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ABOUT IFMA IFMA is the world's largest and most widely recognized international association for facility management professionals, supporting 24,000 members in more than 100 countries. This diverse membership participates in focused component groups equipped to address their unique situations by region (136 chapters), industry (16 councils) and areas of interest (six communities). Together they manage more than 78 billion square feet of property and annually purchase more than US\$526 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 series of facility management conferences and expositions. For more information, visit www.ifma.org.

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Amsterdam, Netherlands



FMJ Extended

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FMJ, the official magazine of IFMA, is written for and by professionals who develop and maintain productive workplaces.

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Do You Know A Young FM Who is Making a Positive Impact?

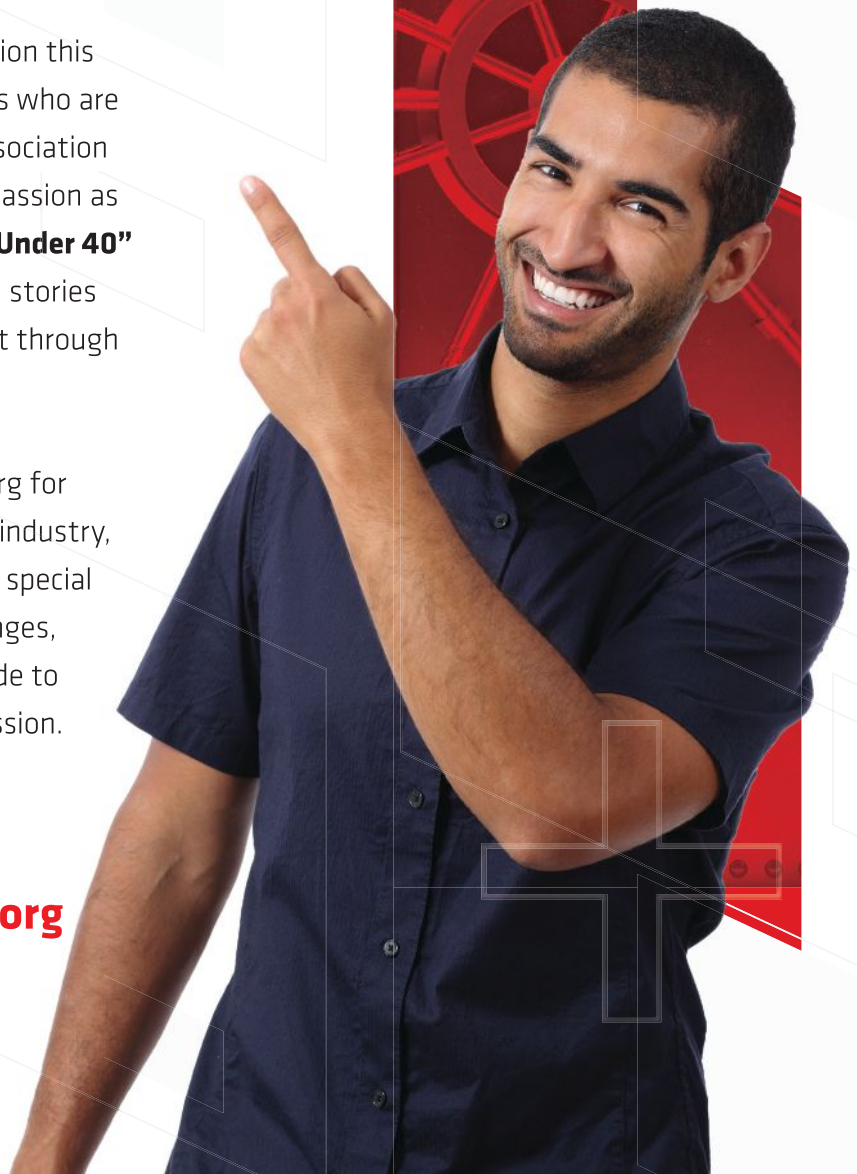
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Nominate Them as One of IFMA's Forty Under 40.

As part of IFMA's 40th anniversary celebration this year, we are looking for young professionals who are influencing both the profession and the association as remarkably and with the same level of passion as IFMA's founders. IFMA's upcoming **"Forty Under 40"** initiative will collect, applaud and share the stories of FMs under 40 who are making an impact through initiative and ingenuity.

Nominations are being accepted at IFMA.org for those making a positive impact on the FM industry, whether through innovation and discovery, special achievements, overcoming extreme challenges, making notable contributions, rendering aide to others or bringing recognition to the profession.

Learn more at
<https://fortyunder40.ifma.org>





Editor's Note Bobby Vasquez

In times of uncertainty, we instinctively look to the most trustworthy places for information and instructions. Whether it is a virus outbreak or a sudden catastrophe, facility management is at the forefront of providing a safe and responsive environment for its tenants. This issue of the FMJ explores many sides of building and occupant safety from prevention to response.

The recent news of the coronavirus outbreak is disturbing on a global scale. As we arm ourselves with information and instructions, we must remember that our industry is also tasked with protecting persons who may or may not heed warnings or take kindly to instruction. After all, people will be people.

We may not be able to forecast for every emergency but having a plan in place can help with immediate quick fixes or lay the blueprint for a rebuild in the wake of a large-scale disaster. In this issue, our FM authors discuss communication, patience and flexibility as keys to successfully overcoming challenges, large and small.

Communicating that plan to your FM staff and core personnel is vital to any plan's success. FM staff must know how and when to safely report to the site following an emergency. Discussing emergency preparation and response with building tenants also keeps essential personnel in the know while keeping other employees away from a potentially dangerous site.

Patience and flexibility will surely be tested. If an emergency or disaster is far-reaching, chances are, it will affect your personal life as well. It can be difficult to rebuild the work environment when you have your own questions about the safety and security of your home and family. Now, multiply that by the number of your FM staff. Their loss may be exponentially greater than what could be imagined, or they may have survived the event unscathed. Either way, the human element cannot be ignored. Be sympathetic to the world around you and understand that 100 percent of the FM staff may not be available 100 percent of the time as they rebuild their own lives.

Thankfully, some emergencies such as security breaches are somewhat preventable with the right software, policy and procedures in place. But what about the unimaginable? As the nightmare of an active shooter looms, having a plan to protect your tenants might not be enough.

There is so much good in this world and yet, it is a dangerous place. We lose sleep over the worst-case scenarios. However, having a plan and the confidence to execute it can help FMs rest easy.

Cheers!

Interested in writing for FMJ?

Email bobby.vasquez@ifma.org article ideas to be considered for future issues of FMJ.

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From the Chair

**JOHN
CARRILLO**

**CFM, IFMA
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*Chair, Board of
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FM professionals are increasingly navigating job expectations, business results and company resilience in uncharted waters. Leading our organizations toward a strong and enduring future requires a keen understanding of the advancements, trends and risks impacting our industry, such as:

Technology in the Built Environment

IoT, 5G and digitization technology are rapidly being deployed through applications like IP-based enterprise BMS systems, workplace environment and infrastructure equipment, AI and Machine Learning programs, IWMS space and portfolio management and design, the implementation of zero-emission buildings and supply chain data analytics, just to name a few. These applications are worth the time and effort to understand, as they will help you reduce costs and streamline operations.

Corporate Sustainability

The reality of climate change is forcing us to step up our game to further reduce our carbon footprint when retrofitting and constructing new buildings. If we do not reverse current patterns, it is projected that by 2050, 300-million homes and businesses along the coastal areas could be affected from rising sea levels by 1.8 to 3 meters. Anticipating and planning for environmental risks can result in both business and climate improvements.

Competitive Business Model

Companies that are transforming their business systems and applications to digitization technology are driving competition and improving results to the customer. FM professionals need to capitalize on these opportunities – reduce office space footprint with a mobile connected workforce, monetize assets and reduce office building footprint, and reduce capital spending on infrastructure equipment by deploying smart enterprise BMS platforms. These platforms can extend equipment's useful life from 15 to 25 percent and have the capability to perform predictive and corrective maintenance. Wellness programs

like collaborative workspace, telepresence or teleport programs, flex hours and other work/home balance solutions make for happy and productive employees.

Smart Cities/Urbanization

Smart cities leverage the latest technology to address broad issues like neighborhood safety, economic development, waste disposal, delivery of potable water, urban planning with green solutions and transportation concerns. Digital transformation can improve citizens' lives and opportunities for the public and private sectors to be good environmental partners.

Resilience in the Built Environment

To be resilient is the capability to keep adapting to existing and emerging threats to create robustness and redundancy in building design. There is a mega-trend for more sustainable design in our construction and delivery process. More property developers, constructors and manufacturers will improve resource efficiency and reduce waste. Many companies that operate in areas where utility electrical grid and water services can be compromised during an emergency event are moving toward self-reliant, self-sustained regeneration sources as well as improving business workflow continuity plans.

Continue to improve on your FM leadership and management skills through networking and learning. The value in attending IFMA events such as Facility Fusion (April 14-16, San Francisco, California, USA) and World Workplace (Sept. 30-Oct. 2, Chicago, Illinois, USA) is gaining information and insights directly from experts immersed in their respective topic areas, and learning and collaborating with fellow professionals who share your questions and concerns.

IFMA Foundation and California Community Colleges awarded

The IFMA Foundation and California Community Colleges were recently named a top-10 California Economic Summit Partnership for Industry and Education (PIE) awardee. Initiated to promote innovation by industry and educators working together to meet regional and state workforce needs, the PIE contest recognizes on-the-ground efforts that focus on raising incomes and growing quality jobs for Californians.

“Created based on research that identified an annual industry gap of approximately 6,000 workers in California, our Global Workforce Initiative’s Facility Management Talent Pipeline program addresses the triple bottom line values of economy, equity and environment,” said IFMA Foundation Chair Joe Archie. “This recognition shows how industry and education working together can not only solve problems but create a career pathway for a profession that requires lifelong learning as buildings become smarter and sustainability more prevalent.”

Facility Management Talent Pipeline programs offered through California’s community colleges target students enrolled in business programs. The program has shown success at Chaffey College, the College of San Mateo and West Los Angeles College in finding graduates FM-related employment, including jobs at national firms. “The interest in replicating and scaling has been overwhelming,” said James Morante, Statewide Director of Energy, Construction & Utilities for California’s Community Colleges. “It serves as a gold standard in industry engagement and integrating relevant business needs into the classroom.”

The first FM program was launched at Chaffey College in 2017. Just two years later, the Chaffey College Student Chapter of IFMA won the association’s Student Chapter of the Year award. “This program is not only providing a viable career pathway but also improving economic growth in our communities,” said Dr. Henry Shannon, Chaffey College President.

IFMA WELCOMES PROJACS ACADEMY AS A GLOBAL TRAINING AFFILIATE

One of the leading providers of project and construction management training in the Middle East, North Africa and United Kingdom, Projacs Academy will add IFMA instructor-led courses to its professional training catalog as a Global Training Affiliate (GTA). IFMA’s GTA program allows the association to partner with established providers of adult learning in regions outside of the United States to further our mission of advancing the professional discipline of facility management worldwide. The first course offered through Projacs is the Facility Management Professional™ (FMP®) credential program, held March 8-12 in Dubai, United Arab Emirates.

Visit projacsacademy.com



IFMA names Don Gilpin as President and Chief Operating Officer

On March 1, 2020, IFMA announced the promotion of senior staff member Don Gilpin to President and Chief Operating Officer (COO). An accomplished executive with strong experience in international association management, Gilpin has served as IFMA COO since September 2018.

“As COO, Don Gilpin has renewed focus on core business, organizational stability and financial growth,” said John Carrillo, CFM, IFMA Fellow, chair of IFMA’s global board of directors. “He has provided inspired leadership to IFMA staff, members, and internal and external stakeholders. His expertise, vision and commitment to strategic growth have enhanced IFMA’s position as a thought leader and ensured the continued progress and relevance of the association. On behalf of the board, I congratulate Don on his achievements and express our confidence in his abilities as he embarks on this new position of leadership.”

In his expanded role, Gilpin will continue to concentrate on internally focused items such as finance, human resources and operations, while also interacting with volunteer leaders globally and building relationships with other like-minded industry associations.

“I look forward to advancing our external partnerships, building bridges to new industry entities and working with IFMA’s volunteer leaders on new ideas and strategies to benefit the facility management profession,” said Gilpin. “I wish to express my gratitude to the entire IFMA staff – I would not be able to take on these new duties without their support.”

Have relevant FM industry news to share?

Submit your news to be considered for inclusion in the Industry News section of the next issue of FMJ. Send us an email at communications@ifma.org

IKEA Austria: Setting modern building trends



Developed in cooperation with Vienna-based architectural company querkraft architekten, IKEA Austria promises to be the most innovative city-center IKEA store in the world, uniquely addressing changing consumer and mobility behaviors, climate concerns and an urban desire for an inviting meeting place.

Set to open in 2021, the Vienna store is designed with no parking spaces. Conveniently connected to the Westbahnhof train station, it's accessible from all ends of the metro lines within 20 minutes. Two-thirds of people living in the inner-city districts of Vienna do not have cars; and with

e-commerce booming, more customers are having their furniture delivered.

The building's design resembles a bookshelf. Approximately 160 trees planted on open facades and the rooftop terrace are expected to lower the building's temperature by at least -2 degrees. IKEA Austria strives for a BREEAM Excellent certification for the building, supporting the company's goal to play an active role in creating a more sustainable way of living and doing business.

The project has several development areas, including sustainability, hospitality and store configuration. With IKEA products on the first four levels, four shops along Mariahilferstraße (one of the largest streets of Vienna), a hostel on the upper two floors and a publicly accessible roof garden, the new store aims to be an iconic meeting place, exceeding urban consumers' expectations for convenience and experience.

U.S. mayors concerned about infrastructure, climate change

According to Boston University's 2019 Menino Survey of Mayors*, city executives believe the nation's crumbling infrastructure is the most important issue U.S. presidential candidates should be talking about on the campaign trail.

Possibly a sign of growing concerns over the impacts of climate change on their cities, 25 percent of mayors cited water, wastewater and stormwater projects when asked what type of "large" infrastructure project they would prioritize if given an unrestricted grant – this is a 40 percent increase since the question was last asked in 2015.

Two-thirds believe vehicles are the biggest source of greenhouse gas emissions from their city, and more than three quarters believe their cities are "too oriented toward cars." Most believe it's important to improve their city's electric vehicle infrastructure, even if it means less parking for non-electric vehicles.

**The Menino Survey of Mayors encompasses insights and perspectives gathered via interviews with 119 sitting mayors from large and mid-sized cities across the United States.*

The full report, including results on opportunity zones and the future of work, can be found at surveyofmayors.com.

UPCOMING EVENTS



World Workplace Europe 2020

March 18-20, 2020
Amsterdam, The Netherlands
worldworkplaceeurope.ifma.org



IFMA's Facility Fusion 2020 Conference and Expo

April 14-16, 2020
San Francisco, California, USA
facilityfusion.ifma.org



IFMA Global Canada

June 10-12, 2020
Toronto, Ontario, Canada
ifmaglobalcanada.ifma.org



IFMA's World Workplace 2020

Sept. 30 - Oct. 2, 2020
Chicago, Illinois, USA
worldworkplace.ifma.org

Is time off more stressful than it's worth?

For many working professionals in the U.S., taking time off for vacation causes more work-related stress, partly due to concerns over falling behind, completing projects prior to leaving and/or getting work covered by colleagues. However, the most glaring problem in today's hyper-connected workplace is the number of communication platforms that are always on.

Switching off the computer at the end of the day no longer means the workday is done. A recent survey* found that many U.S. professionals are unable to completely disconnect from work while on vacation – 61 percent feel pressure to respond to work-related communications outside of working hours, and 82 percent have been contacted by a colleague through a personal channel about a work-related matter. Nearly 7 in 10 would prefer to return exclusively to email for work-related communication.

** Survey commissioned by Neuvana and included 1,076 working professionals in the U.S.*

Report: Strong correlation between talent optimization and company performance

“The State of Talent Optimization” 2020 report* finds that companies with aligned talent and business strategies are more likely to outperform other companies, retain top talent, see higher employee performance and achieve strategic success rates of nearly 90 percent.

“While most organizations have a business strategy and a financial plan to support it, only 36 percent have a talent strategy; and a mere 12 percent align their talent and business strategies,” said Mike Zani, CEO of The Predictive Index. “Those that do have talent strategies designed to hire, manage and engage their people in a way that aligns with business objectives significantly outperform other companies.”

Organizations that practice talent optimization have 34 percent higher employee performance and spend 31 percent less time on people problems. And while executives attribute 72 percent of their company’s value to employees, when it comes to engagement, they’re in the dark – only 22 percent know what’s driving employee disengagement.

**The Predictive Index surveyed 600 executives across 20 industries.*

A full copy of the report is available at:
predictiveindex.com/state-of-talent-optimization-report/.

Study: Fulfilling a higher purpose matters most to business reputation

A study on global reputation trends impacting business in 2020 considered the opinions of more than 200 senior-level leaders representing 25 industries in companies across North America, EMEA, Asia Pacific and Latin America. Higher purpose – delivering on a corporate brand purpose and embracing cultural values at an emotional level that transcends the products/services they sell – topped the list.

“Over the last three years, only higher purpose and data privacy have consistently gained importance in our study of global trends, indicating high levels of reputational risk for companies,” said Reputation Institute CEO, Kylie Wright-Ford. “Our study shows that nearly 70 percent of the informed general public isn’t sure if companies have strong enough data security measures in place, and this shows up in their lack of support for those companies in times of crisis.”

Many of the year’s top 10 reputational trends align with the notion of businesses “doing the right thing”:

1. Higher purpose
2. Data protection
3. Responsible investing
4. Impact of technology
5. Climate change
6. Influencers
7. Mistrust of big institutions
8. Sustainability and responsible sourcing
9. CEO activism (taking a public stand on political, social and values-based issues)
10. Equality, diversity and inclusiveness

REPORT: STATE OF BREACH PROTECTION 2020

Cynet’s “State of Breach Protection 2020” report* found a clear inclination within organizations to deploy advanced breach protection on top of standard anti-virus, firewall and email protection platforms. Other key findings:

Lack of cybersecurity platform consolidation is a major inhibitor against protection. The challenge of maintaining a multi-product security stack is the main obstacle in reaching the desired protection level.

Response orchestration beats automation. While a significant number of polled organizations orchestrate their IR operations from a centralized interface, only a small segment introduce automation to their remediation workflows.

Organizations have mixed feelings regarding security outsourcing. The security skill gap compels organizations to outsource more advanced portions of their security operations; however, there is still a strong inclination to keep things in-house, especially with respect to active attack remediation.

Tier 1 security solutions typically center on four product categories/common practices – firewall, anti-virus, email protection and vulnerability management – that comprise a security standard for the majority of organizations.

Deployment is the Achilles heel of endpoint protection. Only a small portion of organizations report that they deploy EDR/EPP – regarded as the main direction against advanced attacks – on more than 85 percent of their endpoints with no deployment or maintenance issues.

**Cynet polled 1,536 cybersecurity professionals to understand the common practices, prioritizations and preferences of organization today in protecting themselves from breaches.*

Download the full report at:
cynet.com/blog/2020-state-of-breach-protection-survey/



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ISO 22301 Business Continuity Management Systems Standard

BY MAUREEN ROSKOSKI

Careful business resilience planning can mitigate the impacts of a disruption and allow a disaster-affected business to continue to function or recover more quickly. The ISO 22301 Business Continuity Management Systems Standard (BCMS) can help the organization build its management system in clear and tangible ways by creating, implementing and training on the organization's management

systems' requirements and procedures. The BCMS is the framework for business resilience for the organization and generally consists of the strategy, procedures, solutions and education as shown in Figure 1. This framework can build a strong, effective business resilience plan that will allow the organization to be prepared to avoid, mitigate and recover from adverse events.



Figure 1 - High-level Components of Business Continuity Management System

The Standard Gets Updated

ISO 22301 was initially released in 2012 and underwent its first revision in 2019. While there are a few substantial changes to the standard, the majority of changes are to remove duplicative content, improve readability and terminology updates. All ISO management systems go through a systematic review every five years. Here are the significant changes to ISO 22301.

- **CLAUSES 4-7** — The ISO 22301 standard contains 10 clauses, identical to other management systems standards, as shown in Figure 2. Management system standards also align to the fa-

miliar Deming Cycle, or the Plan Do Check Act. Clauses 4-7 focus on the Plan portion of the cycle and set the foundation for the system. The standard now focuses on the organization understanding the issues that may affect its ability to achieve intended outcomes, including the amount and type of risk that may influence those issues. Significant changes to the Plan portion of the standard include removal of the term risk appetite, which was a poorly understood term, and replacing with a defined outcome. In addition, a section was added to Clause 6, which emphasizes the importance of planning and managing change to the BCMS.

Structure and Content of ISO 22301

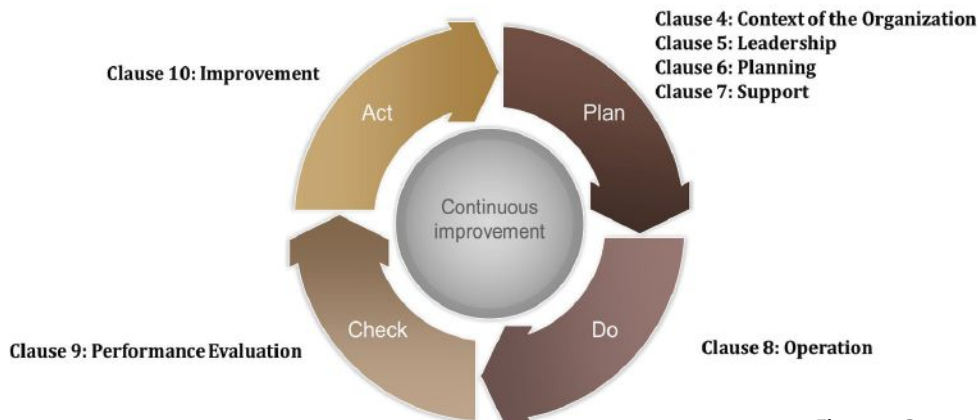


Figure 2 - Structure and Content of ISO 22301

- **CLAUSE 8** is the heart of the standard and provides a framework to develop a business continuity plan based on a foundation of business impact analysis (BIA) and risk assessment (RA). There are several implementation items within Clause 8 that can be summarized into four main categories as shown in Figure 3.

Figure 3 - ISO 22301 Clause 8 Requirements



Major changes to Clause 8 include updating the BIA requirements to provide more clarity on the process and include impact types and criteria relevant to the organization's context to assess the impacts of a disruption on its essential functions. In addition, the standard now requires regular review of the BIA and RA at planned intervals (determined by the organization) to highlight the importance of maintaining the relevancy of those key components. An additional section was added to 8.3, the business continuity strategy section that introduces a requirement of strategies and solutions so that the organization meets its overall business continuity strategy. The concept is that the organization must identify initia-

tives to meet the overall business continuity strategy. For example, if personnel need an alternate work location to be able to continue operations if the facility is damaged, then the solution might be working from home or identifying another facility to work in.

- **CLAUSES 9-10** — Changes were made to Clauses 9 and 10 primarily to improve readability and clarity. There was an emphasis added to Clause 10 to ensure that continual improvement is directly related to evaluations conducted and that organizations improve their management system based on lessons learned.



Planning Matters...

In our own experience, we have seen the impact of planning and preparation. FEA is a small business focusing on the built environment and helping clients improve the way they manage facilities. We have offices in Fairfax, Virginia (headquarters), Denver, Colorado, Santa Rosa, California, and Cheyenne, Wyoming. FEA decided to pursue certification to make sure that we had an effective business continuity program so that we could continue to meet our client needs during a disruptive incident. With offices across the country we faced varying threats to business disruption, and we needed a program, not just a set of documents that sit on a shelf. In 2015 we began implementing the ISO 22301 standard; in 2016 our headquarters was certified, and then re-certified in 2019. The process of becoming certified and building our business continuity management system put the foundation in place for FEA to respond and recover from real emergencies in our Santa Rosa, California, office. In October 2017, our BCMS was put to the test during the Santa Rosa wildfires:

TUBBS FIRE, OCTOBER 2017

- » **Most destructive fire in California history (at the time)**
- » **36,810 acres burned**
- » **5,643 structures destroyed**
- » **2,900 homes lost (City of Santa Rosa)**
- » **US\$1.2 billion estimated damages (City of Santa Rosa)**
- » **5 percent housing stock destroyed (City of Santa Rosa)**

During the 2017 wildfires, the FEA Santa Rosa office was closed for two weeks, and some employees were evacuated from their homes for a significant period. It was disruptive, but even as the incident progressed, the Santa Rosa employees were able to keep working during the disaster using the procedures we put in place. Our planning allowed us to continue operations and meet the ongoing needs of our clients. We learned a few things, particularly around communications, but overall, we were proud of our response. Everyone knew their role and what to do in the immediate aftermath.

In the fall of 2019, we faced a similar threat as the Kincadee fire threatened the Santa Rosa area.

KINCADEE FIRE, OCTOBER 2019

- » **78,000 acres burned**
- » **374 buildings destroyed**
- » **180,000 residents evacuated**
- » **FEA office and employees evacuated for 4 days**


During this wildfire event, FEA was again able to continue operations and found the process went smoother than in 2017. We learned a lot about communication in the first event and streamlined our communication protocols to ensure consistent communications. This allowed all employees across the organization to understand how they would be notified about decisions and updates, which helped ease anxiety and set clear expectations. By applying lessons learned from our previous experience, employees knew what to expect and were prepared.

Other ISO Management System Standards

While our focus has been on ISO 22301, management systems —whether 22301, 9001, 41001 or 55001 — are useful tools that help an organization put a laser focus on operations and meet core objectives. The standards are outcome-based and allow some flexibility in

how you achieve those outcomes. Each organization can determine the scope of the management system and scale it to meet the organization's needs. For more information on these standards, "The Right Fit," an article appearing in the 2016 May/June edition of FMJ (<http://bit.ly/328pUXS>), provides a helpful summary.

Conclusion

Business continuity planning is essential for any organization, as we have experienced. The most recent revisions in the 22301 standard have provided clarity and streamlining; with less repetition of requirements that often caused confusion, it is much easier to navigate. Although committing to an ISO certification may seem daunting, that commitment is what will make your business continuity plan most effective. Requirements such as the annual auditor's visit are a great way to make sure you are implementing your plan and that it is not just sitting on a shelf. The other major benefit to ISO certification is the continual improvement requirements. It is not enough to meet the standard requirements each year; your organization must show improvement based on exercising your plan or implementing your plan in an incident. The revised ISO 22301 standard can be a valuable tool to help your organization build a strong, effective and repeatable business continuity program. 



Maureen Roskoski is a senior professional at FEA with more than 20 years of experience in facility management consulting. She is FEA's internal Business Continuity Lead and helped FEA adopt business resilience as part of the company culture, achieving ISO 22301 certification at FEA's corporate office. Roskoski has worked with clients on continuity of operations plans (COOP), organizational assessments, FM technology process improvement, sustainability and resilience planning. She has facilitated drills, educational activities, and tabletop exercises and is an approved Instructor for industry associations, including IFMA and the Northwest Energy Efficiency Council, teaching adult continuing education courses.



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U.S. Students Observe FM Overseas

BY DR. SAREL LAVY

There is an increasing number of facility management academic programs in colleges and universities across the world. Typically, the setting is such that students get to enroll in these classes every semester, based on the number of seats that a university or a department offers. Classes are either online or on-campus.

During 2019's summer semester, undergraduate students from the College of Architecture at Texas A&M University in College Station, Texas, USA, had a unique experience offered by the university – they were allowed to enroll in a couple of FM classes while spending time abroad. This was part of the college's requirement for each undergraduate student majoring in University Studies in Architecture. For the first time ever, Texas A&M University offered students an FM option for fulfilling the study-abroad requirement.

The university worked with Liverpool John Moores University's Dr. Mike Riley, director of the School of Built Environment, and Dr. Matthew Tucker, Reader in Workplace and Facilities Management, for almost a year to develop the program for the two FM-related summer classes. Sixteen Texas A&M University undergraduate students spent five weeks studying FM in the United Kingdom.

The summer classes consisted of traditional face-to-face classroom teaching and site visits/facility tours. Classroom material was composed of typical FM basics such as terminology, history and growth, sectors and industries, project life cycle, maintenance management, project responsibilities and more.

Tucker lectured on topics including an overview of the U.K. built environment, the link between design and FM, FM procurement and contracts, productive work-

places, building sustainability, and health and safety in FM. The highlight of this study-abroad program was facility tours and site visits led by FMs and owners from across the U.K.

The Hut Group is a British e-commerce company operating more than 100 international websites selling fast-moving consumer goods through its proprietary platform. Their facility is in Warrington, east of Liverpool. During the tour, officials from The Hut Group described its sales models, the efficiency of their automated shipping process, the security requirements of such a facility, energy saving initiatives and the process of managing numerous facilities worldwide.

Students also toured the Chester Zoo, near Liverpool. The zoo is among the largest in the U.K., spanning 125 acres, with more than 20,000 animals of 500 different species. Here, the FM spoke about having reactive rather than proactive maintenance strategies, and how the FM department worked closely with the zoo's board to overcome a recent devastating fire.

Students later toured MediaCityUK in Salford, just outside of Manchester. MediaCity is a complex of several multi-purpose buildings, with a tenant portfolio that includes the BBC, itv, Kellogg's, Ericsson, the University of Salford and other companies. The complex offers a shopping center, restaurants and residential apartments, all within a short walking distance from each other. MediaCityUK's estate manager and head of technical services discussed challenging aspects of their job, such as scheduling and conducting maintenance in the broadcasting studio rooms around and in-between TV and radio show times, dealing with fanatical fans when celebrities come on site, building sanitation and the importance of maintaining a constant humidity level to provide high sound quality.

Later, students toured the Royal Liver Building and the headquarters of Everton Football Club, both in Liverpool. The Royal Liver Building, which is one of the city's most recognizable landmarks, opened in 1911, and has a pair of clock towers. The clock faces are 7.6m (25ft) in diameter and

are the U.K.'s largest electronic clocks. The building is one of the first in the world built using reinforced concrete. Students heard a presentation from the Everton Football Club facilities and project manager, who shared some of the challenges in the planning, design and construction of a new stadium for the club, to be built in a historic city docks area. Facility personnel discussed how lessons learned from the maintenance and operations of the current stadium are implemented in the design of the new facility.

The next site visit included a trip to London, where students visited the Herman Miller National Design Centre. During this visit, students heard presentations on workplace design, employee comfort, wellness and productivity, and how the



The historic Royal Liver Building in Liverpool, England.



company is working with its clients to improve furniture design. While in London, students visited Turner and Townsend offices. This presentation covered various roles and responsibilities that the company's FM department performs, such as maintenance and operations, project management, space management, the management of soft FM services, maintenance of interior offices, technology and equipment, and separating in-house and outsourcing of FM services.

Site visits also included Dynamic Earth, a state-of-the-art attraction in Edinburgh, Scotland, where an FM presentation covered space management, operations and maintenance, and planning. Students heard about what happens behind the scenes of the family attraction and conference venue to operate smoothly and stay open year-round.

While in Edinburgh, the group visited the Scottish Parliament, another UNESCO World Heritage Site. Opened in 2004, the building houses offices for 129 members of parliament and more than 1,000 staff members. Here, students heard a presentation about the unique design features of the building, how it incorporates various aspects of the Scottish culture, sustainable construction materials used for the building's construction, and the impact it all has on the day-to-day management and operations of the facility. Security measures, which are a major concern in such an environment, were also discussed with the students, as well as the different adjustments that the FM team made to accommodate Queen Elizabeth II during her visit a couple of years ago.



The Scottish Parliament Building, in the capital Edinburgh.



Each site visit featured a different type of facility with unique characteristics and challenges. While much of the presentations' subject matter could have been discussed in face-to-face lectures inside the classroom, students gained value by seeing it live and hearing from professionals who perform these tasks. Students engaged in observing fundamental FM concepts and applications and how different companies practice them. **FMJ**



Dr. Sarel Lavy is a professor in the Department of Construction Science at Texas A&M University. His research interests are in facility management and construction management, mainly in the healthcare and education sectors, life cycle cost techniques, performance indicators and FM education. He authored and co-authored more than 90 papers published in peer-reviewed journals and conference proceedings, and serves as the co-editor for *Facilities*, an international FM journal. Dr. Lavy earned his PhD in Civil and Environmental Engineering from the Israeli Institute of Technology (Technion) and joined Texas A&M University in 2005.



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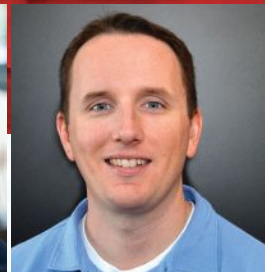
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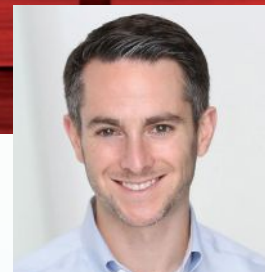
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Facebook is the sole tenant of **Park Tower**, a certified LEED Gold, 45-story building, designed with a massing that integrates three different floor plates. Within these distinct floor plates, a series of large outdoor terraces are carved out to provide mini "parks in the sky."

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WHEN ONE CARD OPENS ALL DOORS

SIDE-CHANNEL ATTACK VULNERABILITIES OF HARDWARE & SMART CARDS

BY ALEXANDER KESLER

The hyperconnected world is somewhat of a double-edged sword: while greatly facilitating communications and operations, it fosters an environment where each system inside a network is vulnerable to an attack that can destroy not just that system, but also other systems inside the network.



ONE OF THE MOST HARMFUL AND LEAST-EFFECTIVELY COUNTERED TYPES OF ATTACKS THAT STARTS WITH JUST ONE DEVICE AND METASTASIZES ACROSS THE ENTIRE NETWORK, IS A SIDE-CHANNEL ATTACK ON HARDWARE.

Most modern facilities are managed via sophisticated networks encompassing CCTV, heating, cooling, humidity, electricity, and other utilities. These networks are often located outside a secure perimeter and are controlled and programmed wirelessly across multiple buildings from a single centralized FM center.

The traditional key to enter the facilities is increasingly becoming a relic of a bygone era; today, most hotel rooms, car doors, businesses and government facilities are opened via contactless smart cards.

All modern FM and Access Control Management technologies have one thing in common – they are an entry point for bad actors into private and government buildings, enabling them to do everything from innocuous pranks to consequential theft of commercial and national secrets to wreaking havoc on the nation’s critical infrastructure.

Inside most of these smart cards, devices, and electronics is a hardware chip that often contains memory and a central processing unit (CPU).

While software intrusion and protection against vulnerabilities are continuously addressed by the high-tech community, there’s a major security gap. Unlike soft-

ware security, protection against hardware vulnerabilities remains a relatively obscure field, rife with complex technical challenges.

In the world of hyperconnectivity, where an attack on one device or system can be an attack on all, it is imperative that the software-hardware security gap be closed.

It is time to shed light on hardware vulnerability and protection options — conventional and innovative — specifically for hardware with a power-based system-on-chip, a CPU, and a secure element.

Side-channel attacks are based on information gained from the implementation of a computer system, rather than weaknesses in the implemented algorithm itself.

CHIPPING AWAY

Side-channel attacks on the microchip’s secure element involves collecting and analyzing traces of power consumption or electromagnetic emission of a device in order to acquire cryptographic keys or other sensitive data inside the device.

An accurate measurement of power that a device draws over time when analyzed using statistical analytical methods discloses the nature of operations and can reveal the global security key, thereby exposing the device’s identity (root of trust) and potentially allowing the hacker to gain full control over the device or impersonate that device on the network.

To protect microchips from hackers, manufacturers install cryptographic keys (often global security keys), which are generally considered to be algorithmically not feasible to break, protecting the code stored on the smart cards, locks, and other electronic devices.

However, the global security key does not protect the card, the lock or any other device from a takeover by perpetrators who use side-channel attacks on the secure element, such as Differential Power Analysis (DPA), Simple Power Analysis (SPA), Differential Electromagnetic Analysis (DEMA), and Fault Injection Analysis (FIA).

THE REAL DANGER

Side-channel attacks are relatively easy and inexpensive to mount against cryptographically protected devices but are notoriously difficult and expensive to defend against.



All the attacker needs in order to break in is an oscilloscope, a computer with the statistical analysis software, and a few off-the-shelf electronic equipment parts.

While other types of attacks involve physical break-ins: a violent observable act of some kind that leaves visual or physical clues after the intrusion, or can potentially be detected using an anti-virus software, side-channel attacks on the secure element are a passive collection of power consumption traces that do not leave any evidence and are completely undetectable.

During the attack, no equipment is destroyed, the compromised device doesn't have to be moved from its original location, and the successful attack will leave no clue that the card or device is now being controlled by rogue actors.

WHAT IF AN ACCESS CARD IS LOST OR STOLEN?

One of the more common facility security risks is also a prime opportunity for side channel attacks. In the event of a lost or stolen card that ends up in the wrong hands, hackers can extract information from the card or the card reader and create thousands of duplicate cards to help perpetrators access facilities that are otherwise restricted.

Alternately, they can manufacture a card with a maximum freedom of movement in all highly restricted zones by extracting the global security key from a limited access card issued to a low-level clearance employee or a temporary visitor.

What's worse, the cards or devices man-

ufactured by the same maker using the same global security key could fall under the control of perpetrators who can access all other facilities that use the same card model by the same manufacturer. Just one lost or stolen access card in the wrong hands could open all doors.

WHAT IF A FM SYSTEM FALLS UNDER HACKERS' CONTROL?

FM systems located outside the building and outside the secure perimeter are accessible to third parties and are less protected than in-house infrastructure. This welcomes potential break-ins using side-channel attacks on utilities and critical infrastructure.

An attacker can take control of the gas supply to the heating system of a Minnesota-based facility and cut off heat during the weekend, freezing the pipes. He or she

can shut down air conditioners in a data center in Florida and fry the server room or shut down electricity sources disabling life-supporting equipment in a medical facility.

Any of these potentially devastating scenarios can result from a successful side-channel perimeter penetration attack.

WHAT IF THE CCTV NETWORK IS HIJACKED?

The CCTV Network's biggest vulnerability comes from its biggest strength of being a network — a vulnerability demonstrated by a group of Israeli and Canadian cryptography researchers (Dr. Eyal Ronen, Dr. Colin O'Flynn, Dr. Adi Shamir, and Achi-Or Weingarten).

Using only readily available equipment costing a few hundred dollars, the team mounted a successful attack against a





network² of cryptographically protected Philips smart lightbulbs by injecting a simple instruction code that would turn off the network and instruct other bulbs in proximity to turn off, resulting in a blackout wave.

Hackers who take complete control of an entire CCTV can turn off the cameras and manipulate them at the hardware level, undetectable by the software that normally controls the devices.

DOCUMENTED ACCESS

There have been a number of articles dealing with facilities vulnerability to side-channel attacks (see FMJ Extended for more). The recurring theme of side-channel attacks is the ease in which a device can be infiltrated. Even if an HID card is protected by means of a cryptographic key, it can still be broken into by means of DEMA⁴, which is a close cousin of DPA.

Side-channel attack on a Protected RFID Card⁵ reinforces the threat, noting that: “Side-channel attack is a known security risk to smart cards, and there have been efforts by smart card manufacturers to incorporate side-channel attack countermeasures.”

An experiment conducted by a team of Chinese and American researchers in 2018 proved that after collecting 20,000 power traces (in approximately 200 seconds), only 268 key guesses and another 177 searches (about 300 seconds) were sufficient in recovering the 56-bit source keys of DES (Data Encryption Standard) successfully.

Based on tests conducted by researchers, it can take as little as eight hours of power consumption trace recordings to decode the global security key encrypting the secure element of the microchip.

This translates into a visit by a perpetrator to collect power consumption traces gaining access to the secure perimeter, reinforcing how quickly and relatively effortlessly a side-channel attack can be executed.

SOLVING VULNERABILITIES

Manufacturers and end-users are investing significant resources into protecting the software layer of facilities and sophisticated access control management. However effective against software intrusions and malware, these security measures do nothing to protect the hardware layer of the convenient access instruments against side-channel attacks on its hardware’s secure element.

The Biggest Security Threats Facing Embedded Designers⁶ argues: “Software security alone is not enough to protect today’s networked devices and fielded systems. What is needed is a combination of software and hardware security.”

Today, most manufacturers perform in-house hardware evaluations or outsource them while incurring significant costs and taking the risk of releasing devices that can be broken into with the side-channel attack.

The manufacturers who do not have the budget to conduct their own vulnerability detection and remediation, address the threat by purchasing readily available side-channel attack-resistant hardware designs of cryptographic algorithms from larger providers. These products are either certified by a recognized body or covered by some sort of a protection guarantee, but only up to a certain number of collected traces.

Until now, manufacturers had no way of validating whether the countermeasures are effective and whether the certification obtained from a certification authority reflects the lack of vulnerabilities. With more affordable tools they should be able to ascertain that the device is free of side-channel attack vulnerabilities.

For the most part, protecting devices against DPA and other attacks on the chip’s secure element has been cost-prohibitive for most manufacturers, requiring expert-level knowledge, experience, and effort that only the most sophisticated manufacturers possess.

Traditional protection involved extensive measurements of actual power consumption by a working device and leveling out power consumption over time to be more even.

Manufacturers would apply countermeasures to ensure power consumption evenness, and then the device would be produced and redesigned again and again through numerous iterations, until the power consumption traces yielded uniform waves.

This method was not economical or effective. Yuri Kreimer, FortifyIQ CTO and co-founder calls this practice The Hardware Security Paradox.

THE HARDWARE SECURITY PARADOX

All OEMs and microchip manufacturers face this dilemma:

- **Hardware design needs to be protected from side-channel attacks in order to make a product secure.**
- **To test a product's security, it naturally needs to be manufactured first.**
- **That progression from hardware design to a testable final product can take months and cost millions of dollars.**
- **If design flaw is discovered upon testing, delays and rework on a massive scale result in material consequences for the timing and cost of the product launch.**

When it comes to secure hardware implementation, what comes first: the product or its design?


THE NEXT-GENERATION SOLUTION

One of the most important advantages the manufacturer has over the hacker is the detailed knowledge of the characteristics of the underlying platform, which theoretically, should enable manufacturers to develop more sophisticated defenses against hackers.

Devices that are resistant to power-based side-channel attacks on a secure element (e.g. DPA) are designed so that their power consumption is even over time, regardless of computations that are performed.

The best and the most fiscally sound solution to side-channel vulnerability would be to simulate a microchip's secure element power consumption first, resolving the problems at the design stage, before moving on to the expensive fabrication stage.

This is where emerging new tools and methods can help manufacturers significantly reduce the costs of production and speed up the trial-and-error cycle by applying a fundamentally different technology that makes it possible to reveal side-channel vulnerabilities of the secure element of the microchip at the design stage.

When investing in access management systems and FM technology and upgrades, FMs should keep an eye on new threats, new solutions, and new ways of managing facilities while maintaining secure perimeters. A better understanding of side channel attacks and forthcoming solutions will help professionals ask their vendors the right questions about equipment protection against power-based side-channel attacks on a secure element. 



Alexander Kesler is a visionary entrepreneur with security background, a co-founder and CEO at FortifyIQ.com.

For more than 20 years, he has been built and grown B2B tech companies to be included in the Inc. 5000 list. FortifyIQ offers a pre-silicon hardware design evaluation and protection software suite advancing side-channel attack resistance. FortifyIQ has been nominated as the finalist at the 2019 Milipol Innovation Awards in two categories: Cybersecurity and Smart & Safe Cities.

REFERENCES

1. K. Markantonakis et al., Attacking smart card systems: Theory and practice, Information Security Technical Report, Volume 14, Issue 2, May 2009, pp. 46-56.
2. E. Ronen, C. O'Flynn, A. Shamir, A.-O. Weingarten, IoT Goes Nuclear: Creating a ZigBee Chain Reaction, IEEE Symposium on Security and Privacy, 2017.
3. D. Corbett, It's Time to Completely Rethink Physical Access Control Architecture, slide presentation with accompanying text.
4. Differential Electromagnetic Analysis, Wikipedia.
5. R. Xu et al., Side-Channel Attack on a Protected RFID Card, IEEE Access, Sept. 2018.
6. R. Newell, The Biggest Security Threats Facing Embedded Designers, Electronic Design, 23 May 2016.

Relevant Articles and Links to The Digital Assets For The Digital Version Of The Article The Hardware Security Paradox

https://www.fortifyiq.com/the_hardware_security_paradox.html

Global Cryptographic Keys in The IOT World And The Threats They Present

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EARTH IS OUR MOST IMPORTANT COMMUNITY.

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In 1970, the first Earth Day was organized in the United States to demonstrate support for environmental reform. It is credited with launching the modern environmental movement and led to the passage of landmark laws in the U.S., including the Clean Water and Endangered Species Acts — both of which have recently seen protections weakened by government rollbacks.

Celebrating its 50-year anniversary on April 22, 2020, Earth Day has become the world's largest civic event. Galvanized by global initiatives led by the non-profit Earth Day Network, millions of people, from Seattle to São Paulo to Seoul, will mobilize to take action — from helping to end plastic pollution and fighting climate change, to ensuring safe drinking water and protecting all life on our planet.

Learn how you can add to a billion acts of green at earthday.org.

“Fifty years ago, millions took to the streets for the first-ever Earth Day and fought successfully for the future of our planet. In 2020, let's do it again.”

– EARTH DAY NETWORK

CLIMATE ACTION

Last year, “Climate emergency” was the Oxford Dictionaries Word of the Year. According to the Earth Day Network, 2020 is a crucial turning point. We have just over a decade to cut our emissions in half to avoid the most devastating impacts of climate change.


As stewards of the built environment, facility management professionals are on the front line of transformative change. We have the knowledge, resources and responsibility to do our part through sustainable building practices.

As sustainability champions, we can lead our organizations and communities toward a zero-carbon future. Share what steps you're taking to minimize your facility's negative effects on the environment — use hashtags #EARTHRISE and #EarthDay2020 on social media.

UNDERSTANDING CLIMATE CHANGE

To adequately provide safe, sustainable and resilient facilities, FM professionals need a basic understanding of the science behind climate change. By monitoring key indicators of climate change – greenhouse gases, oceans, weather, changes in ecosystems – FMs can anticipate and plan for mitigating facility risks. Understanding climate change science, its impacts and areas of concern help to move facility management into proactivity, which can result in both business and climate improvements.

Published by IFMA's Environmental Stewardship, Utilities and Sustainability (ESUS) community and sponsored by BGIS, “Fundamentals of Climate Change for Facility Management Professionals” provides an overview of the science and impacts of climate change specific to FM professionals, such as climate change impacts to commercial structures, transportation, and how resilience planning and carbon footprint measures can be important tools in dealing with climate realities.

A follow-up report, “Adapting to Climate Change for Facility Management Professionals,” will delve further into how to develop risk management plans, access local requirements and prepare to deal with the changes that climate change is demanding in the business setting. Look for more information at Facility Fusion in San Francisco, April 14-16, 2020. 

GLOBAL ACTION IS NEEDED TO ENSURE OUR SUSTAINABLE FUTURE.

GREEN CITIES

Among the Earth Day Network's many initiatives is the Green Cities and Local Governments campaign, which engages with cities to respond to climate change by providing resources, partnerships and a platform to take climate action.

Cities around the world are developing innovative plans — ordinances, citywide strategies, public outreach and education campaigns — to drive climate action and resilience. Making cities green is a necessary step in preparing for a healthier, more sustainable future.

Through a global network of local government partners, Earth Day Network hopes to mobilize millions of people to show the collective impact of local action and amplify the demand for climate action from national governments. Learn more at earthday.org/campaign/green-cities.

IFMA RESOURCES

Head to IFMA's Knowledge Library for guidance on establishing, communicating and measuring sustainability programs in your facilities: <http://bit.ly/EarthDay2020KL>.

Tracking Trash: Finding New Strategies in Waste Disposal

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Sustainability Programs That Produce Energy Star Rated Buildings

Learn to develop a mitigation plan for a successful sustainability program.

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PLANNING FOR PUNCTURE

WHEN YOU LEAST EXPECT IT

From the first footstep that lands on a new roof assembly, its puncture resistance is put to the test. Puncture resistance enables the roof to play defense against the various environmental and human-generated forces intent on wreaking rooftop havoc.

Is your construction team considering puncture resistance in your project's materials planning?



Expecting the Unexpected

A properly designed roofing system—with a cover board added to the assembly for additional support—will have the strength and resistance to hold up under a variety of conditions for the duration of its lifespan. Cut corners in design or materials, and you're staring at premature re-roofing and costly repairs in the face. Use a gypsum cover board beneath the roofing membrane to help protect your roof assembly and, consequently, the building itself.

Hefty hailstones and debris-filled tornadoes are clear causes of puncture concerns, but severe stormy weather isn't the only threat. From initial installation to ongoing rooftop public use, the roof assembly looms under constant threat of puncture-related harm.

Dropped tools and heavy equipment can make for dangerous conditions while installing, repairing, and performing maintenance. From screwdriver holes to large equipment tears, punctures large and small can leave the insulation exposed to moisture, airflow, and bulk water's invading effects. A falling tool or heavy hammer can pierce the assembly, which is why gypsum roof boards with high compressive strength are formulated to withstand puncture under impact.

An often overlooked puncture liability, specialty designs like rooftop gardens and pools will endure constant foot traffic from visitor use. And the weight of HVAC systems and photovoltaic paneling can puncture the membrane and compress the insulation below. In such specialty roof assemblies, even a small puncture can lead to destructive consequences.

Regardless of locale, weather-related damage remains a common source of rooftop puncture. Strong wind gusts can turn tree branches and other debris into projectile weapons intent on piercing your roof. Storm-level winds, especially during tornadoes and hurricanes, pack an exponentially stronger punch. Particularly in prone locales, hailstorms are a major concern for low-slope roof assemblies. To stand strong without costly repairs after a storm, the building's roof assembly must also be capable of enduring the pressure of impact from fast-moving objects of any size.

What's the Point?

Make sure your team's using a roof board with proven puncture resistance performance in new construction and re-roofing projects. Look for a product built to withstand the most common sources of puncture, to help minimize the potential impact damage that can occur over a roof's lifecycle.

Some factors to consider:

- 1** Find materials with high compressive strength (>500psi), which will protect against heavy load penetration by providing extra resistance to breaking under compression.
- 2** Look to UL 2218/2218A and/or FM Global Loss Prevention Sheet 1-34 for information on how to minimize the potential for hail damage to buildings and equipment.
- 3** Check for independent ASTM International standard puncture resistance testing against low-speed impact (ASTM D4833) and dynamic puncture resistance (ASTM D5635).

MATERIALS MATTER

Material quality and performance can help determine your roof's integrity, longevity, and ability to protect occupants and physical assets. Roof assembly designs that discount materials performance and puncture probability risk puncture-related roof repairs and maintenance as well as potential property damage and lost revenue. Evaluate proposals carefully to ensure your roof will perform to your asset protection expectations.

For information on how Georgia-Pacific's DensDeck® Prime Roof Board protects against roofings most common forms of puncture damage, visit [DensDeck.com](https://www.densdeck.com).



VISITOR SAFETY

**in Emergency
Situations**

BY GERALD NARCISO



In most cases, connecting the world is just a notification away.

In the last decade, smart phones with real-time feeds on social media and apps have made it possible for people to instantly communicate and receive information. But even with all that readily available technology, there can be scenarios filled with disconnect and misinformation —situations that create confusion for large amounts of people.

An example of this is during a workplace emergency. It is typical for global companies to have sophisticated emergency response plans in those instances to help account for employees in one or more of their facilities. However, safeguarding and communicating with their onsite visitors (contractors, customers, potential employees, vendors) during an emergency is a whole other challenge with potentially significant consequences. It is a challenge that organizations had been struggling to solve.

“Companies find themselves ill-equipped to properly respond to their visitors when unexpected situations occur,” said Keith Metcalfe, CEO of Traction Guest, a visitor management systems (VMS) company. “They don’t know who’s on site, so if there is an emergency, how are they notifying guests on where to go?”

In the past few years, visitor management technology has been a new way for organizations to effectively address these challenges. Once viewed as a novelty that was mostly encountered as an iPad check-in tool in the lobby for guests, visitor man-

agement has now blossomed into a mission critical tool for enterprise facilities. — one that has capabilities to collect visitor data, run background checks on guests, or sign crucial documents at check-in. But most importantly, in the event of an emergency, a VMS enables organizations to communicate with their guests before, during and after their visit.

In Traction Guest’s annual Visitor Management Survey, 92 percent of participants in 2019 (which included facilities and security leaders) said VMS creates a safer environment, up 3 percent from 2018 and 10 percent from 2017.

This is critical to visitor safety, risk management and overall facility security.

Simplified Emergency Communication

Well before a possible emergency can occur or even before guests set foot onto the premises, the lines of communication with guests are already open if a company is leveraging an enterprise VMS. This is a major benefit for health and safety teams responsible for managing a high volume of visitors across multiple facilities.

Visitors can be pre-registered, with their contact information captured. This enables fluid and direct communication with guests throughout the entire visit cycle. Companies can provide parking instructions, facilitate host meetings, and send mass notifications or directly text/call when immediate action is required.

“Providing education and crucial information is the main component,” said Metcalfe. “We can message them immediately if there’s a problem and they need to exit the site, and specifically where to do that. It’s about having the same value, responsibility and care for your visitors that you have for your employees.”

A VMS can also require guests to watch safety videos or view site maps at check-

ACCORDING TO OSHA, “A workplace emergency is an unforeseen situation that threatens your employees, customers, or the public; disrupts or shuts down your operations; or causes physical or environmental damage.”



in. Automating this as part of the check-in process helps to ensure awareness of workplace hazards, protective equipment and emergency procedures.

Including visitors in the emergency and evacuation procedures is not only ethical, it also aligns with a company's risk management and security strategy. On top of gathering visitor contact information and providing timely correspondence during an emergency, a VMS can confirm everyone's safety with a roll call. Companies can also notify visitors to meet or take a detour to an alternative site versus one during an emergency.

"There is no current method for companies to achieve this without VMS," said Melcalfe.

Being able to locate and communicate with visitors gives organizations peace of mind, knowing their guests are safe and allows personnel to allocate precious saved time to other pressing matters.

Know Your Visitor

Part of preventing an onsite incident, whether it is an active threat or a data breach, is understanding who is visiting and what their intentions are. Typically, global organizations must manage thousands of employees, multiple sites and different visitor types. Many have complex regulatory requirements.

The goal for security managers is to mitigate risk and have policies and procedures in place for a multitude of events. Any environment where visitors are onsite requires a proactive plan to manage the

situation and roll out security procedures for both employees and visitors. A VMS is a great way to execute that.

Part of improving facility security for organizations includes validating and pre-screening any onsite attendees. VMS has features like watchlists and ID scanning that can pre-screen guests, verify their identities and view their past check-ins. Adding this extra layer of security is important for companies. In the 2019 VMS survey, the demand for watchlists grew by 10 percent in 2018.

Individuals that may pose a threat to a company and its employees can easily be

"Providing education and crucial information is the main component, we can message them immediately if there's a problem and they need to exit the site, and specifically where to do that. It's about having the same value, responsibility and care for your visitors that you have for your employees."

added to a watchlist — both internally developed lists and lists curated by third parties, similar to those used by law enforcement.

“Watchlists help notify hosts and security when an unwelcome guest may have entered the premises,” said Metcalfe. “At that point, companies can block those flagged individuals from accessing the facility past the check-in.”

ID scanning technology also helps organizations capture important data from passports and driver’s licences, and in some cases, help verify the identities of individuals or run them against third-party watchlists. Beyond safeguarding people and facilities, organizations are having to protect their data. According to the 2019 VMS survey, 63 percent of companies are worried about data security — a 19 percent increase from the year before.

To proactively prevent onsite guests from compromising data, organizations can use VMS to maintain consistent records of visitors (i.e., time on site, number of visits, purpose of visit), have them sign

NDA’s and pre-screen those who may have malicious intentions based on their prior history. Visitor management technology is giving companies the visibility necessary to safeguard their data, people and facilities.

Strengthening Procedures

The visitor management needs of global organizations have increased in response to heightened safety standards and regulations. Enterprises, particularly in high-volume, complex environments, are placing tremendous emphasis on safety and accountability, not only on employees, but now also guests. Dealing with multiple sites, different visitor types and employees requires a robust and flexible solution capable of adjusting to the needs of different locations.

Prioritizing visitors during emergency situations not only makes sure people are accounted for and briefed on mandatory actions, but most importantly, it ensures they are safe. VMS allows organizations

to have strong emergency preparedness procedures in place in times of disaster. It provides a sense of control and comfort at a time of chaos and panic. **FMI**



Gerald Narciso, Content

Marketing Manager for Traction

Guest, has led editorial and social media strategies for global tech companies like Avigilon (Motorola) and Genesis Robotics (Koch Industries). Narciso is also a freelance journalist with the New York Times and Bleacher Report/CNN. He is part of a team that created this year’s VMS Survey, which uncovered key trends in the ever-evolving visitor management industry.



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WHY MORE FMS ARE WORRIED ABOUT ACTIVE SHOOTER PROCEDURES

BY KAYLA MATTHEWS

Not long ago, the main practice exercise that facility managers held regularly was a fire drill. Now, as mass shootings happen more often, professionals are paying more attention to procedures that help prepare their tenants for active shooters.

According to the US Federal Bureau of Investigations, an active shooter is an individual actively engaged in killing or attempting to kill people in a populated area. Many FMs are understandably more worried about reducing the risks of active shooter incidents and are anticipating them by going through proactive steps. Preparedness is part of the job and active shooters are genuine risks.

ADULTS FEEL STRESSED ABOUT THE PUBLIC SHOOTING RISK

While preparedness is crucial, it will not be enough to make some people feel safe when they go to crowded places.

The American Psychological Association conducted a study about mass shootings and the stress associated with them. Arthur C. Evans Jr., Ph.D., the chief executive officer of the APA, explained, "The more these events happen in places where people can see themselves frequenting, the greater the mental health impact will be. We don't have to experience these events directly for them to affect us. Simply hearing about them can have an emotional impact, and this can have negative repercussions for our mental and physical health."

The poll, which surveyed more than 2,000 adults in the United States, found 79 percent feel stressed due to the possibility of an active shooter. Then, 33 percent said fear prevents them from going to certain places or events, while 24 percent said they changed how they live because they're afraid of a potential mass shooting.

Outside of the APA's study, people used Twitter to confess their anxiety about

the possibility of encountering an active shooter. Some said they didn't feel safe anywhere, and they specifically prepare to face active shooters before leaving the house. Others sought therapy to help with the anxiety or clarified that they left crowded places after the fear got too intense.

For FMs, these findings mean that even if they have active shooter procedures in place, they may notice reduced attendance at some events. Moreover, they may see other effects on their bottom lines due to needing to hire extra security personnel or put more measures in place to make people feel safer.

FMS SHOULD VIEW ANY BUILDING OR BUSINESS AS A POTENTIAL TARGET

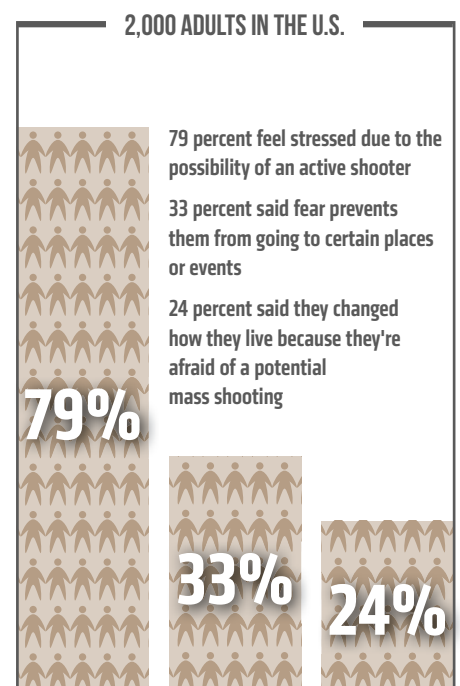
Virtually any American who's asked would likely say active shooter incidents are more common now than in the past. Law enforcement officials can point to data confirming that, too. "If you look at the numbers, we're looking at an active shooter every other week in this country," said Christopher Combs an FBI special agent in San Antonio, Texas USA.

The FBI created a list of active shooter incidents in the U.S. from 2000-2018. One of its most striking aspects is the diversity of the targeted places. In the last three months of 2018, for example, active shooters came to a synagogue, motel and yoga studio, among other locations. FMs should take the "not if, but when" mindset, and active shooters should be seen as threats even when the risk seems minimal.

BUSINESSES ARE STARTING TO SEE ACTIVE SHOOTERS AS CORPORATE RISKS

FMs also must stay on top of active shooter procedures to gain the confidence of stakeholders. A recent article from The Wall Street Journal profiled how companies are starting to include active shooters in their corporate disclosures. Companies commonly cite things like natural disasters when talking about the most likely risks that could affect a business.

However, brands ranging from restaurants to real estate companies are concluding they cannot and should not overlook active shooters as threats. The mindset is



that if a brand experiences an active shooter event that makes its stocks drop, it can assert shareholders were warned it might happen.

Looking from the scope of FM, brands must implement procedures that make shareholders feel satisfied they have weighed the risks associated with active shooters and taken decisive steps to combat them. If that does not happen, the company may notice worsening stock performance and a growing public perception that it does not care about customer safety.

FACILITY MANAGERS DON'T WANT TO GIVE AN IMPRESSION OF OBLIVION

News reports following active shooter incidents often feature insights from people who knew the suspect. Sometimes they say things like, "They kept to themselves, but were always kind to me. I'd never suspected something like this would happen." In other cases, people discuss a long history of warning signs. They might describe how the shooter had a quick temper or didn't handle stress well.

FMs do not want anyone thinking they were unaware of risks. They might do things like install more cameras, hire 24-hour security guards, or provide training to their tenants. Some workplaces explicitly ask employees to report strange behavior they see in their colleagues. They would rather opt for an abundance of caution instead of realizing too late that they overlooked something.



Then, if a FM makes a public admission about not noticing one of the warning signs, they might later find themselves a part of a lawsuit brought by loved ones of victims. It's clear why FMs should remain concerned about active shooters and the procedures necessary to prepare for them. Here are some of the ways they can get ready:



1. HAVE ACTIVE SHOOTER INSURANCE

When lawsuits emerge after active shooter incidents, legal liability could fall to the landlord or business owner. Once those parties realize there is a foreseeable risk of such a crime, they must protect their tenants from danger. These so-called foreseeable risks could become apparent if an events venue has a problematic repeat customer who threatens to engage in violence, or law enforcement officials give a tip about possible danger.

Purchasers should study the terms of active shooter insurance before buying it. For example, an ideal insurance package should not have exclusions for shooting events with more than 50 or less than three casualties, or those classified as terrorism. Moreover, it is best for the insurance to include a security vulnerability assessment, crisis counseling and funeral coverage.



2. INVEST IN A WARNING SYSTEM

The growing issue of active shooters created an industry of technological solutions to prepare FMs and other professionals. For example, in the same way an FM might install smoke alarms, they can now buy gunfire detectors that recognize shots fired in a room. Once a system picks up on that event, it can notify all necessary parties — from building officials to law enforcement professionals — within seconds.

Many of these warning setups can also connect to other buildings systems, such as those that lock doors or trigger alarms. The automated nature of this technology means people don't have to take time to spread the word themselves. Technology handles that necessity and could help people stay safer.



3. KNOW THAT DRILLS ALONE ARE NOT ENOUGH

Some FMs make the mistake of conducting active shooter drills in isolation. The better approach is to implement them as part of a cohesive solution. Exercises can become counterproductive if they leave people feeling confused and wondering what's next.

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Another reality posing challenges is that some facilities in some states must follow laws requiring regularly scheduled active shooter drills. Besides insisting that they can happen, those laws don't enforce consistent practices when carrying out the exercises. That could mean some facilities excel at using drills to promote preparedness, but others only make people feel panicked.

As emphasized earlier, some individuals experience heightened anxiety and change their plans due to fears about active shooters. Enduring guided scenarios that teach them how to act in dangerous situations could make some people come away traumatized, especially if the drills are too vivid.

This does not mean FMs should avoid non-mandatory drills altogether. However, it's a reminder that they should only be one facet in a much broader strategy to get ready for an active shooter scenario.



4. RELY ON EXPERT GUIDANCE WHEN IMPLEMENTING A PLAN

Active shooter events happen frequently enough that organizations have written standards for high-risk facilities to follow. For example, the National Fire Protection Association created a standard called NFPA 3000 to help facilities handle active shooters and other hostile events. The NFPA received that request from a local fire chief after the Pulse Nightclub shooting in Orlando, Florida USA.

FMs and active shooters did not always come up in the same sentence as often as in recent times. Now, people who oversee facilities cannot afford to ignore the risks of mass shootings. Fortunately, they do not need to start from scratch. NFPA 3000 was the first standard related to active shooters, but other professional bodies have suggestions for formulating shooter response plans.

For example, the U.S. Department of Homeland Security has a dedicated page for active shooter preparedness (www.cisa.gov/active-shooter-preparedness). It highlights the Run, Hide, Fight approach, which suggests that, if an active shooter event happens, people should take steps to protect themselves in that order. Fleeing to escape the dangerous area is the best option, followed by hiding. Then, as a last resort, people can consider confronting the shooter, such as to attempt to seize the weapon.

The overall idea is FMs should not try to come up with response plans on their own. Reliable resources exist, and they can help professionals shape their active shooter safety plans.



5. THINK OF WAYS THAT BUILDING AND SITE DESIGN CAN DELAY ACTIVE SHOOTERS

An FM is usually not the primary decision-maker regarding choices that increase occupants' safety during active shooter events. However, that person can weigh in with feedback while communicating

with people, such as architects, and discuss options for incorporating building design into active shooter preparedness.

For example, monitored entrances, bulletproof glass and extra-durable locks are all productive tools that can slow down active shooters, allowing more time for security guards or police to arrive. However, when FMs evaluate the best ways to deter active shooters, they also must stay mindful of providing enough exit routes for people to escape.

When architects rebuilt Sandy Hook Elementary School after a shooting killed 26 people, they incorporated safety into the building. Classroom locations, escape paths and intruder visibility were addressed in the design.



6. MAKE ACTIVE SHOOTER TRAINING POSITIVE AND RELEVANT

Drills can sometimes make people feel less prepared for active shooter events. Thus, FMs should consider additional options for training staff members in appropriate ways that pay off. For example, training with virtual reality allows customizing the scenario to a person's building layout. Also, participants could go through interactive quizzes to help them learn.

FMs must ensure any training covers subjects that may not automatically come to mind. Reminding people to silence their phones means a vibrating gadget wouldn't give away a person's hiding place in an active shooter situation.

PLANNING AHEAD REDUCES THE LIKELIHOOD OF CATASTROPHES

Taking responsible action is part of the job description for FMs, and active shooters may define some of the choices those professionals make. Mass shootings are sadly more frequent. Those who manage facilities must stay aware of the associated threats and learn how to mitigate them. **FMJ**



Kayla Matthews is a journalist and writer interested in FM technologies, trends and news. Her work has also been featured on *Freight Waves*, *ISHN.com*, *Manufacturing.net* and *InformationWeek*, among other publications. To read more from Kayla, you can visit her personal tech blog at ProductivityBytes.com.



VERIFYING High Performance in Energy-efficient Buildings

BY BILL CONLEY

Star light, star bright; first star seen day or night, when entering a building, could be the ENERGY STAR® decal. A facility that has the ENERGY STAR logo on its lobby doors or in the reception area is in the top 25 percent energy-efficient buildings in the United States.



ENERGY STAR

The ENERGY STAR Portfolio Manager (ESPM) is the measuring and monitoring tool provided by the U.S. Environmental Protection Agency to establish and maintain top-notch conservation of natural resources such as electricity, gas and water. Determined by utility bills, energy usage is documented, and factors such as building type, hours worked, number of employees and computers in the facility are input to fully understand key factors that influence how the facility functions.

Scores are based on periodic surveys of building types and calculates what constitutes a high-performance building. The latest data collection efforts were administered through the Commercial Building Energy Consumption Survey, which serves as the data source for a majority of building types in ESPM. The survey began in the spring of 2019 and preliminary results will be available to the public this year.

THE PROCESS

The tracking of utilities is only part of the equation, though. For facilities achieving a score of 75 or higher, to apply for the ENERGY STAR label, the application provides a summary of a facility's characteristics, which then need to be validated. The validation process must be performed by a licensed professional, usually a professional engineer. The role of the LP is to verify that all energy use is accurately reported, the building characteristics are correctly notated and the facility's indoor environmental quality has not been compromised in the pursuit of energy conservation.

The LP will also verify that the information submitted in the application, utility bills and building characteristics are correct and that the building meets acceptable indoor quality standards. They also ensure the building meets industry standards for acceptable indoor air quality, thermal environmental conditions and illumination. In this role, the LP is expected to be fully conversant with current standards specified by the American Society of Heating, Refrigeration & Air Conditioning Engineers, specifically ASHRAE Standard 55 and ASHRAE Standard 62, as well as the Illuminating Engineers Society (IES) Lighting Handbook.

A typical site visit to a facility takes up to one day. Upon arrival, the LP will measure outside air temperature and humidity, as well as exterior CO₂ levels to provide comparison points for indoor air quality. They will review summary building information provided in the application such as building location, operating hours, occupancy, gross square footage and energy consumption over a 12-month period.

They go through the facility with their instruments and gauges: visiting offices, conference rooms, open office areas and labs. They check for thermal comfort, measuring the temperature and relative humidity levels in a representative sample of spaces throughout the facility and compare the results to the requirements of

ASHRAE Standard 55: Thermal Environmental Conditions for Human Occupancy.

They review IAQ, which may include measuring CO₂ levels in a random sample of the occupied interior spaces of the building, per the indoor air quality procedure defined in ASHRAE Standard 62.1: Ventilation for Acceptable Indoor Air Quality, for the type of building being visited.

They measure illumination levels in similar representative spaces of the occupied interior spaces of the building. The results are compared with the requirements of the IES Lighting Handbook: Reference & Application to ensure that lighting meets or exceeds acceptable levels.

The LP also should inspect a sampling of air-handling units. Signs of mold, mildew or excessive dust/dirt should not be evident. The units should be well-maintained, with filters and belts clean and operable. If everything falls within the scope of specified requirements, then a Statement of Energy Performance can be signed and submitted for certification.

RECOMMENDED ACTIONS

Ideally the LP should not experience any problems or issues with this verification process. It is incumbent on facility managers to maintain this type of clean, healthy environment. If the FM has everything in order, no performance audit should deliver any surprises. LPs refer to ASHRAE Standards, so it may be good idea to visit and follow them. These guidelines can assist in recognizing and mitigating adverse conditions in a facility; they are well defined, eminently respected and accessible to all (although they do charge for the formal documents).

ASHRAE Standards 62.1 and 62.2 are the recognized standards for ventilation system design and acceptable IAQ). FMs can look

for minimum ventilation rates and other measures intended to provide IAQ. The facility must have air quality that is acceptable to human occupants, which ultimately helps minimize adverse health effects. While the standards inform building codes in defining minimum requirements for outside air, they also define requirements for ventilation and air-cleaning-system design, installation, commissioning, and operation and maintenance.

ANSI/ASHRAE Standard 55 establishes the range of indoor environmental conditions to achieve acceptable thermal comfort for occupants of buildings. The standard specifies the combinations of personal and indoor thermal environmental factors that will produce conditions acceptable to a majority of the occupants within the space. The environmental factors addressed in this standard are temperature, thermal radiation, humidity and air speed; the personal factors are those of activity and clothing. The criteria in this standard should be applied together because indoor comfort can be complicated and relies on the interaction of several factors.

This standard specifies thermal environmental conditions acceptable for healthy adults at atmospheric pressure equivalent to altitudes up to 3,000 m (10,000 ft) in indoorspaces designed for human occupancy for periods not less than a quarter hour. There are six primary factors that must be addressed when defining conditions for thermal comfort:

AIR TEMPERATURE

RADIANT TEMPERATURE

AIR SPEED

HUMIDITY

METABOLIC RATE

CLOTHING INSULATION

For instance, if employees are wrapped in winter coats in the office or doing calisthenics in the aisles to keep warm, there may be an opportunity for improvement. The standard does not address such non-thermal environmental factors as air quality, acoustics, illumination or any physical, chemical or biological space contaminants that may affect comfort or health. Other standards may address these issues, as well as OSHA requirements.

ILLUMINATION GUIDELINES

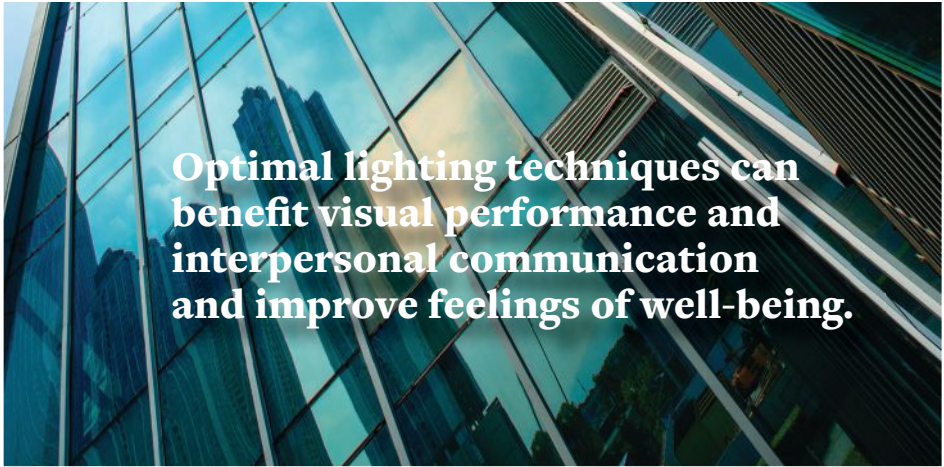
Another LP tool is the IES Lighting Handbook, which aids architects and FMs in providing lighting needs of employees, visitors and guests in a facility. Patterns of light and dark affect both their perceptions of the workplace and their emotional and physiological well-being. Optimal lighting techniques can benefit visual performance and interpersonal communication and improve feelings of well-being.

When it comes to lighting, an FM must evaluate and match the needs of employ-

...if employees are wrapped in winter coats in the office or doing calisthenics in the aisles to keep warm,...



...there may be an opportunity for improvement.



Optimal lighting techniques can benefit visual performance and interpersonal communication and improve feelings of well-being.

ees, utilizing economic and environmental considerations to meet those needs with workable lighting sources and functional installation. Some of the human needs served by lighting are visibility, task performance, visual comfort, social communication, aesthetic judgement, mood and atmosphere, health, safety and well-being. Although they are needs of primary importance, employee's health, safety and well-being are often unrecognized or simply overlooked.

This is why LPs go to different areas in the building to measure illumination effectiveness. Lighting is not a one-size fits-all solution. In an open-plan office setting, there can be varied types of visual tasks and activities, and different types of furniture. The work-station configurations have an effect on light distribution and illuminance. In a perfect world, recessed downlight could provide general illumination, while task lighting is placed at the work level. Daylighting, when possible, is a pleasant touch, supplied by skylights, clerestories, solar tubes or just through perimeter windows.

Private offices present other challenges. Usually fairly small and fully enclosed, they are not dependent on any light outside their confines, unless they have windows or storefronts facing inward. Some options for effective lighting would include indirect lighting from wall-mounted fixtures or a combination of indirect luminaires and direct lighting.

A third major focus in the workplace would be conference rooms. Visual tasks in these areas range from informal to diffi-

cult. Direct glare and modeling of faces or objects are key issues in lighting for meetings. Two or more lighting systems would be recommended to provide flexibility in these rooms.

Corridors, lobbies, restrooms and public areas all need distinct lighting applications to provide appropriate and quality illumination throughout the facility.

HELP IS OUT THERE


Through the aforementioned standards and handbooks, Indoor Environmental Quality (IEQ) can be attained. If ENERGY STAR certification is not yet on the radar, or there is some doubt about the energy efficiency of a facility, FMs can also review ASHRAE 10: Energy Efficiency in Existing Buildings. ANSI/ASHRAE/IES Standard 10-2018 sets criteria to reduce energy consumption through improved efficiency and performance. It applies to existing buildings, portions of buildings and building complexes, including the envelope and all systems. The standard, however, excludes industrial and agricultural processes in buildings for which the energy targets do not include these processes.

Overall, the standard is purposed with increasing aims to increase the energy efficiency of systems and components and upgrading the thermal performance of the building envelope. It provides procedures and programs critical to energy efficient operations, maintenance, management, and monitoring. In any building, energy consumption takes place in different

forms, so assuring efficiency as part of the indoor environment confronts numerous facets of the various systems and practices. The Standard details guidelines for an FM to fulfill their responsibility in the operation and maintenance and energy use in their facility, as well as outlining an energy management plan and the methods of implementation and verification.

IFMA members also have more than 23,000 professionals in the organization who have faced and resolved countless similar issues. IFMA is built on networking, communication and interaction among professionals. Everyone can take advantage of that facet of the organization. Reaching out to other members for advice or counsel is only a question away.

PRESENT OR FUTURE

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Bill Conley, CFM, SFP, FMP, LEED AP, IFMA Fellow, is a 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 company. Conley has more than 40 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 received the association's distinguished author award three times. He has been a regular contributor to FMJ for more than 20 years and has authored more than 70 FMJ articles.

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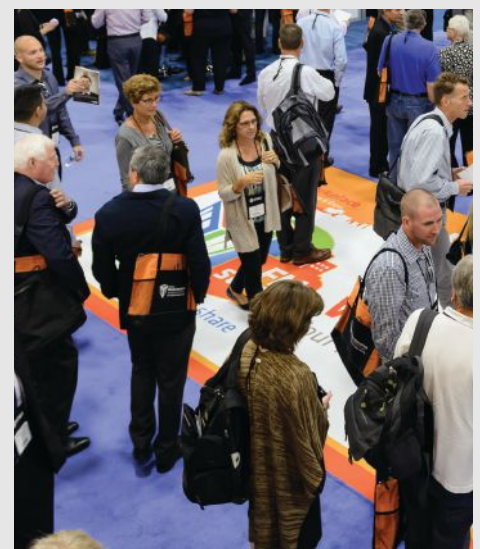
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COMING BACK



FROM DISASTER:

FIVE STEPS TO RECOVER FROM CATASTROPHIC DAMAGE

BY CHAD FARLEY

No one wants to experience a catastrophic event, but disasters seem to have become annual occurrences. The days and weeks after a catastrophe put even the most prepared organizations to the test. More than anyone, facility managers know the importance of a solid disaster recovery plan. But even with the best laid plans, it can take weeks or months to get a facility back up and running. If there wasn't a well-laid plan? That's going to take a lot longer.

Talk with any FM who has managed a recovery project, and it becomes clear there are certain steps that help the rebuilding process. **Here are five steps to keep recovery efforts on track.**

1 CONTACT AND COORDINATE WITH KEY STAFF

Whether an event is known in advance, like a hurricane, or strikes without warning like an earthquake, most FMs have an emergency contact list. Hopefully it's current and contains all key leadership. During and after an emergency, stay in contact with key staff and make sure they're communicating to all personnel. Communication is key during rebuilding.

Remember that everyone will be dealing with the event personally, as well as professionally, so exercise patience in the early days after the event and beyond. Rebuilding takes time.

As soon as the facility can be accessed, communicate the state of the building and an estimate of how long it is expected to

remain closed. Decide whether a temporary location is needed, and schedule temporary facilities or mobile offices as early as possible.

It may take weeks to evaluate damage, especially if there's a shortage of available contractors and claims adjusters (and there will be). A useful communications plan includes:

- A status update as soon as possible after the event.
- Regular updates to keep staff and tenants in the know.
- An invitation to keep two-way communication open with staff and leadership.

Daily or biweekly updates will also cut down on being inundated with individual questions from a large staff.

2 EVALUATE THE LOSS

Many business owners want to jump right into rebuilding, but a thorough evaluation of the loss is required for most insurance claims. It's also helpful for future planning. What areas took on the most damage? How could the space have been better organized? Could any risks be mitigated?

Take the time to go through the facility and evaluate any systems failures or areas for improvement. Fully document all damage. During this process, all key stakeholders should be involved in evaluating and documenting losses.

Loss goes beyond the physical damage to the facility. Are there damaged data banks containing sensitive business information? Were research and development projects lost? Gathering feedback from all departments leads to better evaluation and future planning.

Check with your insurance company to find out what documentation is needed for your claim. There will likely be a number of inspectors and adjusters required to evaluate the facility. The damage will need to be observed and cataloged before gutting and demolition begins. Use this time to start brainstorming improvements to the facility and the disaster response plan.

Planning for Disaster

Take these steps before disaster strikes.

- » Make sure the company's emergency contact list is updated quarterly.
- » Have rebuilding vendors and contractors in mind and keep their contact information handy.
- » Revisit the emergency and business continuity plans annually or biannually.
- » Train all staff on emergency preparedness and business continuity plans.
- » Implement any hazard mitigation strategies applicable to the facility. For example, retrofits or new technologies that may lessen the effects of catastrophic events.

3 CONNECT WITH LOCAL, STATE AND FEDERAL AGENCIES

In the U.S. the Federal Emergency Management Agency (FEMA), the Small Business Agency (SBA) and other federal, state and sometimes even local municipalities offer assistance to businesses after a catastrophic event. Available programs will vary locally and internationally, but FMs should familiarize themselves with the process of applying and any documentation and requirements needed to apply.

For federal resources, program information is available online year-round. Reviewing available programs should be part of any disaster recovery planning process, and the time to start exploring programs is before an event happens.

Los Angeles County, a municipality that deals with extreme catastrophic risks from earthquakes, wildfires and flooding, has put together a list of low-interest loan programs available through the SBA and the U.S. Department of Agriculture. There are others, but this list provides a good overview.

After a catastrophic event, agencies will host town hall meetings and workshops for residents and business owners. Announcements of these events will appear on social media and agency websites, as well as local news media. Keep watch for FEMA and SBA workshops where representatives will help with applications and program questions.

4 BEGIN DEMOLITION AND CLEANUP

Once the new plans are in place and required inspections have been done, it's time to start gutting. Contractors, construction workers, dumpsters, portable toilets and temporary site services are going to be in short supply. Some FMs may choose to schedule dumpsters, fencing and other services before demolition begins, so they know they'll receive products by the time crews are ready to work.

If the contractor is scheduling site services, ensure they'll have them delivered by the time demolition starts. It's not uncommon for the wait for local dumpsters to be weeks or months after major catastrophic events. Dumpsters and other site services can be trucked in from other states, so be aware of the logistics of city-wide demolition after a disaster.

Experienced contractors and national waste service companies will have the experience and connections to find and deliver solutions. Reach out as early as possible to avoid weeks or months of waiting for local dumpsters to be available.



5 REBUILD FOR THE FUTURE

When rebuilding the facility, incorporate the lessons learned from the evaluation. This may seem obvious, but sometimes business owners will want to recreate what they had before as quickly as possible.

Take the time to ensure any risk mitigation updates have been incorporated into the new design. Find out if building codes are changing as a result of the event (sometimes they do). Often city inspectors will notify FMs and construction managers in advance, but that's not a given.

Catastrophic events may happen only once or twice in a facility's lifetime. But when they do, it helps to be prepared beforehand to ensure everyone can return to normalcy as soon and seamlessly as possible. **FMI**

RESOURCES

American Planning Association: Planning for Post-Disaster Recovery
<https://www.planning.org/research/postdisaster>

FEMA Hazard Mitigation Planning Resources
<https://www.fema.gov/media-library/assets/documents/131310>

FEMA Recovery Resources
<https://www.fema.gov/recovery-resources>

HUD Exchange: CDBG-DR Toolkit
<https://www.hudexchange.info/programs/cdbg-dr/toolkits/program-launch>

Los Angeles County Consumer and Business Affairs
<https://dca.lacounty.gov/newsroom/rebuild-or-reevaluate-your-business-plans-after-a-disaster/>



Chad Farley is vice president of ZTERS Waste Solutions. ZTERS helps facility managers schedule temporary services, including dumpsters, portable toilets, mobile offices, storage containers and more across the U.S. From recovery to renovation, ZTERS provides full-service temporary site solutions. Reach him at chad@zters.com

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ACCREDITED DEGREE PROGRAMS

SCHOOL NAME:
Pratt Institute, Brooklyn New York

FM-RELATED DEGREES OFFERED:
35 credit Master's Degree

HOW LONG HAS YOUR PROGRAM BEEN AFFILIATED WITH IFMA?

The program was initiated in 1989 with the first graduate in 1991. The program has been an Accredited degree program since 2007.

WHAT COURSES ARE OFFERED?

Master of Science (M.S.) in Facilities Management		
FIRST TERM		Credits
FM-631	Principles of Facilities Management	3
FM-663	Real Estate Development	3
FM-633	Managerial Accounting & Finance	3
FM-625	Technology of Facility Design & Management	3
Total		12
SECOND TERM		
ELECTIVE		
FM-632	Project Management (preReq FM 631)	3
FM-636	Facility Maintenance & Operations	3
FM-771	Legal Issues	3
Total		12
THIRD TERM		
FM-737	Facility Assessment & Strategic Planning	3
FM-736	Infrastructure & Information Communications Technology	3
FM-798	Demonstration of Professional Competence	3
WAC 697a	Thesis Writing	1
Total		11
Required for Graduation		35

ELECTIVES:

Students can choose from the following courses:

- CM-640-1 Safety Management
- CM-621 Project Controls I
- CM-661 Building Codes & Zoning
- FM-722 BIM for CM/FM

DOES YOUR DEPARTMENT TEACH ANY OF THE IFMA CREDENTIALS? IF SO, WHICH ONES?

The overall curriculum addresses the core competencies in the IFMA credentials but the value added is that they are taught in the context of an academic setting with approval from the New York State Department of Higher Education.

WHY WAS THE PROGRAM INSTITUTED?

Faculty in the Pratt School of Architecture felt that there was an extreme need for professional education in facilities management given the number of sites and the breadth and diversity of the built environment in New York City.

WHAT TYPES OF PRACTICAL APPLICATIONS DO YOUR STUDENTS LEARN?

Students have to complete projects in:

- Space planning
- Asset management
- Strategic planning
- Project management
- Accounting & Finance
- Building systems

TELL US ABOUT YOUR FORMER STUDENTS AND WHAT THEY HAVE GONE ON TO ACCOMPLISH.

Graduates are currently working for government and municipal agencies in fire and safety, transportation, project management and outsourcing companies as well as managing facilities for corporations and not-for-profit organizations.

WHAT KINDS OF RESEARCH IS YOUR DEPARTMENT CONDUCTING AND WHAT ARE YOU MOST EXCITED ABOUT?

Students in their last term must complete a thesis which is either a research or case study-based document. Our students participate in the Kufstein Winter School each year which requires them to work with international students on a problem set.

WHAT ARE THE ISSUES FACING THE NEXT GENERATION OF FMS AND HOW WILL THEY BE ADDRESSED?

The next generation will be faced with balancing the particular needs of both new LEED certified buildings as well as those in need of retrofits to meet the local sustainability regulations.

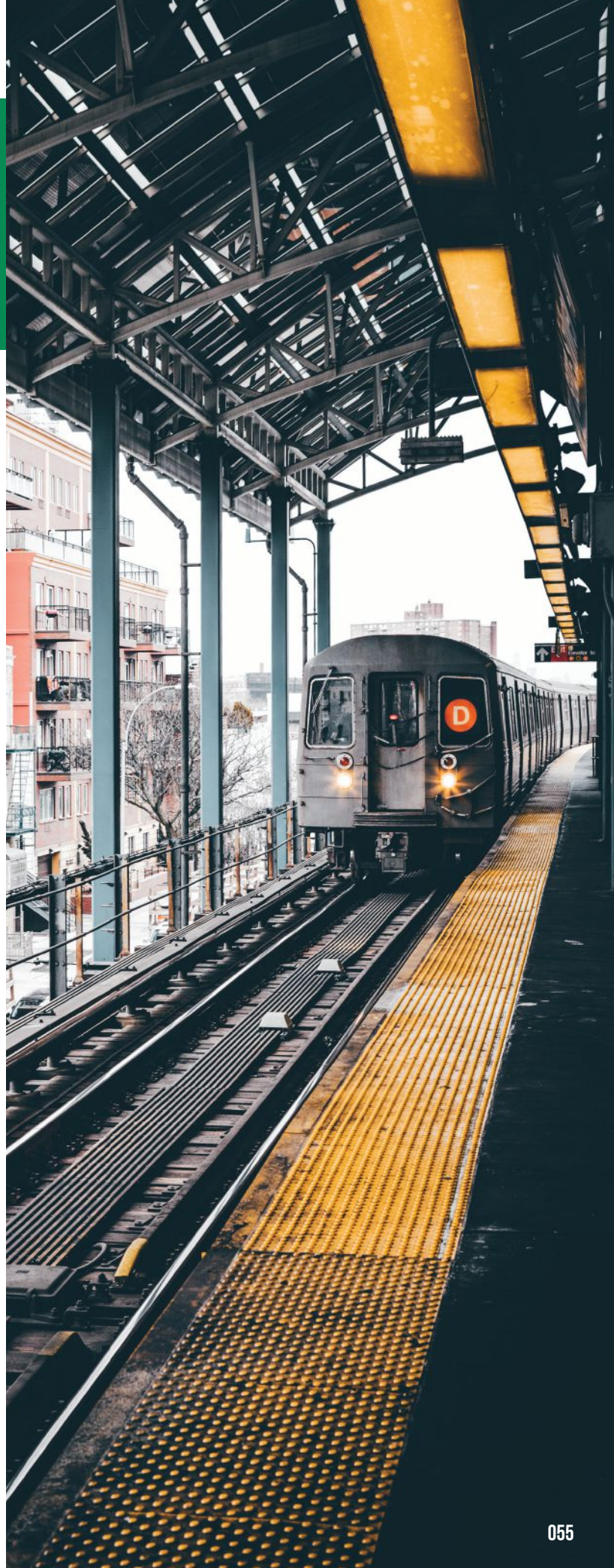
WHAT ARE THE ACCOLADES OF YOUR ACADEMIC STAFF?

The faculty are professions working in all aspects the built environment. At WWP 19 Pratt was awarded the trifecta when Audrey Schultz, PhD received an award for her research; Albert Matlock, a Foundation Scholarship and Tim Burdge, Pratt FM graduate was recognized as a young professional.

So many of the faculty are active in the NYC area they are able to assist students in networking, site visits and internships.

WHY DOES PRATT STAND OUT IN NEW YORK?

The majority of the faculty have been committed to the program for more than ten years and are strong advocates for the profession. The NYC location affords the faculty the ability to bring in guest lecturers, organize groups to attend local seminars and exploit industry relationships to be judges and panelists for student thesis projects.



MY FACILITY

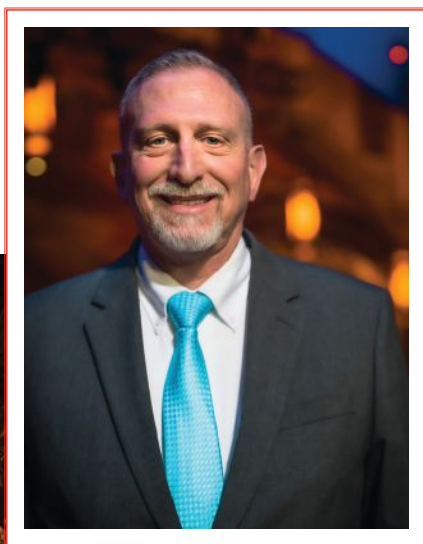


SCOTT CHRISTOPHER

Fox Theatre
Atlanta, Georgia, USA

For 90 years, the Fox Theatre in Atlanta, Georgia, USA, has entertained millions of guests inside its lavish Islamic- and Egyptian-styled architecture. IFMA member Scott Christopher oversees a staff that converts the 250,000 square-foot complex for top musical acts and glitzy galas.

Over the decades, the Fabulous Fox has survived a major fire and the threat of demolition. It is listed as a National Historic Landmark and is on the National Register of Historic Places.



Photos Courtesy of Fox Theatre



Marquee photos courtesy of the Houston Dynamo.



FMJ: *Tell us about yourself and how you got into FM?*

SCOTT CHRISTOPHER: My career in facility management spans over 27 years. That includes work in municipal parks and recreation, a multi-court tennis facility, other parks and related support facilities, including common area and turf acreage, etc. The transition from parks to buildings happened by chance as a result of a departmental restructuring/reorganization. I've been at the Fox Theatre for a little over a year, and I've been involved with IFMA for more than seven years, earning my SFP designation two years ago.

FMJ: *What is day-to-day life like at the Fox Theatre?*

CHRISTOPHER: There is never a dull moment at the Fox! Last year alone, we hosted more than 200 events serving upwards of 500,000 guests. Our events range from private events like weddings and proms to Broadway shows like "Wicked" last year and "Hamilton," which I'm looking forward to experiencing this year. The Fox Theatre also hosts all sorts of concerts, from solo performances to larger events like three sold-out nights of Widespread Panic.

I'm proud to work for a venue that was named number one on the list of "Top Stops of the Decade" (for theatres of our size) for the second decade in a row. This past decade, the Fox sold well over 5 million tickets.

We have about 70 people officed in the building. The busiest days are always when we have either a load in or load out – or when we have several taking place at the same time between our public and private spaces.

One of the most challenging aspects of the job is when our maintenance and housekeeping staff members have a "go between," which is resetting the facility in the time between a matinee and evening performance. Sometimes that window can be as short as 45 minutes, requiring removing all the trash, cleaning all the restrooms, making any necessary seat repairs, etc.

FMJ: *Why is the Fox Theatre unique and what kind of unique challenges do you face managing the facility?*

CHRISTOPHER: One of the more unique things about the Fox Theatre is of course the age of the building. We just celebrated our 90th year, as the theater first opened on Christmas Day 1929.

The Fox Theatre is on the National Register of Historic Places and was designated a National Historic Landmark, so those two facts present opportunities to merge modern FM practices with those required for a historic venue.

Due to the building's age and the intricate design elements of both the interior and exterior, just trying to maintain the proper aesthetic keeps us on our toes, especially when considering the original finishes and surfaces that still exist in the space.

MY FACILITY



SCOTT CHRISTOPHER

Fox Theatre
Atlanta, Georgia, USA

FMJ: *How much space do you manage?*

CHRISTOPHER: I'm responsible for managing over 250,000 square feet. This includes the auditorium, both ballrooms, office space and the theatre's recently launched premium event space, the Marquee Club.

Whether there is an event or not, my day-to-day remains the same. Those responsibilities include directing and managing all aspects of physical maintenance, housekeeping, building systems, a variety of capital projects and related infrastructure improvements to ensure safe, secure and enjoyable experiences for everyone in the building, from guests and employees to visiting performers and their crews.



FMJ: *When you consider the places you have served, what kinds of FM challenges are common across the venues?*

CHRISTOPHER: In my experience, whether a facility is brand new, mature or historic, the challenges and opportunities tend to be more-or-less the same in nature.

The plumbing, HVAC and other systems in a given building all function in mostly similar ways.

Newer equipment may be more sophisticated and more efficient, but that is not necessarily an indicator of capability. An example of that here at the Fox Theatre is our original 300-ton air-handling unit and M17 Chiller. Installed in 1946, it's still in operating condition and can outcool our newer unit by far.

FMJ: *What was your most significant FM challenge and how did you overcome it?*

CHRISTOPHER: My biggest challenge came while serving in a previous location. The building, a shelter for women and children, happened to be almost exactly the same age as the Fox and there was a significant sewer backup. The sewer system in this particular building served approximately 120 people.

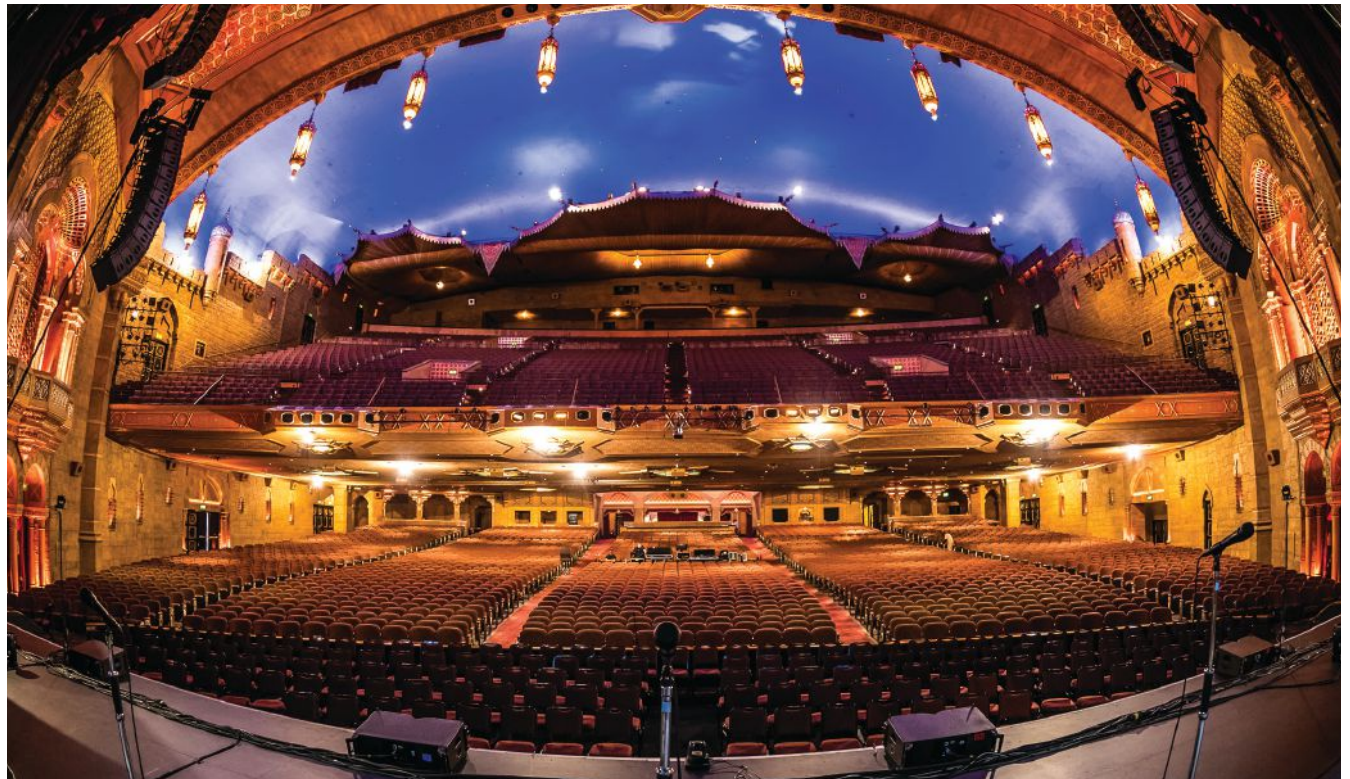
Through several acts of kindness, in-kind donations and a very high level of teamwork, we were able to diagnose, form and execute a plan that minimized the impact to our clients. The work took about 48 hours as opposed to the original estimation of up to a week or more.

Major plumbing repairs in the basement of the old building were undertaken, concrete cutting and re-pouring, repair of the main sewer line that was approximately four feet under the basement slab, portable showers and restrooms were brought in.

All of this took place over a major U.S. holiday, making it more difficult to find workers willing to complete the project. Without the amazing teamwork and help from contractors, vendors and friends of the organization, we would not have been able to restore life back to normal as quickly as we did for this vulnerable group.

FMJ: *What do you like best about what you do?*

CHRISTOPHER: There's almost always some new opportunity to experience – even on a daily basis. My team – maintenance and housekeeping, specifically – and all my other colleagues make tackling the unknown much less stressful than it could be otherwise.





IFMA™

Credentials



The following people were awarded the Certified Facility Manager® (CFM®) certification in

NOVEMBER 2019:

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BY JAMES BARBOUR AND JEFFREY FRIEDMAN

THE BEST OF BOTH WORLDS:

Creating a Secure Loading Dock
While Increasing Efficiency



Loading docks are a complex ecosystem of competing priorities and constant action. Facility managers are all too familiar with the challenges this environment poses and can be hesitant to implement robust security processes that may affect efficient operations. Nevertheless, the loading dock is a significant source of risk for any organization. For years, FMs and security departments have worked hard to maintain this delicate balance and make loading docks a safer and more streamlined component of their shipping and receiving operations. Often, these efforts fail, and the equilibrium is out of balance in one way or another. However, with a well-defined concept of operations in place and the proper tools and resources deployed, loading dock security can actually increase efficiency instead of hampering it.

What are the Risks?

Conventional thought is that the biggest risk to any facility is a truck bomb. While this is true, loading docks are confronted with myriad threats on a daily basis. As well-prepared security and facility professionals know, it's not only about which vehicles a facility keeps out, but also why someone gets in. According to the United States Department of Labor, in 2018 there were more than 1 million employees working in a warehouse facility or loading dock in the U.S. alone. It only takes one individual with false identification to cause thousands of dollars in damage to one facility.

There are several reasons loading docks and warehouse facilities are especially prone to threats, including:

- Loading dock and vendor entrances are an easy target
- Hard to keep up with drivers in different uniforms coming in and out
- Rotating security officers without a database of names and IDs

While there is a lot of emphasis on vehicle security and implementation in barriers, vehicle restraints and other physical measures; gates and barriers alone will not provide a complete solution for an airtight, secure operation.

In day-to-day operations, risks in a facility can include:

- Vendors coming in without insurance
- Unauthorized access to the facility
- Theft
- Drivers on a watchlist let into the premises unknowingly
- Incorrectly timed or schedule mix-ups between vendors

Implementing Comprehensive Loading Dock Security Procedures

COOPERATION BETWEEN SECURITY AND FACILITIES

A concept of operations needs to be implemented that has buy-in from all stakeholders involved with loading dock operations. Security cannot demand processes that are overly burdensome and unnecessarily slow down the ingress and egress of vendors and deliveries. At the same time, facilities need to let security properly verify and authorize vehicles coming onsite. Both sides have significant skin in the game. If packages are late or contractors are being turned away, then facilities will have to answer to angry employees and management. If an unauthorized vendor causes

damage or does something more nefarious, security is in the hot seat. Each site will require its own unique concept of operations. Once agreed upon, the policies need to be written down and easily accessible; however, having a policy alone is not enough. All staff needs to be trained in their area of responsibility and employees should be retrained yearly. The policies in place must be followed and law enforcement needs to be addressed. If exceptions must be granted, there needs to be a documented process on how to do so. These decisions should not be made on an ad hoc basis. It is important to remember that both sides are working toward the same goal. This isn't a zero-sum game where one department comes out on top.

VENDOR MANAGEMENT AND SCHEDULING

There is no way around it, an organization has to let vendors onsite.

Each facility will have a large network of third parties that will be granted

temporary access. Loading dock operations will always be an invitation to risk, and this risk is compounded by the rise of outsourced services. Your vendors and their vendors and companies have very little control when it comes to limiting who needs to be onsite. Therefore, it is imperative to establish a list of approved vendors that is managed and always kept up to date. Vendors should only be on the approved list if they are in good standing and have valid COI (Certificate of Insurance) on file. When at all possible, vendors should be required to submit their known drivers, their fleet with license plate numbers, their subcontractors, and those associated drivers and vehicles. Not only should this information be on file, but it should be in an organized database that is easily accessible to personnel at a gatehouse or entry point. What is the purpose of having approved vendors if that information cannot be quickly verified at the perimeter?

Capturing as much vendor information as possible will greatly improve loading dock security, but a company should not realistically expect to be able to capture their whole network in one list. Large logistics companies such as FedEx or UPS are not going to supply most companies with their fleet and driver information.



Vendor turnover is also an issue and it may be hard for vendors to relay personnel changes in a timely manner. This is where the importance of scheduling deliveries and events comes into play. All deliveries should be submitted to a centralized database and vendors should be requested onsite at specific times. Many companies anticipate push-back; however, most vendors prefer pre-scheduled times because they know they are expected and will turn around the delivery faster and move on to their next client. Nevertheless, not all vendors will agree to come at a time dictated by the client. The deliveries and events should still be scheduled in the system even if a specific time is not available. Personnel at the perimeter need to be supplied with a daily list of expected deliveries. This can be on paper but is more effective when digitized and available on the network.

Vendors coming onsite will now be run against the approved vendor list and the expected deliveries. If both are a match, access can be granted with minimal additional verification. In cases where vendor scheduling at specific times is not possible, security can still match them up to an expected delivery. Amazon may not say when they are coming or who is coming, but security will be able to verify that someone is expecting the delivery they are here to drop off. Now they can add the driver or truck to the database. Even if third-party companies do not supply all their information, organizations should still work to capture this information. The process of building this intelligence will capture a company's third-party network over time.

SECURITY TECHNOLOGY

To effectuate a comprehensive security solution, most experts are now relying on cloud-based software systems to support secure workflows. This concept of operations supports logistical nuances that rarely come up in typical access management. Through web and mobile applications, teams can orchestrate an effective and efficient loading dock.

What does a streamlined security system at a loading dock look like?

- First, there's a cloud database that can be accessed by all security officers.
- Vendors are scheduled in advance, allowing security personnel to cross-check driver information and vendor insurance.
- The system alerts officers of any insurances that are about to expire or any drivers who are currently under a global or local watchlist.



- When the expected driver arrives at the loading dock, their credentials are scanned, matched and a record is saved onto the database.
- In high-risk facilities, license plate recognition software is incorporated and matched per vendor or vehicle.
- Along with LPR software, extremely secure facilities also utilize underground vehicle inspection systems.

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While it may seem counter-institutive, enhancing security operations will lead to increased efficiency.

DATA AND REPORTING

An additional benefit of employing the above-mentioned security technology is the plethora of data that becomes available. Any system deployed will create outputs, and these outputs can be utilized to make informed business decisions. A common mistake many companies make is ignoring this data and the insight it can give. Scheduling deliveries as well as tracking unscheduled deliveries will allow an organization to make better decisions regarding resource allocation. Knowing which departments' deliveries take up most of the time at the loading dock allows facilities and security to ask for contributions to the budget backed up by actionable intelligence. Data such as this would not be available if an organization did not implement secure operations at the loading dock — security leads to efficiency.

MAKING LOADING DOCK SECURITY A TOP PRIORITY

It can be easy to get complacent when it comes to security at the loading dock. Often, it's assumed that having security personnel onsite is sufficient. However, even with officers guarding the dock without an established database, they have no way of knowing why a vendor is there and if they can be trusted or should be let in. Without being able to ascertain the intentions of the drivers coupled with no advance knowledge of a vehicle's arrival, every vehicle is a threat.

Until now, whether the driver could be trusted or was a threat was impossible to know, but the proper tools to secure a warehouse are finally within reach. Using the right system will give security officers the necessary information to make an instant decision on whether a vehicle and its driver should have access to a loading dock or a facility.

Although many might think terrorist attacks are a rare occurrence, the fact that there have been at least 14 incidents involving vehicles in an act of terror since 2017 should be enough reason to make security at the loading dock a focus. With the growing concern that improvised explosive devices, or IEDs, are transported by vehicles, there is no reason for buildings to let in unmarked delivery vans or rented trucks without taking proper security measures first.

Even though no security system can guarantee the loading dock will be 100 percent risk-free, comprehensive risk mitigation can be practical and rewarding when security is a top priority and best practices are closely followed. Insurance professionals who are deciding on your premiums are looking at how you operate, with what technology and how you are lowering risk.

While it may seem counter-institutive, enhancing security operations will lead to increased efficiency. As long as the right systems are in place and concept of operations maintains the balance between security and facilities, the rewards to reap are plenty. **FMJ**



James Barbour is the Director of Strategic Partnerships at Building Intelligence, where he is responsible for developing the partner program as well as the company's marketing initiatives. Prior to joining Building Intelligence, Barbour served as the Manager of Marketing & Strategic Partner Relationships at Kratos PSS.



Jeffrey Friedman serves as the CEO of Building Intelligence Inc. He's a former real estate attorney with web-based application development skills. At Building Intelligence, he leads a team of passionate and brilliant inventors and business leaders delivering cloud-based solutions to the security and real estate industry. Friedman applies his unique set of skills to the convergence of security and facility management, particularly in how it applies to risk, operations and asset management. He is also an inventor who has co-authored two patents and has filed a third.



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Video analytics, also referred to as Video Content Analysis (VCA), is a generic term used to describe computerized processing and analysis of video streams. Video analytics applications can perform a variety of tasks ranging from real-time analysis of video for immediate detection of events of interest, to analysis of pre-recorded video for the purpose of extracting events and data from the recorded video.

The next evolution of video analytic software

Artificial Intelligence is changing video analytics: raising accuracy levels to new heights, identifying events that once went undetected, and transforming the way facilities can receive these services.

BY ZVIKA ASHANI

Over the past decade, video analytics has gone from a nice-to-have feature to a must-have monitoring and investigative tool. Some reasons for this change: the exponential growth of security cameras as their prices drop, better image quality making CCTV more useful, more cost-effective storage solutions and the immense quantities of video data generated by those cameras.

Closed-circuit television has long been standard in remotely viewing events in real time. As cameras began to proliferate, video analytics technologies were introduced to solve the problem of human inattention. Computers do not get tired, bored or distracted, and can continuously monitor camera feed. Plus, even the best security operators have limits to attentiveness, and their valuable time could be put to better use.

From the outset, video analytics was employed to detect and display events of interest. But there were challenges. Traditional video analytics applications relied on a rule-based approach that required software configuration — by a human operator — for each monitoring camera and each type of alert. Although effective in some cases, this approach was often impractical in large-scale deployments due to the vast amount of manual labor needed to

configure, reconfigure and maintain rules.

Rule-based analytics were also unable to detect so-called “unusual” events, meaning behaviors that did not fit the parameters of a given rule. In addition - and most annoyingly - traditional video analytics were prone to significant false alarm rates.

Video Analytics Gets “Smart”

In recent years, however, huge strides have been made in video analytics applications. The new generation of video analytics is based on Artificial Intelligence (AI) - computer simulations of intelligent behavior - and relies mainly on deep learning, meaning algorithms that access data to learn for themselves.

The results of AI applied to video analytics has been equally dramatic. Deep learning has matured to the point where it can now accurately detect and classify targets both in still images and video.

How does it do this? Initially, the deep learning algorithm is fed good-quality image data that is tagged as “car,” “bicycle,” “person,” etc. Over time additional data is collected and tagged, and the algorithm is retrained periodically with the additional data and thus becomes more accurate.



Deep learning has matured to the point where it can now accurately detect and classify targets both in still images and video.

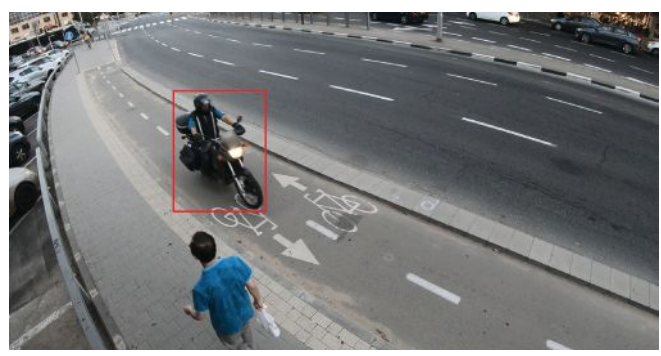
Some real-world examples include an incident in which two men broke into a Dallas tractor dealership lot. The AI-powered analytics software detected the perimeter breach and sent an instant alert to the control room. Remote guards performed audio talk-down and ran the would-be thieves off the property before damage was done.



In another instance, an end-user was securing an outdoor installation. Without having configured any rules, the algorithm detected persons wandering around the site after the gates were closed, and immediately alerted the security control center to the intruders.



In the case of unusual events, an algorithm for anomaly detection learns the “normal” behavior within a given scene (the camera’s field of view). It then applies these models to video in real-time to detect targets that deviate from the norm. Only those events identified as deviating from the norm — for example, a motorcycle driving in a bicycle lane or a person jumping a fence instead of entering through the gate – will cause the software to generate an alert requiring review by the human guard.



The Real Costs of AI

These developments come just in time to meet the explosion in unstructured “big data” collected by video management systems. AI offers a solution as to how this data can be effectively used, providing a return on the investment in expensive storage and cameras, and maintaining, lowering and even replacing human capital costs.

Until recently, implementing real-time AI was extremely expensive, sometimes requiring a 1:1 server to camera ratio. Given that security budgets always have been and always will be tight, this put AI-powered solutions out of reach for many facility managers.

The good news is that today, with the rapid increase in GPU/CPU computational capacity and mass market adoption, costs have come down to reasonable levels. With correct implementation, a single server can be deployed to support hundreds of cameras.

The bad news is that bandwidth consumption has remained expensive, posing a major barrier to offering video analytics as a hosted service.

This problem can be solved with a patented architecture that distributes video processing between the edge and the server, thus reducing edge-to-server data transmission. This technique allows the solution to scale to an unlimited number of cameras. The result: video analytics can



be provided easily and cost effectively. The federated architecture has also proved ideal for enabling a cloud-based approach.

Moving to the Cloud & the Cost Benefits of SaaS

Over the past few years, there has been a major shift in software product delivery from customer hosted solutions (on-premise installations) to hosted (cloud-based) services. The IT world has already benefited from this change in terms of lower total cost of ownership (TCO), minimal upfront fees, faster product and feature updates, and improved support.

In the security realm, video surveillance

software as a service (SaaS) lagged due, in part, to the above-mentioned technical problems associated with real-time transmission of video and video analytics. However, in recent years, the security industry has launched commercially available, cloud-based, AI-powered solutions

As for budgetary constraints, it's important to note the cost-benefits of a cloud-based SaaS model that effectively enables organizations to use their operating budgets (OPEX) instead of capital budgets (CAPEX). By contrast, in the case of a hosted solution, the host organization bears the expense of hardware processing power, rack space, maintenance, cybersecurity and more.

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Video analytics can be provided easily and cost effectively.


The SaaS model offers other advantages: software is constantly cyber-secure, solutions can scale to any quantity of cameras, and deployment and management across geographies is easy, with no need for a private network to connect distributed sites. Another huge benefit is the ability to deploy features and bug fixes at a significantly faster pace than on-premise installations. In short: SaaS ensures that customers always have access to the most up-to-date software version.

The Next Step

The convergence of deep learning for video analysis, advances in AI for fully automated event detection, plus the significant reduction in cost to implement these techniques using SaaS means that the fully au-

tomated video surveillance solution is fast becoming a reality.

AI-powered automated video analytics enhances video monitoring by detecting events and issuing alerts with immediate video verification to enable real-time responses in time-sensitive situations and active incident management. The new AI generation of video search is also an ever-more effective tool for video data analysis in post-event investigation and reporting.

Cloud-based SaaS makes solutions like 24/7 remote video surveillance, guarding and concierge services accessible, affordable and, perhaps most importantly, always up to date. In this way, FMJs and owners can benefit from what is truly the cutting-edge of video analytics for safety and security. 



Zvika Ashani, Chief Technology Officer and cofounder of Agent Video Intelligence, is the chief

architect of the company's solutions, holds several patents for technologies relating to video analysis and cloud-based transmission of video data, and is a recognized authority in the field of machine learning.

IMAGES COURTESY OF AGENT VI



SAFETY FIRST, WELLNESS THIRD:

The hierarchy of considerations
for employee wellness

BY DR. LAUREN GANT



Wellness in the office environment has rightfully become an important topic with employees, facility managers, and designers due, in part, to reported positive ROIs, increases in productivity, and improved employee workplace satisfaction¹. It makes sense — when workers are happy, healthy, and fulfilled, they have the opportunity to be the best and most productive version of themselves when they show up to work. Those in pursuit of creating a workplace that supports holistic, inclusive and enduring mind-body health should be commended. However, many who have tried to implement wellness programs have been unsuccessful². Every work environment and work culture is not immediately equipped for wellness success.



Figure 2

Enter the Prevention Pyramid — the hierarchy of considerations for humans in the work environment. The bottom line: occupant wellness cannot be fully realized unless and until employees feel like their basic safety needs are fully met.

The Prevention Pyramid

The theory of the Prevention Pyramid is aligned with the thought process outlined in Maslow’s hierarchy of needs. To simplify, Maslow’s hierarchy suggests humans have an order in which needs are required to be fulfilled. For example, basic biological needs such as adequate food and shelter are mandatory before psychological factors like sense of belonging and community can be realized. The highest level of Maslow’s hierarchy (illustrated as the top of a pyramid) is self-actualization, reaching one’s fullest and ultimate potential³ (Figure 1).

When this thought process is applied to the needs of humans in the work environment, holistic wellness programs are the pinnacle of the hierarchy — something humans should strive for, and representing our fullest potential. The wellness pinnacle, however, cannot be achieved without satisfying lower levels of the pyramid first. In this Prevention Pyramid (Figure 2), the first, lowest level is physical and perceived safety. It is an obligatory prerequisite that employees are provided an environment free from acute injuries or catastrophic events. Safety considerations also demand that employees feel psychological safety — that is, they have a perception and belief that they are in a non-threatening environment. The second level of the Prevention Pyramid is consideration of basic ergonomics, meaning that the environment is designed to reduce the risk of long-developing injuries and illnesses. Only when these levels are satisfied, can implementation of wellness programs have broad success.

of events while also providing employees an honest sense of safety will ultimately set the stage to allow for successful wellness initiatives.

SAFETY: The first level of the Prevention Pyramid

FMs understand that basic safety needs are not only important for employee health but are also required by law. To this point, safety programs have been typically limited to the prevention of acute injuries and basic first aid. These considerations are unquestionably important elements of a safety program. However, in the current climate, safety considerations must also encompass traumatic and catastrophic events, as well as the perceived threat of these events.

Active shooter training is becoming more common in schools, offices and hospitals. Occurrences of harassment and inequity are receiving overdue attention. Natural disasters seem to be more devastating than ever before. With these intimidations ever-present, it is not surprising that the workforce is arriving at work predisposed to stress and distraction. Pile on top of that the rigors of a stressful workday, and the idea of achieving mental and physical wellness is impossible.

In environments where workers are concerned about their basic safety because of proximity to or experience with traumatic events or the perceived threat of such an event, workers may see wellness programs as ineffective, disingenuous and unappre-

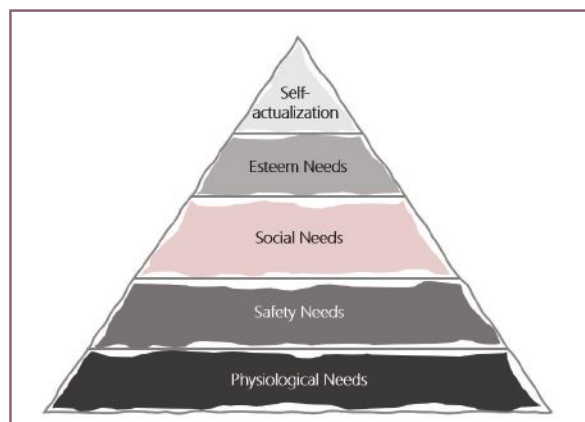


Figure 1

The risk of skipping a level of the Prevention Pyramid is that wellness programs may be perceived as being insincere or hypocritical. In today’s environment, the workforce is striving to reach the top of the Prevention Pyramid; yet with pervasive issues such as harassment and active shooters, many feel unable to move past the bottom level of the pyramid. Providing considerations to reduce the risk

ciated. Workers may have thoughts such as “You want me to walk more during the day, and yet, I’m concerned that areas of my building are unprotected. You don’t really understand or care what I need to be safe and healthy.” It is unlikely that considerations to improve mental health (such as biophilia, control of lighting or noise consideration) will be able to counteract the mental stress endured by an individual who feels at risk for injury, aggression or maltreatment.

According to the Occupational and Environmental Health Administration (OSHA), workplaces at a higher risk for workplace violence include environments with attributes including, but not limited to those whose purpose is to engage with the public, exchange money, have employees working outside standard business hours and/or are located in community-based environments⁴. No environment is risk-free; however, as traumatic events can manifest in innumerable manners, and prediction of such events is impossible.

When considering the work environment, inclusion of design elements like barriers, visibility, effective lighting and arrangement of furniture to prevent entrapment may be effective. Equally important are cultural and organizational considerations. Employees may feel safer when employers ensure adequate staffing, develop a rapport with local emergency responders and provide training for a variety of events⁴.

Two-way communication between employees and management is also highly important⁵. Employees must feel encouraged and supported to voice concerns, suggestions and sensitivities. They must feel that their thoughts will be taken seriously and acted upon, if feasible. If their suggestions are not actionable, they need to understand alternatives and reasoning. Additionally, leadership must clearly communicate information about strategies, restrictions and opportunities. Only through two-way communication can the environment support trust and a sense of safety.

Providing employees with a working environment that reduces the risk and impact of a traumatic event and eases the fear of such events is a prerequisite to holistic wellness. These considerations are

non-trivial and require monitoring and updating. As culture, atmosphere and population change, so must the consideration of workplace safety.

ERGONOMICS: The second level of the Prevention Pyramid

The second, middle layer of the Prevention Pyramid is ergonomic considerations. Here, workplaces must attempt to reduce the risk of long-developing injuries (called musculoskeletal disorders) and provide a comfortable work environment for a diverse working population.

Minimally, workplaces need to incorporate furniture solutions that fit and are usable for the environment and work tasks. This is often achieved through adjustable furniture. Consider, for example, standard worksurface height for a seated desk, which is roughly 29.4 inches. This height coincides with the height of the 95th percentile male’s elbow height. The ergonomic logic to this approach is sound — desk height is designed for the tallest individual so that it is usable (though perhaps not ideal) for most of the population. That is, if a desk is too short, it is essentially worthless for standard working postures; however, if the desk is too high, it is usable but may require some other accommodation for smaller users. Although the design principle makes sense in this case, the result is that most of the population is working at a desk that is too high, potentially resulting in awkward postures, a risk factor for discomfort and injury.

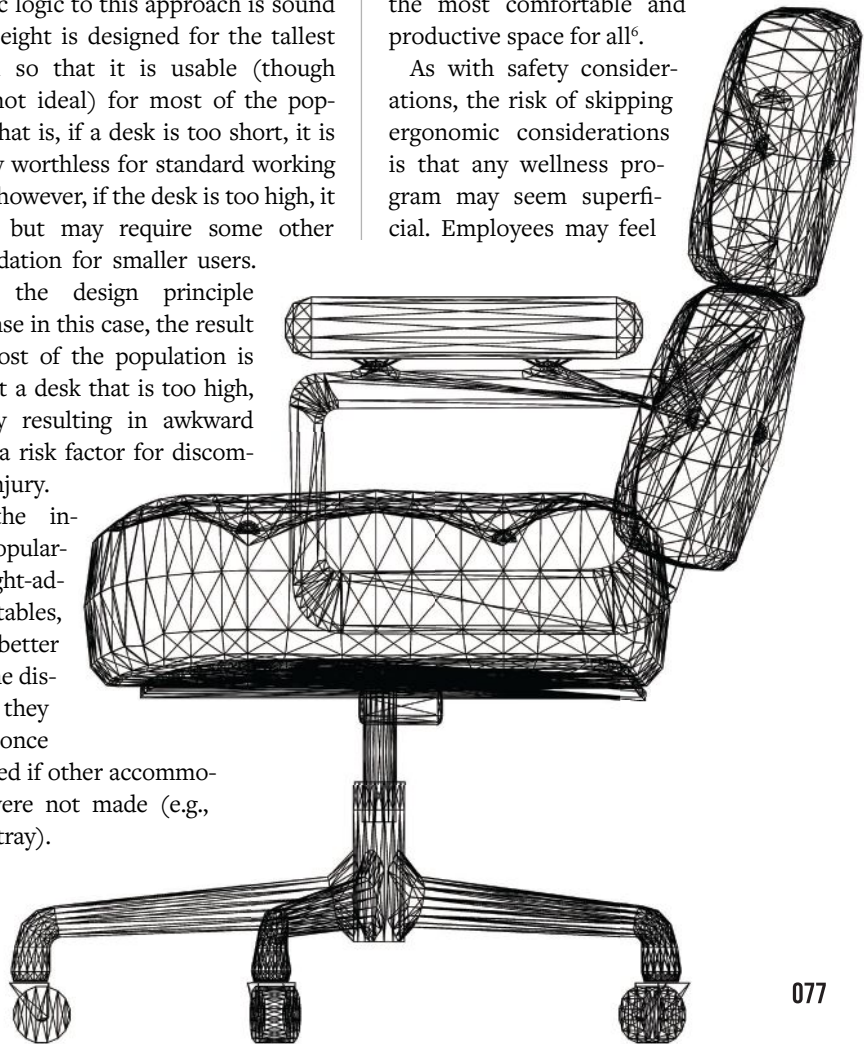
With the increased popularity of height-adjustable tables, users can better address the discomforts they may have once experienced if other accommodations were not made (e.g., keyboard tray).

Well-designed height-adjustable tables go lower than standard worksurface height, offering ergonomic benefits to users in seated postures, as well as introducing the benefit of increased opportunity to move.

Ergonomic considerations must extend beyond assigned workstations as well. Providing alternative work areas such as collaborative and lounge spaces fosters movement and diversity in working postures. Ideally, these areas also provide spaces for employees searching for places to work quietly and independently or alternatively, as a group and community.

A commitment to ergonomics means striving to accommodate all shapes and sizes of working individuals. In addition to physical differences however, employees also come to work with diversity in sensory processing. Designing spaces to be ergonomic also extends to designing inclusive and universal spaces. FMs need to be sensitive to and supportive of inclusive design that considers neurological and physical differences to create the most comfortable and productive space for all⁶.

As with safety considerations, the risk of skipping ergonomic considerations is that any wellness program may seem superficial. Employees may feel





as though companies are only focused on reducing costs rather than providing a productive, supportive and comfortable workplace. When ergonomics is fully realized, employees report higher workplace satisfaction⁷, an indication of the significance of these considerations within the context of the Prevention Pyramid.

WELLNESS: The pinnacle of the Prevention Pyramid

The goal of wellness programs should be to create a work environment and culture that promotes health comprehensively and encourages employees to work in a way that aligns with their preferences. Holistic wellness programs should support total worker health and all aspects of life that affect workers' mental and physical state including proper nutrition, adequate activity levels, community connectedness, financial stability and psychological health. Environmental opportunities to improve health should also be considered.

As with safety and ergonomics, wellness initiatives need to be supported and driven by the work culture and the design of the environment. Employees need to feel permitted, empowered and encouraged to adopt wellness endeavors.


Consider, for example, an employee who would like to improve personal fitness by walking over their lunch break. This takes a personal decision by the employee; however, the motivation is not enough to ensure their success. If this employee feels like their work culture demands they work through their lunch break, or if the employee does not have space to store

shoes or clean up afterward, it is far less likely that the desired walk will happen. If the culture and the environment do not support wellness, it becomes much more difficult for an individual to reach their wellness goals.

If this example is extended further, it can be seen how the bottom levels of the Prevention Pyramid are essential to the success of a wellness program. An individual who does not feel safe in their neighborhood or in the building hallways will not be motivated to walk or move throughout the space, therefore suppressing the motivation to be healthier.

Building certifications like WELL®, fitwel® and RELI® recognize the necessity of safety and ergonomics in creating a comprehensive wellness program and include considerations of these factors in their foundational concepts. Some of these initiatives include attention to organizational transparency, universal design, emergency preparedness and visibility and proper lighting.

AT THE TOP

Supporting employees in a holistic and healthy way is more than offering smoking cessation and healthy eating programs. Space design and workplace culture need to support safety, ergonomics and comprehensive wellness. When all levels of the Prevention Pyramid are fully considered and communicated, wellness programs are well positioned to be successful, thereby fostering health, happiness and productivity. 



Dr. Lauren Gant, PhD, CPE, WELL AP, is the human factor and ergonomics manager at Allsteel.

Her background in biomedical engineering allows her to apply human factors and ergonomics principles to the design of office furniture and to research emerging trends in the office environment. Her goal is to ensure that products encourage healthy postures, promote productivity, and are intuitive to use correctly for a broad spectrum of worker types, sizes, and capabilities. Dr. Gant is also an adjunct associate professor at the University of Iowa, has taught engineering and ergonomics courses at the university level, has conducted extensive research in the field of ergonomics, and holds a doctoral degree in biomedical engineering from the University of Iowa. She is a Certified Professional Ergonomist and a WELL Accredited Professional.

REFERENCES:

1. Mattke, S., Liu, H., Caloyer, et. Al. "Do Workplace Wellness Programs Save Employers Money?" RAND (2013). https://www.rand.org/content/dam/rand/pubs/research_briefs/RB9700/RB9744/RAND_RB9744.pdf
2. Song, Z and Baicker, K. "Effect of a workplace wellness program on employee health and economic outcomes" Journal of the American Medical Association (2019) 321(15):1491-1501. <https://jamanetwork.com/journals/jama/fullarticle/2730614>
3. Hopper, E. "Maslow's Hierarchy of Needs Explained." Thought Co. (2019, Feb. 25). <https://www.thoughtco.com/maslows-hierarchy-of-needs-4582571>
4. Occupational Safety and Health Administration (OSHA) "Workplace Violence" U.S. Department of Labor (2002, Feb 14). <https://www.osha.gov/archive/oshinfo/priorities/violence.html>
5. Solon, R. "Trauma and how it can adversely affect the workplace" Emergency Management (2016, Nov 22.) <https://www.govtech.com/em/health/Trauma-and-How-It-Can-Adversely-Affect-the-Workplace.html>
6. Paron-Wildes, AJ. "Universal Design, Inclusivity: Designing for Neurodiversity in the Workplace." (2019) Allsteeloffice.com
7. Crandall, B. "HFES: Proactive office ergonomics can increase job satisfaction, employee retention." FMLink (2014, Sep. 19). <https://fmlink.com/articles/hfes-proactive-office-ergonomics-can-increase-job-satisfaction-employee-retention/>

OTHER RESOURCES:

<http://www.allsteeloffice.com/SynergyDocuments/PreventionPyramid.pdf>
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WELL international: <https://www.wellcertified.com>
Fitwel: <https://www.fitwel.org/>
Reli: https://www.usgbc.org/sites/default/files/RELI_Dec_2018-FINAL.pdf

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COMPANY NAME iOffice
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FMJ What research or product innovations is iOFFICE working on that will help FMs be more successful in their roles?

iOFFICE Traditional integrated workplace management systems (IWMS) were created to reduce expenses and streamline the workplace. However, many of the current technology solutions have become increasingly expensive and complex. The result is that they require significant IT investments and extensive maintenance, which really defeats the purpose.

iOFFICE's overarching mission is to create the most agile workplace management solutions on the market to simplify day-to-day operations. We know IWMS solutions must empower executives and FMs to create better workspaces through employee-focused technology that ultimately improves business outcomes. And we're delivering on that mission.

In fact, iOFFICE was the first-ever IWMS SaaS platform of its kind. Not only are our solutions significantly less expensive to implement, manage and maintain, iOFFICE's cloud-based software eliminates many of the large, upfront capital costs involved in deploying and updating. It's also much easier to integrate SaaS solutions with other technologies, which is essential to staying agile.

Additionally, over the last seven months we've acquired three premier asset and facility management solutions companies: Hippo CMMS, ManagerPlus and Teem. Their added capabilities further strengthen our vision to support scalable growth for our customers and a fully connected employee experience for the entire market.

FMJ What's on the horizon in your field/industry, and how is iOFFICE meeting those challenges and opportunities?

iOFFICE Traditional facility management solutions are no longer capable of keeping up with the changing needs and expectations of the modern workplace. These legacy systems were primarily created to manage buildings, not people, and the current market demands a transformation.



COMPANY NAME EDF Renewables
EXPERTISE Energy Management Solutions
CSP LEVEL Silver
CSP SINCE 2019
WEBSITE www.edf-re.com

FMJ What research or product innovations is EDF working on that will help facility managers be more successful in their roles?

EDF Renewables is integrating solar, storage and smart electric vehicle charging systems on-site. Electrification of the parking lot and providing workplace charging in bulk are enabling a solution to the duck curve, while providing employee benefits. This also reduces the burden on incremental charging needs and minimizes workplace disruption with the need to move parking spots during the day.

When integrated together, these technologies are reducing OpEx, can be done with no CapEx or performance risk, and are lowering the carbon footprint of the facility.

FMJ What's on the horizon in your field/industry, and how is your company meeting those challenges and opportunities?

EDF Rapid electrification in mobility is placing demands for charging equipment and causing spikes in energy use and demand charges. We have created an integrated offering which combines renewable generation with storage and load management controls on the charging to reduce costs and the carbon profile of our customers. The solution allows for up to six times maximization of existing electrical infrastructure and capital costs at a fraction the industry standard.

The need for resiliency is also becoming very important. We are designing microgrids to operate for cost savings during normal business hours, and for back up resilience during outages.

FMJ What is something different than your competitors that you bring to the table?

EDF Renewables North America is a subsidiary of EDF Renewables, the dedicated renewable energy affiliate of the EDF Group. EDF Group is an international energy company with more than US\$70 billion in annual revenue. We operate renewable energy in 22 countries and bring large company stability and experience to smaller distributed projects. This enables us to provide no capital cost and no performance risk financial structures.



COMPANY NAME Spacewell
EXPERTISE Technology Software Tools
CSP LEVEL Silver
CSP SINCE 2018
WEBSITE www.spacewell.com

FMJ What research or product innovations is Spacewell working on that will help FMs be more successful in their roles?

SPACEWELL Spacewell develops software that enables companies to optimize their building portfolios and develop work environments that promote employee health, enjoyment and productivity. We leverage traditional FM software capabilities with cutting-edge IoT data to enable real-time data analysis. In this way, FM teams gain actionable insights to improve space usage, enhance workplace assistance and increase service efficiency. In short, we make buildings work for people, not the other way around.

Office managers know that if you set up an office these days, it won't stay static for 10 years. Modern offices require collaborative spaces, flexibility and adaptability. To make the best use of square footage and keep employees happy, facility managers and workplace leaders need to become 'space-smart.' Spacewell enables this through monitoring buildings in terms of occupancy and utilization. While the name Spacewell often draws one's attention to utilization of 'Space,' it is important to note that it also encompasses the quality of the area within. Increasingly, employers are understanding that comfort factors like air quality, acoustics and temperature are all important indoor climate parameters impacting the health, well-being and productivity of employees. This is why we chose to include 'Well' in our name.

FMJ What has been the most positive feedback you've received from clients?

SPACEWELL By implementing our solutions, many of our clients succeed in using space much more effectively. While this offers huge potential savings, it's also a more ecologically sustainable approach. We used to think that 'smart' buildings were mainly 'green' buildings. The greenest building, however, is the one you don't need to build. Not surprisingly, space monitoring is currently one of the biggest building IoT use cases. We're getting a lot of positive feedback from organizations that can gain new insights, significantly improve room occupancy (more than 30 percent in the case of a public-sector organization) or optimize a shared-desk workplace environment (0.6 desk-to-employee ratio in the case of a global insurance company). We also note that the closer you get to optimal or peak occupancy, the harder it becomes for employees to find that last available space or desk, and this is also where smart technology facilitates directing individuals to the available spaces.



COMPANY NAME IBM
EXPERTISE FM Software
CSP LEVEL Silver
CSP SINCE 2019
WEBSITE www.ibm.com/internet-of-things/solutions/facilities-management

FMJ What's on the horizon in your field/industry, and how is IBM meeting those challenges and opportunities?

IBM In this new decade, facility management professionals FMs must constantly ask themselves three key questions:

- How can I get most value from all my facilities
- How does my FM strategy help me engage employees so that they're happier and more productive?
- How can I use data and AI to improve the performance of my facilities?

While each of those questions has its own complex set of answers, they do have one thing in common: space. How much do you have and is it the right amount; who is using it, when and how, and what are the ways that technology can help you be more competitive and add additional value to your business.

Space matters. But in order to optimize your space, you must know your space. That's why we're evolving space optimization with the latest versions of our intelligent real estate and FM solutions. For example, with TRIRIGA and TRIRIGA Building Insights, we've taken the WiFi technology you most likely have in place already and added new AI-driven capabilities that give you a much more robust, complete picture of your space.

If you're the head facilities manager, this lets you see at an enterprise level the trends and nuances of your spaces, from data centers to cafeterias to conference rooms and everything in between. It also means no more siloed data, especially critical if you have large, complex portfolios. Ultimately, it's about having the insights necessary to make smarter decisions.

FMJ What research or product innovations is IBM working on that will help FMs be more successful in their roles?

IBM FMs are increasingly tasked with creating a more engaging workplace experience. That's why we included TRIRIGA Assistant in our latest release of TRIRIGA. It's a smart, conversational AI assistant that allows users to engage with the spaces around them. It's a relatively simple way to introduce AI into your FM operations. Plus, imagine how much time employees can save by simply asking an app to reserve a conference room, order catering, submit a service request or locate a colleague's desk. It's the same frictionless technology that we all have in our homes, and another way to meet the need for that engaging workplace experience.

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Energy Savings WAITING TO BE Discovered



BY CLAIRE CURTIN
AND
HANNAH KRAMER

Commercial buildings are full of hidden energy savings potential, and facility managers and building owners are now reaping the cost-saving benefits of data analytics through the use of Energy Management and Information Systems (EMIS).

The tools that make up the category of EMIS can provide real-world benefits to facilities by identifying no- or low-cost changes to save energy, ensuring performance doesn't drift after the installation of energy efficiency measures, and providing building operators deeper insight into the energy use of their facility. Energy use that is not tightly managed can drive up the operating costs of a building.

WHAT IS AN EMIS?

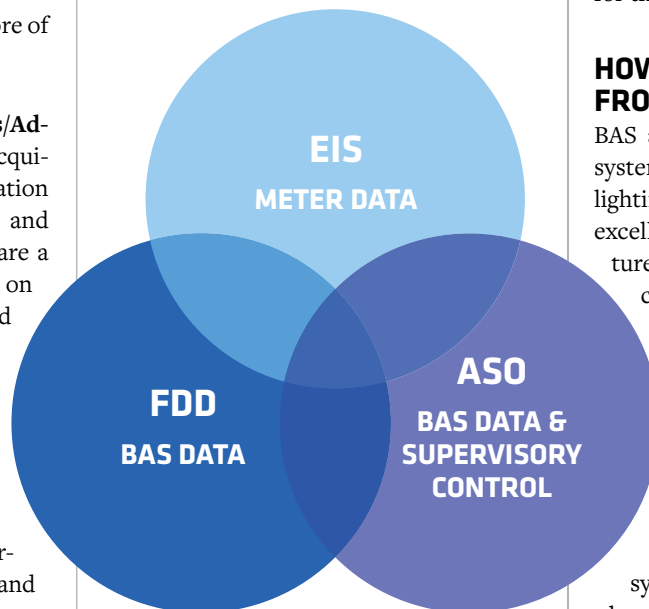
EMIS are the broad and rapidly evolving family of tools that monitor, analyze and control building energy use and system performance. The data generated from EMIS tools enable FMs to operate their buildings more efficiently and with improved occupant comfort by providing visibility into and analysis of the energy consumed by lighting, space conditioning and ventilation, and other end uses.

EMIS tools typically have one or more of the following areas of functionality:

- **Energy information systems/Advanced EIS:** The software, data acquisition hardware and communication systems used to store, analyze and display building energy data. EIS are a subset of EMIS that are focused on meter-level monitoring. Advanced EIS incorporate analysis that typically includes predictive energy models using interval meter data.
- **Fault detection and diagnostic systems:** Software that automates the process of detecting faults and suboptimal performance of building systems and helps to diagnose their potential causes. FDD are a subset of EMIS that fo-

cuses on system-level monitoring using Building Automation System (BAS) data. FDD tools are typically applied as a separate software application that pulls data from the BAS and may provide a report of the duration and frequency of faults, cost and/or energy impacts, and relative priority levels.

- **Automated system optimization:** Software that continuously analyzes and modifies BAS control settings to optimize HVAC system energy usage while maintaining occupant comfort. These tools read data from the BAS and automatically send optimal setpoints back to the BAS to adjust control parameters based on data such as submetered energy use. Two-way communication with the BAS distinguishes ASO solutions from FDD.



Many EMIS include both EIS and FDD functions within the same software tool. Some software includes all three functional areas. EMIS functions can be implemented individually or in combination and are intended to support facility staff and management efforts to meet higher levels of comfort and performance.

What sets EMIS tools and technology apart from previous era of energy analysis tools are the visualization and analytics now available. Seeing the building portfolio's energy use in near-real time (15-minute intervals) presents higher granularity data, allowing for a more timely analysis than monthly utility bills.

Web-accessible energy data also provides a window into usage beyond the facilities staff; finance, building operations, energy managers and even building occupants can all pull pertinent information for their own analysis and reporting.

HOW IS BAS DIFFERENT FROM EMIS?

BAS are used to control building HVAC systems, and in some cases, building lighting and security systems. The BAS is excellent at maintaining indoor temperature, humidity, ventilation and lighting conditions; however, BAS often lacks the ability to answer questions such as: how much energy is consumed at different times of the day? Does the airside economizer behave appropriately? Under what conditions is there excessive simultaneous heating and cooling? EMIS tools EIS, FDD and automated system optimization tools (ASO) supplement the BAS to facilitate analysis and management of building energy use.

One IFMA Corporate Sustaining Partner, ISS Facilities, representing Hewlett Packard Enterprises (HPE), has been awarded Best Practice using Fault Detection and Diagnostics in a Portfolio. In this case, the primary goal was energy savings at HPE and getting a good return on investment, however additional benefits emerged.

Using FDD, the ISS team discovered problems and implemented fixes such as scheduling air handlers off when zones were unoccupied, minimizing simultaneous heating and cooling, and identifying broken valves and sensors. The FDD tool has not only kept tabs on things that aren't working, the software also recommended operational improvements, like adding variable frequency drives and implementing temperature and pressure reset control strategies.

THE SMART ENERGY ANALYTICS CAMPAIGN

The Smart Energy Analytics Campaign is a program sponsored by the U.S. Department of Energy through the Better Buildings Initiative and managed by Lawrence Berkeley National Laboratory (Berkeley Lab) that encourages the use of a wide variety of commercially available EMIS technologies and ongoing monitoring practices to help uncover those energy-saving opportunities and improve building performance. IFMA was an organizing partner in the original design of the campaign and contributed to the outreach plan to target building owners and operators.

The campaign aims to increase adoption of EMIS technologies, helping bring analytics into the mainstream as they are currently underutilized. In the Smart Energy Analytics Campaign, owners, FMs, energy managers and commercial building operators receive expert technical support and national recognition for their efforts. In the four years since the start of the campaign, 103 participant organizations have joined, representing more than 5,900 buildings and more than 500 million square feet.

Participating building types include: universities, commercial real estate, hospitals, grade schools, grocery, retail and hospitality. These facilities are either starting to procure an EMIS or have an EMIS installed and are experienced in its use and benefits.

Campaign participants have access to specialized peer discussions on relevant areas of FDD use. There can be great insights gained from hearing the story of an FM describing the many decisions made: figuring out what EMIS features to include in the request for proposal, how to assess the different vendor offerings, how to plan the data management strategies, how to train staff on the EMIS tools and more. Campaign participants have said these webinars were especially welcome, because it is often hard to find unbiased opinions from actual users of these technologies. A majority of these webinars and other resources are posted on the site and available for anyone to access.

Another popular feature of the Smart Energy Analytics Campaign is the opportunity for a participant to apply for recognition awards for energy performance, innovation, largest portfolio and best practice. For those who are in the first phase of their building's EMIS implementation, there is also a new installation category.

HOW COST EFFECTIVE ARE EMIS?

One of the contributions the Smart Energy Analytics Campaign has made to the field of energy data analytics is to gather real-world details of how EMIS tools are used and the actual costs from the participating building owners. Over the last three years, the campaign has assembled the most comprehensive dataset available on analytics installation and use.

Based on data from campaign participants and from similar studies, building owners with EIS achieved a median energy savings of **4 percent (US\$0.04/sq. ft.)** and participants with FDD achieved a median savings of **9 percent (US\$0.24/sq. ft.)**.

It is important to note that savings are not solely attributed to operational measures. Occasionally, savings may include changes to the building that are not directly related to analytics. Buildings are constantly changing; for example, occupants can move out, energy-efficient equipment may be installed or natural disasters may disrupt the normal operations, thereby presenting an uneven energy profile of the building.

The campaign releases an annual report with more detail on the types of costs that were analyzed, with calculations of simple payback periods for EIS and FDD.


WHAT ENABLES SUCCESSFUL EMIS?

Through communication with more than 100 participants in the campaign, certain best practices have been identified.

CATEGORY	BEST PRACTICES FOR SUCCESSFUL EMIS
EMIS Specification and Selection	<ul style="list-style-type: none"> ● Focus RFPs where there is the most interest in using the data (operations staff may want FDD for specific faults, while energy managers may want EIS to simplify energy tracking and reporting).
EMIS Installation and Configuration	<ul style="list-style-type: none"> ● Integration of several different data streams into a central location for EMIS analysis leads to a more complete energy picture. ● EMIS service providers can support data integration and setup; then if desired, manage the FDD process. ● Commissioning the EMIS installation avoids problems later.
Analytics and Visualization	<ul style="list-style-type: none"> ● Metrics and charts summarize performance at a glance. ● Analytics can be implemented to address specific operational challenges, rather than implementing all analytics possible.
Organizational Process	<ul style="list-style-type: none"> ● Staff that routinely use EMIS tend to find value. ● The need to report energy savings and carbon reduction goals can drive EMIS use. ● Integration of EMIS with work order systems can help link service calls with energy measures ● Supports the reinvestment of energy cost savings.

WHAT'S NEXT FOR THE SMART ENERGY ANALYTICS CAMPAIGN?

In the summer of 2020, the campaign will end in its current form and website, but all existing participants and any new building owners who are interested may join the Better Buildings Alliance EMIS Technical Team and receive many of the same technical support features of the campaign.

There are many other useful materials available on these websites that provide a wealth of information on EMIS, DOE's Better Buildings and technical research from the Berkeley Lab team. 

1. <https://buildings.lbl.gov/emis/building-energy-information-systems>
2. <https://betterbuildingsolutioncenter.energy.gov/>
3. <https://smart-energy-analytics.org/>



Claire Curtin is a program manager at Lawrence Berkeley National Laboratory, supporting research on EMIS. Previously, she was with Pacific Gas & Electric in the Commercial Whole Building Demonstration project and administering Automated Demand Response utility programs for EnerNOC and Global Energy Partners. Curtin spent more than 20 years as a senior producer and designer in the computer gaming industry with Electronic Arts, Maxis and Broderbund Software.



Hannah Kramer is an affiliate to the Building Technology and Urban Systems Division at the Lawrence Berkeley National Laboratory. She holds a master's degree from the Energy and Resources Group from UC Berkeley. Her research focuses on building energy performance monitoring and diagnostics and supporting how owners implement monitoring-based commissioning. Kramer has authored numerous studies and resources on commissioning and building performance.

Innovative Products & Services



Compliant with ANSI and OSHA requirements, HEMCO decontamination booths are fully assembled and ready for installation to water supply and waste systems.

Fully assembled emergency shower decontamination booth

After exposure to a hazardous chemical substance, any delay, even for a few seconds, can result in serious injury. OSHA and ANSI require that emergency showers be located within 10 seconds walking distance from hazardous site locations. HEMCO's emergency shower decontamination booths can be activated in less than 1 second and remain operational without the user's hand on the valve.

A combination drench shower and eye/face wash, the decontamination booth is molded into one piece of seamless, chemical-resistant fiberglass and is equipped with a pull-rod-activated shower and push-handle eye/face wash for the immediate drench of personnel that have been exposed to hazardous chemicals. The shower is equipped with frosted front strip curtains, interior grab bars, raised deck grating, and bottom or rear drain outlet.

VISIT emergencyshowerbooths.com



New connected platform of workplace products makes life at the office easier for every employee

Workplace tech company Envoy recently announced the launch of its smart workplace platform. Known for its iPad-based visitor management system used in more than 13,000 offices across 70+ countries, Envoy is taking a major step toward delivering the smart office of the future. By creating a central brain for the office, daily workplace inefficiencies are eradicated, enabling employees to focus on meaningful work.

Featured among the new releases is Envoy Rooms, a solution that helps everyone manage the logistics of meetings in the way that works best for them. Any employee can identify, reserve and check-in to a conference room via desktop, mobile, Slack, Microsoft Teams or iPad. Envoy Rooms will suggest available rooms, identify when booked rooms go unused and release them for other employees to use. With Envoy Mobile, employees receive notifications for welcoming guests, picking up packages and booking meeting spaces. Companies of any size can see visitor frequency, package volume and room utilization in one place with the global analytics dashboard. And with open API, third-party developers can integrate and build on the platform.

VISIT envoy.com

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Strategic equity partnership announcement



“Flexible workforce trends, along with a heightened focus on the employee experience and improving efficiencies, are driving companies to employ tools and solutions to think of their workplaces as a competitive advantage. The OfficeSpace team has done an amazing job building a powerful, yet easy-to-use platform that is ideally positioned to take advantage of those trends.”

– Fred Sturgis, Co-founder and Managing Director, Resurgens

OfficeSpace Software received a strategic equity investment from Resurgens Technology Partners, a software-focused private equity firm. The partnership will enable OfficeSpace to increase investment in its market-leading software, accelerate key go-to-market initiatives and further enhance its highly regarded customer experience.

A leading SaaS-based platform for managing the workplace, OfficeSpace is more than just workplace management software. It's a way to optimize your facility, engage employees, manage moves, maximize space and keep real estate costs low.

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New radar-based sensors enhance safety and performance



One new WAYV sensor can provide more information reliably and cover a wider area than several ultrasonic sensors.

Ainstein, a leader in designing and building intelligent radar systems, announces a new line of radar modules specifically designed for use in static, fixed mounted applications like traffic management, surveillance and security, space utilization and building automation.

- » WAYV Air: Based on 60GHz radar sensing technology, it's the ideal sensor for detecting and tracking people in both indoor and outdoor environments. This sensor will help enable smart building related applications such as building automation, space utilization, and safety and security.
- » WAYV and WAYV Pro: Mid- and long-range radar sensors with built-in high-performance radar processors and proprietary

advanced radar processing algorithms that can reliably detect and track vehicles and pedestrians in challenging light and weather conditions. WAYV and WAYV Pro are perfect candidates for surveillance, intelligent traffic and other smart city related applications.

Ainstein's WAYV IoT family allows users to track and analyze the flow of pedestrians and vehicles in a variety of situations. In a retail environment, WAYV sensors track the flow of customers through a store, enabling managers to optimize store layouts to increase sales. In hotel/motel, industrial or office environments, WAYV sensors provide valuable insights around space utilization and can even enable emergency personnel to know exactly where people are located, facilitating rescue.

WAYV sensors address privacy concerns with tracking sensors since they don't identify specific individuals or use facial recognition software. Unlike existing sensors that use ultrasonic or other technologies, installers may deploy WAYV sensors behind the ceiling, improving aesthetics and reducing privacy concerns.

VISIT ainstein.ai.

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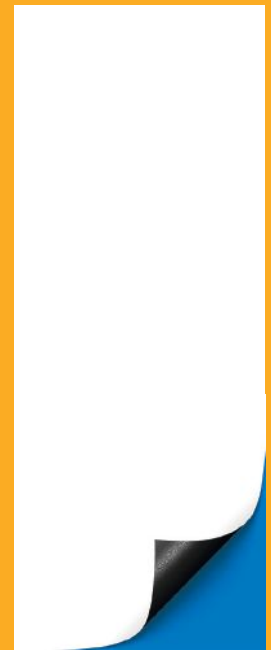
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BUDGETING

Ask the Experts

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 **Safety**.

CONTRIBUTED BY



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."

Do you have a question for Ask the Experts?

Mark Sekula

CFM, FMP, LEED AP, IFMA Fellow
President of Facility Futures, Inc.
msekula1@wi.rr.com

The new CEO has been on-board for four months, taking time to understand the operations and meet with group leaders. The core business operation is third-party health care records management. IT, the production department (records management) and the facility team have separate operating protocols. The CEO is now ready to hold open conversations with the group leaders.

If offering advice to the FM and knowing the department's protocol is somewhat out of date, especially concerning disaster preparedness and business continuity, what do you recommend that the FM should do and in what order? Today is Friday and the meeting with the CEO is Monday afternoon.



Ahead of the meeting, I would perform reviews with the IT and production departments.

Assess risks facing the business now and in the foreseeable future. The output should be a risk matrix and a risk mitigation plan to ensure preparedness for disasters and have a current business continuity process in place. Ideally this plan should eliminate all risks but, where this is not possible or practical, the plan should minimize the potential impacts of risks on the business. This review should be repeated regularly to ensure that it remains current. The plan should be tested by undertaking exercises involving all involved parties.

Determine the appropriateness of the current FM operating protocols for today's business model. The review should include a strengths, weaknesses, opportunities and threats analysis and recommendations for changes to FM processes. This review should investigate whether there should be shared protocols across the departments, to ensure they remain in step and to futureproof operations in the wider interests of the core business.

The review should also examine the existing operating protocols across all three departments, to identify any conflicts, omissions, overlaps or redundancies. The output of this review would be operating protocols aligned with business needs, with the three departments acting as co-partners or stakeholders.

I believe these recommendations would demonstrate FM's commitment to the ongoing success of the business.

Val Moraes, CFM, MBA, Assoc RICS is Past President, IFMA FM Consultants Council; Global Liaison, Australasia IFMA FM Consultants Council; and CEO & Managing Director of the GregMore Group. Val is active in IFMA Business Community of Practice, BUS.

A Emergency Response/Disaster Preparedness and Business Continuity (ER/DP/BC) are critically important and too often neglected within organizations. This CEO appears attuned to this and wants to ensure procedures are in place to minimize disruptive impacts. As a result, the FM is well advised to apply best efforts to meet expectations.

Organizations that do not have a formal business continuity office often presume or assume the FM unit is the de facto responsible party. Regardless of the formal declaration, FMs should prioritize ER/DP/BC plans to ensure they remain current and relevant.

I would offer two recommendations for the facility manager:

First, schedule a thorough review and update of the FM disaster preparedness and business continuity plans. Include the need to organize departmental exercises to confirm that those in charge are familiar with their roles and responsibilities. In this instance, the FM may have to dedicate time on the weekend to be prepared to communicate the department plan of action.

Second, listen carefully during the open meeting to appreciate direction from the CEO. If not otherwise mentioned, the FM should propose:

The three principal parties (IT, production, and FM) agree to confer and to carefully align their separate protocols with the business requirements of the core business.

An organization-wide exercise (table-top) as soon as the parties update their plans.

Stephen Brown, CFM, FMP, SFP, ProFM, CPE, CPMM, MBCP, CBCP, CESCO, REM, is active in IFMA program development, the FMP Study Guides, and the IFMA Certification Commission. He founded FM-adviso to support organizations with specialist and credentials training in addition to consulting on operational efficiencies, outsourcing, policies and procedures, contract management, environmental matters, and emergency response/business continuity.

A This meeting is fraught with opportunity and danger. You don't know what the CEO has been told or concluded about FM during the initial four months.

You hope it's good or at least neutral, so one goal is to find out. In advance, check with the admin on scheduled meeting length, but you can request an hour.

Plan the get-together for sharing information, outlining what's going well (and hopefully obtaining concurrence), and presenting a framework to correct what you already know is out of date. The CEO could ask what you've been doing about it. Have that answer ready too.

Prepare a 1-2 pager to give to the CEO after you've met, as a recap, not to be read as you're talking.

Introduce yourself with a brief background prior to joining the organization and then what you've been focusing on since.

Review your key department metrics: building mission(s), sizes and types, occupant numbers, expense and capital financials, safety record, etc. Keep them concise.

Highlight the three FM areas that are going well and why, with some well-chosen bullets. Ask the CEO if that is her/his impression to date and elaborate on any questions.

Identify the one area for improvement: review three or four steps required to assess, integrate all group needs/options, and recommend actions. Ask directly to lead this effort.

At this point, your organization and preparation should lead to a healthy give/take. The CEO might go beyond schedule or ask for another meeting to discuss your team proposal and details. Good luck!

Dr. Doug Aldrich, CFM, is President of Aldrich & Associates LLC. He is an active member of FMCC, IFMA Fellow and frequent contributor to this column.



ROBERT BAKER



*Canton, Michigan, USA
Facilities & Construction Manager
Years in FM: 4*

Why did you choose FM?

It is a great opportunity to learn a new side of our business and develop skills that I can apply in my professional and personal life. There are new, unique challenges on a daily basis.

What has been your biggest FM challenge and what have you learned?

Adjusting to the large scope and knowledge base that needs to be developed at an extremely fast pace. I've learned it's okay to not know all the answers and it is more important to be resourceful and know how to find the answer.

What advice would you give to someone starting in FM and what is the best advice you have received?

Ask lots of questions, read a lot and Google can be a FM's best friend. Don't be afraid to ask for help. After all, others have already been through whatever it is you are currently going through.

Where do you want to take your FM career in the next few years?

I want to study to take my FMP and then my CFM and use my continuing education to keep receiving promotions in the FM world of our company.

What do you hope to gain from your IFMA membership?

I would like to gain useful information from peers that I can apply within our company to be an impactful employee who adds value to the company on a daily basis.

Tell us a fun fact about yourself. I enjoy running and have completed a full marathon and several half marathons. I enjoy pushing myself to beat my previous time every time I run a race.

FILIPE COSTA



*Rio de Janeiro, Brazil
Operations Manager
Years in FM: 10+*

What kind of facility do you manage?

I am responsible for full turnkey facilities services that include: hard and soft maintenance, industrial cleaning, gardening/groundskeeping, janitorial services, accommodation management and catering services, and cleaning services.

Why did you choose FM?

It was an evolution. I started with foodservice companies and as I progressed in my career, I shifted into full turnkey FM services.

What has been your biggest FM challenge and what have you learned?

Managing staff in remote location in sub-developed countries is a challenge that requires patience and micromanagement of service managers and supervisors. Organization and effective processes are key to ensure success.

What advice would you give to someone starting in FM and what is the best advice you have received?

"You need to work geared towards tomorrow, not today" is probably the best advice I was given. And for someone starting out, say "People and their individual perception of quality services are a big part of the job, so look to always engage and understand your client."

Where do you want to take your FM career in the next few years?

In a few years I would like to be working FM closer to home in a more senior and strategic role.

What do you hope to gain from your IFMA membership?

Ideally, I'd like to stay on-point regarding new trends, metrics and KPI given that FM is something that is continually evolving.

Tell us a fun fact about yourself.

During my time off, I like to go cave dining.

STEPHEN FREY



*Vermont, USA
Senior Facility Architect and Planner
Years in FM: 28*

What kind of facility do you manage?

I don't manage facilities. I help plan and design office space and buildings. I also help develop long-term real estate and workplace strategies for the State of Vermont.

Why did you choose?

I love people and buildings. I started in high school working in my school district's facilities department. I haven't looked back since.

What has been your biggest FM challenge and what have you learned?

I haven't met a challenge I didn't like. The greatest challenges lead to the best opportunities.

What advice would you give to someone starting in FM and what is the best advice you have received?

Be curious and never stop learning.

Where do you want to take your FM career in the next few years?

I hope to leave things better than when I found them.

What do you hope to gain from your IFMA membership?

I hope to gain camaraderie with IFMA colleagues and insights into best practices in facility design, planning and strategy.

Tell us a fun fact about yourself.

I am a professional artist who enjoys painting to learn more about color and light.

<https://www.linkedin.com/in/stephenfrey>

Member Spotlight

RUSSELL HIGGINS



Singapore
Engineering & Property Services Director
Years in FM: Less than 15 years

What kind of facility do you manage?

Commercial offices, R&D labs, distribution centers and manufacturing sites in nine countries from Australia and New Zealand through to India.

Why did you choose FM?

I came across FM through end to end product design (design a product, assembly line and buildings), into large scale mega projects, commissioning and sustaining operations initially in supply chain sites. I love the diverse nature of FM work and have managed facilities on three continents with a diverse portfolio.

What has been your biggest FM challenge and what have you learned?

The workplace and focus on experience has changed our industry so much and it will continue to evolve at an incredible pace with the advent of the 4th Industrial revolution, way beyond automated receptions and robot cleaners. Some things will take longer to change, the need for us humans to have a sense of belonging, identity and collaborate with each other. We must stay focused on the value creation, ensure our workplaces are adaptive, flexible, bold and above all, be prepared for bumps in the road.

What advice would you give to someone starting in FM and what is the best advice you have received?

Most people I come across seem to stumble into FM like me and stay because it's a diverse exciting place to work, a place where you can touch many facets and face different decisions every day. The best advice I would give go for it and make it a career choice. Learn as much as you can as quickly as you can, and don't be so afraid of failing that you quit before you start.

Where do you want to take your FM career in the next few years?

I have huge interest in the workplace and how real estate will evolve and how technology will make it more dynamic to be agile, flexible and put the customer at the center. I would like to influence how the FM industry will prepare for the future the skills we will need, and how we remain relevant to the C-suite.

What do you hope to gain from your IFMA membership?

I would like to build on my network and share my experiences and learn from others and help advance the industry and shape our future.

Tell us a fun fact about yourself.

I am learning to play the drums with my 9-year-old son.
He has rhythm I do not.

RICKY DAUSE



Norwood, Ohio, USA
Operations Manager
Years in FM: 8

Why did you choose FM?

It is a rewarding career and I get to do different things daily

What kind of facility do you manage?

An eye glass manufacturing facility

Tell us a fun fact about yourself.

I love basketball

FIKRET MARKOVIC



New York, USA
Facilities Manager
Years in FM: 6

What kind of facility do you manage?

My team and I manage several sites, including three leased sites (one triple net lease) and one owned site totaling approximately 1.8M sq. ft.

Why did you choose FM?

I started out in hospitality, but always loved real estate and was always curious about who managed the properties I saw around me and how they got there. After a great run in hospitality that took me from NYC to the West Coast, I decided a career change was in order. The skills developed in the hospitality industry transitioned well into FM with customer service and problem solving through critical thinking coming to mind first.

What has been your biggest FM challenge and what have you learned?

Taking ownership of a major financial institution's global headquarters was definitely my biggest challenge. In doing so, I came to realize that FM is much more dynamic than I ever imagined. Through it all I've become much more proficient with building systems and operations, but I've also learned that the main component of FM is understanding your people and culture. More than minimizing operational downtime or cost savings/avoidance, FM is about integrating into the culture of the organization you work for and providing employees and customers a comfortable, productive environment and experience – supporting the company's financial goals. It is also about the relationships built with occupants/tenants, senior leadership, vendor partners and other FMs. Those aspects are just as vital as keeping the lights on and the HVAC pumping.

What advice would you give to someone starting in FM and what is the best advice you have received?

I would remind folks that it's okay to be patient and let experience be your teacher. In our industry the more you've handled, the easier it gets, so don't be afraid of learning through the tough times and challenges. The best advice I've ever received came from a boss who reminded me that my job is to give my clients a happy home. I've framed my work around that concept to find alternatives to challenges and provide creative solutions to complex problems.

Where do you want to take your FM career in the next few years?

Right now I hold a few designations, including IFMA's FMP, and will work on my CFM this year. I'm looking forward to refining my craft, continuing to be curious and working my way into a senior leadership role focusing on account or portfolio strategy as opposed to day-to-day operations.

What do you hope to gain from your IFMA membership?"

I plan to focus on continuing education and networking. I've met some fantastic people through IFMA and the NYC Chapter is extremely vibrant. I'm looking forward to becoming more active within the IFMA community.

Tell us a fun fact about yourself.

I can usually find humor in any situation. Maintaining a sense of humor has been crucial to managing stress throughout my career. I also attempted to moonlight as a stand-up comic. I was the only one who found my jokes funny.

www.linkedin.com/in/fikretmarkovic

WILLIAM RECKER



Chicago, Illinois, USA
Assistant Facilities Manager
Years in FM: 10

What kind of facility do you manage?

We are an investment research firm with offices in 27 countries. I am assistant manager for global headquarters physical space as well as our data center.

Why did you choose FM?

At the height of the recession, I was not doing anything with my life, so I picked up and moved to Chicago with an old college roommate. I got a job as a part-time technician and through hard work made it to assistant manager.

What has been your biggest FM challenge and what have you learned?

Learning how to communicate with senior leadership about how the flashy new thing they want to buy or design might not be practical for our space and need some re-tooling. We are the parents of our spaces but sometimes our kids get to make all of the decisions.

What advice would you give to someone starting in FM and what is the best advice you have received?

My advice is that this industry is hard. You will almost never get the credit or appreciation you deserve. Frequently being the bad guy is a real drain on people. You need to make sure you are ready to fight for what is right and finding your own pleasures in making everything run so well for everyone else.

The best advice I ever received was from a previous manager who told me, "We all judge people based off of outcomes, when we ourselves always want to be judged by our intent. It might behoove you to always try and lean into the other person's intent and give them some leeway on their outcomes."

Where do you want to take your FM career in the next few years?

I have entered a stage in my life/career where I have only been with one organization the whole time. I want to make sure I am good at facilities, not just this facility. I am ready to spread my wings and find a fitting mentor who is looking to help share their knowledge and guide me to new challenges. If you're out there, my LinkedIn is below.

What do you hope to gain from your IFMA membership?

In November I went to a facilities conference and it was the first time I was around a large gathering of people who do what I do. It was infectious to talk and share ideas with people who also care about the things you do. It is an amazing resource and I am surprised how large my social circle has grown already.

Tell us a fun fact about yourself.

I have two dogs who are my entire world. Gracie, a black flat-coat retriever/border collie mix, and Benson, a purebred white German Shepherd Dog. My only goal right now in the world is to make a living so that they can have a yard to run in their twilight years.

<https://www.linkedin.com/in/william-recker-17b575141/>

AUSTIN WENNER



Tacoma, Washington, USA
Senior Facilities Coordinator
Years in FM: 6

What kind of facility do you manage?

Commercial banks and corporate office space

Why did you choose FM?

I just happened to land a job where my business and operations skills balanced with not having to sit behind a desk every day.

What has been your biggest FM challenge and what have you learned?

The biggest challenge has been the unknown, whether it is the sudden sprinkler burst, or overnight vandalism. I've learned to have trusted vendors lined up for when those types of situations happen.

What advice would you give to someone starting in FM and what is the best advice you have received?

I would say to try and gain experience in as many avenues of FM as possible. Have subject knowledge in a variety of different areas even if it isn't what you specifically manage.

Where do you want to take your FM career in the next few years?

I would like to get my FMP completed and continue to gain practical experience.

What do you hope to gain from your IFMA membership?

I like to hear about new ways of approaching things, new services, and new ideas. It's easy just to get stuck inside the repetition of your own facilities.

Tell us a fun fact about yourself.

I would love to help manage a professional sports facility one day.

<https://www.linkedin.com/in/austin-wenner-026623120/>

WANT TO SHARE YOUR MEMBER OR COMPONENT NEWS?

Reach out and share your chapter news with other members and FMJ readers. Send details and photos (if available) to bobby.vasquez@ifma.org with the subject line: Components in Focus.

We look forward to featuring your chapter in an upcoming issue!

Member Spotlight

GREGORY WILSON



Alpharetta, Georgia, USA
Director of Operations

How long have you been FM?

I am currently not a FM. I've managed projects with O&M teams that manage facilities. My background is airports terminals and large parking garages.

Why did you choose or end up in FM?

I migrated to this specialty as part of A&E firms focused mostly on design, engineering and operations management.

What has been your biggest FM challenge and what have you learned?

My biggest challenge has been to ensure design matches clients' need for operations efficiency. My learning has come from meeting FMs to better understand their challenges so I can incorporate into design standards.

What advice would you give to someone starting in FM and what is the best advice you have received?

My advice is to work constantly to fully understand every aspect of your facility. I'd focus on maintenance/work order management, energy efficiency, opportunities to re-engineer any gaps, and periodic condition assessments to extend useful life of your assets. These items can also show where you might achieve cost savings.

Where do you want to take your FM career in the next few years?

I hope for larger facilities and building complexes.

What do you hope to gain from your IFMA membership?

I would like to get to know other members, understand their challenges and exchange best practices.

Tell us a fun fact about yourself.

My first time skiing was in the Alps in Austria.

<https://www.linkedin.com/in/gregorywilson1/>

MIKE ZECHMAN



Hershey, Pennsylvania, USA
Senior Manager of Facilities, Utilities and Maintenance
Years in FM: 17

What kind of facility do you manage?

I manage our corporate headquarters buildings, as well as wastewater treatment plant that serves our main plants in central Pennsylvania.

Why did you choose in FM?

Since I started in maintenance and learned along the way, I have been able to develop and innovate within the industry which has gotten me to where I am today. I was always eager to learn and bring ideas on facility improvements throughout my career.

What has been your biggest FM challenge and what have you learned?

The biggest challenge is space utilization along with workplace strategy. Finding technology to help with this is a big plus. Having the right resources within the company to align departments is also needed. Clear communication with stakeholders and the ability be agile in a flexible work environment is key.

What advice would you give to someone starting in FM and what is the best advice you have received?

Always look for ways to break the mold of the facility manager. In many companies it is defined. The best advice is to redefine the role, find innovative ways to do things, and always network with other FMs and share knowledge. The best advice I was given is that the only thing that stands in your way to greatness is you. Be your own advocate and do not wait for others to show you how to do something, learn and show others.

Where do you want to take your FM career in the next few years?

Progression has happened fast for me just over the past 5 years. I am enjoying the ride and can't wait to see what comes next. I want to continue to progress in ways that help the company overall.

What do you hope to gain from your IFMA membership?

I would like more knowledge sharing and helping others break their mold.

Tell us a fun fact about yourself.

I am an avid boater. I have a boat docked at a marina in Maryland that our family enjoys for six months out of the year. We fish, swim and visit marinas all over the Chesapeake Bay.

<https://www.linkedin.com/in/michael-zechman-2a62b839/>

The background of the entire page is a light blue gradient. Scattered throughout are numerous water droplets and bubbles of various sizes, some in sharp focus and others blurred, creating a sense of movement and freshness. The droplets are rendered with realistic highlights and shadows, giving them a three-dimensional appearance.

TANKLESS EFFORT

ENSURING AN UNFAILING HOT WATER SUPPLY IN HAWAII

After replacing aging boilers with multiple tankless water heaters, administrators at Hawaii's Oahu Community Correctional Center were able to safeguard reliable hot water supplies for its 1,200 inmates.

BY JAMES FACER

A continuous and reliable source of hot water is a modern necessity, especially for certain commercial installations such as restaurants, hospitals, laundries and some manufacturing operations.

Another application requiring a reliable hot water supply are correctional facilities, which have cooking and laundry operations, as well as inmate hygiene use. Officials at the Oahu Community Correctional Center (OCCC) in suburban Honolulu, realized this firsthand when two 23-year-old 1,000,000 BTU boilers and two 500-gallon storage tanks reached a breaking point, jeopardizing operations.

“The last thing we want is to endanger staff safety because the facility does not have sufficient hot water,” said Terry Visperas, program specialist with the Hawaii Department of Public Safety. This critical need prompted Visperas to work with facility maintenance staff and the state’s gas utility, Hawaii Gas, on a solution that became more urgent when the center’s second boiler failed.

PUBLIC HEALTH AND SAFETY ISSUE

“From a public health and safety perspective, reliable hot water is an essential component of this facility’s operation,” explained Visperas, who specializes in researching and integrating renewable and emerging technologies for the department. “Bad things happen when necessary systems don’t work as expected.”

Together, representatives from Hawaii Gas and OCCC facility staff devised a plan to replace the two aging boilers with multiple commercial condensing tankless water heaters to provide continuous hot water at the correctional facility.

To prevent a critical failure, the team leveraged the plug-and-play operation of a prefabricated multi-tankless commercial heater system, shipped fully assembled with high efficiency condensing tankless heaters, system controllers and manifolds. Installers need only hours to connect water, gas and build vent runs, rather than days to construct a multi-unit system from scratch.

The initial plan involved installing six gas-fired commercial condensing tankless heaters to improve the resiliency and reliability of the correctional facility’s hot water supply, according to Brian Yee, manager, strategic partnerships and new business development for Hawaii Gas.

“With a Uniform Energy Factor of 0.96 efficiency rating, these 199,900 BTU/hr natural gas tankless units produce an endless supply of hot water using renewable fuel that is—depending on its source—either carbon negative or carbon neutral,” said Yee, who helped the department plan the retrofit project on behalf of the utility.

OVERWORKED

Yee worked closely with OCCC maintenance supervisors, to plan the 12-week project that would be implemented in three stages to accommodate the 24/7 secure operation. Because the existing boilers and hot water storage tanks were failing, the first and second phases were expedited to avoid catastrophic failure.

Originally designed for 628 detainees, the OCCC facility was rebuilt and expanded more than 40 years ago to accommodate 954 detainees awaiting trial and inmates with short sentences. During the summer of 2018, the facility had a population of more than 1,222 offenders, roughly 28 percent beyond the center’s capacity.

In addition to more users requiring hot water, most inmates shower at the same time, generating a huge surge in demand. “The existing boilers were installed in 1996 and designed to service a much smaller population than we have today,” said OCCC Maintenance Supervisor Ray Gonzalez. “Inmates housed furthest from the boilers were most likely to be forced to take cold showers.”

The first phase of the retrofit project—with six condensing tankless units—would provide potable hot water to one-third of the center’s housing modules, which accommodate roughly 400 inmates. Once complete, the second phase of the project would provide hot water to the remaining 800 inmates, by adding two prefabricated water heater banks (12 units) to replace the failing boilers and storage tanks.

The last phase would provide 12 more tankless units to recharge an existing 500-gallon storage tank that serviced the center’s laundry and kitchen operation. This option ensured unlimited hot water supplies by increasing system redundancy by a factor of 15.

PROJECT: Oahu Community Correctional Center	EXISTING: 23-year-old 1,000,000 BTU boilers and two storage tanks	NEW: 18 NCC199CDV gas-fired commercial condensing tankless heaters	% Change
BTU INPUT	2M	3.6M	+80%
STORAGE	1,000 gal.	N/A	
UNIFORM ENERGY FACTOR	.62	.96	+34%
GPM RECOVERY	35.4	100.7	+184%
TOTAL BTU _h RECOVERY	2.48M	3.59M	+45%
OPERATIONAL REDUNDANCY	2x	15x	+13x
TURN DOWN RADIO	4:1	198:1	
INSTALLATION	Aerial crane	Skid-mounted /Hand dolly	



THE TANKLESS ADVANTAGE

All of the tankless units at the Oahu Community Correctional Center have a maximum flow rate of 11.1 gallons per minute and gas consumption from 18,000 to 199,900 BTU/hour. The heaters offer an 11:1 Turn Down Ratio and 0.96 Uniform Energy Factor (UEF), the newest measure of water heater overall efficiency. The stronger UEF would boost efficiency 34 percent above the previous heaters. The higher Turn Down Ratio offered additional heating levels; so where the existing boiler could only operate at 500,000 or 1 million BTUs, the new tankless units could incrementally raise output across 11 heating levels to better meet demand. The higher the UEF value, the more efficiently a unit converts energy into heat.

“Gas is a critical fuel for Hawaii’s resiliency in emergencies and severe weather events, and we have made preparations statewide to keep our customers supplied with natural gas,” said Jeannine Souki, director, government affairs and Corporate communications for Hawaii Gas. “In fact, we haven’t lost service delivery to our customers since the Pearl Harbor Attack in 1941.”

The team then outlined their plan with contractor Mason Hasegawa who estimates he installs tankless heaters twice as frequently as conventional storage tank-type heaters.

“Using tankless heaters for this project was two or three times less expensive and about 100 times easier than adding a new replacement boiler and storage tank,” said the 47-year plumbing-industry veteran. “A new boiler would take weeks to install, cost more to operate, and still offer only 0.70-

0.87 UEF; compared with a 0.96 UEF rate provided by the tankless solution.”

The move to tankless also improved the facility’s potential hot water output, with a 184 percent increase in GPM Recovery rates.

Both Hasegawa and Gonzalez were pleased with the team’s decision to install multiple tankless units, as this approach will offer a level of operational redundancy that was not previously possible.

“You see a lot of commercial and institutional applications with one or two boilers feeding storage tanks, whose total storage capacity roughly matches the peak demand of the project,” said Gonzalez. “As a result, if one goes down, the operation doesn’t have enough hot water.”

“A multi-unit tankless job frequently involves three or more units, so each water heater contributes a smaller share of the overall demand,” he said. “If one or even two must be valved-off for maintenance, the remaining units can activate and offset the loss in output, bringing supply much closer to maximum building demand.”

Unit redundancy was very important to ensure sufficient hot water, said Souki, who said that Hawaii Gas supplies the OCCC with renewable natural gas that is blended with locally produced natural gas for the heaters, which can operate on either fuel type.

“From a utility perspective, we want to ensure detainees are provided with their basic human needs, and the folks who work in these facilities have the highest level of safety standards possible,” she said.

Unlike traditional storage water heaters, tankless water heaters use a powerful burner and heat exchanger design to quickly heat incoming water to the set point temperature. They activate only when a fixture is turned on and cease heating once it is off. This ensures energy efficiency because the on-demand heaters are not constantly heating stored water.

Hasegawa installed the first phase of six tankless heaters that were wall-mounted, while phases two and three required a total of four floor-mounted rack units, each configured with six heaters.

The rack units used the same heaters as phase one, but the project team ordered the remaining modules as a fully assembled system, designed to speed installation. The prefabricated Commercial Water Heating System combines commercial-grade tankless units with system controllers, mani-



folds and other necessary components and accessories into a fully assembled metal rack system.

The system also includes a multi-unit system controller, which stages individual heaters on and off based on hot water demand, as well as rotates their operation to ensure even usage.


The goal of the Commercial Water Heating System is to reduce installation time and expense while maximizing performance and reliability when building multi-unit tankless systems. According to Gonzalez, the rack system brings installation as close to “plug-and-play” as possible for plumbing contractors.

All three applications have been meeting hot-water demands since the installations. **FMI**



James Facer has spent more than 14 years working as a sales and product specialist for Noritz America, one of the leading tankless water heater manufacturers in North America.

As National Accounts Manager – Commercial, Facer works to counsel operations and property managers on the energy savings and superior hot water delivery benefits of tankless heaters and boilers. He holds a Bachelor’s Degree in Environmental Studies from the University of Washington and is based at company headquarters in Fountain Valley, Calif.



LEGIONELLA: IT'S TIME TO PAY ATTENTION

BY TRACE BLACKMORE

Legionella has received a good amount of airtime on U.S. television stations in recent months. For most people, this is the first time hearing the term legionella. The public wants to know what legionella is, how to handle it and that the individuals who own the buildings where legionella bacteria is found are proactively doing something about it.

Legionella is a bacterium that can cause Legionnaire's Disease (LD), which is a form of pneumonia (legionellosis.) There are more than 45 species with more than 70 serogroups in this family of bacteria. The most notable of these bacteria is legionella pneumophila, which is responsible for more than 90 percent of LD cases. Legionella got its name from the Legionnaires who experienced the original outbreak in 1976. "Pneumo" translates into lung, and "phila" translates into loving.

Legionella is a lung-loving, microscopic bacterium less than 1 micrometer in width and 2 micrometers in length. It is found naturally in lakes, rivers, streams and ponds. It can also be found in potting soil. However, the primary source of the LD-causing bacteria is in buildings.

Many scientists have stated that LD is a first-world issue because of the massive infrastructure that promotes the growth of legionella bacteria. Naturally occurring legionella bacteria enter a building's water system where it is permitted to grow in its

ideal environment between 77-108 degrees F. When the ideal temperature and stagnation combine, it creates a perfect breeding ground for legionella bacteria.

This environment perfectly describes many modern building systems. Legionella bacteria enter the human body when contaminated water droplets are inhaled. Most people's immune systems can fight off infection, but certain members of the population including those with a weakened immune system are much more susceptible to infection that can lead to LD.

In 2015, ASHRAE released Standard 188, which states if a building houses immune-compromised patients overnight, people of 65 years of age, has multiple housing units with a centralized hot water system and/or has more than 10 stories, the building should comply with this voluntary standard. If the building has any device that has the potential to spread contaminated water droplets, Standard 188 should be followed.

Just because the standard is voluntary does not mean FMs do not need to act. It is essential to know that eliminating legionella bacteria is impossible. However, proactive measures can be taken to ensure that LD doesn't get into buildings. Thus, there are two reasons to act: to reduce the risk of someone contracting LD and to take negligence off the table. If someone were to become sick with LD, it would be known that Standard 188 exists and was not practiced. This could be used to prove negligence.

Just one month after ASHRAE released Standard 188, an outbreak occurred in New York. Local government responded by making parts of Standard 188 law. Also, every cooling tower within the state of New York must be registered with the health department and have a specific strategy for LD prevention. New York was forced to act. Because New York law makers only included cooling towers in the legislation, the assumption is that legionella only grows in cooling towers, and this not the case. Legionella grows naturally in water. Cooling towers are a good distribution system when it comes to spreading contaminated water droplets. Nevertheless, the Centers for Disease Control (CDC)

traces more than 80 percent of LD cases back to the domestic water, not cooling towers. Many predict that New York will change the law due to this information.

There is a misconception that having a cooling tower water treatment program is compliance with Standard 188. This belief is incorrect because the two primary goals of a traditional water treatment program are to increase heat transfer efficiency and prolong the longevity of the equipment, not eliminate a specific species of bacteria. Moreover, the prime location of LD-causing bacteria is found in the domestic water, not the cooling tower. Compliance with Standard 188 covers the water systems within the building. Additionally, the only

IT IS NATURAL TO FEAR
SOMETHING THAT IS
NOT UNDERSTOOD, HOWEVER,
FEAR SHOULD NOT
CAUSE NEGLIGENCE.

“real” way to manage legionella bacteria in any system is to test for it. Some legionella testing can cost as much as a “cheap” water treatment program. Just as a “cheap” water treatment program should not be considered, a traditional water treatment program should not be the compliance of a building to Standard 188.

Also, just having a building tested for legionella bacteria is still not the complete essence of Standard 188. It is knowing what to do when. A positive test result will eventually be found for legionella bacteria even if everything is being done correctly. Remember, the elimination of legionella bacteria is not the goal; having an action strategy to reduce the risk of someone getting LD is the goal.

When this action strategy includes the entire building's water systems, it is called a Water Management Plan (WMP). A WMP includes a drawing of all the water systems in a building with possible legionella breeding grounds identified. Once identified, a plan is put into practice to re-

duce the growth of legionella bacteria in those systems and is validated with periodic legionella bacteria testing. If a positive legionella bacteria count is found in a test specimen, the WMP is followed to reduce the population of legionella bacteria. Most WMPs confirm this reduction with a follow-up legionella bacteria test. Therefore, merely testing for legionella bacteria is not enough. It is imperative to know what to do with the test results before starting to collect test specimens. The testing and subsequent action makes WMPs an essential part of the building's operating procedures.

Another common misconception is if building operators and FMs do not test for legionella, they are not liable for someone in their building contracting LD.

This cannot be further from the truth and can most likely be used against them in legal discovery. No action is the worst action when trying to understand what can be done about reducing LD in a building.

It is natural to fear something that is not understood, however, fear should not cause negligence.

FMs should learn everything they can about LD. The CDC has several good documents that spell out what needs to be in a WMP. Local professionals can help anyone understand this complex topic. There is so much information out there that warns about LD, that proving negligence is not a difficult task. Professionals should work together to take negligence off the table. Dealing with LD is hard; WMPs are simple. Being proactive can not only save assets; it can save lives. Be proactive about LD and learn what can be done to prevent it. **FMJ**



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HOW CAN CORPORATE FM
SUPPORT AN ORGANIZATION'S

DIGITAL TRANSFORMATION?

BY TED RITTER & COLETTE TEMMINK

The fast-changing need for business to evolve continues moving at a faster pace and companies need to adapt in order to benefit from changes in the market environment. While it is imperative for companies to focus on adapting to this speed, including improving product quality and continuous improvement to remain competitive, this adaptation translates into business transformation and involves making immediate foundational changes to how a business operates.

Business and digital transformation that goes beyond operational performance and return on investment have become a mainstream business imperative. Author Scott D. Anthony outlined how the S&P500 will turn over by 75 percent within a 15-year period or one company in every three will delist within five years. As technology continues to change the world, many executives are driving and responding to this change through transformational efforts.

According to Anthony, there are three categories of business transformation. The first is going digital or operationally doing things quicker, better and more cost effectively by using technology. The second involves a company's operating model or fundamentally executing the business in a different way. The third is strategic transformation, which changes the company's fundamental principle. For example, Apple went from computers to consumer gadgets, Google from advertising to driverless cars, Amazon from retail to cloud

computing or Walgreens from pharmacy retail to treating chronic illnesses¹.

Digitization includes digital conversion or changing from paper to a digital format; however, digital transformation includes leveraging knowledge and enabling a fully digital business². This type of business transformation involves a company's employees, business processes and technology systems. Whichever type of transformation companies execute, they all involve or impact its most important resource—the employees.

It is essential that Corporate Real Estate and Facility Management business units partner with their IT Departments and primary vendors to develop an actionable digitization strategy.

During the compilation of the Facility Manager's Guide to Information Technology 2.1 Kindle Edition in 2018, the review of case studies for inclusion indicated successful projects had three fundamental components: Effective Planning, Partnerships and Engagement.

How digital transformation will increase operational efficiencies and improve workplace experience

The influence on facility and property management is inevitable. This will involve technology such as digital twins to automate remote building system adjustments and repairs to on-demand production of parts (3D printing). Machine learning will increase predictable preventative maintenance, as well as increase a building's uptime, lower costs and repair time.

There is a lot of buzz around digital twins, however, the technology has been in place for quite some time. Also of interest is the common assumption that digital twins is terminology for a single set of parameters.

There are distinct types of digital twins.

Digital Twin Prototype (DTP)

Digital Twin Instance (DTI)

Digital Twin Aggregate (DTA)

In the instance of a Digital Twin Prototype this would be of most use during the design phase of either new construction or renovations. It could be said that a BIM model is a close cousin or the first half of a digital twin that has not yet been constructed in the physical world, and specific to the built environment. Mainstream manufacturing regularly utilizes DTP's for automotive and aerospace design.

BIM is concerned with the functions of construction and the building where an early stage digital twin prototype is an enhanced version that considers the people and their potential actions within the building.

The typical benefits are to review, perhaps with the inclusion of virtual reality

technology, key building systems, finishes, traffic patterns and space utilization all prior to any construction. The potential savings are typically tied to reduced construction times, faster turnover of operating documents and reduction in contingency budget line items.

The definition above for a Digital Twin Instance is more accurate and specifically tied to the single building envelope or instance of the level of effort applied to deploy technology to a property assist with oversight, operations and life cycle management.

For high-performing organizations that have adopted BIM and digital twins during the design and operational phases of a single build there was a need for a more sophisticated platform solution.

The integration of substantial analytics platforms with digital twin platforms has generated the final variant of a Digital Twin Aggregate (DTA) to support portfolios with multiple buildings and assets that have digital clone deployments. This is the leading edge of the technology stack, the capability to support a portfolio of digitized buildings for the benefit of the operational team and those that occupy them.

How digital transformation influences CRE

The involvement and impact to employees and product production has a direct influence on a company's real estate strategy. As the nature of work changes — companies will provide more types of spaces that increase collaboration, agility and increased amenities to attract talent. Manufacturing spaces will become more automated and robots will work seamlessly in the same environment and space as employees. These changes will fundamentally influence physical space requirements such as higher ceiling clearing heights, heavier floor load requirements and increases to the configurability of office spaces. The amount of space needed by a company will also change given many of the tasks today that require space can be done virtually. For example, product design and testing can now be done virtually.

Based on a recent survey, 65 percent of businesses indicated they have or are planning a corporate program for digital transformation. Their findings are consistent with other studies such as the one conducted by Pro Tech Research, which indicated 70 percent of companies have or are working on a digital transformation strategy³.

Another aspect to digital transformation is the impact and effectiveness of the outsourced service provider community. A recent article cited Frost & Sullivan market research report, which predicts the global outsourced FM market will be worth nearly US\$1 trillion by 2025. Much of this growth will be due to enabling technologies such as Big Data and the Internet of Things along with a wide array of additional and complimentary solutions. These will allow FM companies to widen the range of services they offer, both directly and through partnerships with providers in other areas. This is changing the landscape of how business value is presented in a global context⁴.

From this perspective, digitization and the application of technologies can provide greater efficiencies and reduce the overall cost of FM activities or alternatively significantly improve the occupant experience while maintaining a steady budget. Thus, the impact of technology adoption and the related efficiencies are enhancing the conversations between providers and customers to include a more diverse set of options.

Whether partnering with a provider or self-managing a portfolio, an additional aspect of the rapid digitization of CRE is the need for new types of resources with business units. A new component of the Annual FM Technology Benchmarking Report compiled by the IT Community of IFMA with support from the GEFMA Technology Committee, fully support the notion that the advent and proliferation of these technologies are also transforming the staffing requirements of CRE and FM teams across virtually every industry.

The IT Community findings initially reported at World Workplace Charlotte in 2018 summarized the need for focus on a new set of job descriptions of CRE and FM technology specialists that could be the dynamic bridge between operations, technology providers and IT departments. Other positions included: data analysts, control system specialists [including IoT], security system specialists, CMMS-IWMS specialists, and certain hybrid roles that could support multiple system stacks. Although there has been a great deal of dialog regarding the loss of jobs to automation, it may be that the industry is seeing a rise in new job categories of employment options.

How digital transformation influences FM


Another set of components related to digitization is the need for more robust technology maintenance and refresh cycles along with enhanced disaster recovery plans.

There is a false sense of security when deploying certain types of technologies that either it is going to be automatically upgraded and refreshed without effort or does not require a maintenance and capital refresh plan. Although leading platforms have a much higher rate of automated updates, the ecosystem is not yet fully autonomous. Another consideration, especially when taking advantage of an IoT deployment is establishing a program for ensuring that the sensors are reporting accurately and for their periodic maintenance or replacement.

As there is major shift and increasing market trend to cloud solutions, FMs must ask if operators are asking for the appropriate level of security and redundancies aligned with cloud computing? For instance, if there is a 50-person maintenance team that is fully reliant on cloud computing, what happens if there is a significant interruption? How do operations continue? Should the department examine a multi-cloud solution? It is a planning mindset that goes well beyond the concerns for the loss of a part of a physical portfolio. FMs need to think in terms of digital assets and systems as well.

There are several documented case studies across all industries showing significant ROI. As a part of developing a plan to take advantage of these cost-saving benefits; doing so in a secure manner is a fundamental requirement in the era of digital transformation.

Conclusion

Given this significant focus, CRE departments must quickly respond and support these business transformations to be successful. CRE departments can enable and support their company's transformation by focusing on place, people and processes. 



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REFERENCES

1. Scott D. Anthony, FEBRUARY 29, 2016, What Do You Really Mean by Business "Transformation"? Harvard Business Review, Retrieved from <https://hbr.org/2016/02/what-do-you-really-mean-by-business-transformation>
2. Savić, D. (2019). From Digitization, Through Digitalization, to Digital Transformation. Online Searcher, 43(1), 36–39. Retrieved from <http://www.infotoday.com/OnlineSearcher/Articles/Features/From-Digitization-Through-Digitalization-to-Digital-Transformation-129664.shtml>
3. Dave Chaffey 08 Jan, 2019 SmartInsights How many businesses have a Digital Transformation programme in place? Retrieved from <https://www.smartinsights.com/manage-digital-transformation/digital-transformation-strategy/digital-transformation-planning/>
4. The 4 benefits of digitizing facilities management | By The Checkit Team; Retrieved from <https://www.checkit.net/the-4-benefits-of-digitising-facilities-management/>
5. Melanie Wolkoff Wachsmann | August 1, 2018 -- 13:44 GMT (06:44 PDT) | Topic: Digital Transformation: A CXO's Guide Survey: Despite steady growth in digital transformation initiatives, companies face budget and buy-in challenges ZDNet retrieved from <https://www.zdnet.com/article/survey-despite-steady-growth-in-digital-transformation-initiatives-companies-face-budget-and-buy-in/>

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**WHAT FM CAN
BRING TO DELIVER**

**EUROPE'S
NEW GREEN DEAL**

BY FREDERIC AERTSENS & SOLENE WHOOLEY

Europe is to become the first climate-neutral continent by 2050 according to the New Green Deal presented by new European Commission President Ursula von der Leyen. To do so, the European Union (EU) will come forward with a Climate Law in March 2020 that will enshrine the 2050 climate neutrality objective in legislation. All the different sectors, including the built environment, must come together to reduce the EU's greenhouse gas emission reductions target by at least 50 percent by 2030 (current goal is 40 percent) and aim towards 55 percent compared with 1990 levels in a responsible way.

To deliver the European Green Deal, there is a need to rethink policies for clean energy supply across the economy, industry, production and consumption, large-scale infrastructure, transport, food and agriculture, construction, taxation and social benefits. The construction sector, as part of the built environment, is under the spotlight and seen as one of the main polluters.

The Green Deal proposes to increase the value given to protecting and restoring natural ecosystems, to the sustainable use of resources and to improving human health. This is where transformational change is most needed and potentially most beneficial for the EU economy, society and natural environment. The EU should also promote and invest in the necessary digital transformation and tools which are essential enablers of the changes.

Looking at the Commission's Green Deal, what are the policy hooks and possible pieces of legislation that may impact FM? Based on past experiences in government relations, how can IFMA build on its relationship with the European institutions and ensure that the role of FM is recognised in the work led by the European Commission?

WHY A GREEN DEAL?

Following increased societal pressure for policy action to tackle climate change, the EU wants to be a global leader on sustainability issues and now is the time to walk the talk. May 2019's European elections brought a "green wave" to the European Parliament with a significant increase in the number of Green MEPs (+22 seats). This confirms that green and sustainability issues are key to European citizens and in response to this, all the main political groups have adapted and integrated language around sustainability.

President von der Leyen, who is from the European People's Party group, initiated this Green Deal. This would not have been conceivable a few years ago when the center-right group did not focus its political program on such topics. However, it clearly seems that business and sustainability go hand-in-hand and that industrial players will play a crucial role in delivering the Green Deal.

A BIG DEAL FOR THE BUILT ENVIRONMENT

The Green Deal is an integral part of the EU's strategy to implement the United Nation's 2030 agenda and sustainable development goals (SDGs). It touches upon a broad range of topics including transport, biodiversity, clean energy, zero pollution and the transition towards a more circular economy is fair and does not negatively impact those who are the most at risk.

The most relevant initiatives in the Green Deal for facility managers are:

- **The New Circular Economy Action Plan**

This Action Plan will look at how to make linear production more circular by mainstreaming the Reduce, Reuse, Recycle principles into all policy areas and across all sectors, including the built environment. In other words: everything you integrate into a building, everything you use within the building and what you remove from the building will have to be as sustainable as possible.

Resource-intensive sectors like the construction sector will be under pressure to be more ambitious on climate change and guide the transition. The Commission will consider legal requirements to boost the market of secondary raw materials with mandatory recycled content (for instance packaging, vehicles, construction materials and batteries). The goal for the construction sector and the built environment is to become more circular, notably from the very start at the design stage of the building, until its last breath in the demolition phase.

- **Building and renovating in an energy and resource efficient way**

The built environment, whether it be during the life cycle of a building or during renovation, consumes significant amounts of energy resources. The built environment accounts for 40 percent of energy consumed. The Commission estimates to reach the EU's energy efficiency and climate objectives, the annual renovation rate will need to be at least doubled.

To improve energy efficiency and help users reduce their electricity bill, member states will be encouraged to engage in a renovation wave of public and private buildings. This renovation wave initiative for the building sector will be launched in 2020 and is meant to boost the construction sector by providing new jobs at local level and support small and medium enterprises (SMEs).


IFMA CAN PLAY A VITAL ROLE

IFMA has been part of the policy conversation in Brussels on what future energy efficiency legislation for the built environment should look like. Since 2016, IFMA continuously engaged with policy makers to underline the need for a holistic approach of a building. Where EU legislation has focused solely on seeking to obtain energy efficiency gains from the construction phase of the building, most of those savings come from optimized operation of the building throughout its entire life cycle. FMs help achieve those savings through their day-to-day operations.

With the Energy Performance of Buildings Directive, IFMA successfully managed to have the role of facility management reflected in the Directive (see case study in box).

The time has come to again position FM as a solution-maker for increasing the energy efficiency of the built environment, in the renovation phase, and as a green dealmaker for everything circular economy related.

By the very nature of the profession, FMs are ideally positioned to increase the energy performance of a building, and so much more. They facilitate and ensure effective waste management, advise on the use of construction products in the design and renovation phases, and properly manage the performance of technical building and automation systems.

Through its participation in expert groups and targeted bilateral meetings with key decision-makers, IFMA will therefore make sure that the voice of facility managers is heard when the renovation wave initiative and circular economy action plan are launched. With the support of data, best practices and case studies, IFMA will showcase with EU decision-makers how facility managers help the EU's building stock grow green, and help the EU implement its Green Deal. 



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CASE

IFMA'S ROLE IN THE ENERGY PERFORMANCE OF BUILDING DIRECTIVE

The **Energy Performance of Buildings Directive** is a piece of EU legislation that sets out requirements for the energy efficiency in buildings.

Through IFMA's lobbying efforts in Brussels, IFMA successfully inserted language about facility managers in the piece of legislation that is now being translated into national legislation. The wording recognizes the added value that facility managers play in shaping and managing the opportunities for energy efficiency improvement in a building:

4. *The building automation and control systems shall be capable of:*

- (a) *continuously monitoring, logging, analyzing and allowing for adjusting energy use;*
- (b) *benchmarking the building's energy efficiency, detecting losses in efficiency of technical building systems, and informing the person responsible for the facilities or technical building management about opportunities for energy efficiency improvement; and*
- (c) *allowing communication with connected technical building systems and other appliances inside the building, and being interoperable with technical building systems across different types of proprietary technologies, devices and manufacturers.*

The Directive thereby not only recognizes that **facility managers play a crucial role** in analysing the data that can lead to energy efficiency improvement, but also use this data to propose and implement tailored solutions to enhance the energy efficiency of the building in which they work.

STUDY



Soline Whooley is an EU public affairs specialist having gained experience in the environmental and energy sectors. She mainly follows topics related to the circular economy, notably in the built environment and food sectors. She holds a Master's degree in Political Science from Sciences Po Bordeaux.

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