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Solving your **Noise Problem**

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Control Your Budget
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ON THE COVER

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// CHRISTOPHER CALISI



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Empowering Facility Professionals Worldwide

ABOUT IFMA

IFMA is the world's largest and most widely recognized international association for facility management professionals, supporting 24,000 members in 105 countries. The association's members, represented in 134 chapters and 17 councils worldwide, manage more than 37 billion square feet of property and annually purchase more than US\$100 billion in products and services. Formed in 1980, IFMA certifies professionals in facility management, conducts research, provides educational programs and produces World Workplace, the world's largest facility management conference and exposition. To join and follow IFMA's social media outlets online, visit the association's LinkedIn, Facebook, YouTube and Twitter pages. For more information, visit the IFMA press room or www.ifma.org.

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*Check out the interactive version of FMJ, featuring **videos, online extras and more!** FMJ can also be viewed on mobile devices.*

THIS ISSUE

The online version of the publication includes interactive resources.

- **WHITE PAPER:** "Asset Lifecycle Model for Total Cost of Ownership Management" to accompany "Control Your Budget Before it Controls You" (p. 20)
- **ARTICLE:** "How to Build a Positive Safety Culture" to accompany "Implement a Workplace Safety Plan" (p. 28)
- **HOW-TO GUIDE:** "IFMA Landscaping Sustainability How-to Guide" to accompany "Hiring a Quality Landscaping Company for your Facility" (p. 38)
- **VIDEO:** "IFMA's April 2015 Member of the Month: David Dunn, CFM" to accompany "Member of the Month: David Dunn, CFM" (p. 44)
- **PODCAST:** "Understanding Acoustics in Your Workplace" to accompany "Solving Your Noise Problem" (p. 52)
- **WHITE PAPER:** "The Human Hospital: How to Create an Autonomic Nervous System for Your Facility" to accompany "Transforming Energy into an Asset" (p. 59)
- **HOW-TO GUIDE:** "IFMA Waste Stream Management Sustainability How-to Guide" to accompany "Waste Management 101" (p. 74)
- **ARTICLE:** "Kit Tuveson, Who Got HP Facility in Rohnert Park Built, Dies" to accompany "Celebrating the Life of Kit Tuveson" (p. 122)

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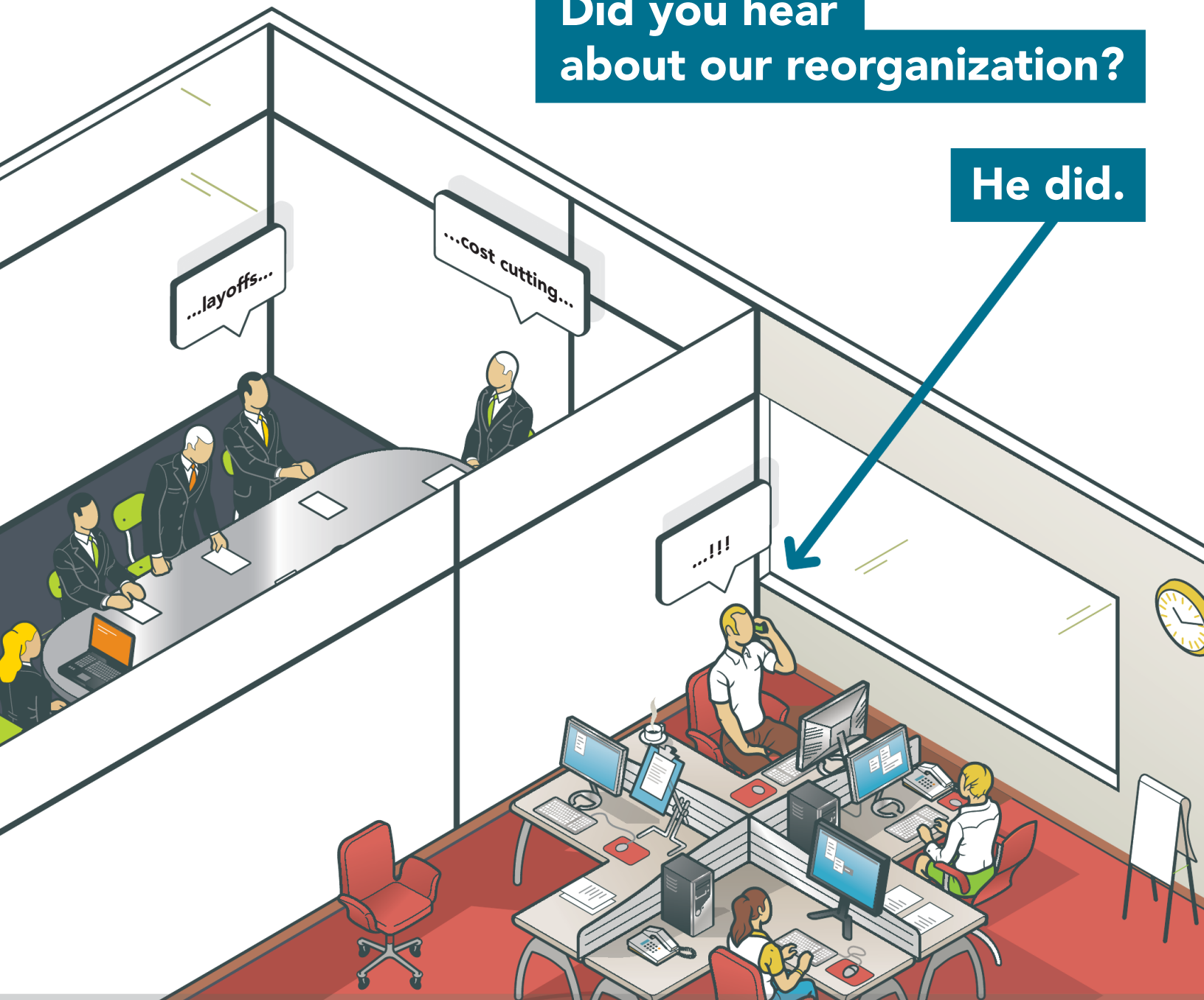
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EDITOR'S COLUMN

ANDREA SANCHEZ
Editor-in-Chief
Facility Management Journal



EVER WONDER WHY YOU THINK THE WAY YOU DO?

Or perhaps, why your colleague seems to repeat a certain behavior? The answer is motivation. We all have an inner drive that guides our actions, desires and needs. For some this drive serves as a compass, while for others it serves as the spark that gives them the courage to be and stay themselves in all that they do.

Potential is my motivation, specifically in finding unique nuggets that will move a person, product or mindset from ordinary to extraordinary. Creativity, empathy and an open mind are the power tools that I use to mold all my thoughts and actions.

If you don't believe, you won't achieve

As I mentioned in previous columns, I had the opportunity to live overseas in Baku, Azerbaijan for a year. That was among the most difficult, yet most rewarding, moments of my life.

A 10-hour time difference? No colleagues to connect with? Limited access to entertainment? No problem. The situation around me had changed but I did not let it change my inner spark.

From relearning how to communicate to shifting my understanding of how to get work done, the only constant I could rely on was myself. I used my inner power tools to build opportunities within the new reality I was handed.

During my time in Baku I found a whole new universe of leadership gurus online, many of whom I now consider my mentors and good friends via Twitter chats. I developed a greater fascination with the power of video and the impact of face-to-face communications.

What motivates you?

We often put our dreams on hold because we convince ourselves we don't have the time to begin taking the steps in order to be successful. Is there ever a right time?

We were each born unique. Society would not progress if everyone were the same. Taking the time to determine what sets you apart and

apply it to how you interact and work is crucial for growth and overall happiness. Whether it is making an impact, authenticity, relevancy, learning, security and/or innovation, embrace what motivates you. Find and feed your inner spark. You are the only one who can give yourself permission to do so.

At IFMA we are motivated by our members. From the content we produce to the strategy we follow, it is all with our members in mind. As expected, there have been many technological, operational and strategic changes since IFMA's founding in 1980.

What has not changed is who we are inside, an IFMA family.

IFMA President and CEO Tony Keane re-emphasizes our member-centric culture on page 12 by stating, "In today's world, many companies try to emulate the concept of membership to the point that it is becoming an overused term. The true aspect of membership is what IFMA represents — a community of likeminded people who want to share, network and belong to something that is bigger than any one individual."

Leadership at its finest

In the next issue I will have the pleasure of introducing IFMA's new board chair. However, I would like to take this time to thank our current Chair of the Board of Directors Jim Whittaker for his exemplary leadership and most importantly, his focus on the voice of the member. As evidenced in his column on the following page, Jim always leads from the heart.

Jim is just one example of the many passionate and forward-thinking members who are motivated by the future of the facility management profession. If I have yet to meet you, I would love to hear your story. Stories are what connect us and throughout the years, make us stand out as the IFMA family we're known for.

Until next issue,

Andrea

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CHAIR'S COLUMN

JIM WHITTAKER, CFM, P.E.
Chair, Board of Directors



AS I WIND DOWN MY LAST COUPLE OF MONTHS AS CHAIR of IFMA's board of directors and write my last FMJ column, I reflect on a year full of wonderful personal opportunities and great progress by the association. This year we have been focused on implementing strategic initiatives to further develop the FM workforce, advance the FM profession and create value for our members.

Extending my thanks

I would like to personally thank all IFMA staff for their hard work, dedication and excellence in providing world-class (ANSI accredited) education, as well as research, publications, standards, workshops/webinars, events and networking opportunities. It has been an absolute pleasure working with such talented and passionate individuals.

I would also like to thank the IFMA board members and scores of volunteer leaders who have dedicated their time to advance our strategic initiatives. IFMA's thought leaders have spent many hours developing ISO FM standards, engaged in government advocacy, creating comprehensive knowledge management systems, improving workplace/BIM/sustainability communities, aligning FM research and professional development, promoting the future of FM as a professional career choice for young adults and so much more. They have undertaken all of these endeavors in order to advance our profession and create individual value for our members.

IFMA and the IFMA Foundation are strong. We have invested wisely in support systems and infrastructure to improve the quality of services for IFMA members. I know we will continue to grow and make even greater progress in the coming years.

Kit Tuveson: Continuing the legacy

With all of the good things that have occurred this year, we were saddened by the loss of one of IFMA's

greatest leaders this past month. Kit Tuveson was a mentor, teacher, friend and inspiration to more facility professionals than I can count. He was a great strategic thinker who would always ask, "Why?" Everything he did in life had a purpose and created value. He epitomized the pinnacle of FM by getting back to basics and focusing on desired outcomes. His spirit and inspiration will live on in all of us.

In this edition of FMJ you will read articles about getting back to the basics of FM. IFMA's editorial staff has compiled another FMJ chock full of information about FM tools and tactics that can help you control costs, introduce efficiencies and optimize operations and maintenance performance. It is no longer simply about cutting costs, but about adding value to your organization and enabling its mission. We are challenging the status quo and creating new messaging to help facility managers deliver and communicate added value.

Finally, to all IFMA staff and members, please accept my personal appreciation for giving me the opportunity to serve as your chair this year. It has been a pleasure giving back to a wonderful profession — one that offers men and women an unparalleled opportunity to experience the joy of improving the quality of life for humankind by managing sustainable, functional, productive, safe and friendly workplaces and places of public assembly.

I look forward to connecting and reconnecting with you in the years to come as we continue to make great strides in providing more value to our organizations and the global community.

Very respectfully,



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PRESIDENT'S COLUMN

TONY KEANE, CAE
President and Chief Executive Officer



WHAT WAS YOUR IFMA “AH HA” MOMENT? Was it walking into a World Workplace welcome reception for the first time and understanding that you were part of the huge diversified community of IFMA? Was it getting that IFMA hug and realizing this was not your average association? Was it achieving your CFM® credential and seeing how it caused others to look up to you? Was it entering a job because you needed one and then attending an IFMA event and realizing you had found a career?

I am sure each of you has a personal “ah ha” moment that first made the IFMA community special to you. Send me your IFMA “ah ha” moment — I would love to know about it.

I can share two of those special moments: my first IFMA hug from past chair Tom Mitchell and then seeing, for the first time, the passion of our members in my early visits to IFMA chapters. Those experiences made me realize I had not just joined yet another association — I had joined IFMA!

Little things make a big impact

Many times people talk about associations in terms of money, value and finding “what’s in it for me.” I don’t think that is how members look at IFMA. I believe it is those special moments that we experience. How do you place a value on those “ah ha” moments? They become the memories that make your participation in IFMA worth it. It’s not the discounts and benefits but those special moments that we remember.

In today’s world, many companies try to emulate the concept of membership to the point that it is becoming an overused term. The true aspect of membership is what IFMA represents — a community of likeminded people who want to share, network and belong to something that is bigger than any one individual. That is membership and that is IFMA.

Helping you to know more

One of the new initiatives that we have been working on over the past year is knowledge strategy (KS). KS is the next step for IFMA to make knowledge sharing easier and more accessible. The first phase of this new resource

will be available in October of this year. We are currently undertaking the content aggregation process, which includes having each piece of content go through robust vetting led by subject matter experts. The end goal is an enhanced selection of content that is tagged and organized for a better search experience.

KS is not only a resource but a new way for us to share knowledge to advance FM best practices. It will result in us capturing as much content as possible from IFMA and outside resources to make available when our members need it. It will facilitate a new way for our IFMA community to share information. Subject matter experts, the heart of the vetting process, will be able to share their knowledge in a more intuitive way.

A chance for you to engage

Another aspect of KS will be the opportunity for chapters, councils and communities to engage their members to develop content that can be posted to the online knowledge library.

Our IFMA members have tremendous amounts of good ideas and best practices that should be shared with the FM community. Some of the information will be available to the general public. Most of the information will only be available to IFMA members (yes — membership does have its privileges!). For more details on the KS initiative, how to submit content for consideration or on joining the team of content-vetting subject matter experts, go to www.ifma.org/knowmore.

Your IFMA community wants you to be engaged in any way that makes you feel comfortable. Maybe KS will be your IFMA “ah ha” moment!

Share the gift of IFMA membership with your colleagues. Help them find their IFMA “ah ha” moment by asking them to join IFMA.

P.S. Special thanks to Jan and Les for sharing their personal IFMA “ah ha” moments with me. Mahalo.



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IFMA COMMUNITY MOURNS LOSS OF DEDICATED MEMBER AND DEVOTED TEACHER KIT TUVESON (1944-2015)

It is with great sadness that the International Facility Management Association (IFMA) marks the loss of long-time member Kit Tuveson, IFMA Fellow, CFM, SFP. He was a thought leader, a guide, a mentor and a friend and truly viewed IFMA as a part of his family.



Since 1983, Tuveson dedicated his career to serving IFMA and the global facility management community.

He provided exemplary leadership as 1998 chair of the IFMA Board of Directors and as president of IFMA's Facility Management Consultants Council (FMCC) from 2008-2010. He made noteworthy contributions to IFMA's strategic planning process as part of the Strategic Planning Oversight Team. He lent his subject matter expertise to the development of IFMA's Facility Management Professional (FMP®) credential program and FM Learning System, and instructed many FMs in attaining their FMP®, SFP® and CFM® designations.

Because of his numerous contributions to the FM industry and its practitioners, Tuveson was awarded a Chairman's Citation at IFMA's 2014 World Workplace Conference and Expo by IFMA Chair James P. Whittaker. That honor cited his infectious positive attitude, his unwavering and unmatched enthusiasm, and his exceptional dedication to the advancement of the profession. In addition, IFMA's FMCC named its annual scholarship for him in 2014.

Tuveson passed away peacefully at his home in El Dorado Hills, California, USA on Monday, April 13, 2015 following a battle with cancer, and is survived by his wife Afton, his daughters Jennifer and Carrie, and four grandchildren. He will be deeply missed.

DUDE SOLUTIONS INC. MAKES STRATEGIC ACQUISITIONS TO ENHANCE OFFERINGS

Expanding its senior living market presence, Dude Solutions Inc., a software-as-a-service provider of operations management solutions and parent company to brands SchoolDude and FacilityDude, has announced the acquisition of Windmill Software Inc., including its flagship senior living operations software, TheWorxHub. The acquisition will help grow Dude Solutions' senior living footprint with its best-in-class products and deep market expertise and also marks the opening of a Dude Solutions Canadian office in Toronto.

Dude Solutions will continue to provide TheWorxHub integrated suite of operations applications for more than 650 senior living communities in the U.S. and Canada. The acquisition, made in March 2015, will extend Dude Solutions' support to other essential senior living departments including housekeeping, transportation, inventory, IT and others.

The acquisition is part of Dude Solutions' aggressive 2015 growth initiative including plans to increase hiring for the senior living team. The Windmill Software team has joined Dude Solutions and now works out of the Dude Solutions Canada office to continue support of Windmill's clients, including those utilizing the flagship senior living product, TheWorxHub.

Following Windmill Software, Dude Solutions made a second

acquisition since its February 2014 announcement of a growth investment of up to US\$100 million from Warburg Pincus, a leading global private equity firm focused on growth investing.

Dude Solutions also acquired Mobile311, a geographical information system and mobile mapping solution provider, in April 2015. The Mobile311 acquisition allows Dude Solutions to address the growing requirements of state and local governments, particularly those with public works needs, as well as universities and other entities that manage spatial and distributed assets. Dude Solutions will now offer a comprehensive Web-based and mobile operations solution that enables these organizations to more effectively manage both their facilities as well as assets at large.

Dude Solutions will offer Mobile311 GIS tools that extend the power of Dude Solutions' offerings into clients' spatial asset management programs. Mobile311 clients will have access to Dude Solutions' market-leading innovations and superior product delivery and support. The platform allows mobile workers to access work orders and other critical geographic data in the field while giving supervisors additional reporting and analytical insights for increased efficiency.

The Mobile311 team will operate from Dude Solutions' headquarters in Cary, N.C., USA.

CBRE GROUP, INC. ACQUIRES ENVIRONMENTAL SYSTEMS, INC.

On April 14, 2015, CBRE Group, Inc. (NYSE:CBG) announced that it has acquired Environmental Systems, Inc. (ESI), a leading systems integrator and provider of energy management services in the United States.

ESI develops innovative solutions that enable commercial property occupiers and owners to efficiently manage their building systems and remotely monitor and analyze energy usage in real time to identify and achieve potential savings. ESI is providing analytics-driven managed services on more than 180 million square feet of facilities at more than 2,800 sites throughout the U.S.

Founded in 1986, ESI, based in Brookfield, Wisconsin, USA offers a wide range of technology, solutions and services in the areas of systems integration,

building automation, energy management, advanced analytics, security systems and support services. The company serves a wide range of facility types including office, retail, industrial, critical environments, health care and education.

The acquisition of ESI follows CBRE's announcement of a definitive agreement to acquire the Global WorkPlace Solutions (GWS) business of Johnson Controls, Inc., expected to close in the late third quarter or early fourth quarter of 2015. GWS is a market-leading provider of integrated facility management solutions for major occupiers of commercial real estate. Both transactions underscore CBRE's commitment to provide global, industry-leading facility management solutions – including energy and sustainability products and services – for its clients.

INTERIOR LIGHTING CAMPAIGN ILLUMINATES EFFICIENCY SOURCES

The Interior Lighting Campaign (ILC) is a recognition and guidance program designed to help facility owners and managers take advantage of savings opportunities from high-efficiency interior lighting solutions with a specific focus on troffer lighting and associated controls. This effort represents a collaboration between the Building Owners and Managers Association International, Illuminating Engineering Society of North America, the International Facility Management Association and the U.S. Department of Energy's Better Buildings Alliance.

The ILC offers a consolidated set of high-efficiency troffer lighting and controls resources. These include a searchable list of utility incentive lists, specifications, case studies and educational webinars to help building owners and managers make sound troffer lighting and controls decisions.

By joining the Interior Lighting Campaign, participants and supporters gain access to the technical expertise of the U.S. Department of Energy and have the opportunity to gain recognition for their troffer lighting efficiency achievements. Organizations including building owners, operators and managers who formally join the campaign as

participants will be provided with resources and technical assistance to assist them with lowering their troffer lighting energy use. Participants who achieve exceptional energy savings and fill out an awards submission form will be eligible for recognition for their achievements.

Supporting partners include utilities, manufacturers, energy-efficiency organizations, lighting designers, and energy service companies who support the ILC goals and formally join the campaign. These organizations share information about their high-efficiency troffer products and services and also encourage their customers to join the campaign as participants.

The official launch of the ILC campaign will take place at the U.S. Department of Energy's Better Buildings Summit, May 27-29, 2015 in Washington, D.C., USA.

To learn more or to join as a participant or supporter, visit www.interiorlightingcampaign.org. Watch for more details on the ILC in the July/August issue of FMJ.

FM EVENTS IN 2015



EUROPEAN FACILITY MANAGEMENT CONFERENCE 2015

June 1-3, 2015
Glasgow, Scotland,
United Kingdom

IFMA'S 2015 VIRTUAL CAREER FAIR

June 9, 2015
Worldwide



WORLD FM DAY 2015

June 10, 2015
Worldwide



IFMA'S WORLD WORKPLACE ASIA 2015 CONFERENCE AND EXPO

Aug. 3-5, 2015
Singapore, Republic of
Singapore

IFMA'S ADVOCACY DAY AND PUBLIC POLICY FORUM

Sept. 9-10, 2015
Washington, D.C., USA



IFMA'S WORLD WORKPLACE 2015 CONFERENCE AND EXPO

Oct. 7-9, 2015
Denver, Colorado, USA

IICRC IDENTIFIES EIGHT COMMON CLEANING MISTAKES THAT CAN KILL THE LIFE OF CARPET

Have you ever cleaned up a stain only to have it reappear the next day? If your answer is “yes,” then you didn’t remove it all the way simply because you did not have the knowledge of a professional carpet cleaner. The Institute of Inspection, Cleaning and Restoration Certification (IICRC) has identified eight common carpet cleaning mistakes to help you avoid damage and extend the life of your carpet.

1. Vigorously scrubbing a carpet stain.

Vigorously scrubbing your carpet will damage carpet fibers. Not only is vigorous scrubbing an ineffective way to get stains out of carpet, but doing so will most likely push the stain deeper into the carpet. Scrubbing also damages the carpet fibers by untwisting them and causing them to fray. It is much safer to use a blotting action.

2. Not acting fast enough. The longer you wait to remove a stain, the tougher it will be to remove. By waiting for a spill to dry, you are allowing the liquid to soak into the carpet fibers and be absorbed into the carpet padding. This can lead to wicking when you attempt to remove the spot, odor and sometimes even mold growth.

3. Using the wrong cleaning product.

Using the incorrect cleaning solution on your carpet can lead to permanent damage and even discoloration. Make sure to do your research before purchasing and using a cleaning solution on your carpet, which includes following guidelines from the manufacturer and reading the label on every product.

4. Not testing a new cleaning solution.

When using a new cleaning solution for the first time, you should always prepare a test patch to assess how the chemical will react to your carpet. Depending on the solution’s strength, it’s better to try it out first on a hidden area to make sure



it won’t bleach the color or damage the carpet’s fibers.

5. Using a deodorizing powder incorrectly.

Even though deodorizing powders make your carpet smell nice, they are not a substitution for cleaning. Some deodorizing powders can even lead to a gunky build-up over time if your vacuum isn’t strong enough to remove it thoroughly.

6. Using too much chemical to clean.

Contrary to the belief that “more is better,” more carpet cleaning solution does not necessarily contribute to cleaner carpet. Oversaturating your carpet with cleaning solution can lead to carpet damage and a buildup of dirt-attracting residue.

7. Never having your carpet professionally cleaned.

Just like professional dental visits help to prevent plaque buildup, professional carpet cleanings are a necessary part of extending the life of your carpets. The majority of carpet manufacturers recommend that carpets are cleaned every 12 to 18 months by a certified technician to maintain the warranty. Professional carpet cleaning will not only prolong the

life of your carpets, it will help to promote a cleaner indoor environment.

8. Renting faulty carpet cleaning equipment.

Even if you have the best of intentions when renting carpet cleaning equipment, some rental machines tend to do more harm than good. Frequently damaged or not serviced correctly, rental machines can damage your carpets and leave behind excess cleaning solution, resulting in rapid resoiling and sometimes even mold damage.

When hiring a carpet cleaning professional in your area, make sure that the technician is certified in the latest carpet cleaning standards, including the newly revised ANSI/IICRC S100 Standard for Professional Cleaning of Textile Floorcovering. Recently released, this standard identifies the best practices for professionals when performing commercial and residential floor covering maintenance and cleaning.

For more information on carpet cleaning or how to locate a certified professional in your area, visit the IICRC website at www.iicrc.org.

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CONTROL YOUR BUDGET BEFORE IT CONTROLS YOU



BY RICHARD SIEVERT

It's typically not a good thing to exceed budgets. The ability to accurately estimate and control costs is critical to ensuring economic growth and survival of organizations as well as individuals. Facility managers must analyze financial needs and develop realistic budgets to successfully complete projects and maintain their operations within the fiscal expectations of senior management. Fulfilling these duties in a complex built environment of constant changes, budget cutbacks, restructuring programs and increasing compliance-related initiatives is a major challenge.

Higher standards and economic stakes plus a variety of other factors are raising the level of responsibility and financial accountability of facility managers. They must take time to carefully assess whether there are enough internal and external resources to adapt their facilities and operations to ensure the success of their organizations.

FMs must determine whether sufficient funds are budgeted or if additional funding will be needed to address issues such as:

- Implementation of new technologies
- Stricter codes and regulations
- Tax and insurance increases
- Energy conservation and sustainability mandates
- Occupant health, safety, comfort and security concerns
- Maintenance and repair backlogs
- Building system renovation and construction projects
- Space relocation and rearrangements

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1 Realistic budget and cost-control estimates are necessary for success

Essentially, a budget is a plan for the short-term future (generally monthly, yearly or an alternate time period tied to a specific project). Cost estimation (forecasting of future expenditures) is the basis of budgeting. These estimates are based on objectives — the problem is, one never knows exactly what the future will hold.

Budgets are expressed in terms of numbers of dollars, hours, gallons, kilowatt hours and many other measures used for monitoring and managing utilization of important resources. A budget is the key part of a planning and control system for any program within an organization. Having a budget by which to direct management of the organization's facilities confirms the FM's position of real management responsibility. Controlling total building life cycle costs and keeping them within budget constraints are basic functions of a professional facility manager.

2 Good communication will help keep your budget out of the red

The amount of risk a facility manager encounters can be measured by a comparison of the amount of variance between agreed upon budget and actual cost. The risk can be reduced by proper budgeting procedures and communication with team members to identify and control risks before they become liabilities. Stakeholders need the right cost and budget data at the right time.

Proactive organizations have a robust system for alerting stakeholders about budget status. For example, a team could receive a yellow warning on routine status reports if the costs exceed budget by 5 to 10 percent. If they exceed budget by 10 percent or more, the team would get a red warning signal, or a green light if costs fall within the approved budget.

3 Learn to speak the language of your financial managers

FMs should work closely with the finance department and speak their language. To do so, they must communicate

the value of their operations relative to financial justification (e.g., return on investment, payback period, life cycle costs) and impact on the organization's strategic plan. The FM team will be viewed as more valuable if it increases the organization's profits without sacrificing quality, health, safety and comfort.

Affordability is the biggest barrier to achieving objectives. It is important to have a clear understanding and team consensus regarding the objectives for each element in the budget. Since facilities are fixed assets they typically cannot be liquidated quickly to recover financial losses from bad investment decisions. Therefore, it is important to make wise decisions and not over-simplify the duties and risks associated with cost management.

4 Consider all types of costs

Bad budgets lead to bad decisions. Facility managers and their teams are tasked to complete projects of the highest technical quality on time and often within an unrealistic budget. Without sufficient funds, they will not be able to achieve the first two of those objectives.

Consider the various types of costs — fixed, variable, direct and indirect — when preparing budget estimates. Thoroughly evaluate factors that are likely to influence cost (e.g., personnel resources, time, methods, materials, location, equipment, facilities, designers, contractors, local economic conditions, codes and regulations, insurance, permits, etc.). In addition to initial costs (e.g., procurement, installation, construction), consider life-cycle costs, which include all costs over the useful life of an asset.

When there is not enough money, architects and engineers may not be able to justify spending the additional staff hours necessary for analyses and optimizing designs to meet the owner's best interests. Adequate funds must be allocated for design in order to motivate engineers to provide the most cost-effective solutions for both current and future needs and complete detailed specifications.

BAD BUDGETS LEAD TO BAD DECISIONS.



5 Thorough designs are needed for accurate estimates and to prevent change orders

Detailed and complete drawings and specifications help prevent costly change orders and clearly show contractors their required scope of work. Some owners are too focused on shopping for low-cost design and engineering fees, which can result in higher construction and operating costs.

Owners often solicit quotations to use in developing the project budget without the benefit of a design. Without complete, detailed construction drawings and specifications that reflect project scope, quality and performance requirements, contractors may be inclined to submit low quotations to win the bid. This can, however, result in costly delays and change orders, which are usually set at a high profit margin for the contractors.

6 Prepare alternative design schemes, compare life-cycle costs and design to budget

Prior to design development, prepare sketches of alternative design schemes and life-cycle cost estimates for each to ensure selection of the most economical systems and components. Once the optimal design has been selected, the design professional can develop detailed construction drawings from which contractors can prepare detailed estimates and submit bids.

It is important that the design professional develop designs in accordance within the budget, known as the “design to budget” principle. This will help prevent contractor bids from exceeding budget.

7 Budget time to prepare program requirements for your projects

The ultimate success of a project depends on how well you do things in the beginning. Be sure to allow enough time to collect and analyze data in relation to project needs and objectives. It is the owner’s responsibility to prepare a good set of predesign performance criteria (program requirements) prior to contracting with architects/engineers

to complete the final design documents and before committing full funds for construction of a project.

Programming is the first phase of the project life cycle. It defines performance requirements, such as functional, technical, financial and time, which serve as basis of the project design. These requirements are typically included in requests for proposals (RFPs) and are used to negotiate design contracts, guide design development and determine the feasibility of design alternatives.

Facility managers’ ability to control costs decreases over time. Typically, programming and design fees represent a small percentage of the overall life-cycle cost of a project. Yet, it is at these early stages of project development when there is the greatest ability to control the overall cost of a project.

The ability to control project costs diminishes from 100 percent at the start of the programming and conceptual design phases to roughly 5 percent at the start of construction. Once the construction phase begins, contractors merely follow the plans and specifications. Contracts have been let, material and equipment have been ordered and labor hours have been committed.

8 Use a phased gate approach to manage costs

A phased gate approach is highly recommended to control project financial and other risks. In this approach, the team presents deliverables at the completion of each phase in the project, and release of funds for subsequent phases is contingent on the prior phase remaining within budget.

Make sure the appropriate customers and stakeholders review and give their written approval of the deliverables at the end of each phase before proceeding with further development of the project. To keep the project within budget, you should prepare estimates as the project progresses. Always communicate and document the assumed accuracy of any estimates you give or receive. Add an appropriate contingency allowance (usually a

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IT IS IMPORTANT TO MAKE WISE DECISIONS AND NOT OVER-SIMPLIFY

percentage of the overall cost estimate) to cover the additional costs for unknowns that might surface.

When a project progresses, cost estimating accuracy increases proportionately as scope of work and unknowns are identified. The cost of preparing an estimate also rises in direct proportion to the degree of accuracy required.

There are generally three types of cost estimates:

1. **Order of magnitude**

- Approximate estimate made without detailed data
- Typically based on historical cost figures, rule of thumb and square foot costs
- Used during early planning and programming phase for initial project evaluation
- Accuracy is usually low depending on how much information is available
- Sometimes called rough, conceptual or ball-park estimate

2. **Budget**

- Used to establish the funds required and for obtaining approval for a project
- Based on flow diagrams, layout, equipment details, preliminary drawings and specifications (generally include a design that is at least 30 percent complete)
- Accuracy is greater than with order of magnitude estimates depending on policy and how much information is available
- Sometimes called appropriation, design or control estimate

3. **Definitive**

- Used for bids/evaluations, contract changes, extra work and legal claims
- Based on well-defined data, drawings, specifications, contractor and equipment quotations, site data and project schedule (generally includes completed design)
- Accuracy is greater than with budget estimates depending on policy and how

much information is available

- Sometimes called construction estimate, lump sum or check

9 **Assemble the right team**

The development of accurate and reliable cost estimates requires special skills, including knowledge of design and engineering, construction methods and materials, costs and procedures. A major reason why owners sometimes underestimate the time and money required for new construction, alterations, major maintenance and repair projects is an inadequate understanding of the technical requirements and complex tasks required.

Do not underestimate the need for selecting the best team of design, construction, operation and maintenance personnel to plan, budget and carry out your projects. Use the appropriate types of contracts to allocate risks and responsibilities among team members.


Many components in a facility construction project can be easily overlooked. For example, installation of new production equipment, changing the use of a space or increasing the amount of people occupying a space may produce enough heat to require additional air conditioning and ventilation capacity. If an additional air conditioner is ordered, there must be enough power to run it and adequate space for the associated equipment, power distribution and support systems. It may also be necessary to complete an engineering evaluation to determine if the structure can support the weight of the equipment and related systems or if framing modifications are required.

In addition, the FM team should evaluate associated fire protection needs and sprinkler capacity. New employees associated with expansion, consolidation or remodeling projects may require additional space and facilities such as rest rooms.

These changes must all comply with building codes, regulations and insurance requirements.



THE DUTIES AND RISKS ASSOCIATED WITH COST MANAGEMENT.



It is imperative that construction drawings and specifications be prepared by appropriate design and engineering professionals. FMs should provide suitable documentation to ensure compliance with codes and regulations, procurement of permits and that contractors properly perform construction and equipment installations within the pre-established budget.

10 Use the value engineering method to analyze and develop budgets

Perform value engineering studies during the programming and early design phases when the opportunity to control project costs is greatest. Value engineering is a vital project programming and preconstruction cost management method which involves careful analysis of initial and operating costs of materials, systems and equipment. It is a function-oriented, systematic multi-disciplinary team approach to eliminate and prevent unnecessary costs while retaining high quality.

The value management methodology is a powerful way to plan project budgets, identify user needs and priorities and expedite consensus decisions regarding the lowest-cost way to achieve project objectives without sacrificing quality and performance. It is also a great way for FMs to demonstrate cost avoidance efforts to senior management and optimize the relationship between cost and worth of facility functions. The FM team should perform a value engineering study at the beginning of each new financial planning life cycle.

FMs can apply value engineering to manage growth-oriented facility projects and cost reduction initiatives. Analysis of the functions that make a project, product or service successful differentiates value engineering from traditional cost reduction. Value engineering helps teams understand what functions the customer needs and is willing to pay for and then generates lower-cost alternatives to satisfy those requirements.

A value engineering job plan is a systematic procedure for accomplishing a value study and includes the following stages:

Phase 1: Information gathering

Phase 2: Function analysis

Phase 3: Creativity

Phase 4: Evaluation

Phase 5: Development

Phase 6: Recommendations

Make a case for your budget and document everything

Monitor actual versus budgeted costs and make adjustments before it is too late to prevent major problems from occurring. Document all important communications to protect your own assets. You need an audit trail to justify decisions made and financial expenditures if problems arise in the future.

When presenting your budget results, communicate the impact on your overall organization's strategic plan and financial performance. State the financial benefits versus costs, resources required and technological constraints. Allocate sufficient time and funds to develop the optimal design and cost-control procedures for your project and facility operations. **FMJ**

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Richard W. Sievert, Jr., Ph.D., CFM, PMP, CVS, CCP is a professor in the Construction Management Program in the College of Engineering at Drexel University. He teaches courses in facility management, project management and value

engineering. He also facilitates value engineering workshops and conducts applied research to help owners and managers of facilities meet demanding budgets and customer requirements.

Prior to joining the faculty at Drexel, Sievert was president of The Sievert Group of engineering, construction and mechanical services companies for nearly 30 years.



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Project Management: Facility managers make use of all aspects of project management beginning with planning, scoping and scheduling, and ending with evaluating. Project planning and management are core skills in facility management. The skills are particularly important because of the wide range of projects assigned to the facility organization. Projects vary in scope, complexity, duration and financial risk.

Finance and Business: Facility managers manage/oversee high-value assets that represent significant financial investment in technology, buildings, structures, interiors, exteriors and grounds. Since facility managers are typically responsible for the oversight, operation and maintenance of the buildings and grounds, as well as oversight of various service contracts, understanding the basics of finance and business is critical.

Leadership and Strategy: To be effective, facility managers must develop strategies to successfully carry out major initiatives by influencing the decisions and attitudes of others. Effective strategies require that facility managers are able to integrate people, places, processes and technology. They must be able to align the facility portfolio with the entire organization's missions and available resources, and to be innovative in order to move forward with their staff and processes to respond to the ever-changing requirements.

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CLICK TO VIEWHow to Build
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SIX STEPS TO

IMPLEMENT A WORKPLACE SAFETY PLAN

BY JOHN SCHAFER



Most organizations present a strong safety message around protecting their greatest assets – their employees – but not enough take the necessary action to back up their statements. In fact, a recent survey of facility professionals by Staples revealed that nearly two-thirds of employees say that recent natural disasters have not led employers to reassess company safety plans.

While many organizations develop an initial safety plan, they often don't update it or, more importantly, enforce it, leading to workplace injuries. This lack of deserved attention is especially concerning considering that, according to the U.S. Bureau of Labor Statistics, more than 4 million workers suffer a serious job-related injury or illness every year – both from emergencies and everyday incidents.

Another area many businesses struggle with is creating a budget for safety supplies and training. Granted, the amount spent annually on this segment is not significant when compared with other budget categories, but the lack of a specific safety budget is cause for concern. Without it, other discretionary spending obscures tracking annual spending for necessary and compulsory safety supplies and training. This, coupled with the constant pressure to cut costs, can silently undermine even the best safety efforts.

The following six steps will help facility managers prioritize these efforts by implementing workplace safety plans that protect both employees and the bottom line.

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1 UNDERSTANDING THE ECONOMICS OF SAFETY

The direct cost of a workplace injury is easy to understand and quantify. It includes the costs of emergency room and doctor visits, medical bills, prescriptions, rehabilitation and costs for legal services. However, many often fail to consider the indirect costs.

Indirect costs can be four times the direct costs of an injury, including training replacement employees, accident investigation and implementation of corrective measures, lost productivity, repairs of damaged equipment and property, and costs associated with lower employee morale and absenteeism, loss of reputation, unwanted media attention and more.

The U.S. National Safety Council estimates that the direct cost of a disabling workplace injury is US\$54,000. Assuming the indirect cost is four times this amount, the total would be US\$270,000. In

a company of 750 employees, an average of eight workers will suffer a nonfatal disabling workplace injury within a year, bringing the total cost to US\$2,160,000. This does not even take into account the US\$52.5 million assessed in penalties by the U.S. Occupational Safety and Health Administration for safety violations, with the most frequently cited standards violated including fall protection, hazard communication and respiratory protection.

The impact of workplace injuries on profits is shocking; however, it is only part of the story. The big question is: where is a company going to get the money to cover the costs of workplace injuries? Three basic choices exist. One, it can cut costs. Two, it can produce more revenue. The third alternative is reducing or eliminating workplace injuries.

2 CREATING A SAFETY CULTURE

A safety culture encompasses the values used by management and workers to determine how they behave at work. Instead of being looked at as a priority, safety should be organically embedded into the very fabric of the workplace culture, starting at the executive level and facilitated through the leadership teams in every department.

Workplace safety touches every department in different ways, so it's important to secure the support and engagement of each sector of the business. Facility managers need to be able to present a strong argument to decision makers pointing to the economics of safety on both the day-to-day and emergency levels.

Don't rush this process. First, conduct a risk assessment of the workplace for potential high-risk or emergency scenarios. FM's should build a framework for a performance-driven safety program by conducting a thorough hazard analysis, assessing current safety initiatives and becoming familiar with the tools and equipment appropriate to have on hand.

The support of senior management in the business is also key to a successful workplace safety program. They can ensure safety is a top priority for everyone and can eliminate internal roadblocks that happen in any large organization.

Beyond senior management, workplace safety touches other departments in myriad ways:

- **Human resources:** Every safety-related incident or safety violation requires HR documentation

and an interface with the impacted employee. HR leadership also has a role to play in creating the culture of safety in the workplace.

- **Accounting:** Each department must include safety in its operating budget, so accounting can include it in overall budgeting and allow for possible expenses related to ensuring a safe environment or safety training.
- **Legal:** Workplace injuries or safety violations require the legal department's involvement. Even a minor workplace injury can result in legal proceedings that may require costly outside counsel and take years to resolve. Even if the company is without fault, legal fees can be a huge drain on profits. A company's legal department can play a key leadership role in creating the culture of safety in the workplace.
- **Procurement:** The procurement department may have the largest impact, since getting the right safety products at the best available price and ensuring those products are available to workers is essential to every effective safety program. Also, because of their position in the supply chain, purchasing professionals can be a good source of information on new safety products.

Allies in different departments can help remove barriers and raise the profile of workplace safety to a new level, so it's important to incorporate them when establishing a culture of safety.

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ALLIES IN DIFFERENT DEPARTMENTS CAN HELP REMOVE BARRIERS AND RAISE THE PROFILE OF WORKPLACE SAFETY.

3 ENGAGING AND EQUIPPING EMPLOYEES

Once the leadership team is on board, it's essential to engage all employees in the most effective manner to achieve success. When communicating with staff, FMs should portray safety as a continual integrated process, rather than a compliance requirement. Additionally, when introducing new safety activities, it's best to present them as a regular part of the work process, as opposed to "flavor of the month" initiatives. Emphasize that safety initiatives are here to stay and will not be de-emphasized at any point after the initial instruction and ramp-up phases.

A key element to employee engagement is education, as workers must understand what they should do to stay safe and prepared for routine incidents or crises. Taking the time to train employees will not only prevent injuries, but will also save money in the end.

FMs should use safety meetings to focus on identifying ways to mitigate hazards, plan the safest way to approach tasks and set practical standards for safe work. These meetings can be conducted as two-way dialogues, confirming that workers understand rules and processes before work resumes.

Where applicable, businesses need to maintain a satisfactory hazard communications program and execute it effectively. Employees have a right to know about high-risk zones and potential encounters, as well as how to protect themselves if they are exposed to hazardous chemicals in the workplace. Compliance includes having a list of all hazardous materials on the company website and on site, training staff on the proper use of personal protective equipment, and material safety and data sheets.

4 WORKPLACE INJURY CAUSES AND PREPARATION

The next step is to identify common causes of workplace injuries and devise plans to mitigate them. For example, overexertion is a leading cause of work-related injury, and is unique in that it can happen over time. To mitigate overexertion, businesses should design the job around workers by using the science of ergonomics to reduce the risk and severity of injuries. Properly equipping employees will lead to a reduction in workplace injuries and promote the image of a safety-conscious workforce, both to the leadership teams and to the staff as a whole.

In case of emergencies, facility managers need to

educate employees on the appropriate protective actions for life safety — whether these include evacuation, sheltering, shelter-in-place, lockdown or another action. It's virtually impossible to know exactly when an emergency, crisis or dangerous situation will arise, so it is important that FMs have appropriate emergency planning in place and instruct staff members on correct protocols.

It's always good to encourage workers to improve their adherence to safety measures, as well as reinforce preventative practices through helpful signage in high-risk zones and email reminders.

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5 OPTIMIZE RESPONSE TO INJURIES

It's nice to imagine that every single employee will avoid safety-related incidents throughout the year, but that line of thinking is not realistic. What's essential is that FMs reduce injury rates through early detection and problem solving. FMs should encourage reporting complaints and take all of them seriously. For any complaints, provide private and confidential exchanges, engage the workers in problem solving to reduce discomfort and encourage medical evaluation and treatment if appropriate.

How FMs handle incident response and root cause analysis says a lot to workers. When an

incident occurs, FMs must respond immediately to care for the worker and take mitigating steps to address exposures. Effectively doing this can have an immediate and positive impact on employee participation in safety efforts.

In working to accommodate injured workers, FMs should identify potential ergonomic factors and monitor the effectiveness of job accommodations after they return to work. Some injuries will happen regardless of preventative efforts, but it's important to react accordingly.

6 TRACKING PROGRESS

Lastly, it's essential for FMs to keep close tabs on the frequency and severity of workplace injuries at regular intervals. Near-misses present an opportunity to identify a potential hazard and find a way to control it. Facility managers should look at accident investigations as process improvement projects, not fault-finding missions.

As always, communication is critical, especially with senior leadership, finance and procurement teams, to show the value of safety-related expenditures. Revamping safety efforts will require an investment, but in preventing and mitigating incidents, it will be money well spent. **FMJ**



John Schafer, LEED AP BD+C has 25 years of experience in the janitorial/hospitality industry and is an ISSA Green Cleaning Professional. He is currently employed by Staples Advantage as a field sales director – vertical markets and helped build its safety team from one member two years ago to 20 members today.

Schafer has authored numerous published articles on green cleaning and sustainability. He is an active member of the Arizona Chapter of the United States Green Building Council and serves as their Western Area Council representative. Schafer serves on the chapter's Green School Committee and is a Stakeholder Committee member for the ISSA K-12 Clean Standard currently under development.

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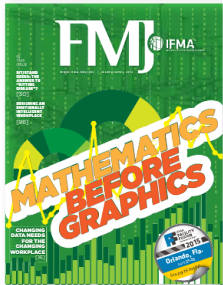
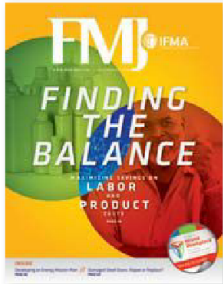
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HIRING A QUALITY LANDSCAPING COMPANY FOR YOUR FACILITY

BY SABEENA HICKMAN

Busy facility managers might take the landscaping around their facility for granted. But there are proven business, economic, safety and mental health benefits that can be gained from exposure to healthy landscapes.

The University of Washington's Urban Forestry/Urban Greening Research website indexes benefit research on green spaces in urban settings, including:

- 7 percent higher rental rates for commercial offices with high-quality landscapes.
- Consumers are willing to pay 9 to 12 percent more for equivalent goods and services in business districts that have trees.
- Shoppers are willing to travel a greater distance to shopping districts that have high-quality trees and spend more time there once they arrive.



Dennis' Seven Dees Landscaping, Inc.

Health care facilities are also realizing the benefits of green spaces. “The fact that there is limited but growing scientific evidence that viewing gardens can measurably reduce patient stress and improve health outcomes has been a key factor in the major resurgence in interest internationally in providing gardens in hospitals and other health care facilities,” says Roger S. Ulrich., Ph.D., Texas A & M University.

Ulrich also states, “There is considerable evidence that restorative effects of nature scenes are manifested within only three to five minutes as a combination of psychological/emotional and physiological changes.”

Practical financial and public health reasons can also motivate facility managers to install or improve landscaping around their properties. A well-maintained landscape around a building can reduce heating and cooling costs and street noise, improve safety and provide mental health benefits and stress reduction to visitors and occupants.



National Association of Landscape Professionals/Philippe Noble Photography

Some facility managers outsource their grounds maintenance and landscaping to save money, or for the expertise and fresh eyes that come with a dedicated, expert and certified landscaping company.

But what kinds of questions should facility managers ask when assembling a request for proposal (RFP) to prospective contractors? And how should they evaluate the responses received from bidders? Is price the only determining factor, or should facility managers consider other attributes?

Draft your scope of work: Identify the services your facility needs

The first step is to get a handle on the scope of work you would like a landscaping company to manage for you. Many large landscape companies can handle a full range of work. They can do basic maintenance, landscape design and installation, as well as lawn maintenance, irrigation, tree care, water feature management, snow removal and paving.

First, determine the services you need for your facility. Then map out how the seasons may influence the task list.

Next, decide if you want all of these services to be provided by one company, or if you will use more than one provider or a mix of in-house and contracted workers.

Draft your scope of work carefully and outline your facility requirements and seasonal needs. If sustainability is important, spell out what you are seeking. Describe your property and any special features (e.g., water features, agricultural areas, etc.). Bidders should respond to your scope of work with specificity and may contact you to confirm details or discuss questions.

Describe the qualities you want in a landscape contractor

Being up front about your expectations for prospective contractors will help you identify quality bidders, and may even reduce the amount of time you spend reviewing proposals.

Bill Horn, Landscape Industry Certified, vice president at Terracare Associates, a Northern California- and Colorado-based landscape management company, encourages facility managers to develop their own specifications when hiring a landscape company instead of relying on the company to outline their scope of work.

“Some businesses put out a request for quotation, which rewards the lowest-priced operators,” Horn says. “We suggest releasing an RFP instead, listing all the desired professional qualifications and a complete scope of work; that way facility managers can be sure to get everything they are looking for in the contract and they won’t end up getting nickel and dimed by a low-cost company.”

Many RFPs include criteria to ensure that the prospective landscape contractor:

- is state licensed (in the United States) and insured;
- has Landscape Industry Certified, Certified Irrigation Contractor, Certified Grounds Manager or Certified Arborist staff;
- follows industry standards;
- has a criminal screening process for hiring staff;
- has extensive safety training procedures and
- maintains maintenance records for equipment.

It’s a good idea to ask how long the company has been in business, what types of awards or recognition the company has received, how the company operates and what types of certifications and training it has in place.

You can also ask to see a portfolio (ask how long the business has provided services for some of the examples, as this will help you evaluate the quality of work over time) and request a list of references.

Evaluating the proposals: Factors to consider

When selecting a company, there are many factors to evaluate. Examine the responses to your needs, plans and

pricing, as well as the qualities of the companies you are considering.

Examine the proposals. Make sure each proposal captures your expectations and accurately addresses your needs.

Resist the impulse to quickly accept the lowest bid. Rather, consider quality, experience and other factors alongside the proposed costs.

Consider the company’s reputation and business practices. Determine how long it has been in business and get a sense of how it approaches customer service, quality control, safety compliance, training programs and communication methods.

Consider the company’s history of working with other facilities similar to yours. Landscape companies that have worked with other facilities like yours will have experience on their side.

Check for licensing and insurance.

Make sure the company is licensed and insured to operate in your area and confirm that the company is in good standing with applicable regulatory agencies. Do not risk hiring a company that is operating without the proper licenses.

Ask about the company’s safety record and what requirements are in place for personnel and equipment.

Professional landscape companies put safety first through extensive training, power equipment certification and safety meetings. Members of the National Association of Landscape Professionals participate in a safe company program called STARS that helps companies improve their safety records by helping them track and decrease incidents of vehicular accidents, employee accidents and illness, and more.

Find out how the business manages emergencies or special needs. Ask how the company typically responds to weather-related emergencies or other emergency events and what to expect in those scenarios.

Determine if the bidder has trained and experienced professionals on staff. Expert horticultural knowledge is an absolute necessity for a landscape company, along with formal knowledge of maintenance operations, irrigation, tree care and pest control. Association memberships and certifications are indicators of the company’s commitment to maintaining the most current knowledge and skills.

Learn about the training the company offers. Make sure the prospective landscape management company has extensive and ongoing training programs for all aspects of the business. A good provider will be able to point to examples of training programs and materials.

Review the plans provided. The company should offer a startup plan and be willing to offer multi-year plans with designs and budgets so you can plan for the future.

Find out how the company really operates. Utilize the references you requested and call them. Ask if you can see the landscaping crews in action. Visit them on a job site to gauge professionalism and operational style.

Determine if the company has training for special needs. For facilities that have specialized landscapes such as ponds, large water features or agricultural areas to maintain, ask for evidence to support whether the company has the experience and skill set to manage these areas for you.

If sustainability is important to you, talk about it. Many landscape companies have water management specialists, as well as professionals educated in sustainable landscape practices like the use of drought-tolerant, low-water native plants; green roof or green wall installation; organic lawn and landscape maintenance; composting of green waste; and installation of water-saving drip irrigation systems.

Professional landscape companies can also assist with meeting goals for LEED-certified buildings. Facility managers should discuss these options with potential contractors or address specifications in the RFP.

Look for someone who looks out for you. A good provider will not only help you maintain your building's landscape, but will also offer suggestions for reducing costs and improving your facility. Ask if a proposed contractor can provide examples of how it has helped other facilities save money and enhance their properties.

Getting off to a good start: It's about partnership

At the bare minimum, facility managers should work with a company that gets the job done and delivers quality landscape services. However, the goal should be to work with a company that goes above and beyond and acts as a real partner, offering suggestions

and solutions and adding value to the partnership and the property.

"We always start with a partnering meeting," Horn says. "We never assume anything. Every situation is different, priorities are different, and we want to hear the goals and concerns from the institution. Some institutions are more focused on safety, some on neatness and maintenance, and others on design and special features."

When a partnership is formed, facility managers should take advantage of having a fresh set of eyes on the property. Horn suggests asking the new company to do an assessment of the grounds and make recommendations for improvements to any areas that raise safety concerns, as well as areas where maintenance could be improved or water waste could be reduced.

Facility managers who hire a qualified, professional landscape firm will find

a partner who adds value to their property in a variety of ways. The key is to start with the objectives and results you want with your grounds management, and then focus on a company's customer service, licensing, safety and education. **FMJ**



Sabeena Hickman, CAE, CMP, is the chief executive officer of the National Association of Landscape Professionals. In her role as CEO, Hickman is a leading advocate for the national trade association representing more than 100,000 landscape and lawn care industry professionals, who create and maintain healthy, green living spaces for communities across America. She is driven and committed to the highest standards in industry education, best practices and business professionalism.

Facility managers can locate a certified landscape professional and learn more through www.loveyourlandscape.com.

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IFMA'S MEMBER OF THE MONTH



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VIDEO
IFMA's April 2015
Member of the Month:
David Dunn, CFM

IFMA'S STRATEGIC DIRECTION HAS MEMBERS at its core. The association's goal is to continue advancing the profession and industry through education and knowledge sharing that enhances our members' abilities to fulfill their roles in facility management.

One of our top priorities is recognizing our members' accomplishments within the industry. As part of our desire to promote the individual contributions of our members, we kicked off a Member of the Month program at IFMA's Facility Fusion Conference and Expo in Orlando, Florida, USA on April 21-23, 2015.

We are excited to announce David Dunn, CFM, as the association's inaugural member of the month. Dunn is a U.S. Navy Veteran with an associate of science degree in business administration, a bachelor of divinity degree in ministry, a Certified Facility Manager®, an adjunct professor at Valencia College, an adjunct chaplain for the State of Florida, as well as a pastor and advocate for people diagnosed with mental illness.

In 2006, after 23 years in NASA's Space Shuttle Program, Dunn joined the City of Orlando's facility management division. In 2011, the City of Orlando combined the fleet and facility management areas and promoted him to manage the new division.

Dunn has proven to be as invested in IFMA as in the other areas of his life. He is a past president of the Orlando Chapter and the current president of the Public Sector Council. At last month's Facility



DAVID DUNN, CFM

April 2015 Member of the Month

President and CEO Tony Keane announces David Dunn as the inaugural Member of the Month at IFMA's 2015 Facility Fusion Conference and Expo.

Fusion conference alone – on which he worked with IFMA staff for 14 months – he spoke, offered a facility tour of the City of Orlando's fleet and facility plant, helped to arrange a behind-the-scenes tour of NASA and assisted in securing exhibitors for the Florida Experience area on the expo floor.

For these reasons and many more, IFMA is proud to offer Dunn the title of Member of the Month.

FMJ Editor-in-Chief Andrea Sanchez had the opportunity to chat one-on-one with the esteemed member.

I WANT TO CONTINUE SERVING THE FM COMMUNITY – I’VE GROWN TO LOVE IT AND LOOK AT IFMA AS AN EXTENDED FAMILY.

FMJ: When did your involvement with IFMA begin?

DUNN: I joined IFMA in 2006 when I joined the city of Orlando. I was encouraged by my boss, who had been an IFMA member for several years, to become involved. At that time he was grooming me for a position that was going to require the CFM® credential. Since April of that year I joined IFMA and attended my first luncheon in Orlando where I introduced myself to a group of people. I asked if I could join them and later learned they were part of a program committee meeting. The rest is history, as I have been involved with IFMA ever since.

FMJ: Is there a role within IFMA that you have yet to fill?

DUNN: Throughout the Orlando Chapter and the Public Sector Council I have filled every role that can be filled by a volunteer. The exception is immediate past president for the council, which is a role I will move into in October 2015. I have also participated in the IFMA Foundation and the IFMA Sustainability Committee as a liaison for the chapter. I have tried to fill every volunteer role available because the more I invest the more I get back. If there’s one I have yet to fill I would gladly love to learn more about it.

FMJ: What fuels your motivation?

DUNN: I have never been satisfied being a follower. Every time I involve myself in anything, from being a boy scout at a young age to my time in the U.S. Navy, I have always aspired to have more responsibility. I always strive to make a change for the better because I’m not content just following and letting things continue as the status quo. I feel a deep passion to change the world and make a difference so we can leave this place better than we found it. That’s pretty much what’s driven me my whole life.

FMJ: What does receiving the honor of Member of the Month mean to you?

DUNN: I struggle with humility – I don’t want to think more of me than I should. I really believe that I’ve got a servant’s heart. If anything, I want to continue to do what I do serving the FM community. I’ve grown to love it and look at IFMA as an extended family. I’ve become connected with so many people that I truly care about. I want their careers to experience as much success as possible.

FMJ: What is FM’s future direction?

DUNN: I’m seeing FM continue to migrate higher and higher into the organization because, quite frankly, from a facility management aspect, the assets we take care of are among the largest investments that the private and public sectors make.

FMJ: Any words of wisdom to the rest of the membership?

DUNN: I would like to emphasize volunteerism within IFMA. I’m always trying to get people into the association because I have gotten so much out of it. It is when you give as much as you can that you get the most out of an opportunity. I would encourage anyone who is hesitant about being a volunteer to just dip their finger in the pool. Dive in a little bit. I think they’ll love it and want more of it just like I have. **FMJ**

Want the full interview? The video is linked on page 44 of the online version of this issue and is available on IFMA’s YouTube channel at www.youtube.com/ifmaglobal. Check out additional videos and supplemental materials listed on the online table of contents on page 6.

IFMA’s Member of the Month program is a grassroots initiative about turning the spotlight toward our members and their accomplishments in advancing the FM profession. We need your help to nominate IFMA members who have made a difference in the FM industry.

FOR MORE INFORMATION ON THE NOMINATING PROCESS, CONTACT MEMBERSHIP MANAGER LAUREN HUBER AT LAUREN.HUBER@IFMA.ORG.

KNOWLEDGE STRATEGY INITIATIVE CALL FOR CONTENT

The International Facility Management Association (IFMA) invites facility management professionals, partners, and service providers to use their extensive knowledge and business expertise as content providers for the knowledge strategy initiative.

You are invited to submit an original content piece for publishing on the IFMA.org website and inclusion in the internationally-accessible knowledge base. Once submitted, IFMA's Subject Matter Expert (SME) group will examine the content for alignment with one or more of IFMA's core competencies listed below.

Communications
Emergency Planning & Business Continuity
Environmental Stewardship & Sustainability
Finance & Business
Human Factors
Leadership & Strategy

Operations & Maintenance
Project Management
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What is knowledge strategy?

Knowledge strategy is a plan detailing how IFMA will manage its content and knowledge for the benefit of the members. It refers to a multi-disciplined approach to achieving organizational objectives and strategies, both from a technology and internal efficiencies standpoint.

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FMP® Leads Strategic Shift at Sodexo Canada

Sodexo was founded in France in 1966 and is the worldwide leader in quality of life services. The diverse talents of Sodexo's 419,000 employees are integrated to offer innovative services based on more than 100 professions. Operating in 80 countries, Sodexo serves a complex set of client needs across the spectrum of education, health care, senior living, business, sports and leisure, government and remote sites.

Scenario

In 2008, Sodexo launched a worldwide growth strategy. Its goal was to double revenue and triple the bottom line by 2015. Achieving the goal meant rethinking the way Sodexo did business. At the time 85 percent of Sodexo's business was food service, with facility management services, such as cleaning and reception, making up 15 percent. Yet customers were beginning to request a one-stop solution for their non-core business. Integrated facility management was soon identified as the primary vehicle for growth, with a goal of generating 40 percent of revenue by 2015.

The demand for integrated FM was very strong in the Canadian market, therefore Sodexo Canada and its 10,000 employees found



themselves at the forefront of the organization's strategic shift. Sodexo Canada was faced with the challenge of offering integrated FM services to clients, even though employees had little to no FM knowledge or experience. The company's first priority was to find facilities training for management and staff.

Solution

In 2010, after researching several industry groups and education providers, Sodexo chose the Facility Management Professional™ (FMP®) credential offered by IFMA.

The FMP provided the best core FM training and the most flexible platform to deliver FM knowledge and skills to Sodexo's staff across Canada. A partnership with IFMA also offered opportunities for advanced credentialing, local chapter membership and leadership, ongoing education, best practice sharing, benchmarking and industry brand recognition. Working together, IFMA's services could help Sodexo build a name for itself in the FM industry and ultimately meet revenue and bottom line growth goals.

Results

Sodexo's FMP training began in 2010 with a cohort of 30 employees. Their first course consisted of a two-day instructor-led session, providing an introduction to the FM industry, an overview of Sodexo's vision and goals, and one of the FMP's four training modules. Following this course, participants were given the self-study materials to reference and completed the remaining three courses as their schedule allowed. To curb procrastination, Sodexo established peer working groups that brought together individuals in the program with those who had already completed their credential.

Since inception of the program, four cohorts have completed the training for a total of 114 employees, 70 of whom have now earned the FMP credential.

Five Sodexo employees have continued on to earn IFMA's prestigious Certified Facility Professional® (CFM®) certification and two others have earned the specialty Sustainability Facility Professional® (SFP®) designation.

IFMA's training and credentials have enhanced the credibility of Sodexo employees and the entire organization. Employees now speak the language of FM, many have transitioned roles and industries, and clients have seen a growth in service offerings and improved levels of service. **FMJ**



The FMP designation refined a deeper understanding into the FM business, and as a district manager, enabled more effective communications with my clients whom we partner with.



I am now completing the SFP designation, and in my new role as director of corporate citizenship for Sodexo Canada, I have this opportunity to widen my knowledge and further enhance the criticality of sustainability within the organization.

I am very grateful to have had this career-enhancing opportunity within Sodexo's partnership with IFMA and its commitment to employee development. I am excited to apply this experience and the new skills into every aspect of my role.



- MATT CAMERON *Director of Corporate Citizenship, Sodexo Canada*

IFMA's globally recognized FMP designation is a knowledge-based credential for facility management professionals seeking to increase their mastery of the foundational FM skills deemed critical by industry leaders.



Attaining the FMP credential affirms that the recipient has undertaken a prescribed course of study and successfully completed a series of comprehensive exams covering four knowledge domains: operations and maintenance, project management, finance and business, and leadership and strategy.

LEARN MORE ABOUT THE FMP ON PAGE 27 OF THIS ISSUE.



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CFM® Exam Test-taking Tips from the Pros

IFMA's Certified Facility Manager® (CFM®) credential sets the industry standard for ensuring the knowledge and competence of practicing facility managers as the most respected global credential in facility management.

IFMA's certification process is designed to assess competency in the field through work experience, education and the ability to pass a comprehensive exam that covers 11 competencies that make up the facility management body of knowledge. Since the program began in 1992, more than 3,100 facility managers from 32 countries have achieved this prestigious recognition.



Below, two seasoned IFMA instructors share their tips for success when you are ready to further your career by achieving the highly esteemed CFM credential.

Prepping for the exam

- ✓ As a competency-based exam, the CFM requires more than just the recall of your FM knowledge. In order to correctly answer some of the questions, you'll need to apply the reasoning and judgment gained through FM work experience to your knowledge.
- ✓ No coursework is required to sit for the CFM Exam. There are many sources of information about the competency areas and you can obtain your knowledge wherever you choose.
- ✓ First, assess yourself by evaluating and comparing your experience and knowledge with the performances listed within the 11 competency areas. IFMA's FM Learning System covers all 11 competency areas in the FM Body of Knowledge which is the basis of the exam. Visit the credentials website at www.ifmacredentials.org/cfm/cfm-exam-preparation-resources for tools and information to help you get ready.
- ✓ Another excellent way to prepare is to join — or better yet, start — a local CFM study group in your area.
- ✓ Once you are confident with your knowledge base, the CFM Exam Prep Workshop is available to help you practice applying the reasoning and judgment gained through your FM work experience by focusing on using critical thinking and other cognitive skills. After attending the CFM Prep Workshop, schedule your exam test date and conduct your final preparation based on the plan you made during the workshop.



Jon E. Martens, IFMA Fellow, FMP, SFP, CFM has been an IFMA instructor since 1999 and has developed content for IFMA over his career. He teaches courses relating to IFMA's Facility Management Professional™ (FMP®) and Sustainability Facility Professional® (SFP®) credentials, CFM certification and FM Learning System.

Taking the exam

- ✓ One of the keys to exam success is selecting the answer that leans toward what the global FM community deems the best practice. Approach the test as "this is what we should be trying to do."
- ✓ Remember that this is a global exam. You have to think outside of your particular industry, especially if your experience has been predominantly in one sector or with one company. Be careful not to answer the question as "this how we do it at XYZ Corporation."
- ✓ Take your time and read each question and answer carefully. Look for key words, since a single word can significantly color the meaning of the question or answer.
- ✓ The exam tells you to choose the "best answer," but you are really choosing the "better answer." You should be able to eliminate two of the four answers relatively easily. Afterward, decide why one of the two remaining options is "better" than the other by applying critical thinking skills.
- ✓ Do not read more into the question than the information which is given. This becomes especially problematic when you are very strong in a particular competency. It is too easy to play the "what if" game and work yourself into the wrong answer.
- ✓ Don't second-guess yourself; go with your gut! Most of the time, when you second-guess, you change your response from the right answer to the wrong answer. Before changing an answer, ask yourself if you are willing to make it wrong.



John Rimer, CFM is an IFMA instructor for IFMA's FMP and CFM credentials. He has taught nearly 30 IFMA classes since 2012 with 30 more scheduled for 2015. In addition, he regularly hosts informational sessions regarding credentials for IFMA and its chapters.

FOR MORE INFORMATION ON THE CFM AND THE CFM EXAM PREP WORKSHOP, GO TO WWW.IFMACREDENTIALS.ORG/CFM.

SOLVING YOUR NOISE PROBLEM

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PODCAST
Understanding
Acoustics in Your
Workplace

BY CHRISTOPHER CALISI

As a facility manager you strive to create a more productive and enjoyable workplace for your colleagues and visitors to your business. What would you say is the one factor that negatively affects workers' perceptions of the workplace more than any other? Maybe the office temperature, or perhaps the workspaces' visual aesthetics? Nope.

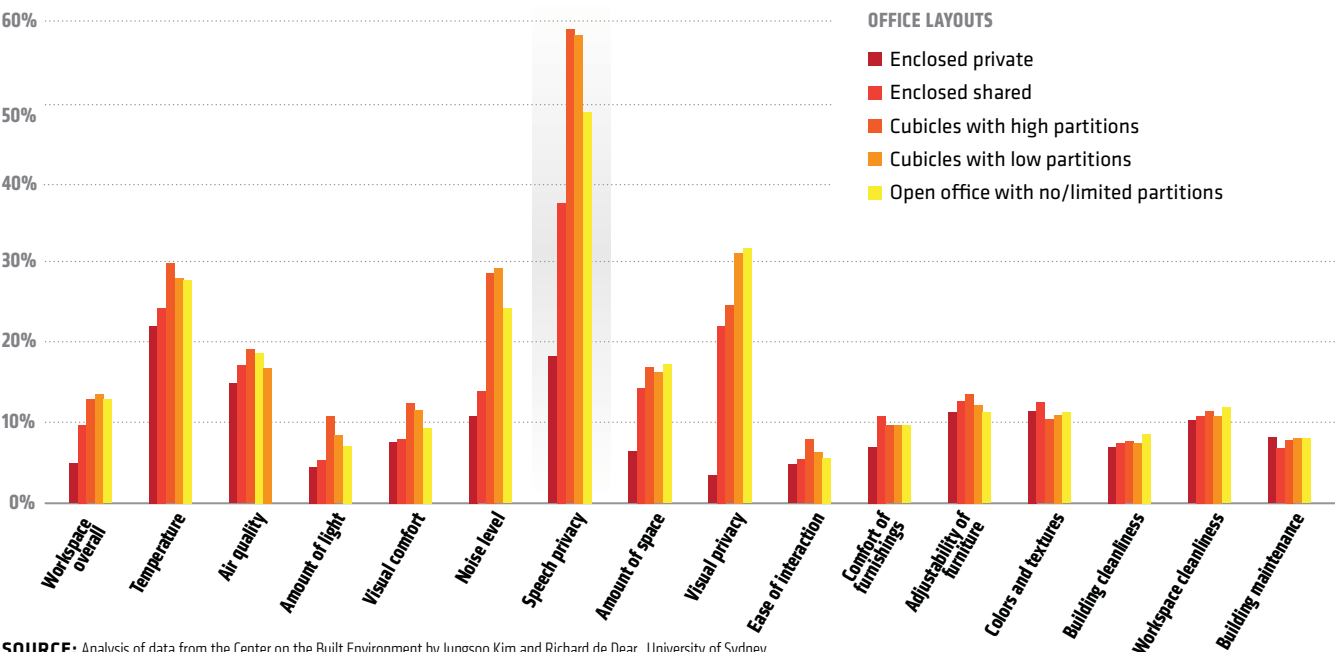
The answer actually relates to workplace acoustics. According to a recent survey of more than 25,000 workers in more than 2,000 buildings, lack of speech privacy is the environmental factor with which workers are by far most dissatisfied.

What is speech privacy? Simply put, it's the inability of an unintended listener to understand outside conversations. People with a lack of speech privacy overhear conversations they shouldn't and are concerned that their own conversations may be overheard by others.

This is understandably annoying to employees, and is often embarrassing as well. For example, in a recent New York Times article on office overcrowding, an employee remarked that many of his employees overheard him on the phone canceling a client meeting due to a private medical issue.

DRIVERS OF OFFICE WORKER DISSATISFACTION

PERCENTAGE DISSATISFIED



SOURCE: Analysis of data from the Center on the Built Environment by Jungsoo Kim and Richard de Dear, University of Sydney

The noise problem

Researchers at the University of Sydney recently discovered that lack of speech privacy is the number one complaint among cubicle workers and open-plan employees, with 60 percent and 50 percent respectively describing it as a major issue.

In another study, approximately 24,000 office workers in private offices, shared offices, cubicles and open offices were asked to rate their satisfaction with noise and speech privacy levels. Those with private offices (a small percentage) were the only ones satisfied with their speech privacy, and even they only indicated a satisfaction rate of .55 out of 3 on average.

In addition to making employees miserable, lack of speech privacy is also expensive. According to research from The University of California, Irvine, employees are interrupted once every 11 minutes and it takes them up to 23 minutes to get back into the flow of what they were doing before they were interrupted.

In a study presented to the International Congress of Noise as a Public Health Problem, researchers found that on average employees waste 21.5 minutes per day due to these conversational interruptions and distractions, making lack of speech privacy the number one cause of reduced productivity. An additional Steelcase/Ipsos study found that this number could actually be as high as 86 minutes. Even using the conservative 21.5-minute estimate, that's roughly 4 percent of an average employee's work day (based on an eight-hour day). This means that a company with 100 employees and an average employee salary cost of US\$100,000 would forfeit US\$400,000 a year in lost productivity.

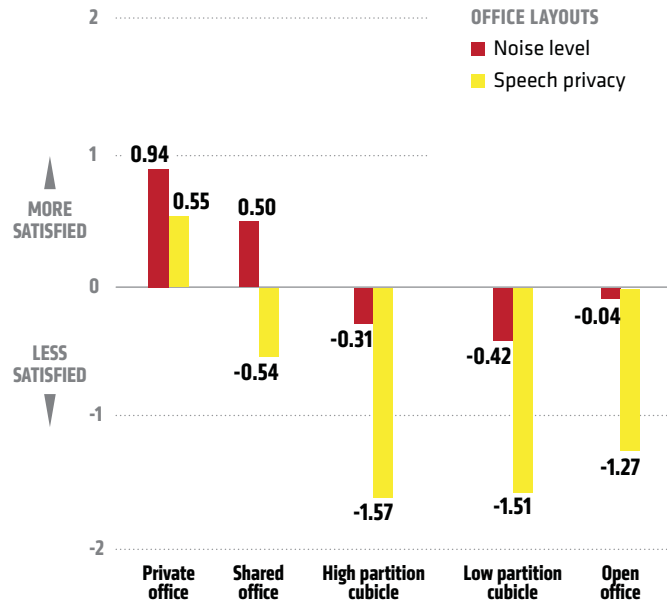
A lack of speech privacy can lead to costly distractions, but also makes it possible for employees to overhear conversations. As walls to private offices become cheaper and thinner, closing the door to an office no longer guarantees speech privacy, and may even be worse because it can provide an illusion of confidentiality. Many private conversations, such as sexual harassment complaints, could be HR nightmares if overheard and, in some cases, not providing sufficient speech privacy can even be illegal. For example, medical offices need to provide speech privacy for conversations between doctors and patients in order to comply with patient confidentiality regulations.

Contributing factors

A variety of factors, such as the use of less expensive acoustical materials and office overcrowding, has contributed to making workspaces less acoustically comfortable over the years. However, the most significant of these factors is the trend toward open office spaces. Open offices were created in the 1950s with the invention of the cubicle but have become more popular over time as a way to facilitate collaboration, maximize space and allow more natural light. They also allow designers and architects to create more visually appealing and functional spaces.

HOW SATISFIED ARE YOU WITH YOUR OFFICE'S ACOUSTICS?

AVERAGE SATISFACTION SCORE



SOURCE: U.S. General Services Administration Study

However, openness comes with a price. Low cubicle walls do not block the sound of a nearby colleague talking loudly to his client. Glass walls and windows often will not obscure conversations, which can echo for the entire office to hear.

Open offices are not the only workplaces with acoustical concerns. For example, lack of speech privacy is of paramount concern in hospitals and health care facilities where sensitive medical information is discussed. Educational institutions require quiet spaces such as libraries or computer rooms for students to study.

Most facility managers recognize that noise distractions are a problem but are not aware of the possible solutions or may think that mitigation requires a complex construction project. Fortunately, there is a solution to the workplace speech privacy crisis which is relatively inexpensive and non-invasive.

Sound masking 101

So what is the solution beyond giving every employee a private office or building higher partitions? The answer is sound masking.

Although this technology has been around since the 1950s, the public at large is generally unaware of it. In its simplest sense, sound masking is the process of adding a low-level, unobtrusive background sound to an environment to reduce noise distractions and the intelligibility of human speech.

It may sound counterintuitive that adding noise to the environment would make it seem quieter. However, the



introduced noise, specifically tuned to the frequency and amplitude of human speech, covers up or “masks” excess speech noise and makes the acoustical environment more comfortable.

Sound masking doesn’t cancel speech; it simply decreases the distance within which a talker can be overheard. In most office environments, workers can hear every word of an employee’s phone conversation from 40 feet away. With sound masking, that distance can be shortened to approximately 15 feet.

Overheard speech is also less intelligible than it would be normally with the addition of sound masking. The listener can often hear a conversation occurring, but cannot make out what is being said. Since unintelligible speech is much easier to ignore, noise distractions are reduced.

Contrary to some misconceptions, sound masking is not white noise. The frequency of white noise is actually something that, when amplified, would be extremely unpleasant to listen to (think of a radio static). Sound masking on the other hand, if created properly, will either be barely noticeable or pleasant sounding, similar to hearing air flow through a vent.

Once the ideal sound masking frequency is established, it needs to be amplified to the right level. Sound masking that

is too quiet won’t be effective, and sound masking that is too loud will be distracting. The proper level for sound masking is no louder than 48 decibels. In comparison, an office conversation between two people standing next to each other is about 60 decibels. This ensures that the sound masking will not affect the intelligibility of direct discussion, but will decrease the ability of someone 10 to 15 feet away to overhear the conversation. Improper sound masking installations are at best ineffective and at worst objectionable.

Another factor to consider is proper zoning. A sound masking system must be flexible enough to accommodate complex architectural spaces. With changes in size, volume, ceiling height, furnishings, etc., a masking system must adapt to provide a consistent sound field. This is done by incorporating zones so that the system is divided into smaller pieces, each of which can be tuned to its respective environment.

An easy way to implement this in open offices is by designating private office and corridor zones. Each of these environments differs from one another acoustically (different walls, potentially different ceiling heights, etc.), therefore it is imperative to be able to adjust the masking for each one. A good sound masking system will allow for multiple zones that can be controlled through a centralized location.



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Not just for offices

Although commercial offices provide one of the most typical environments for sound masking, any facility manager can reap the benefits of providing more acoustically comfortable and private workspaces.

Computer centers and libraries at educational institutions are ideal candidates for sound masking. Educational institutions are legally bound to protect students' private information, so those that do not take necessary precautions to keep information exchanged in areas such as financial aid offices or student health centers from being overheard are vulnerable to potential litigation. Similarly, financial institutions such as commercial banks find sound masking to be an effective way to keep sensitive data safe from prying ears and comply with regulations.

Call centers can benefit from sound masking due to the nature of the job and the fact that employees often work in very close proximity to one another. Sound masking makes it easier for these employees to hear their calls while keeping customer conversations private.

In addition, there are numerous cases of sound masking being useful in the health care field, not only by helping to ensure doctor-patient confidentiality, but allowing patients to recuperate with fewer noise distractions from surrounding areas. Sound masking helps health care institutions comply with regulations and has also been shown to increase consumer satisfaction by making the environment more acoustically comfortable for patients.

Sound masking and modern office design

Open offices do offer important benefits. As facility managers know, having a workplace with natural light is crucial for attaining LEED certification and for employee morale, and open floor plans and glass walls help both light and views filter through the entire office.

Additionally, a beautifully designed office can be a useful factor in recruiting and retaining talent. Employees often associate cool offices with cool companies, and businesses like Google and Facebook are pushing the envelope with their open-office designs. There's a bottom-line benefit as well: open floor plans are often less expensive on an employee-per-square-foot basis than high-walled cubicles and individual, private offices.

Unlike partitions, sound masking has the benefit of being invisible. This allows companies to create bright, open, airy, collaborative spaces that reflect their vision without sacrificing workplace acoustics and speech privacy.

How to get sound masking

You may already be familiar with sound masking systems and installations, but if not, don't fret. Sound masking

systems range in complexity from those consisting of simply a module, cables and loud speakers, to systems with dozens of components. Some are easier to install and are more effective than others.

The one thing all of these systems have in common is that they require professional installation. Sound masking professionals include service providers such as audiovisual integrators, office furniture dealers or telecommunications integrators. These service providers can help you determine which system is best for your needs.

Asking the questions

So does your facility have a noise problem? Ask yourself the following questions:

- Do employees ever complain about being distracted by their coworkers?
- Does anyone raise concerns about their conversations being overheard?
- Can people in private offices hear conversations from other private offices?
- Can people in cubicles hear people in private offices?
- Is sensitive information being discussed?
- Do people keep their office doors closed because it's too noisy?
- Are human resources professionals located near an area where they could be overheard?
- Are you sure conversations occurring in conference rooms are not being overheard in the surrounding open office area?
- Is there a need to comply with regulations (such as HIPAA or GLBA in the U.S.)?
- Are clients/customers afraid of being overheard?

If the answer to any one of the questions above is yes, your facility has a noise issue and you may want to consider sound masking as a possible solution. **FMJ**



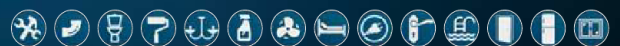
Christopher Calisi is the CEO of Cambridge Sound Management, a provider of sound-masking solutions that help reduce noise distractions and protect speech privacy. Calisi leads the strategic direction of the company, specifically its expansion into new vertical markets including corporate, health care and government. For more information, visit cambridgesound.com.



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HOW HEALTH CARE FACILITIES CAN IMPACT THEIR BOTTOM LINES

FMJ EXTRA

CLICK TO VIEW

The Human Hospital:
How to Create an
Autonomic Nervous
System for Your
Facility

BY ROBIN LAUB

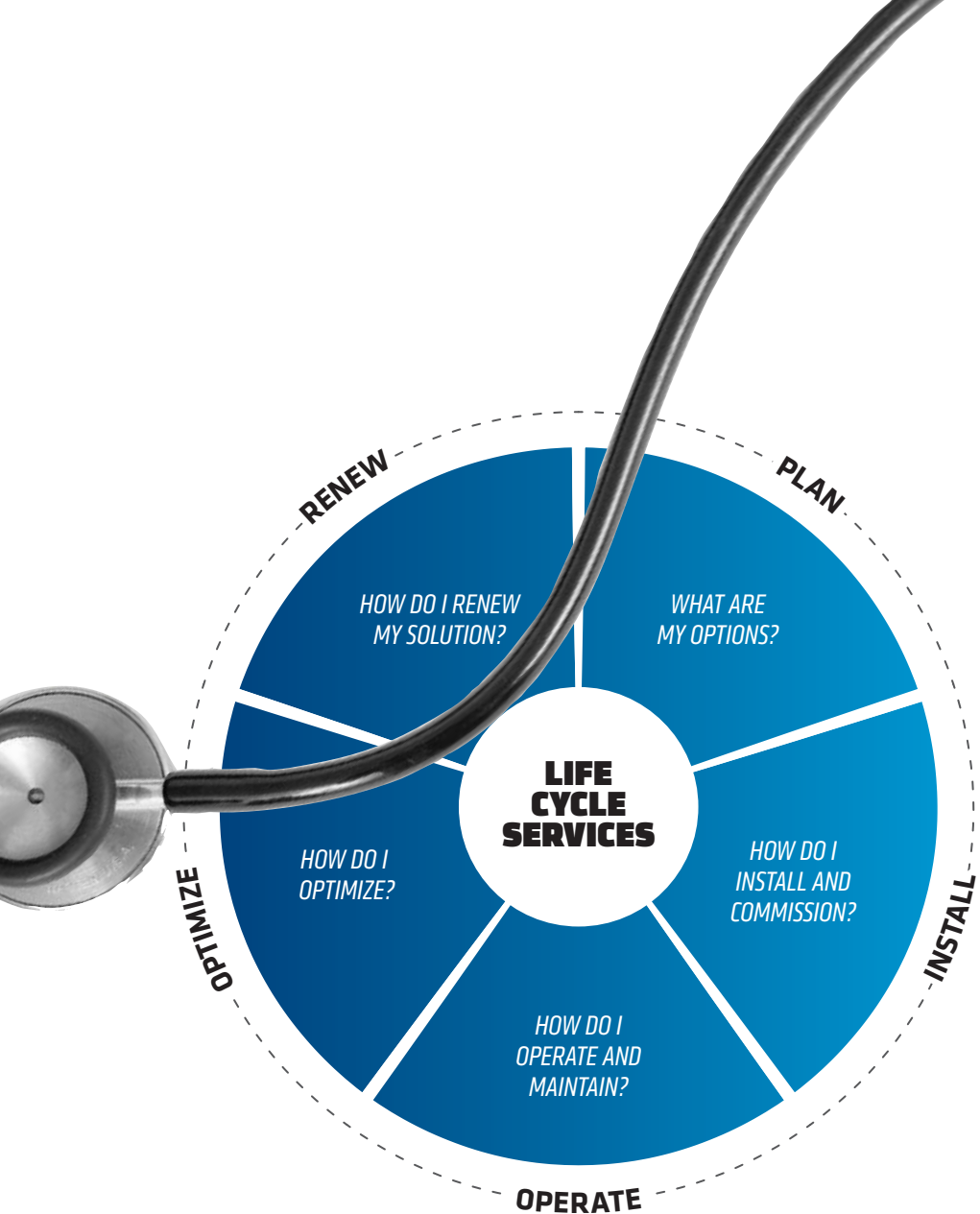
According to a recent survey of decision makers at U.S. companies conducted by Schneider Electric, a vast majority (93 percent) of respondents agree that infrastructure upgrades and modernization projects are an important priority to their business. Additionally, more than half (56 percent) of respondents predict their investment in energy-efficiency projects will increase this year.

With energy being the fastest-growing and largest controllable operating expense within the built environment, FMs should give full consideration to energy efficiency in order to ensure smooth

operations and realize valuable cost savings.

As an industry, health care has lagged behind in implementing energy-efficiency upgrades. Specifically, hospitals (known for wasting large amounts of energy) are challenged to balance the demand because they operate on a 24/7 cycle while also needing to following strict codes for lighting, heating and air quality/circulation.

The average hospital may consume 2.5 times the amount of energy that a similar-sized commercial building would, which results in between roughly US\$1 to US\$3 million per year in additional energy



By developing an effective energy management strategy, health care facility managers will be better prepared to manage their complex building sites.

beginning to have a greater influence on the overall health and strategic direction of their organizations.

One of the biggest challenges facing hospital facility managers today is coping with aging infrastructure and unifying all of the disparate building systems that currently exist within their organizations. While these systems produce a large volume of data, the information may not necessarily be actionable and beneficial.

In order to derive value from building data, facility managers need to be able to accurately measure and monitor where and when their buildings are consuming energy and track changes in energy use in real time. Without this knowledge, facility managers are blind to potential energy waste and will face difficulty in relaying the significance of energy savings to C-suite decision makers.

Implementing an infrastructure that enables communication between the existing, traditionally disparate systems of building, power, security and IT management and gives facility managers valuable insight on building performance, status of critical infrastructures and most importantly

costs. This means that there has never been a bigger need for hospitals to improve their energy efficiency, productivity and effectiveness across facilities.

In order to better oversee budgets and positively impact their bottom lines, many health care facility managers need to uncover hidden savings within their buildings to help offset energy spending and make more informed energy-related decisions. This starts with developing a comprehensive energy management strategy that allows the facility management teams to explore all options, as well as understand how to install, maintain, optimize and renew the system.

By developing an effective energy management strategy, health care facility managers will be better prepared to cope with the intricacies of managing their complex building sites.

Managing energy in today's hospitals

The rapidly evolving energy management landscape has resulted in opportunities to use less and save more, but at the same time has made facility managers' role much more complex than it has been in the past. The responsibilities of facility managers have changed significantly, requiring new skillsets that include long-term planning and investment decisions. Additionally, FMs' decisions are

the ability to improve on patient care and comfort is key to this strategy.

Simply collecting building data is not enough. The most significant energy savings are realized when building data is analyzed and turned into actionable intelligence that will help to improve facility performance. This is not always an easy skill to obtain and at times can be quite time consuming but must be addressed for this strategy to work well. With this knowledge, facility managers are able to control and optimize the resources that they measure.

Building management systems (BMS) and other building insight technologies give facility managers the opportunity to use big data and analytics to properly identify and diagnose energy waste, maintenance issues and potentially uncomfortable patient conditions. In addition to obtaining valuable information from a hospital's BMS,

facility managers are also tasked with delivering that information to the appropriate audiences, which can range from C-level executives to those working under the facility manager.

These different audiences require insights on completely different sets of data which allow them to take the proper actions suited to their roles. For example, an employee working under the facility manager who needs to make adjustments to temperature or airflow will need different information than the CFO who needs to make investment decisions. In both cases, clear reporting enables each individual to make the most informed and effective decision.

When data analytics are used to uncover building modernization recommendations, results include improved building performance, reduced operating costs, enhanced occupant comfort and optimized energy

efficiency — all with measurable return on investment. Hospitals can save anywhere from 15 to 30 percent on energy costs as a result of efficiency upgrades while also seeing significant decreases in maintenance costs and patient discomfort.

How to approach energy as an opportunity, not a challenge

Hospital facility managers can benefit greatly from viewing their energy usage and costs from a holistic perspective. Consider the CFO who has significant asset funds and aims to invest in assets strategically for a positive return. Energy should also be viewed as an asset with real value and potential for profit.

Facility managers need to fully understand their energy consumption and expected return on efficiency upgrades and begin to incorporate those expenses into the overall financial strategy for the hospital. Money

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FMs' decisions are beginning to have a greater influence on the overall health and strategic direction of their organizations.

saved through efficiency projects can be reinvested into other areas of the facility, creating a wider impact. Savings of 30 percent could net out to millions of dollars for large health care systems. Additionally, as facility managers begin to think of energy beyond just an operating expenditure, they will be able to more effectively communicate and collaborate with finance-minded executives.

Facility managers who are able to identify savings and clearly present them to a CFO have a much better chance of securing the necessary funds to upgrade the hospital's systems and run their facilities more efficiently. Additionally, informed FMs can actually consolidate various disparate systems around the hospital, allowing staff to better utilize their time while also creating a more comfortable environment for patients and families.

Five steps for building an energy management strategy

When developing an energy management strategy, it's important for facility managers to consider the process as a wheel (because it's ongoing) with five phases. The process starts with planning, followed by installation, operations, optimization and renewal before the process restarts.

1. PLAN: What are my options?

It is important for facility managers to create a committee of people within the hospital who can come together with different perspectives and ideas for ways to develop a comprehensive energy strategy that fits the hospital's objectives. This committee should consist of nurses, C-suite executives, someone from the FM team and a financial representative.

2. INSTALL: How do I install and commission?

After a plan has been put in place, it is important for facility managers and other hospital executives to negotiate the best terms with each supplier so they can minimize any risks. With prices in constant flux, the cost of energy often impacts facilities' profits — positively or negatively — depending on the choices that are made.

3. OPERATE: How do I operate and maintain?

Facility managers need to understand how to monitor and control the operations of the hospital from the top- to the bottom-level jobs. In order for facility managers to control the hospital's energy and resource consumption, they must first be able to measure the energy usage.

4. OPTIMIZE: How do I optimize?

In order for an energy management strategy to be effective, it is important for facility managers and hospitals to execute on targeted efficiency projects with demonstrable return on investment.

5. RENEW: How do I renew my solution?

The last phase of the cycle (before it restarts) is focused on analyzing the performance of the energy strategy through accessing the robust reporting software. Being able to report progress is a key to the success of the energy management strategy.

While developing an energy management strategy for your hospital can be intimidating, it doesn't need to be. Technology is revolutionizing the traditional model of disparate building systems. Hospitals now have the capabilities and tools to significantly enhance how they measure, understand and manage resources, the quality of care they deliver to patients and ultimately, their bottom lines. BMS technologies, combined with data analytics, can add significant value to health care facilities by helping to transform energy expenses into valuable assets. **FMJ**



Robin Laub is a business development manager for Schneider Electric's Healthcare Team. She received a Bachelor of Science degree in mechanical engineering from Virginia Tech and has spent most of her career in roles that support the application of infrastructure or process systems within life sciences.

Laub can be reached at +1-908-500-0501 or robin.laub@schneider-electric.com.

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Time away from the ordinary

Tuesday, Oct. 6

7 a.m. - 2:30 p.m.

Doug Underwood/Utilities Council of IFMA Golf Tournament @ Fossil Trace Golf Club

7 a.m. - 5 p.m.

Satellite Registration @ Hyatt Regency Denver

8 a.m. - 5 p.m.

On-site Registration @ Colorado Convention Center

12 p.m. - 5 p.m.

Deeper Dive Sessions

1 p.m. - 5 p.m.

Facility Tours

2:30 p.m. - 4 p.m.

IFMA House of Delegates & Annual Meeting

7 p.m. - 10 p.m.

IFMA Foundation Celebration @ Ellie Caulkins Opera House

Deeper Dive Sessions

Come away with deeper knowledge and a more insightful perspective on trending topics that impact your career, your facilities, and the people and business you support.

Doug Underwood/ Utilities Council of IFMA Golf Tournament

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IFMA Foundation Celebration

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Ralph L. Carr Colorado Judicial Center

Take an insider's tour of this stunning example of neoclassical architecture and state-of-the-art building systems.



Colorado State Capitol

Learn about the dome preservation project and the Capitol's new energy-efficient Ground Source Heat Pump system.



Colorado Convention Center

Gain tips for implementing sustainable practices to save money, engage occupants and reduce the use of resources.



Sports Authority Field at Mile High

Tour the football field, high-end suites, mechanical systems and state-of-the-art scoreboard control room.

Registration is open at www.worldworkplace.org

to engage in the extraordinary.

Wednesday, Oct. 7

7 a.m. - 10 a.m.	Satellite Registration @ Hyatt Regency Denver
7 a.m. - 6 p.m.	On-site Registration @ Colorado Convention Center
7:30 a.m. - 8:30 a.m.	Wellness Fitness Class
7:30 a.m. - 10 a.m.	IFMA Council Meetings
8 a.m. - 9 a.m.	First-time Attendee Orientation
8:30 a.m. - 9:30 a.m.	FM Expert Panel Discussion
9:30 a.m. - 10 a.m.	FMP® Informational Session
9:30 a.m. - 10 a.m.	Morning Coffee
10 a.m. - 11:30 a.m.	Welcome & Opening Keynote Address
11:30 a.m. - 4:30 p.m.	Expo Grand Opening
12 p.m. - 2 p.m.	Lunch in Expo Hall
1:30 p.m. - 2 p.m.	CFM® Informational Session
5:30 p.m. - 6:30 p.m.	Students & Young Professionals Reception
5:30 p.m. - 6:45 p.m.	Credentials Reception (invitation only)
7 p.m. - 10 p.m.	Welcome Reception @ The Grizzly Rose



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First-time Attendee Orientation

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Opening Keynote Speaker

Over the past 30 years, World Workplace has opened with a renowned speaker providing fresh outlooks on leadership, ingenuity, sustainability and driving change. Visit worldworkplace.org to see who's lighting up this year's keynote stage.

Credentials Reception

Those achieving their CFM, FMP or SFP this year will receive an invitation to this exclusive appreciation and networking event. **Sponsored by Johnson Controls**

Welcome Reception

Denver's Grizzly Rose was recognized by the Country Music Association as one of the top nightclubs in America. Pack a pair of boots and get ready for a line-dancin', two-steppin', bull-ridin', beer-swillin' good time. **Sponsored by Caterpillar**



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Our needs. Our concerns. Our interests.

Thursday, Oct. 8

7 a.m. - 4 p.m.	On-site Registration @ Colorado Convention Center
7:30 a.m. - 8 a.m.	Morning Coffee
8 a.m. - 9 a.m.	Concurrent Educational Sessions 1.01-1.12
9 a.m. - 9:30 a.m.	Networking Break
9 a.m. - 4 p.m.	IFMA Career Fair
9:30 a.m. - 10:30 a.m.	Concurrent Educational Sessions 2.01-2.12
10:30 a.m. - 3 p.m.	Expo Hall Open
11 a.m. - 1 p.m.	Lunch in Expo Hall
1 p.m. - 3 p.m.	Student e-Poster Competition
1:30 p.m. - 2 p.m.	SFP® Informational Session
3 p.m. - 4 p.m.	Concurrent Educational Sessions 3.01-3.12
4:15 p.m. - 5:15 p.m.	Concurrent Educational Sessions 4.01-4.12
5:30 p.m. - 6:30 p.m.	IFMA Foundation FM Academic Awards

Educational Sessions

Education is the cornerstone of IFMA's World Workplace. Each session is hand-selected by a committee of experts to ensure the value and relevance of the content presented. **Sponsored by SMART Technologies**

The Expo

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IFMA's Career Fair

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FM Academic Awards

Support the next generation of FMs – congratulate students accepting FM scholarships and awards for outstanding academic achievement.



Registration is open at www.worldworkplace.org

Our community. Our future. Our conference.

Friday, Oct. 9

7 a.m. - 2 p.m.	On-site Registration @ at Colorado Convention Center
7:30 a.m. - 8 a.m.	Morning Coffee
8 a.m. - 9 a.m.	Concurrent Educational Sessions 5.01-5.12
9 a.m. - 12 p.m.	IFMA Career Fair
9:15 a.m. - 10:15 a.m.	Concurrent Educational Sessions 6.01-6.12
10:15 a.m. - 10:30 a.m.	Morning Break
10:30 a.m. - 11:30 a.m.	Concurrent Educational Session 7.01-7.12
11:45 a.m. - 12:45 p.m.	Concurrent Educational Session 8.01-8.12
1:15 p.m. - 2:15 p.m.	Awards of Excellence Luncheon
2:15 p.m. - 3:15 p.m.	Closing Keynote Speaker
6:30 p.m. - 11 p.m.	Awards of Excellence Banquet

Closing Keynote

The educational program traditionally concludes with an inspiring speaker presenting innovative ideas on achieving personal and professional goals. Visit worldworkplace.org to find out who's closing the conference.

Awards of Excellence Luncheon & Banquet

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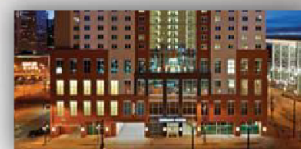
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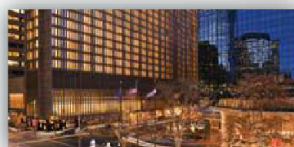
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WASTE MANAGE- MENT

101

F R O M B E T T E R
P R A C T I C E S
T O N E W
S O L U T I O N S

BY YURY PETYUSHIN



Not many facility managers take seriously the value in their building's waste. After all, it's waste – the very word encourages disdain. But that attitude, which nearly all of us share, costs businesses more every day that commercial waste programs go unexamined.

What's more, the implications for local landfills and society at large are far from trivial. In fact, the U.S. Environmental Protection Agency and Statistics Canada attribute between 60 to 70 percent of municipal solid waste to commercial and institutional sources. Yet commercial waste management practices remain undefined, shortsighted and seemingly resistant to change.

Part of the problem is that there are so few well-documented best practices aside from tenuous government regulations. FM departments are basically left to create their own playbooks. Some are doing exciting work, translating their corporate sustainability policies into leading waste programs. Pacific Gas & Electric (PG&E), for example, revitalized its entire waste management program in 2009, diverting thousands of tons of waste from landfills per year. However, the vast majority of businesses and their vendors remain caught in a race to the bottom with sustainability at the mercy of capital costs.

But this isn't a sustainability pitch — at least not entirely. This is about more than being green. Peter Drucker, renowned management consultant and author, said that innovation is "the act that endows resources with a new capacity to create wealth." It's about finding the innovations that can endow solid waste with a new capacity.

Indeed, PG&E invested heavily into re-evaluating its waste stream and took on

many challenges and risks in the process. But it also broke even on its investment within two years and went on to save US\$100,000 annually thanks to the new approach. Success comes down to changing our basic attitudes toward waste and redeveloping the standards by which we evaluate it. Only then can the commercial sector implement best practices with measurable results.

Changing the perception of waste

So how do we change the perception of waste? Simple: look at the business benefits. There are three ways to improve waste management programs to make them more efficient, cost effective, sustainable and applicable to facilities of all types.

1. Implement landfill diversion strategies.

Reducing landfill waste requires a multipronged approach that considers purchasing decisions, occupant behavior, and sorting and processing infrastructure. Each additional material that

can be captured and diverted from landfills is another tactic to reduce hauling and fees.

For example, when businesses consider their paper supplier, they must understand the ratio of virgin to recycled fiber, how effectively occupants can sort paper from other materials and which vendors can properly handle and process the material. Applied to numerous materials across a large facility, this approach alone can significantly reduce waste sent to landfills and the associated costs.

2. Leverage reporting to streamline operations. As with so many business practices, you can't manage what you can't measure. Information is an FM's most valuable tool in identifying problems early, negotiating the cost of service and gauging the return on investment.

As Angie McMurray, waste management specialist at McMurray Environmental Services, puts it: "Regular waste audits combined with accurate disposal reporting allow you to monitor your waste generation patterns in real time and intercept irregularities and problems as they occur. It's the only reliable way to account for fluctuations in cost, hauling services or waste output patterns." Think of it as a form of security for your waste program that can ensure environmental performance, operations and cost management.

3. Manage waste like a natural resource. There's a reason why the landfill mining industry is growing in Europe and Asia — people have been discarding valuable materials for a century, and still are.

In addition to the precious metals found in circuit boards, other materials like plastic, paper, wood, glass and carpeting become valuable commodities when collected in bulk. With the right process to capture, package and ship these materials, yesterday's waste can begin to look like tomorrow's revenue.

Moving toward better practices

To implement and sustain these strategies, FMs need to incorporate "better practices" into their approach. The following guidelines serve as the basic improvements required to optimize solid waste management programs.

Engage all stakeholders.

No single person or department can drive a comprehensive waste program. Excluding even one party can stymie performance. If a facility-wide plan isn't clearly reported to those who create and handle waste daily, simple tasks, like sorting recyclables, can fail.

The winning strategies require a holistic approach in which all parties are involved at the outset. Once the plan is in place, new practices must be

explained clearly — and repeatedly — to all stakeholders to ensure continuity and ongoing development.

The key stakeholders typically include general management, consultants, vendors, custodial staff and procurement professionals. Each group plays a part in the process, starting with where waste is created, how it is sorted, who collects and processes it, and who is reporting the results.

Perform a proper audit.

A comprehensive waste audit creates the baseline that will determine all successes and failures. "As with any industry trying to build its best practices, it has to start with whatever data is available and move forward from there," says David Neilson, a waste management consultant with more than 20 years of experience. "We may not want to find out how poorly these programs have been operating but it's a necessary step."

An audit should cover waste sources, types and volumes, internal and third-party activities, and hauling and processing costs, as well as more nuanced influences like occupant behavior, purchasing policies and vendor credentials.

Although waste audits are becoming more common, they don't always provide the necessary depth of information. This is partially the result of FMs working with existing vendors to assess their waste streams. Conventional waste management services tend to look at waste in one dimension. If the goal is to revitalize the approach to waste, it is best to partner with companies that have proven their ability and interest in creating leading waste programs.

Components of a winning audit:

- Waste quantities
- Waste material breakdown
- Landfill diversion rate
- Hauling schedule
- Inventory of bins and compressors
- Evaluation of existing services and custodial and procurement practices

WITH THE
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REVENUE.



This information will inform numerous decisions, including selecting a suitable hauling service, what procurement staff should consider when purchasing materials, how the program is progressing over time and much more.

It's also important to audit disruptive sources of waste, like renovation, construction and demolition projects. These irregular events often come and go before anyone considers the cost and impact of the resulting waste. A waste audit of large capital project will allow FMs to allocate concentrated resources in long-term plans.

Inform purchasing decisions.

Procurement decisions have a direct impact on waste output. Corporate purchasers will only consider costs at the buying phase, which may create problems when it comes to disposal. After all, what goes in must one day come out. FMs have to coordinate with procurement personnel to make sure

that materials coming into the facility are beneficial to the waste program.

For instance, FMs should help prioritize items that can be returned to suppliers, recycled or resold down the road. This will require a corporate procurement policy that provides guidelines for purchasing and should be balanced by the waste management program and other procurement practices.

Educate occupants.

When most site managers think of waste, they don't necessarily think of the people who create it. The reality is that the most successful waste programs understand and leverage people's habits. It is essential that they understand the goals of the waste program, why their roles within the process matter and what obligations they have.

The most important method of this education is communication. Placing pictures and instructions around

bins is crucial, as most people will not know exactly what their products are made of. FMs should also encourage communication of the program results so that people can see the impact that their small decisions have on the facility.

Ways to encourage participation:

- Place bins strategically
- Create simple, clear signage
- Share educational pieces
- Use social media and internal networks

Seek out innovators.

Many niche programs have shown what's possible when waste is re-imagined. Until innovation permeates the commercial waste sector, it's up to facility and sustainability departments to find the specialized services that meet their needs. These boutique-like services often offer lesser-known solutions that tackle longstanding challenges, in many cases benefiting the company directly through lower costs or higher return on investment.

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SUCCESS COMES DOWN TO CHANGING OUR BASIC ATTITUDES TOWARD WASTE AND REDEVELOPING THE STANDARDS BY WHICH WE EVALUATE IT.

There are many unique programs out there, often limited to particular areas. Places to find them include national and local Green Building Council databases, local recycling councils and associations.

PENS, PENCILS AND MARKERS

Small items common to most facilities are easy to overlook. One program currently available in the U.S. and Canada takes pens, mechanical pencils and markers and turns them into new products like park benches and waste bins. Through partnerships with manufacturers, this model even supports a small donation to an environmental nonprofit for every item received. For programs like these with very specialized waste streams, FMs need to coordinate storage and transportation to designated repositories to effectively impact their everyday waste output.

PAPER AND CARDBOARD

Over the last 10 years, paper manufacturers and recyclers have partnered to achieve impressive recovery rates, estimated to be above 65 percent in the U.S. New, more affordable ways to process paper are emerging as manufacturers continue to improve paper production. Since paper suppliers can now sell 100 percent recycled paper that is comparable in quality to virgin or mixed papers, there's a growing market for recycled material.

CARPET AND FLOORING

Some carpet and specialized flooring manufacturers have discovered the benefits of actively recycling their products. By designing the materials to be easily incorporated back into the manufacturing process after use, they're able to use past products as future resources. Partnering with a manufacturer that manages the full life cycle of the

material could result in zero waste from flooring during renovation projects.

ELECTRONICS

Although electronics and IT equipment do not contribute to daily waste, they go through short cycles of innovation and obsolescence. Fortunately, e-cycling programs are now commonplace across the U.S. and Canada. Depending on the condition of the electronics, e-cyclers may be able to reuse the items through donation or refurbishing networks. If they're in poor condition or once stored secure data, they can be dismantled to remove the metal and plastic components for recycling.

FIXTURES, FURNITURE AND EQUIPMENT

Renovations and moves force a lot of materials and goods into the waste stream, including usable items like office furniture and equipment. With a weak second-hand market and limited recycling options, much of these end up in landfills. Specialized services that diversify their approach to fixtures, furniture and equipment combine resale, recycling and donation to minimize both costs and waste.

The FM's role

In the absence of industry-wide standards and resources, FMs should apply "better practices" wherever possible. Gone are the days when one-size-fits-all hauling and processing programs were practical — or even particularly cheap. Every facility has specific needs depending on its infrastructure, waste stream, budget, occupant behavior and corporate mandate. Rising landfill fees, too, make it challenging to justify a limited waste program.

Conventional hauling services simply aren't designed to be as dynamic as we

now know waste to be. They often fail to sort and recover recyclables and aren't expected to identify resalable or reusable items before they are processed. As a result, businesses send far more material to landfills than necessary and absorb the additional landfill fees into their vendor costs.

The hauler's role has to fit within the bigger plan, but not define it. But before FMs — and those responsible for corporate policy, for that matter — can go beyond the conventional approaches to waste, they have to see it for what it is: an opportunity to dramatically improve one of the most basic and overlooked aspects of facility management. **FMJ**

RESOURCES

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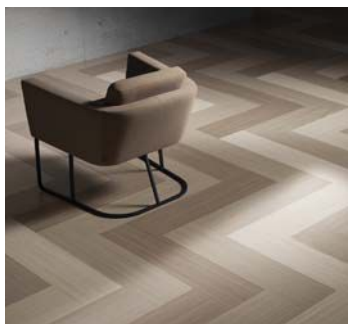
Yury Petyushin is the director of operations at Green Standards, a firm that specializes in the cost-effective and responsible redistribution of surplus

office assets like furniture, equipment, appliances and artwork.

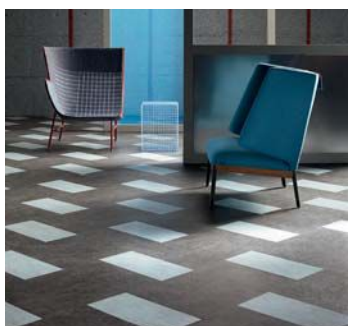
With 10 years of experience in process improvement and management strategy, he has lead projects in a variety of industries including manufacturing, extractives, financial and environmental services for North American and European companies. He can be reached at ypetyushin@greenstandardsltd.com.

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Behind every successful FM are a host of product and service providers that offer solutions to make the hectic task of ensuring seamless facility operations a little smoother. This showcase goes behind the brand to reveal the culture that makes these powerhouse businesses the best in class.



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FMJ: EXPLAIN THE DIFFERENCE BETWEEN IWMS AND CAFM.

PLANON: A good IWMS solution will assist with every phase of your real estate portfolio, from signing the contract and maintaining the buildings to optimizing space usage and meeting corporate sustainability objectives. This type of software provides valuable management information to analyze the past, respond to current needs and forecast for the future. According to Gartner, integrated workplace management systems (IWMS) software includes five elements:

- Real estate and lease management
- Facility and space management
- Maintenance management
- Project management
- Environmental sustainability

Many software options focus on one of these elements. For example, computerized maintenance management systems focus almost exclusively on efficient maintenance management. Other software options have strong lease management functionality or energy management solutions. The real strength of an IWMS is that it is an integrated platform with a single database repository.

Compared to this, computer-aided facility management (CAFM) software incorporates space and move management, asset management, reactive and planned preventative maintenance and other client service requests. Having an overview of this data helps facility managers to increase the utilization of space and facilities, efficiently execute maintenance, standardize services and streamline processes.

IWMS differs from CAFM by offering additional real estate, project management and environmental sustainability functionality. While CAFM traditionally focuses on improving the space and asset management processes, IWMS aims to improve workplace performance to benefit the core business.

FMJ: WHAT IS THE BIGGEST CHALLENGE FACING FACILITY MANAGERS TODAY?

PLANON: We see facility managers facing a range of challenges, from ensuring compliance to aligning resources with frequently changing business needs. Another challenge that Planon sees FMs facing is justifying value, although IFMA members have typically moved beyond this challenge.

Many people come to Planon asking for a way to prove that what their department does has a real financial impact on the company. Everyone knows that maintenance is vital and space planning provides value, but facility managers are faced with trying to put a dollar value on these activities for CFOs.

What we see quite frequently is companies using multiple reporting methods, such as looking for data in Excel spreadsheets and Access databases, and other siloed software systems. They can't pull information in a reasonable time frame or can't get to it at all. A lot of the information is in people's heads, which presents a huge challenge for facility managers and is often the reason companies decide to implement an IWMS.

One of Planon's clients in the United States had the startling realization that they didn't even understand their own business processes. They had data but didn't know how much was good. Their first step in implementing their IWMS was to get the right data. From there, we were able to help them really understand what they had and work on optimizing processes to justify value.

FMJ: WHAT SETS PLANON'S SOFTWARE SOLUTIONS APART?

PLANON: We combine the best practices we have learned from 30 years of experience with each company's unique challenges to create solutions that optimize business processes for their buildings, people and workplaces. We are able to do this because of our knowledge, focus on innovation and accessibility.

In the last few years, Planon has heavily invested in the development of a new IWMS platform called Planon Universe. More than a new release, this highly innovative IWMS platform allows organizations to optimize their workplace performance, whether that's a single desk or a complex environment of connected buildings scattered around the globe. It is fully cloud based and offers organizations a role-based interaction within one technology.

By taking three decades of experience with more than 2,000 implementations, we are able to give our clients access to global best practices that can have them running on-time and in-budget within a few months. This results in the lowest implementation costs and shortest time-to-value.

Our focus on innovation, especially from Erik Jaspers who is also the co-chair of the knowledge management committee of the IFMA Foundation's Board of Trustees, means we are creating new ways to improve the workplace experience, such as by including sensors to measure real occupancy and improve space utilization. Last year, another one of Planon's clients decided to introduce Planon Apps for more than 2,000 employees to help them find each other, reserve rooms and report incidents within their quarter-mile-long building.

Finally, we don't just provide software solutions. Planon Universe includes consulting services, 24/7 support and e-learning that continues to help our clients get the most out of their IWMS. Planon Universe shows our commitment to a continual innovation process that enables clients to optimize their workplace performance now and in the future.

IFMA's Corporate Sustaining Partners (CSPs) are trusted vendors that support the operational excellence of facility management teams. By partnering with IFMA, this elite group demonstrates the highest commitment to creating a more comfortable and efficient built environment.



Document Solutions

COMPANY NAME ARC Document Solutions
EXPERTISE Technology software tools
CSP LEVEL Silver
CSP SINCE 2014 **WEBSITE** www.e-arc.com

FMJ: HOW CAN FACILITY MANAGERS BENEFIT FROM ARCHIVING AND INFORMATION MANAGEMENT SERVICES?

ARC: Despite the fact that these days almost all documents, drawings, specifications and business documents are created digitally, we still live in a hybrid world of paper and digital.

We all know the problems of paper records – cramped office space, monthly service costs, findability, retrieval times, inability to cross-reference, application of retention policies – but the task of converting them to digital can seem daunting.

In the past, digitizing archives was more difficult and more expensive than it is today. Advances in document-capture technologies and automation in data indexing, along with the economics of SaaS or cloud-based document management solutions, make it a much more viable option. And, as more operational processes go paper-free, the disconnect with a paper archive becomes a drag on business efficiency.

Even for day-to-day business, information access – the ability to search for, retrieve, share and comment on documents in seconds and to respond immediately to information requests – is the key to process improvement, which can deliver a return on investment and long-term benefits.

Creating a cloud-based SaaS content management repository allows the owner to act as custodian and enable access for tenants, facility managers and maintenance operators, and for the architects and contractors involved in new building projects, extensions and refurbishments. This will ensure that all parties are using the single version of the truth: the cloud-stored archival master.

For a smooth move from storing existing paper documents and drawings at an archival facility to the cloud, work with an experienced document solutions provider that can provide a turnkey, single-source solution. Such a vendor can audit and analyze your specific requirements and could well produce some surprisingly imaginative approaches to the problem. They will bring a level of experience and expertise from their previous engagements to your benefit.



ALLEGION™

COMPANY NAME Allegion PLC
EXPERTISE Security **CSP LEVEL** Silver
CSP SINCE 2012 **WEBSITE** www.allegion.com

FMJ: WHAT SHOULD FACILITY MANAGERS KEEP IN MIND WHEN DEVELOPING A SECURITY STRATEGY?

ALLEGION: Consolidation is a huge trend as organizations look for ways to cut costs and run more efficiently. Standardizing solutions from a single provider will ensure that facility managers have more control and during installation and maintenance activities and ensures smoother performance of selected hardware. In addition, standardization creates a more streamlined purchasing process and aids with budgeting and cost management. Organizations should look beyond up-front costs of the solutions they choose for quantifiable long-term value such as maintenance simplicity, modularity and upgradability to prepare for changing needs.

FMJ: HOW ARE ALLEGION'S SECURITY SOLUTIONS TAILORED TO MEET THE SPECIFIC NEEDS OF VARYING INDUSTRY SECTORS?

ALLEGION: We offer security solutions that meet a variety of needs based on the varying spaces within several industries, such as hospital and higher education facilities.

Door operation is one source of excess noise in health care environments, so many hospitals are installing quiet latches and sound-reducing exit devices, such as:

- **Heavy duty exit devices with mechanical damper:** Von Duprin 98/99 and 33A/35A exit devices are built for heavy use and utilize an innovative mechanical damper to decelerate mechanical push and return strokes to reduce noise.
- **Motor-driven electric latch retraction:** The quiet electric latch option on Von Duprin 98/99, 94/95 and 33A/35A exit devices is motor driven and therefore preferable to noisy solenoid devices.
- **Concealed vertical cables** Traditional vertical latching devices use rigid aluminum or steel rods that can rattle and be noisy. Von Duprin designed a revolutionary concealed cable system that does not lift up or down and rattle like traditional rods and operates quietly within the door.

Many institutions of higher education utilize a one-card system on campus for access to a number of functions. Allegion offers open architecture access control solutions such as the AD and NDE Series wirelessly controlled electronic locks that work seamlessly with many systems.



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Log in to your IFMA account to register.

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- Energy & sustainability
- Disaster preparation & recovery
- Work safety
- Tax policy
- Education & training
- FM standardization

Learn first-hand how Congress creates and implements the laws that affect the facilities you manage. Learn about pending legislation that may directly affect your career.

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IFMA's Advocacy Day is an exhilarating experience, essential to FM's future.

Let's ensure that policy decisions move the FM profession in the right direction.



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EXTERNAL RELATIONS COLUMN

JEFFREY JOHNSON
Director, Government Affairs



IFMA GOVERNMENT AFFAIRS: A MESSAGE SO BASIC ANY ELECTED OFFICIAL CAN UNDERSTAND IT

NOWHERE IS GETTING BACK TO BASICS more important than in communicating the value of FM to elected officials. With so many groups clamoring for their attention, limited resources and hundreds of thousands of constituents to represent, having a succinct message that covers the basics of FM is of the utmost importance.

As IFMA continues to expand our government affairs programs all over the world our message remains short and sweet: "I'm a facility manager, I run a building in the area you represent and my efforts stand at the forefront of providing safe, sustainable workplaces to support organizations' core business functions."

As government officials become increasingly involved in the business of FM through the establishment of mandates for building performance and the creation of programs that affect the built environment, they need to hear this message more often and from as many people as possible. This reality underscores the need to connect IFMA members with decision makers who are authoring legislation or drafting directives that affect the facilities in which we live and work.

International Government Affairs Committee

In order to ensure the development and deployment of this FM-centric message, IFMA has reconstituted our international Government Affairs Committee under the leadership of Bill O'Neill, CFM to allow for more effective member engagement. The committee now has subcommittees focused on U.S. federal, state and local policy, the European Union and emerging markets. The new structure will serve as umbrella to share best practices and advance a common message while also providing a dedicated local focus more responsive to needs of individual FM members affected by government directives and mandates.

Equally important to the development of the message is its deployment. IFMA continues to rely on our team of FM

advocates working in concert with our government affairs staff to advance these efforts by utilizing their expertise to put public policy discussions in broader context.

Upcoming events: Your chance to make an impact

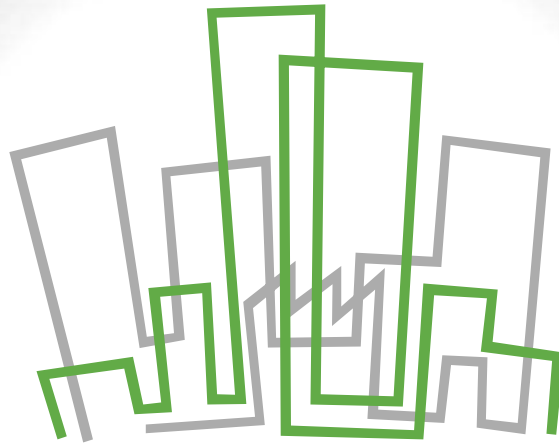
For those wishing to put their expertise to good work there are a growing number of opportunities for engagement, such as IFMA's Advocacy Day, the annual Government Affairs Committee meeting at the European Facilities Management Conference (EFMC), monthly Government Affairs Committee calls and an increasing number of chapter events focused on public policy.

This year's U.S. IFMA Advocacy Day and Public Policy Forum will take place Sept. 9-10 in Washington, D.C. For more information on how you can lend your voice and experience to this great free event, please visit <http://bit.ly/1t5e0py>.

Should you be interested in learning more about IFMA's government affairs program in Europe and the recently established EU FM Coalition, please join our session at EFMC in Glasgow, Scotland on Monday, June 1 from 1-4 p.m.

Finally, for those interested in establishing government affairs programs in their chapter and connecting with local elected officials, please consider joining the state and local government affairs committee.

Through all of above listed efforts we continue to work to develop a core message that communicates basics of FM, its value and its substantial impacts. IFMA needs members to help carry that message to decision makers and stakeholders alike. If you have an interest in helping translate your knowledge and passion for FM into sound public policy, please contact me at jjohnson@ifma.org to learn how you can get involved. **FMJ**



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THE OPPORTUNITIES OF REALITY

TRANSITIONING FROM FM THEORY TO PRACTICE

BY BILL CONLEY

Preaching the benefits of sustainability is a noble cause. The ability to look at issues, research options and logically recommend actions and processes to improve operations and save money can be edifying and fulfilling.

However, it is valuable for FMs to practice what they preach; to get back in the trenches and experience real-life situations and test theories. Every facility is different, replete with its own idiosyncrasies and needs. So, although the study of and resources devoted to sustainability have relevant baselines and benchmarks, they cannot provide cookie-cutter solutions to the real issues faced in the built environment.

Furthermore, going from being a consultant who serves in an advisory capacity to being a full-time manager responsible for a facility is a transition in itself. Even if you have assumed a role as practitioner in the past and retained most lessons learned, the perspective shifts and what sounds easy on paper tends to be more complex in practical application. So, let's take a peek at the opportunities that arise during such a transition.

One of the most espoused tenets of sustainability and operational efficiency comes in the realm of energy savings. Sounds easy enough...just cut down on energy use. Implementing and managing that process, however, is a bit more complex. The following case study demonstrates a good place to start when you are tasked to apply actions to thought.

THERE IS A PROCESS OF EVOLUTION WHEN DEALING WITH SUSTAINABILITY.

Mechanical

The building in this scenario is a 280,000-square-foot complex on 25 acres of turf that is comprised of three buildings connected by a common hallway. The facility is laid out in a U shape, with the employee parking lot nestled between buildings. The facility is multi-functional, with offices, testing labs and a warehouse.

Built more than 35 years ago, the tilt-up showed signs of its age; not in structure, but through the equipment still serving the facility. The chillers were original to the building, as were some of the air-handlers. T-12 lamps were still being used in secluded corners of the building; it didn't seem as if a holistic view of building systems had been undertaken for some time. Assisted by initiatives provided through the local utility company, the facility manager performed a thorough evaluation and analysis of the building.

In terms of scope of work, the first area that deserved attention was the mechanical system. Interestingly enough, thermal comfort was not a major issue in the facility — the project was mostly for the sake of energy efficiency. Thus, the FM focused on controls and maintenance optimization and performed a comprehensive audit involving an inventory of all equipment.

The building was replete with a variety of vintage and newer air handlers, package units and exhaust systems. The units served as a history lesson in the evolution of mechanical systems spanning three decades. There were 18 air conditioning units, three perimeter heating units, nine air handling units (AHUs), two in-row cooling units, four multi-zone (MZ) units and 30 exhaust fan units, along with a supporting cast of chillers, cooling towers and pumps. The FM determined fairly early in the process that the only consistency in the equipment being used and how it treated the indoor environment was that there was no consistency.

The FM recommended installing variable frequency drives (VFDs) on selected equipment,

such as the supply and return fans on the multi-zone units. In the central plant, VFDs could be installed on existing water-cooled centrifugal chillers as well as the chilled water pumps (CHW) and the condenser water (CW) pumps.

All of the equipment was running continually at high capacity, regardless of demand. Installing VFDs is one of the best ways of minimizing energy consumption. Savings supplied by VFDs vary from 35 to 50 percent over conventional constant-speed applications.

The FM also suggested replacing the three-way CHW valves with two-way CHW valves at the AHU and MZ unit cooling coils to reduce pressure on the pumps, retrocommissioning the MZ units' economizer operations and installing catalyst controllers on specific AHUs.

The data center was being cooled by five different units. The FM's response to this discovery was to plan the elimination of one air handler and CHW cooling coil and further optimize the operation of the cooling equipment serving this center. This provided the ancillary benefit of improved efficiency for central plant equipment operations.

There is a building automation system (BAS) in place at the facility, but it only handles one of the three buildings. It is limited, at this point in time, to controlling the variable-air-volume boxes which vary the airflow in different zones at a constant temperature. The FM will take further steps to include the other two buildings in the BAS and expand the system for more robust capabilities. This will entail upgrading the MZ units' pneumatic controls to direct digital controls, eliminating air compressors and pneumatics, integrating existing electric reheat and resetting the supply air temperature throughout the complex.

Also, the building is oriented so that many of the windows face south leading to heat gain. Applying high-efficiency film to the windows will also help with cooling the interior and decreasing demand.

Lighting

Another major source of energy consumption, of course, is lighting. This facility offered a multitude of opportunities to address lighting sources and distribution.

For instance, in 2014, the facility team replaced 1,380 T-8 lamps, 61 two-lamp ballasts and 69 four-lamp ballasts. The cost of materials alone was more than US\$4,700.00. Based on the time it actually takes to recognize a lighting failure, investigate the need, enlist an employee to do the job, gather a ladder and materials, possibly disrupt a customer and perform the actual job, the estimated cost per replacement is about US\$75. Using that formula, the labor cost to change out these lamps and ballasts would be US\$11,325. Combined with the cost of lamps and ballasts, this equals US\$16,025 that year to fix indoor lighting, an amount does not take into consideration the cost of disposal of this hazardous material. There needs to be a lighting strategy to minimize these types of costs.

One obvious step would be to upgrade interior lighting to LED tubes to replace T-8 lamps. The FM decided to wait until the local utility company provides rebates or incentives on LED T-8 replacement tubes but plans to replace fluorescents with LEDs as soon as is economically feasible. For now, the facility will investigate replacing 32-watt lamps with 28- or 25-watt T-8s, ensuring that all lamps are in the 800 series and looking at ballast choices.

Currently, instant-start ballasts are the only kind used in the facility. However, with the imminent move toward daylight harvesting and occupancy sensors, rapid-start or programmed smart ballasts may be needed to handle multiple on-off cycles and dimming capabilities.

The implementation of daylight harvesting features in facilities is becoming more prevalent in building standards. The southern exposures of much of the glazing in this facility is perfect for gaining energy savings through photosensor



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technology. Occupancy sensors in offices make sense — according to the U.S. Environmental Protection Agency, a typical professional only spends about 35 percent of the work day in his or her office; most probably forget to turn out the lights by themselves when they leave.

One exercise for which costs and savings have already been calculated is for an upgrade of exterior lighting to LED lamps. The parking lot and exterior of the building utilize a variety of different lamps to illuminate the property. More than 50 wall-pack lamps fringe the facility, ranging from 175-watt high-intensity discharge (HID) to 1000-watt HID. Shoebox fixtures for the parking lot house another 75 HID lamps, both 175-watt and 400-watt. Replacement of these lamps with comparable LED lights would cost around US\$79,000 with an estimated payback of 29 months.

Based on a utility rate of US\$.15 per kilowatt hour, estimated savings over a five-year period would be about US\$167,000. Although there are no utility rebates available for exterior lighting, this would still prove to be a sound investment.

Water

One aspect of sustainability that tends to be overlooked but is vitally important is water usage and the need for conservation.

One of the challenges in researching water use at this facility was the inability to install separate meters in order to measure domestic use versus irrigation. The city was not outfitted for reclaimed water use, so it had been deemed that the use of potable water throughout facilities precluded separation of usage. The facility department has since taken pains to audit each sprinkler station

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INSTALLING VFDS IS ONE OF THE BEST WAYS OF MINIMIZING ENERGY CONSUMPTION.

to minimize the amount of water used for irrigation and check for over-spray, redundancy and water runoff.

There is also a plan to eliminate much of the turf and replace it with other materials that either need minimal irrigation or none at all. The regional water district has offered an incentive of US\$2 per square foot for turf removal and a replacement plan. A landscape architect has developed a proposal that will utilize decomposed granite platforms and walking paths to be laid out throughout the grounds and adjacent to the building. Drought-tolerant ground cover such as Carissa green carpet and Myoporum will be installed to replace turf. These efforts are designed to maintain the aesthetic integrity of the property while minimizing, as much as possible, the ill-advised use of potable water. In a world that faces a projected 40 percent water shortfall in the next 15 years, every drop counts.

Reality check

When approaching a project of this scope, people inevitably tend to be idealistic based on the fact that the logic upon which sustainability is based makes sense. They feel this optimism is justified, based on case studies and resources available that prove success in operational efficiency and resource management.

Reality, however, is the trump card. The willingness of senior management to spend money on long-term success is almost always the determining factor in achieving sustainability objectives. Due to the massive amount of information managers deal with on a daily basis, it can be difficult for them to get through today, never mind looking at tomorrow.

In order to convince decision makers that short-term views are short-sighted and short-lived, FM

teams must be able to alter their mindset and perspective. This requires solid arguments, quantification of savings and benefits and ability to speak the language of the C-suite. Communication and salesmanship may not come naturally to some FMs but are important to cultivate.

Explaining the opportunities of cost savings and operational efficiency are powerful arguments to support the message and bring sustainable operations closer to reality. Only committed professionals can make this happen.

There is a process of evolution when dealing with sustainability: from knowing about it, to talking about it, to learning about it; from planning measures to implementing them; from managing activities to measuring and monitoring them; and finally to realizing the benefits of efficiency and conservation. It takes time, patience, discipline, the right circumstances and corporate buy-in. In any facility, opportunities abound; only time will tell how this particular story ends. Think how much better it will read when the theories are replaced with cash in hand. **FMJ**



Bill Conley, IFMA Fellow, CFM, SFP, FMP, LEED AP is facility manager at Yamaha Motor Corp. in Cypress, California, USA. Prior to that, he served as owner and chief sustainability officer of CFM2, a facility management and sustainability consulting company. Conley has more than 35 years of experience in the facility management profession and has been a proponent of sustainable operations for more than 20 years.

Conley has served on the IFMA board of directors, is a recipient of IFMA's distinguished member of the year award and has twice received the association's distinguished author award.

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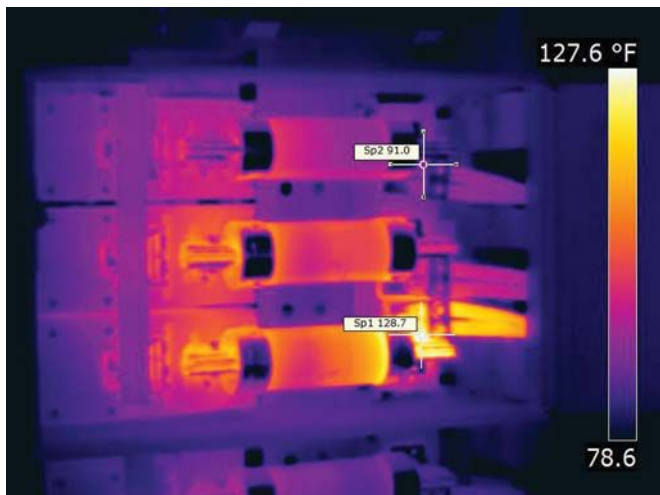
A SERVICE TOOL, NOT A CRUTCH

BY GARY ORLOVE

“They never saw it coming” is a sad epitaph for any company responsible for reacting quickly to business-threatening situations.

As business cycles quicken, it's becoming more important to predict such events and take appropriate remedial action. Unfortunately, many problems in the making can't be diagnosed by sight alone. They require a combination of insight and the right tools to make up for the blindness lurking beyond our senses.

In order to mitigate risk, FMs can make use of thermal imaging to examine the interior of inaccessible spaces. However, thermographic technology has advanced to such an extent that many professionals without proper training or certification may use it as a crutch in how well they walk the service walk.



Thermographic image showing a failing connection on a fuse



Thermographic image showing a poor connection on a disconnect

FMS CAN MAKE USE OF THERMAL IMAGING TO EXAMINE THE INTERIOR OF INACCESSIBLE SPACES.

Today's thermographic imaging equipment has come a long way from when it was used primarily for checking power lines. Those who think thermal imaging is only for finding electrical hot spots are blocking visibility of the health of entire facility infrastructures.

For example:

- If a plant has steam processes and no one is reading what is happening at the traps, it could be losing energy.
- Thermal imaging can spot water leaks and air leaks when assessing the integrity of a roof.
- Under the roof, thermal imagers can make evident the status of bearings, conveyors, drives and motors.
- In a steel mill, thermal imagers can be used to examine the vessels carrying molten steel, identifying hot spots indicating where the lining is breaking down, which can save personnel from potential injury and the facility from having to replace such vessels before absolutely necessary.
- At a printing plant, ink was not adhering properly to the paper. The company knew this was a cooling problem and believed the remedy would be to buy another 10,000- to 20,000-ton chiller. Before doing that, however, the company called in a consultant

with an infrared scanner who discovered that the cooling lines were plumbed in backward. This discovery negated the need for that expensive purchase.

For facility managers, the ability to leverage thermography can broaden the capabilities of regular inspections. However, the return on investment for this equipment requires operators who know how to read what it's telling them.

A layered approach

Even among professionals who have been using cameras for a while, poor ongoing education on the proper use of this equipment is problematic. That's why large companies like Ford and General Motors employ their own expert thermographers who travel from plant to plant on a regular basis, inspecting electrical distribution equipment, spot welding lines and conveyors carrying assemblies from station to station.

Smaller facilities may rely on their own maintenance people to do the same, equipping them with lower-cost cameras to do quick troubleshooting, then relying on expert thermographers from the outside to verify any trouble spots found or to perform an annual clean-sweep inspection of the entire facility. This is called a layered approach to thermography.

Technology's value is only as high as the level of training invested in its users. Taking advantage of

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that knowledge will help facility managers avoid making big mistakes or having to fix problems that don't exist.

What can go wrong?

For example, take the case of the rookie thermographer who reported a hot area on a US\$5,000 circuit breaker. Upon discovery, the plant disconnected that section of the electrical system and replaced the circuit breaker. After re-energizing the system then taking a second look at the "faulty" circuit breaker, technicians couldn't find anything wrong with it.

THE ABILITY TO LEVERAGE THERMOGRAPHY CAN BROADEN THE CAPABILITIES OF REGULAR INSPECTIONS.

Meanwhile, the same thermographer found a hot spot in the new circuit breaker. What he was actually reading was his own thermal reflection — his body heat — in the screws.

Proper training would have taught him about reflectivity and emissivity, and how to differentiate

true hot spot problems from heat reflections. He would have learned to move his camera around to see if the hot spot changed or traveled along a piece of reflective material or whether it remained static.

Other problems arise when equipment is misapplied — for example, trying to analyze or compare areas that are too small to measure with a particular infrared camera.

All optical systems have limitations. Often, an operator tries shooting at a target 30 or 40 feet away but the camera cannot resolve the object properly. That operator will miss problems just because he has no idea there is an optical resolution limit depending on his equipment's lens, detector or the design of his camera. A telephoto lens or a higher resolution camera may be needed to analyze that particular object properly.

While this is a problem of education, it's also a problem with those doing the educating — the vendors selling the systems. They should be advising customers on choosing the appropriate technology for their environment.

This failure to educate is happening increasingly as equipment is made available online. Many buyers look at an infrared camera with the same naked eye that misdiagnoses problems in their work environment — and the result is equally problematic. That's why many infrared cameras used today are unsuited to their application.

Get the best of infrared technology

Training notwithstanding, the raw technology of thermal imaging is improving with each generation of product, offering educated users a broad selection of thermographic solutions. What is today state-of-the-art resolution will soon double and quadruple for unprecedented image quality, enabling users to see smaller targets or to get more detail on a target.

With today's capabilities, technicians can:

- store images along with additional data such as the electrical load on the system at that point in time;
- identify a particularly problematic piece of equipment;
- document recommendations for repair and follow up (those notes can take the form of text or voice comments stored on the image);
- download an image onto a mobile phone or tablet where the user can input data and
- archive information for later data trending over time and situational analysis.

Also, being able to go from the general identification of a hotspot to specifying what part of a component is heating up can help facility managers to determine which parts need to be ordered for a repair. This minimizes the chances of selecting the wrong replacement components, then having to re-order or even shut down.

For cases in which long distances need to be covered, the newest equipment can do the work that previously required heavy telephoto lenses. For example, thermographers looking at overhead bus duct runs as far as 30 to 40 feet away won't have to carry around a magnifying telephoto lens to see small defects.

Instead of looking for large temperature differentials, some of the newest equipment enables users to see the smallest ones. A difference of 5 to 7 degrees Fahrenheit can foretell a critical fault. While the cost of a telephoto lens can range between US\$1,325 and US\$11,500, having such capability built into the next generation of cameras will ultimately pay for them.

Build occupant trust

The following items can help elevate facility managers' use of thermography to solve a facility's problems:

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TECHNOLOGY'S VALUE IS ONLY AS HIGH AS THE LEVEL OF TRAINING INVESTED IN ITS USERS.

- Develop a regimented inspection plan so that all critical system connections are checked on a regular basis. For such a plan to be effective, the infrared equipment must be sized to the connections being analyzed, the distances covered and the temperature ranges measured.
- Develop a list of components to be surveyed and obtain the right training or expert technician in order to spot trouble early.
- Get certified or hired a certified thermographer at one of three levels:
 - *Level I* is an entry-level thermographer who can do basic analysis and troubleshooting and save images.
 - *Level II* thermographers have more diagnostic capabilities and can oversee surveys and put together full reports.
 - *Level III* thermographers can write procedures and specifications and determine temperature limits for different pieces of equipment. These people can oversee infrared programs at either a

plant or a company-wide level, providing advanced image analysis and consulting. Level III thermographers can engineer and design solutions for facilities.

Wherever your needs fit in this spectrum, an investment in thermography education will not only pay back in better use of infrared technology, but in safeguarding the facility's equipment and systems. **FMJ**

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Orlove holds degrees in energy engineering and zoology from the University of Wisconsin and has been using infrared thermography since 1975. He can be reached at gary.orlove@infraredtraining.com.



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WILD LIFE NUISANCE

DESTRUCTION AND CONTROL IN FACILITIES

BY BUCK HEMPEL

The idea of “sick” buildings and exterior diagnosis is a common theme in the world of facility management. However, health and safety threats from pests and wildlife are just as important.

Many don't realize the hidden damage that pests can cause inside facilities, such as fires started due to chewed electrical wires or air that is contaminated by the presence of animals in and around duct work. In addition, many people have phobias of small animals and rodents, and seeing these pests can be an unpleasant experience for both employees and customers.

Integrated pest management programs typically address wildlife and rodent threats, but the act of reducing the ability for creatures to enter a building via cracks and crevices is called exclusion. Exclusion fully seals a structure to eliminate as many entry points for animals as possible. Smaller nuisance animals require a greater level of exclusion detail.

FMs who add exclusion to their integrated pest management programs will see longer-lasting results. Understanding common entry points and the behavior of certain pests can help facility managers protect their businesses and the people inside them.



Be aware of the vulnerabilities around a facility

When looking for potential entry points for pests, start at the building's foundation and work your way up.

Door sweeps and roller door seals

This is the easiest place to begin your exclusion inspection. Check the integrity and fit of the installed door sweeps. If they are worn or not flush with the opening they will need to be replaced. Rodent-proof door sweeps are available as an upgrade to typical rubber or brush-style sweeps.

Gaps around conduit pipes

There are often gaps around conduit pipes that enter the building from the exterior. For example, sometimes contractors will cut a four-inch-diameter hole to install a three-inch-diameter pipe. This leaves plenty of room for mice and rats to get inside the wall void.

Dock levers

Dock lever areas are very difficult to seal due to their design and need to move. There are several products, such as exterior vinyl skirts or interior rodent-proof seals, that can be installed to help stop animals from entering dock areas. However, while vinyl works well for stopping birds from landing and nesting, it will not stop a determined rodent.

Gaps in mortar joints

Facilities constructed of brick will often have gaps, or weep-holes, purposely left between mortar joints. While these are necessary for proper drainage, they can provide access points for insects, mice, snakes and other pests. FM's or their pest management teams can install professionally made weep-hole cover inserts to address this problem. It is important that the material that goes in these gap allows water to pass through for drainage.

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EXCLUSION FULLY SEALS A STRUCTURE TO ELIMINATE AS MANY ENTRY POINTS FOR ANIMALS AS POSSIBLE.

Gaps in trim boards

If there are trim boards on the siding of the building, stand as close as possible to the wall and look up or down. Gaps that appear small from a distance will often show their true size when you stand flush to a wall and inspect them.

Gaps tend to be more prevalent where different materials meet. For example, brick siding and wood trim never lie flush against one another and are rarely caulked by the original builders. Most of the time these gaps are less than half an inch wide and can be sealed simply by caulking.

Gaps in siding corners

If your facility has metal or vinyl siding, check the underside of the siding corners. These spaces often have gaps that everything from mice and rats to squirrels can fit inside. Siding corner gaps can travel from the foundation level all the way to the soffits which lead into the attic or wall voids. Pest management teams can use professionally made siding corner caps or can fashion caps out of metal trim coil and secure them with screws or caulk.

Gaps in corrugated metal tops or bottoms

If your facility is sided with corrugated metal there will often be natural gaps left at the top where the siding meets the soffit/roof and at the bottom where it meets the J-channel. The gaps at the bottom are normally only big enough for mice and insects, but the gaps at the top can sometimes be large due to the humps in the corrugated design. Small gaps can simply be caulked, but any larger gaps should be backed with metal mesh or hardware cloth to which the caulk can adhere.

Missing or torn gable or vent screens

Animals of all varieties use gables and other louvered vents to enter structures. They often find vents when temperatures are cool and warm air is flowing out. Check the interior screens if your facility has any type of louvered vent. They are normally not screened with a material that can resist chewing or tearing. If that is the case, install quarter-inch hardware cloth instead.

Activity on and inside air conditioning units

Check in and around air conditioning units, whether they are on the ground or mounted on a flat roof. Rodents and

birds have been known to build nests around and enter the air vents themselves. The resulting droppings, dander and hair or feathers can cause air quality issues.

Roof fan vent screens

Roof fans help extract hot air from attics or ceiling voids and are often topped with mushroom-shaped hoods. The fans typically come with a metal screen installed, but the factory screens are normally not strong enough to stop a determined animal. These are very popular areas for raccoons and squirrels to gain access to buildings. Even if a fan is installed inside the vent, it is normally triggered by a thermostat and is not on all the time, leaving an opportunity for nuisance wildlife to enter.

Exhaust pipe tops

There are normally pipes on top of the roof that exhaust sewage gases. Rats have occasionally been known to climb down the pipes, but generally animals avoid these because they are slippery and only lead to sewage/drainage areas. If your pipes have a rubber “boot” gasket around the bottom be sure to check them. These can be easily chewed through by rodents and often deteriorate due to sun and precipitation exposure.

Flat roof metal rims

The rim around a flat roof is normally made of metal that is bent over the end of brick or cinder block walls. These are typically not caulked and just sit on the exterior walls. This is the most common entry point for bats to structures that have flat roofs. Bats will land on the walls and climb underneath this rim, where they establish a colony in the wall void or the ceiling void of a drop roof. The gap between the wall and metal rim can simply be caulked or backed with metal mesh first and then caulked.

Remember these tips when doing your own inspection and exclusion work:

- If the gap is bigger than half an inch, layer the sealing work with a metal backer and then caulk over it to hold the metal in place.
- Try to avoid normal steel wool as a gap filler because it rusts quickly and becomes brittle. Use stainless or



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UNDERSTANDING COMMON ENTRY POINTS AND THE BEHAVIOR OF CERTAIN PESTS CAN HELP FMS PROTECT THEIR BUSINESSES AND THE PEOPLE INSIDE THEM.

copper mesh instead for a longer-lasting filler that rodents will not chew.

- Only use expanding foam as a last option to seal a hole; but if you must, put metal mesh in place first.
- It is better to do exclusion work on the entire building if possible in order to avoid shifting the pest pressure from one side of the building to another.

Consider the behavior of nuisance wildlife

Like humans, animals seek out places to fulfill the basic needs of food, water and shelter. Even if a facility only provides one of three it can be enough to lure an animal. Food-producing facilities are not the only businesses that have rodent and animal problems. For example, a sterile plastics-producing facility may not supply a food source, but it may still be vulnerable if it is near a corn field as it could provide an easy shelter and a great place to store food.

Any harboring animal that is unwanted or is causing damage is considered nuisance wildlife. Each facility

may have certain regional pests but the following are the most common nuisance animals across North America.

Rats

Man has been battling rats for thousands of years. They will dig, climb, swim, jump and chew their way through obstacles. While snap traps, glue traps and chemical baiting will control existing infestations, exclusion is an effective means of preventing rats from entering in the first place. When most companies seal a building for rats, they typically focus on areas down low near the foundation. While these areas do tend to offer access points for Norway rats, roof rats prefer to climb up buildings for entry.

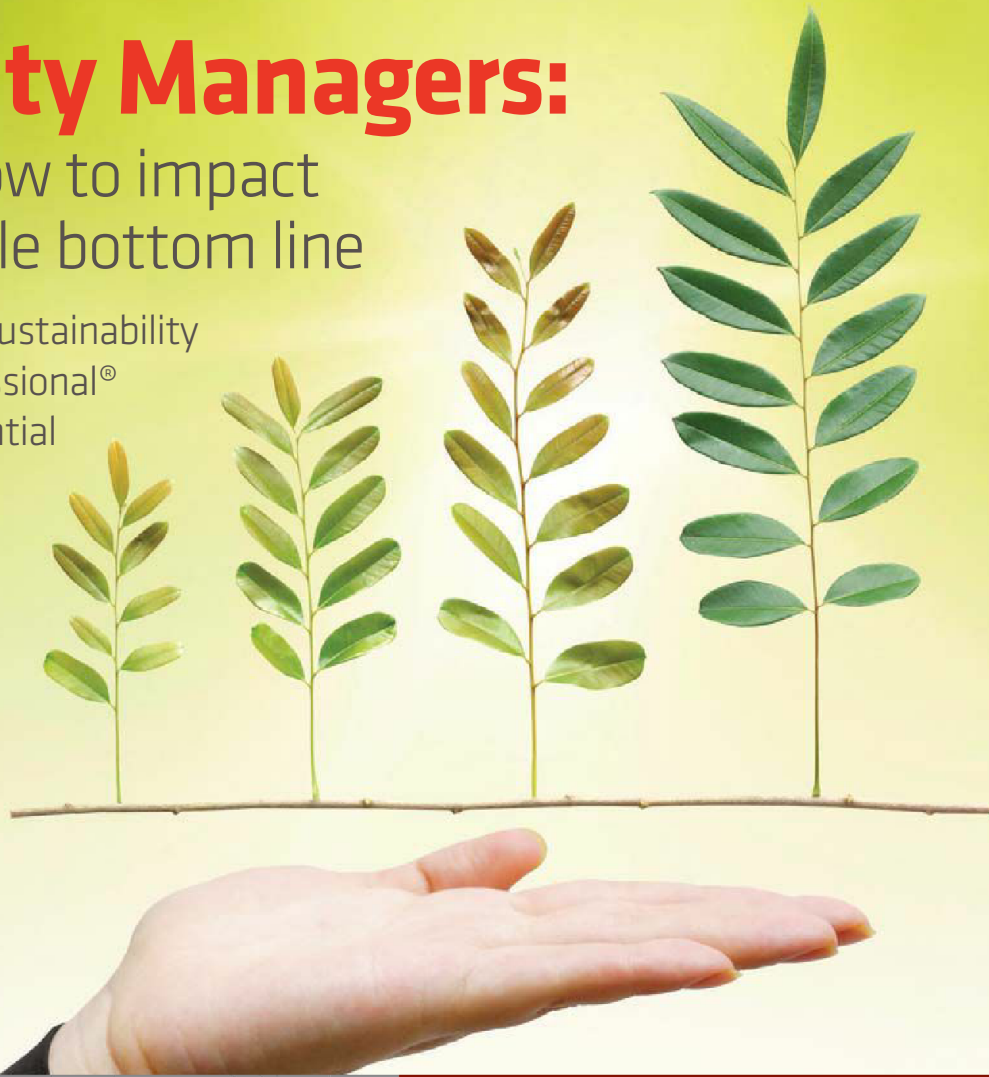
Bats

Bats provide excellent exterior insect control, pollinate plants and are often left undisturbed. However, if left for months, bats can colonize a structure with numbers in the hundreds or thousands. The resulting bat feces and urine can cause ceilings to collapse and leave a strong unpleasant smell. Further, bat feces in concentrated amounts can also harbor the fungus that causes

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histoplasmosis. Most nuisance bats are not endangered, but all bats are protected. This leaves the use of one-way doors over their entry point and detailed exclusion work as the only viable way of removing them.

Squirrels

Squirrels are often categorized as wildlife but are still in the rodent family. While not as prolific as rats and mice, they have developed a reputation for chewing electrical wires and are responsible for around six percent of all house fires. Squirrels generally will live and travel in higher areas but have been known to take advantage of lower entry points when available. The only options for removal are live cage traps or one-way doors mounted over their entrance.

Raccoons

Raccoons are opportunistic eaters and are very adaptable. Due to their size and strength, even one or two inside a structure can be very destructive. Raccoons can also carry rabies and their feces can carry roundworms. Cage traps and one-way doors should be used over entry points as long as the rest of the exclusion has been done correctly. Be aware of local raccoon birth seasons in the spring as mother raccoons will tear roofing or siding to retrieve young if they are blocked out.

Skunks

Skunks are part of the weasel family. They tend to stay down low and enjoy burrowing under porches, decks, storage buildings, etc. Skunks have been found in attics and roofs, but they almost always stay grounded in burrows. One technique for stopping skunks from burrowing is to install exclusion fences in the ground.

Birds

Birds of all varieties can be a nuisance by leaving droppings, cawing and begging for food, but pigeons, starlings and English sparrows are the most common nuisance and invasive species. Trapping and approved chemicals are allowed as long as they are only used for one these three invasive species. Deterrents for other bird

types are limited to flashers, misters, ultraviolet paint and shock wire.

Know what to look for

So how do you know if one of the entry points mentioned above is being used by one of these animals? Here are some signs to look for near or on each opening:

- Strands of hair, fur or feathers caught on the edges
- Chew marks
- Droppings
- Nuts/seeds or other food caches
- Grease/rub marks from animal fur
- Bits of insulation from the wall or attic

Place paper in, or tape over, a hole and check it the next day. If the paper or tape is disturbed you will know that the hole is actively being used by animals.

While trapping and/or using legal chemical control methods may work in the short term, facility exclusion is the longer-term answer to controlling unwanted pests and wildlife inside of a structure. Properly done, this work can help prevent contamination of products, employees and clients and the destruction of products and property. **FMJ**



Buck J. Hempel is the manager of Wildlife and Exclusion Services for Terminix International and is a certified wildlife control operator. He has nearly 20 years of trapping experience and 10 years in urban nuisance wildlife control.

Hempel holds a Bachelor of Science degree from the University of Maryland and certifications from the National Wildlife Damage Management Association (U.S.) and Michigan Animal Damage Control Association in general pest management and vertebrate management. He is also a member of the Canadian Pest Management Association, the Michigan Animal Damage Control Association and the National Wildlife Control Operators Association (U.S.).

For more information about exclusion around facilities large and small, call +1-855-466-2578 or visit terminix.com/commercial.



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The recessed luminaire is ideal not only for prominent areas and traffic zones, but also for workplace lighting. The range presents an efficient alternative to the homogeneous light of conventional linear fluorescent and louvred luminaires. In addition to a compact, flat design, the anti-glare cone ensures an unobtrusive appearance. With a recess depth of just 110 millimeters and a folding spring fixture the downlight is easy to install in areas with limited space.



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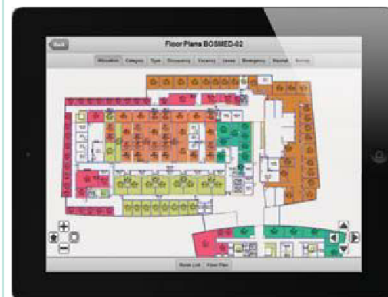
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TOOLS FOR MANAGING THE DYNAMIC WORKPLACE

Rapidly changing workplaces are requiring facilities teams to plan, optimize and manage their portfolios in new ways.

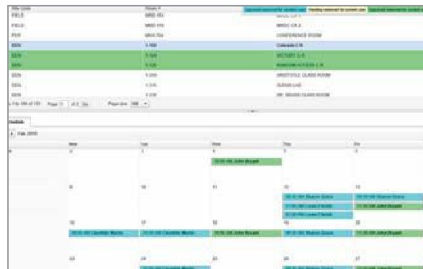
Modern organizations are adopting new approaches to workplace planning and operations that have been enabled by mobile technologies and a highly dynamic workforce. These new approaches include flexible workspace, support for cross functional teams, ad-hoc and collaborative areas, and flexible workspaces that break away from the practice of assigning one workstation per employee.



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Agile Workplace Management



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CELEBRATING THE LIFE OF Kit Tuveson



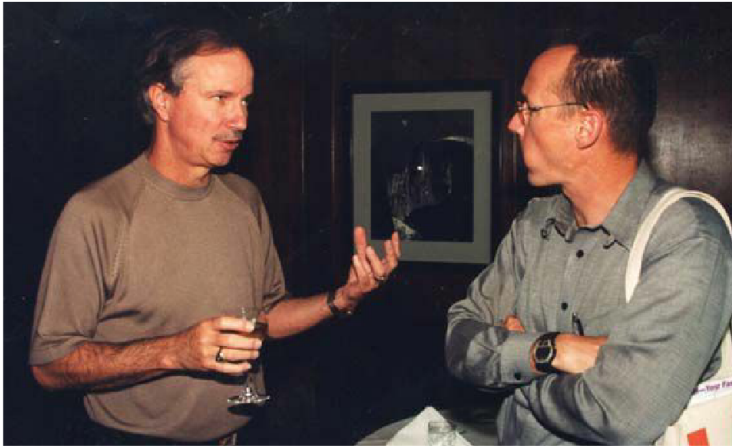
Over the years, several members have referred to IFMA as a family. Not only was Kit Tuveson one of those members, he was a reason so many of them became part of IFMA.

Christopher “Kit” Tuveson was born on April 26, 1944 in the Inland Empire area of California and grew up in Phoenix, Arizona, USA. While pursuing both bachelor’s and master’s degrees in engineering at Stanford University in the 1960s, Kit joined Hewlett Packard (HP), where he spent nearly 40 years in FM and related roles. Among his many successes with HP, he served as project manager for the development of a 500,000-square-foot manufacturing facility for HP and initialized the company’s first corporate energy management strategy.

In 1987, shortly before his 43rd birthday, Kit married Afton Auld, whom he had met on a blind date. The couple had two daughters, Jennifer McElroy and Carrie Wozadlo, and subsequently four grandchildren.

Throughout his career, Kit shared his knowledge with others through countless classes, workshops and training presentations for groups including IFMA, the U.S. Green Building Council, the American Institute of Architects, Building Owners and Managers Institute International and others. His technical expertise combined with his genuine enthusiasm led him to become a mentor for and give guidance to hundreds of individuals.

Kit did not let retirement slow him down. In 2002, he established FM consultancy Tuveson & Associates,



Have a favorite Kit story to share? Feel free to post quotes, memories and anecdotes on IFMA's Online Community.

In lieu of flowers or gifts, donations can be made to the IFMA Foundation's Kit Tuveson Memorial Fund.

LLC to help clients with strategic planning, change management and workplace optimization. He also continued to serve as an active community volunteer.

On Monday, April 13, 2015, Kit passed away peacefully at his home in El Dorado Hills, California, following a battle with cancer.

Involvement with IFMA

Kit was an active part of IFMA from the early days of the association. He joined in 1983, served as chair of the board of directors in 1998 and was inducted into the prestigious Fellows group in 2002. He earned both the Sustainability Facility Professional® and Certified Facility Manager® designations and led the Facility Management Consultants Council (FMCC) as president from 2008-2010.

Kit implemented IFMA's first formal strategic planning process and served as a subject matter expert and instructor for all three of IFMA's credential programs, as well as the FM Learning System. He contributed to FMJ and on numerous committees and was honored with the Chairman's Citation in 2014. In addition, FMCC named its annual scholarship for him that year.

Words from friends

Teena Shouse, IFMA Fellow, CFM and former IFMA board member, shared a favorite saying and attribute of Kit: "If HP only knew what HP knew..." What he really meant was if each of us could really realize what we have inside of us, what amazing things we could accomplish. I accomplished more in my professional and private life due in part to my friendship with Kit than I could ever have imagined."

"He was one of my very valued FM professional coaches but also a great life coach who cheered me on between my radiation treatments because he knew them both so well. The gift he gave was his time, his talent and his genuine concern for me as a person. He was the only person I ever knew who called me 'Sweet Pea' — it always made me feel special and I will miss hearing it."

IFMA Chair Jim Whittaker added, "Kit was a mentor, teacher, friend and inspiration to more facility professionals than I can count. He was a great strategic thinker who was as comfortable asking 'why' as he was asking 'why not?' Everything he did in life had a purpose and created value."

"Kit truly epitomized the pinnacle of FM by getting back to basics and focusing on desired outcomes. His spirit and inspiration will live on in all of us." **FMJ**

FMJ EXTRA

CLICK TO VIEW

**Kit Tuveson, Who Got
HP Facility in Rohnert
Park Built, Dies**

ASK THE EXPERTS

BY IFMA'S FACILITY MANAGEMENT CONSULTANTS COUNCIL



In each issue of FMJ, IFMA's Facility Management Consultants Council shares some commonly asked FM-related questions accompanied by advice from top FM consultants. The questions and answers presented in this section align with IFMA's core competencies following the themes outlined for the given edition of the magazine.

While the following answers are intended to be helpful, these responses should not be deemed complete and are limited in context by the space allocated. Please contact the individual consultants directly for further explanation of the opinions expressed.

The theme of this edition of FMJ is **"Back to Basics."**

The Facility Management Consultants Council (FMCC) represents more than 300 FM consultants from various countries around the globe. Its mission states, "The FMCC is the resource and voice for facility management consultants worldwide to leverage our collective expertise to benefit IFMA members, and the facility management profession."

Questions regarding the Ask the Experts section of FMJ can be directed to Mark Sekula, IFMA Fellow, CFM, FMP, LEED AP, president of Facility Futures, Inc., at msekula1@wi.rr.com.

Visit FMCC online at fmcc.ifma.org or join the conversation on the council's LinkedIn group at <http://linkd.in/1gAa8ae>.

QUESTION

As managers of their companies' second-largest asset, FM's have the opportunity to be leaders in their organizations, yet too often they get caught up in the minutia of the day-to-day FM activities that cannot be ignored. What tips do you have for FM's to transcend being competent task-masters in order to become strategic leaders?

ANSWER: Facility managers often possess a common trait of significant ownership of their remit — that is to say they are keen to be perpetually aware that the occupants' needs are met and that operations are reliably provided. While this attention to detail is a positive trait, it can lead to micromanagement.

Most members of the FM support team do not respond as well when they are given instruction in such detail. They may learn from repeated actions how the FM wants matters to be dealt with, but they are prevented from applying their knowledge or expanding their abilities to receive, analyze and respond to requests. Their growth becomes limited and there can be a loss of motivation.

This situation presents a key opportunity for the facility manager to delegate.

Regardless of your position in the career continuum, most managers will benefit from a refresher on how to effectively delegate. Stephen Covey's "Seven Habits of Highly Effective People" is a very good resource on becoming more effective as a manager and includes superb ideas on coaching and how to delegate.

The simple tip on how to become more strategic is to pass on a measure of authority to your team members. Ensure that they have sufficient situational awareness to make good decisions and then provide them with opportunities to apply lessons learned.

You will personally benefit from the time freed from the details and can turn back to the senior, strategic role where you can deliver more value to your organization.

Moreover, your unit will benefit from the growth in skillsets, motivation and initiative that develops within the team.

ANSWERED BY:

Stephen Brown, CFM, FMP, SFP, CPE, CBCP, REM, CESCO
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slb@fm-adviso.com

After a successful career in stateside facility management, Brown assumed a position with an international portfolio. Since that time, he has held senior posts in the Caribbean, U.K./Europe and the Middle East. After more than 20 years managing the built environment for both private and public-sector organizations, Brown founded FM-adviso, Ltd. to support organizations with specialist and credentials training in addition to consulting on operational efficiencies, outsourcing, environmental matters and emergency response/business continuity.

ANSWER: To me the inference behind the question is that facility managers are aware of their tactical focus to the detriment of being more strategic and ultimately, therefore, to the overall business.

Moreover, the inference extends to the need for change to be recognized and accepted.

Assuming FMs actively desire to become more strategic, there are a number of actions they can take, namely:

- test their understanding of the business goals, needs, objectives and targets (and improve knowledge and understanding if necessary);
- analyze what they have been doing to date to determine what is and is not facilitating the achievement of these goals;
- analyze the gaps between current and desired state in terms of FM team resourcing, skills, experience, structures, systems and procedures;
- assess their own skillsets to lead and manage the team to facilitate the achievement of these goals;
- identify what it will look like to become more strategic, develop an action plan with measures to get there and test within the organization;
- identify key stakeholders within the organization and build strong relationships; and
- implement the plan.

FMs should also identify the maturity level of their organizations to support a more strategic approach. For example, it's important to know who within the organization will support key strategies, champion their implementation and develop the FM team as a key function rather than as a cost to the business.

In addition, the organization cannot remain at arm's length from the facility team and expect change and improvement to occur in isolation. The business relationships developed will allow the FM team to become more influential. All of this of course is not the end; it is the start of the process to improvement.

ANSWERED BY:

Graham Constable, MBA, PVM
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Constable has proven competence in strategic and operational facilities and asset management and broad business experience gained over many years in leadership and consulting roles in the U.K., Europe and Australia. He works predominantly at the senior management and executive level helping clients with business improvements, change and organizational development strategic thinking, developing creative ideas and strategies for the cost-effective management of clients' facilities and built environments.

ANSWER: Early in my FM career, I began keeping two sets of books, both physically and mentally.

This philosophy established two corporate lives: competent professional practitioner and facility enterprise leader.

For the former role, I ensured that the back-room operations and maintenance, staff and processes were efficient and effective, and cultivated my expertise to support them.

For the latter responsibility, I drove a front-room agenda of strategic planning and major projects, so my global labs fulfilled our corporate goals. My key was to have information with implications, and to place myself in the crossroads of communications so they were realized and used.

My back-room measures were of FM interest, but front-room metrics were critical to leadership.

Accomplishing these diverse agendas requires significant learning, rigorous time management, risk comfort, decision acumen and cultivated communications. When you have facility information and link it well to organizational objectives, you will never be left out of the decision-making process.

The bottom line: take care of the back room on your own, but orchestrate the front room in everyone's eyes...that's what they will remember and count on you for!

ANSWERED BY:

Dr. Doug Aldrich, IFMA Fellow, CFM
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With five decades of industry experience and FM consulting, Aldrich is a strategic leader, laboratory expert and globality advocate. He was IFMA Chair, cofounded the Research and Development Council, has served on advisory boards, communicates in word and print, and helps nonprofits.

ANSWER: At a chapter meeting in Calgary 25 years ago a member said plaintively "my managers see facilities as just a cost center!" For most FMs this is absolutely true. Facilities do not exist for their own sake; they are not the focus. The mission, goals and objectives of the organizations they support are paramount.

But leadership is not just cost control. Rather, reframe by understanding that facilities are a factor of production. Sadly, most program managers do not see work environments as a factor subject to their control. Projects that affect the work environment are few and far between, day-to-day minutia are simply taken for granted and FMs are often out of the loop when it comes to making the big planning and design decisions.

We know without doubt that place predicts productivity; the linkages between effective facility plan/design/manage activities on occupant performance are well-studied and solid. More often than not, though, managers get no feedback about how place affects productivity in their program. Knowing this, you should make that link.

To become a leader you must be able to demonstrate and prove (not just assert) to senior and line management just how your facility-based activities support core organization objectives and affect productivity, now and in the future. You need a vision for the FM contribution and metrics that link directly to your organization's purpose.

How to do this? To get there, talk to key managers, understand their issues, discover how FM supports (or does not support) what they do, research widely and let them know how others are using FM services effectively, develop your own FM goals, objectives and tactics, measure and report back regularly. A word of caution, though: you are there to articulate and deliver the facility contribution, not to tell them how to do their work.

ANSWERED BY:

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McCready is president of McCready Consultants Ltd. He specializes in strategic planning, facility planning, needs assessment, financial and feasibility analysis, management and policy development for facilities. With more than 40 years of experience, his portfolio includes most facility types and covers Canada.



SUSTAINABILITY HOW-TO GUIDES TO BE PUBLISHED

IFMA ENVIRONMENTAL STEWARDSHIP AND SUSTAINABILITY STRATEGIC
ADVISORY GROUP INTRODUCES ADDITIONS TO POPULAR SERIES

BY BILL CONLEY AND MAYRA PORTALATIN

This article describes three new Sustainability How-to Guides that will be published over the coming months. One is a new guide on measuring, monitoring and reporting; the other two are updates of existing guides: lighting and green rating systems.

Detailed descriptions of these guides appear below and will be outlined in an

Environmental Stewardship and Sustainability Strategic Advisory Group webinar on May 19. Details and registration for the webinar are available on the Environmental Stewardship and Sustainability topic area of IFMA's Online Community. All How-to Guides are available free of charge to IFMA members and can be downloaded on IFMA's website.

Measuring, Monitoring and Reporting (MM&R) How-to Guide

One of the newer guides that will be introduced in the Sustainability How-to Guide series focuses on MM&R in the workplace.

Created through a collaboration of subject matter experts and facility management practitioners, this guide explains the importance of measuring inputs and outputs while monitoring progress and consistency in facility operations. It outlines components that support and contribute to the eight categories specified in the environmental stewardship and sustainability competency and the Sustainability Facility Professional® (SFP®) credential: energy, water, materials and resources, workplace management, indoor environmental quality, waste,

site impact and quality of services. Recommendations, key performance indicators and best practices are presented to assist in optimizing and improving facility performance.

The guide discusses aspects of the measurement process, including who should be responsible and accountable for the actions and reporting and why measuring is such an important activity in facility management. Sustainability reports, greenhouse gas emissions and reduction, and green building rating systems are addressed.

The guide highlights existing and pending legislation that dictates measurement of the environmental impacts of facility operations. It outlines appropriate timing for when to measure and how the life cycle assessment process plays a large role in measurement, from harvest/creation through production, transportation, procurement, consumption and disposal. It also explains why measurement in all of these phases is critical to a complete accounting of resource management.

A section is devoted to the metrics of which a good measurement program consists. It posits that energy sources such as electric, natural gas, propane and fuel oil need to be considered as targets, and that water for irrigation, domestic use and processing needs

to be measured. The guide also outlines additional metrics to measure, such as indoor environmental quality, including air quality, balance and flow and overall customer satisfaction, as well as solid waste as part of resource management.

The guide presents the types of systems that can be used for measurement. Building automation systems and energy management systems are described by their ability to measure energy usage in the facility. Computerized FM/information systems such as CMMS, CAFM, FMIS and IWMS are examined and included as measurement tools. The guide also explains the role of utility companies and how their information and assistance can make this process more comprehensive.

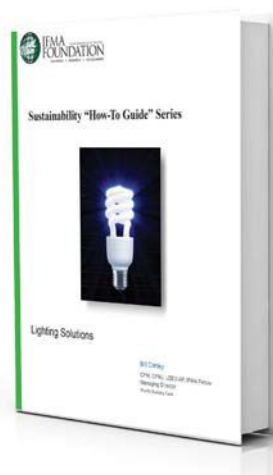
Other areas covered include the use of meters, sub-meters and sensors to relay information in the monitoring phase of this process. Once a baseline has been set through measurement, then usage and processes must be monitored.

The guide defines the monitoring parameters and the means by which tracking and ongoing evaluation can take place, as well as what the term monitoring actually means in the context of supporting measurement processes. It discusses the importance of historical data, trends and anomalies and how green building rating systems will be of assistance. It also touches on what can be done with the inputs and outputs that were part of the initial measurements, such as using energy models, energy analytic tools and work order systems to highlight and investigate exceptions in the process.

The guide closes with a business case argument showing how disciplined and consistent efforts in these activities can provide benefits to both the facility function and the organization. It also presents case studies reflecting successes realized by facility management practitioners and how this success was achieved. The guide concludes with glossary of common terms to ease understanding and provide operational definitions for readers.

An old adage suggests that it is difficult to manage without first measuring and continually monitoring. To measure is to gauge; to monitor is to observe. Establishing and maintaining a process to engage in these activities will provide improved operations and effective management throughout a facility. This guide is aimed at assisting FMs in achieving those goals.

DISCIPLINED AND
CONSISTENT EFFORTS
IN MEASURING,
MONITORING AND
REPORTING ACTIVITIES
CAN PROVIDE BENEFITS
TO BOTH THE FACILITY
FUNCTION AND THE
ORGANIZATION.



Lighting How-to Guide update

Lighting associated with commercial buildings accounts for close to 71 percent of overall lighting electricity used in the United States. It is the largest cost component of a facility's electricity bill and a significant portion of the total energy bill.

With good design, lighting energy use in most buildings can be cut at least in half while maintaining or improving lighting quality. A few years ago, the Sustainability How-to Guide on lighting was written to address this aspect of facility management.

Based on extensive research, input from lighting specialists and general experience, the guide provides a broad description of options available to facility professionals to enhance the indoor quality of buildings while saving energy, money and manpower to maintain proper lighting.

It delivers insight into basic lighting terms and concepts, such as:

- Efforts on a global level to increase lighting efficiency
- Lamp and ballast types
- The benefits of occupancy sensors and natural light
- Future technology for lighting solutions
- Lighting upgrades

The aesthetic quality of a facility's environment can be enhanced and productivity increased without sacrificing lighting system performance. A lighting retrofit has the best return on investment of any energy-efficient technology with typical payback periods between 14 to 18 months, while a change-out to LED technology can be paid back within 26-29 months. Once these paybacks are realized, the savings

in energy and replacement costs will continue, creating a sound investment in the future.

Not only are cost benefits and energy efficiency realized through these actions, occupant comfort, improved productivity and decreased absenteeism can be attributed directly to the quality of the indoor work environment, in which lighting plays a large part.

Upgrading an existing lighting system with the latest technology will make it more energy efficient while yielding cost savings. However, new technology and innovative developments are common occurrences in the world of lamps and ballasts, so this guide has been revisited to reflect some of those changes.

This updated guide further explains the benefits of investigating and upgrading lighting systems in and around facilities. It addresses new technology such as light-emitting-plasma (LEP) bulbs that may once again transform the industry and explains new measures existing in ASHRAE Standard 90.1 2013. This new standard contains more than 100 updates to the 2010 version, which is currently referenced in LEEDv4.

The guide also addresses new developments that the U.S. Environmental Protection Agency and ENERGY STAR have produced regarding skylights and daylighting in the built environment and how the U.S. Department of Energy (DOE) and the International Association of Lighting Designers have signed a memorandum of understanding to work cooperatively toward improving the efficient use of energy through lighting equipment and systems.

The guide also expounds on the Lighting Energy Efficiency in Parking campaign in which the DOE has joined with IFMA, BOMA the USGBC and other entities to improve exterior lighting. Other areas covered include the Association of Lighting and Mercury Recyclers, the International Solid State Lighting Alliance and ISO 50001.

These revisions make the guide very topical, as it cites new trends and developments over the past few years; however the caveat is that technology and breakthroughs are continuing to occur rapidly. For example, ASHRAE recently released Standard 100-2015 – Energy Efficiency in Existing Buildings (ANSI approved/IES cosponsored) which will once again change how lighting is managed. Public utilities are on the verge of offering rebates and incentives for LED tubes.

The only thing that is constant in the lighting industry is change. Who knows — another new lighting sustainability guide may soon be needed to address additional industry shifts.

Green Rating Systems How-to Guide update

A quick reference for rating systems around the world

Sustainability is not just a buzzword — it is a way of life that all facility managers know too well. Facility

managers around the world are often asked to do more with less, and although they may not know it as such, many of these practices are sustainable. Be it adjusting the start times on their heating or installing motion-sensor lighting, it was all done to save money on their operations.

Today, governments and organizations across the globe have tried to capture these best practices and develop green rating systems to create consistency among buildings in their jurisdictions. IFMA's Green Rating Systems How-to Guide is

compilation of some of the most internationally widely used green building rating systems. The publication aims to provide readers with an overall understanding of available rating systems, certification costs and insights from facility managers around the world as to why they undertook the significant challenge of certification and how they accomplished it.

Overall, the guide reviews 15 rating systems, with emphasis on the top four systems in the world (LEED, Green Globes, Green Star and BREEAM). This list is not all-inclusive; only buildings that met the following criteria were considered for inclusion:

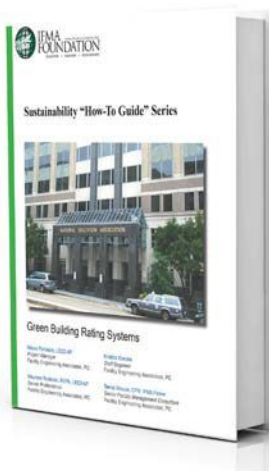
- Rating system with a formal certification program
- Excluded systems solely for one area of sustainability, such as just energy conservation (e.g., ENERGY STAR)
- The system must not be a modified version of another major system or directly translated from another certification system
- It must be a mature system and not be in development or in pilot stages

The guide includes summary tables showing each system, when it was established, the country of

origin, how many buildings have been certified to date under that rating system, the rating schemes, the certification levels and the different sustainability categories within the system. By outlining the systems in this manner, the guide provides a quick reference containing facts about the different systems, enabling readers to make their own decisions as to what green rating system best suits their facilities.

To aid the reader in selecting the right system, the guide offers information on how to make a selection, including asking the right questions regarding motivations, current state of sustainable operations and goals. It also discusses how to utilize a triple-bottom-line approach in the decision-making process and how to make the business case for sustainability and building certification.

Sometimes, a case for "all but certified" will be the best option, while in other cases, certifications will be supported by the numbers. As a way to educate and hopefully inspire readers to achieve green building certification, the guide highlights successful case studies not only from some of the top four rating systems, but from some of the lesser-known systems as well. The case studies provide useful information about their journey which readers can use to build their own business case for certification. **FMJ**



Bill Conley, IFMA Fellow, CFM, SFP, FMP, LEED AP is facility manager at Yamaha Motor Corp. in Cypress, California, USA. Prior to that, he served as owner and chief sustainability officer of CFM2, a facility management and sustainability consulting company. Conley has more than 35 years of experience in the facility management profession and has been a proponent of sustainable operations for more than 20 years.

Conley has served on the IFMA board of directors, is a recipient of IFMA's distinguished member of the year award and has twice received the association's distinguished author award.



Mayra Portalatin, RS, SFP, LEED AP is a civil and environmental engineer with more than 16 years in consulting on existing facilities. Her experience ranges from environmental to building condition assessments, as well as development and implementation of energy management and sustainability policies.

She has participated in and managed sustainability assessments, LEED certification projects and carbon emissions inventory projects. Aside from project-related experience, Portalatin has written a number of articles on sustainability, is an instructor for IFMA's SFP credential and has spoken at numerous industry conferences on sustainability in the existing built environment.

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TMA Systems is a provider of maintenance management software and computerized maintenance management systems. Their solutions assist facilities in effectively accounting for, maintaining and extending the life of physical assets. With TMA Systems, you have the ability to manage your workflow process from planning stage to completion of the job.

www.tmasystems.com | +1-918-858-6657

FURNITURE**The Senator Group**

The Senator Group is a leading manufacturer of high-quality furniture for the corporate and hospitality markets, with showrooms across the globe including Ohio, Chicago and New York. The Senator Group works with Europe's leading design talent to produce contemporary furniture for its Allermuir and Senator brands — furniture that not only looks great, but is comfortable and ergonomic too.

www.thesenatorgroup.com | +1-419-887-5806

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VARIDESK is the most effective and affordable way to make height-adjustable desks a part of your company's wellness initiative. It gives users the freedom to switch easily between sitting and standing throughout the day.

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www.varidesk.com | +1-800-207-9725

HAND DRYERS

Excel Dryer

For more than 50 years, Excel Dryer has manufactured the finest American-made hand dryers and redefined the industry with the original, patented, high-speed and energy-efficient XLERATOR® hand dryer. XLERATOR model hand dryers help facility managers reduce labor, maintenance and waste while creating a more hygienic restroom environment.

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www.exceldryer.com | +1-888-311-2342

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CleanAlert, LLC

CleanAlert is a manufacturer of air efficiency monitors primarily servicing the HVAC industry. Our flagship product is the FILTERSCAN WiFi Air Filter Monitor. It provides real-time status alerts of the air filters and reporting to assist in more efficient field service deployment. The FILTERSCAN takes the guesswork out of when to change the filter and therefore optimizes filter life.

www.cleanalert.com | +1-440-774-3890

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www.behrpro.com | +1-623-255-0806

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Fresh Wave IAQ

Odor management is a challenge that can adversely impact business goals and create significant health concerns in facilities. Fresh Wave IAQ® odor management solutions meet the odor control needs of many industries and eliminate the use of chemical-based odor abatement products. Effective on both organic and inorganic odors, our non-toxic products are made from natural ingredients, contain no harsh chemicals or harmful VOCs and are safe to use in any environment.

www.freshwaveiaq.com | +1-800-662-6367

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Veritiv is a North American leader in business-to-business distribution of print, packaging and facility solutions. Helping shape success for your business drives everything we do. Our name is based on this commitment and on the core strengths of our business. Derived from verity, it says we're true to our word, our beliefs and your needs. The words connective and active in our name signify that we collaborate with you to create solutions that work hard for your business.

www.veritivcorp.com

LIGHTING**Ephesus Lighting**

Ephesus believes we can make the world better through lighting that contributes to more vibrant and more sustainable environments. Through our uncompromising commitment to innovative engineering, we provide solutions to help people create more positive and productive experiences in the places they live, work and play. Recognized for their superior efficiency and long life, Ephesus solutions are used by industrial and sporting venues to ensure people are able to perform their best every day.

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www.rentokil.com | +1-610-372-9700

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www.terminix.com | +1-800-TERMINIX

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usa.sarnafil.sika.com | +1-800-576-2358

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Bluebeam Software's innovative desktop, mobile and cloud solutions push the limits of digital collaboration to enable facility professionals to do what they do, better. Bluebeam's award-winning PDF solutions are used by facility and operations management to speed up project communication by 60 percent, reduce printing and distribution costs by 80 percent and deliver electronic O&Ms for quicker access to critical information at the completion of a project.

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