in 1950 to more than 850,000 today—a growth of more than 460 percent.

*The total number of institutions grew by more than 100 percent, from 1,852 in 1950 to more than 3,800 today.

*Campus space increased from 570 million gross square feet in 1950 to approximately 5 billion gross square feet today. (More than 80 percent of today's total campus space was built before 1980.)

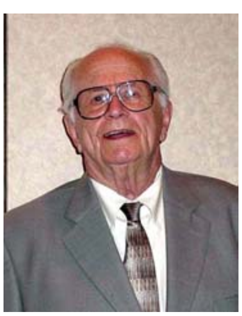
Today, higher education would have to invest more than $500 billion to replace buildings, fixed equipment, and infrastructure. The many ancillary changes taking place within the higher education community during the late 1980s and throughout the 1990s have served to further exacerbate the problem of a swelling ADM/R backlog. Among these changes: rapidly escalating tuition increases; increased square footage of space to operate and maintain; major budget reductions; dozens of new, unfunded mandates from governmental regulations; and increased demand for the use of new technologies in classrooms, laboratories, offices, and dormitories.

Achieving the Ideal "Village"

Our campus facilities—instructional, educational, general, and auxiliary enterprises alike—play an integral role

(Continued on page 4)

JOSEPH M. WHITE



Mr. White started his career in higher education as the Resident Engineer Inspector for Macon Junior College in 1967. In 1968 he became the college's first Director of Plant Operations and occupied that position until his retirement in 1997 from what had by then, become Macon State College.

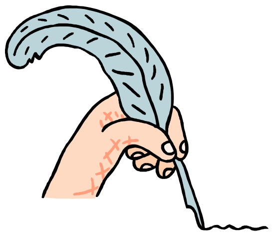
Mr. White was a charter member of GAPPA in 1982 and the first GAPPA Treasurer. Now, five years after his retirement, he continues making a major contribution to GAPPA as a key member of the GAPPA Board of Directors.

Mr. White and GAPPA are very fortunate to have the expert assistance of his wife: Katherine White. Katherine has assisted GAPPA since its inception and like Mr. White, she continues to do so. Their presence is enjoyed by all at the Annual Meeting at Jekyll Island, Georgia.

In 1989, the GAPPA Board decided to honor Mr. White's long and valued service to the organization by providing The Joseph M. White Award – a $1,000 stipend. The Award is presented each year to one of GAPPA's member institution's Plant Operations Department – to use as the Plant Director designates for his/her department (s).

GAPPA President's Corner

By Lee Richey/ Kennesaw State University



It is time to begin making plans to attend the 20th Annual Meeting of the Georgia Association of Physical Plant Administration scheduled from May 24th through May 28, 2003 at Jekyll Island Georgia. I know that budgets are tight, but we have planned a very interesting and informative program designed to invoke discussion and interaction by the members to numerous issues facing operations. This meeting has always provided a unique forum for discussion of important issues with vendors, contractors, and professionals within the facilities management area. You will find an invigorating climate that will refresh and bring you back to campus with new ideas and concepts.

The 2003 Trade Show (which receives recognition as being the nation's best) will again include 78 regular vendor booths where exhibitors will display their wares and share information on new equipment, technologies, and supplies. The 2003 GAPPA Trade Show will meet or exceed everyone's expectation. Not only will you learn new things, it is an excellent opportunity to network and discussion campus problems with your counterparts in the public and private sectors. Casino Night will give you another chance to have fun and we expect Rod King to deliver some friendly bidding competition afterward.

Golfers- bring your clubs and participate in our annual tournament on Sunday, May 25th. Bob Watkins of West Georgia has another "dead ringer" planned this year- with numerous prizes and fun. The weather will be excellent and courses beautiful during this time of year.

All of the GAPPA Board look forward to seeing you, (and your families) in May to share this great annual experience- in a relaxing social setting. I trust that all of you can attend.

2003 GAPPA Annual Meeting & Trade Show
May 23 - 28, 2003

Holiday Inn Jekyll Island

Jekyll Island , Georgia

For registration form, please check our web site www.gappa.org or call Anton Kashiri @ (770) 528-7256 or akashiri@spsu.edu

(Continued from page 1)

Heat Transfer Systems
Holstein & Associates
Illingworth Engineering Company
Ingersoll Rand SSC South
ISES Corporation
James L. Cox & Associates
John Deere
Johnson Controls
KLG, Inc.
Lyman, Davidson Dooly, Inc.
Mallory & Evans Service Company
MasterCraft Renovation
Michael Clark & Associates
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Millard, Inc.
Momar, Inc.
Ondeo-Nalco
Phillips-Langley & Associates
Power Engineers
Quincy Compressor
ReNew Systems of Georgia, Inc.
RHD Services
Sanco Products
Sarnafil Roofing & Waterproofing, Inc.
Seckinger Design
SGI Engineers
Siemens
Site Design Services, Inc.
Southeastern Region BCA
Southern Electricom Company
Southern Lock & Supply Company
Spencer Engineering
Spotswood Associates
Stantec Consulting Services
Stevens & Wilkinson
Stevenson & Palmer
Technicon
Tolson, Simpson Associates
Tremco
West Roofing Systems
Winter Construction Company
York International

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in the success of the academy as a whole. This has been widely acknowledged for centuries. One only has to reference Thomas Jefferson's description of the "academical village." His idea was to create an institution that integrates learning with its physical environment, and he emphasized the importance of creating physical spaces that are "inviting [and] free of den and dirth…."

Confronted by the reality of declining resources, and with the multitude of pressures resulting from today's rapidly changing physical environment—not to mention our society's exponential technological growth—achieving this ideal "village" is a very real challenge. Let's face it, at a $500 billion-plus investment, facilities represent the largest capital investment of a college or university. Put in perspective, this investment is close to three times the combined endowments of all institutions of higher education.

Though cliché, it is unfortunately true that the bomb is still ticking for at least half of our institutions, where facilities renovation and replacement are in dire need of attention. In some cases, the bomb may be ready to explode. However, it is also the case that many more institutions—primarily those within the private, four-year institutional category—actually report a decrease in their ADM/R during the 1990s. These institutions attribute their success to the leadership and commitment of senior institutional officers; flexibility in budgeting practices and access to accumulated reserves; an understanding of strategic facilities planning and the prioritization of needs based on key data and analysis of the condition of campus facilities; and commitment to the goals of competing more vigorously to attract and retain students, faculty, and staff. It is clear that we can all benefit from such approaches. Likewise, as studies of the ADM/R problem have shown, several important public policy implications warrant our attention.

The Power of Policy

The salient points of the public policy implications that derive from the facilities conditions study can be summarized in four broad categories.

1. Uphold our foundation of leadership. In short, we must take personal responsibility for change if we are going to seriously begin addressing the ADM/R problem at our individual institutions. As such, we must assist campus leadership to

- develop policies addressing facilities conditions and adequacy;
- provide broad support for facilities stewardship by informing and educating all stakeholders and constituencies;
- focus resources for facilities reinvestment;
- recognize the impact—and potentially the threat—that the unsatisfactory condition of facilities can have on institutional missions; and
- understand that competing demands on institutional resources have caused a fractious approach to reducing ADM/R.

2. Sustain our institutional commitment to action. As one Naval officer aptly said: "**We cannot change the wind, but we can surely adjust the sails.**" Adjust we must—and quickly—if we are to reverse the upward trend of ADM/R.

3. Define roles and responsibilities of the higher education community, its constituencies, and corresponding professional associations. We must understand the various roles that each of these stakeholders play and that all entities must work together to ensure a clear focus that produces relevant outcomes.

4. Prepare our facilities for the 21st century. No doubt, our society's evolving technological sophistication has alone dramatically shifted the programmatic and facilities needs of higher education institutions in recent years.

Practical, Proactive Approaches

In recent years, a number of institutions have become more innovative in their approach to the retirement of their ADM/R. APPA's book, *Successful Funding Strategies for Facility Renewal* (Adams 1997), describes in a detailed case study format several practical approaches undertaken. For instance, the following approaches collectively produced more than $200 million annually toward the retirement of ADM/R for eight institutions:

- providing the ability to exercise autonomy in the dispensation of the total base budget in plant by having the authority to reinvest base budget savings and/or exercising strict adherence to maintenance standards for all new construction and renovation projects;
- granting authority for the reinvestment of annual energy budget savings;
- implementing a proactive educational program for institutional administrators and trustees;
- instituting a special student fee in the tuition amount;
- receiving matching state loans for specific energy projects;
- receiving matching state dollars for university-generated dollars over $20 million, based on comprehensive facility/energy audits and buy-in by the state of the importance to protect investment in campus facilities; and
- receiving funding from a bond issue approved by the state legislature.

Such approaches provide a solid starting point for more institutions to engage in creative brainstorming about the possible ways to reduce their own

GAPPA Board

GAPPA board is elected to one, two, three and four year terms. Below is the list of our current board members. If you have any questions regarding GAPPA or a facility management issue, feel free to contact any of them. They have very broad experience and they are willing to share it with other members. If they don't have the answer, they can direct you to the right place.

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For Address , Fax, and Email address, please check our Web site at: **WWW.GAPPA.ORG**

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Clearing Up the Backlog

ADM/R.

Yes, higher education has a dilemma on its hands regarding the funding of our campus infrastructure modernization needs, of which ADM/R is a large part. And yet, it is never too late to take action to reverse the trend of growing ADM/R backlogs and put our institutional facilities back on a positive track. To do so, we must first become much more effective in tying our facilities needs and issues to the core strategies and goals of the institution. We will do so as we become convinced and convince others that facilities are critical to both the short- and long-term objectives—and even the survival—of our institutions.

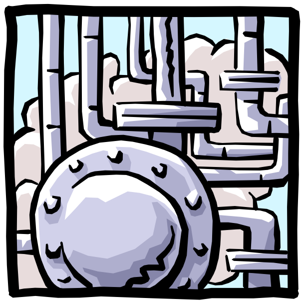
Second, since the total cost of facilities ownership is an important and integral part of determining the cost of doing business, we must recognize the strength and positive use of terminology that ties long-term financial and facilities planning together. Such terms include facilities stewardship, asset management, facilities portfolio equilibrium, and return on investment.

And finally, we must be diligent in performing routine facilities condition audits to provide useful and credible data and information to our decision makers about the existing conditions of facilities and their anticipated life cycles against the actual useful life of the institution's physical assets. Conducting such audits provides a consistent, tangible tool for communicating to all levels of diverse audiences. This is especially important in light of the fact that any significant allocation or infusion of funds usually

Energy Management

High Efficiency Hydronic Boilers

By Caroline C. Calloway



High efficiency hydronic boilers and hot water heaters are credited with the ability to reduce fuel consumption, operating costs and emissions. This paper relates these savings to the condensing and modulating capabilities of high efficiency equipment as compared to the operating properties of conventional equipment and offers examples of ideal applications.

In short, *condensing systems* are able to recover the latent heat of water that is produced in the combustion process. Furthermore, equipment that *modulates* fuel and air flow to the combustor effectively avoids heat losses associated with burner cycling at less than full load. In contrast, conventional systems cannot condense moisture in the flue gas without damaging the heat exchanger nor are they able to minimize on/off cycling.

Where Conventional Equipment Falls Short

Water vapor, a byproduct of the combustion process, can be found in the flue gas of all combustion equipment. The vapor is similar to steam in that it contains unused energy. If the temperature of the water vapor is reduced below its dew point (typically ~135F for natural gas), the vapor will condense to a liquid, releasing energy (latent heat) back to the heat exchanger, thereby increasing the efficiency of the heat exchanger. Non-condensing type boilers and water heaters make no attempt to recover this latent heat – it is simply wasted "up the chimney." Conventional equipment promise full-firing rate efficiencies of only 78-85%.

In addition, most conventional boilers and water heaters utilize non-modulating or very limited modulating burners, which cycle on/off at loads less than the capacity of the burner. Burner cycling results in even greater losses than the latent heat losses. Overall seasonal losses of conventional products may range from 20–50%.

How High Efficiency Equipment Goes Further

In contrast, modulating/condensing equipment efficiencies range from 86-99% for boilers, and 93-99% for water heaters, depending on firing rate and inlet water temperature.

When the water inlet temperature is low enough, a condensing design allows substantial recovery of the latent heat of moisture in the exhaust – thereby utilizing almost all of the available energy of the fuel. If wide-range combustion modulation is implemented by controlling fuel and air supply, most of the losses associated with cycling may also be avoided.

Where High Efficiency Equipment Makes Sense

A condensing boiler is an ideal solution for water source heat pump applications where there are low water return temperatures. The heat pumps extract so much heat from the loop water that return temperatures are very low. The low water temperature will cause condensing and thermal shock in conventional boilers unless primary/secondary pumping, secondary heat exchangers, and/or three way and four way control valves are installed to protect the boilers. In contrast, the lower the water temperature returned to a condensing boiler (down to 40 degrees) the higher the unit's efficiency.

Even in other applications, most conventional units require a secondary pumping loop to ensure that the inlet water is warm enough to keep the flue-side surface temperatures higher than the local dew points of the exhaust gas. Otherwise, the acidic conditions associated with condensing flue gas contribute to the corrosion of metals used in many conventional units – potentially shortening the useful life of the equipment.

Also consider the fact that although most heating systems are designed to operate at maximum capacity on the coldest days of the year, the average heating load for the entire season is often only 10-40% of the design load. Therefore, heating systems are operated for a short time period at full load, and for a long time period at partial load. A boiler that modulates with a 15:1 turndown ratio performs more efficiently at these lower firing rates -- it performs at its very highest efficiencies for the better part of the heating season.

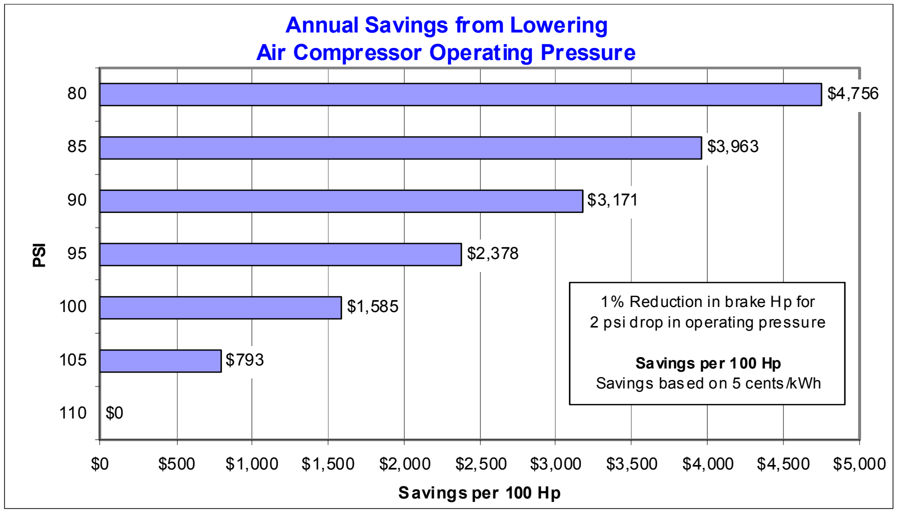
Combined with the latent heat of the condensing operations described above, such wide range combustion modulation will provide average annual efficiencies of approximately 95%.

Caroline C. Calloway
Calloway Engineered Systems
770-663-4339
www.constructatlanta.com/calloway.html

Caroline Calloway is the owner of Calloway Engineered Systems a representative agency specializing in solutions to HVAC and pluming problems. The company represents AERCO International, manufacturer of high efficiency condensing, modulating boilers and water heaters.

Energy Management Bulletin

Improving Compressed Air System Performance



➔ Calculate compressed air as a cost of production

Compressed air is considered industry's fourth utility, but is seldom considered as a contributing cost of production. Instead, compressed air costs are typically blended into overhead and often thought of as "free." Such ambiguity can hide cost savings that can positively impact your bottom-line and affect your ability to account for production costs. Do you know your actual cost for producing compressed air?

➔ Control your energy costs at the source

Existing compressed air systems in the United States consume an estimated 90 billion kWh/year of electricity. The energy being used to produce and treat compressed air can be substantial. Even the smallest compressed air system can be a relatively large source of energy consumption and cost. Are your compressed air energy costs under control?

➔ Balance your compressed air system and save

Many of today's compressed air systems have been "pieced together" over the years in an attempt to meet the growing needs of production and facility expansion. The result is often an unbalanced system with various components negatively interacting to create artificial demands and poor air quality. This missed opportunity can have a great impact on both man-hours and production. Do you experience inconsistent air quality and fluctuating air pressure?

➔ Sharpen your competitive edge

Compressed air is vital to the operation of nearly every industrial plant. An efficient compressed air system can increase productivity and ensure better product quality. The more reliable your compressed air system, the more cost effectively you can produce your product—not to mention on-time delivery and increased customer satisfaction. Are you looking for a competitive edge?

➔ Optimize your compressed air system

Compressed air energy can cost seven to ten times more than electrical energy when it comes to doing mechanical or process related work. This valued form of energy is worth maximizing. An optimized system ensures that efficient and effective compressed air is available for the lowest possible cost with minimal environmental consequences. Have your production and management teams implemented a plan to enhance your compressed air system?

➔ Suggested Actions

Determine the cost of compressed air for your plant by periodically monitoring the compressor operating hours and load duty cycle.

Use a systems approach while operating and maintaining a compressed air system.

Use surge tanks at the point of use to reduce system pressure. see graphic below

Adopt a plant-wide compressed air management policy to cut costs and reduce waste by eliminating inappropriate uses, fixing leaks, and matching system supply with demand.

Substitute hydraulics for air cylinders, electric motors for air actuators, electronic controls for pneumatics and high speed blowers for air guns.

The author is Steve Baughn of RSM. RSM provides energy procurement and energy management services to 9 Colleges and Universities in Georgia. For information, Please call Jim Clarkson at 770-819-4479

Our web site is: www.rsmenergy.com

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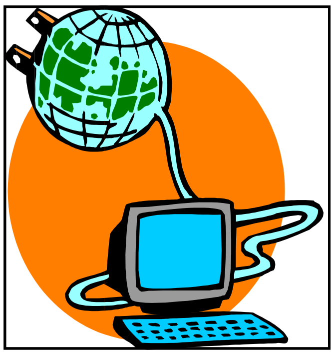

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demands consensus.

To the extent that we can make the connection between the condition of campus facilities and core institutional goals, pair long-term financial and facilities planning, and back up the condition assessments of our facilities with credible data, we will ensure that our institutional facilities do not fall short of supporting educational objectives. In so doing, we will remain on the path toward achieving Jefferson's "academical village."

Author Bio E. Lander Medlin is executive vice president of APPA, Alexandria, Virginia.

E-mail lander@appa.org

Humor

Old Mrs. Waktins awoke one spring morning to find that the river had flooded the entire first floor of her house. Looking out of her window, she saw that the water was still rising. Two men passing by in a rowboat shouted up an invitation to row to safety with them. "No, thank you," Mrs. Watkins replied. "The Lord will provide.

The men shrugged and rowed on. By evening, the water level forced Mrs. Watkins to climb on top of the roof for safety. A man in a motorboat, who offered to pick her up, spotted her. "Don't trouble yourself", she told him. "The Lord will provide.

Pretty soon, Mrs. Watkins had to seek refuge atop the chimney. When a Red Cross cutter came by on patrol, she waved it on, shouting, "The Lord will provide". So the boat left, the water rose, and the old woman drowned.

Dripping wet and thoroughly annoyed, she came through the pearly gates and demanded to speak to God. "What happened?" she cried.

"For crying' out loud, lady," God said, "I sent three boats."

If you have material for the newsletter, please email it to me at Ga Tech. My Email address is :
bill.halabi@facilities.gatech.edu