FMJ | OFFICIAL MAGAZINE OF IFMA | NOVEMBER/DECEMBER 2022 | FM FINANCE + STRATEGY

FMJ

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inside

FM Finance +Strategy

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Features

Sections

IFMA is the world's largest, most widely recognized association for facility management professionals, supporting more than 22,000 members in 136 countries. Founded in 1980, IFMA's vision is to lead the future of the built environment to make the world a better place. A key contributor to the development of international FM standards, IFMA provides career resources, continuing education and three industry-respected credentials; maintains the largest repository of FM-related content on the web; and hosts year-round global events. Among the values that guide us, we believe in the benefit of global diversity, inclusion and social equity; and we recognize that sustainability, resilience and responsible environmental stewardship are paramount. For more information, visit ifma.org.

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FMJ Extras

The online version of FMJ features extra resources like videos, podcasts, white papers and more to enhance your reading experience. Click on the FMJ Extra icons that appear in the digital magazine to link to additional sources of information to learn more about topics covered by articles in this issue.

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Future of Applications:
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& Safe Rooms

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Public-Private Partnerships:
Benefits & Opportunities
for Implementation

065 Resource
Top 10 Ways to Get Your
Business Ready for Thunderstorms

FMJ Extended

Check out the online issue of FMJ for a special section that follows the end of the print magazine and includes additional articles not available in the print edition. Read the extra articles listed below for contributions from councils and communities, and other supplementary content.

Ask the Experts

Art and Science
Planning for equipment upgrades
Todd Culp & Matt Thiel

The 3D's
Installing cost-effective EV chargers
Juan Carlos Barahona

Mobile Access Control
Building a better facility experience platform
Troy Johnston

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Embracing the All-Hazards Approach
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FM metrics & strategies for building health
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Highlights from IFMA's World Workplace 2022

IFMA's Annual Report

Editor's Note Bobby Vasquez

A quote commonly attributed to American author and humorist Mark Twain goes something like: Good decisions comes from experience, and a lot of that comes from bad decisions.

Bad decisions are a part of life. Whether opting to bypass the gas station despite the bright orange "E" on the dashboard or contracting an unknown vendor who came in with the lowest bid, sometimes we make a bad call. If we recognize and act on it quickly, we can correct it or at least mitigate the damage.

In some instances, we do not get a do-over and are unable to salvage a project, relationship or situation. However, the next time a similar circumstance arises, we recall the aftermath of the previously imprudent choice to make a better decision. In this regard, bad decisions are not always a bad thing, as long as we learn from the experience and apply the knowledge gained.

While we cannot forecast precisely what the future holds, we can prepare for likely scenarios based on our own depth of knowledge paired with the insights of others. Knowledge sharing is one of, if not the, best strategies for preparedness. It is also central to IFMA's mission: to advance our collective knowledge, value and growth for FM professionals to perform at the highest level; and one of the values that drive our association: to strive for excellence and growth through innovation, leadership and sharing of knowledge.

As we focus on finance and strategy in this edition of IFMA's FMJ, it is important to remember that our magazine is written by FMs — colleagues, fellow members, as well as partners and other built environment professionals who have made decisions, good and bad, learned from their experiences, found best practices and share them here.

You have the opportunity to do the same. Scan the QR code or click the link to our editorial calendar to find out how to share your insights with the IFMA community and FM industry.

In a data-driven world, having information at your fingertips is not enough. FMs are challenged to know their facility's systems and hardware input and output when asked and expected to pivot at a moment's notice, all while delivering the best experience and environment to encourage comfort, productivity and efficiency. FM's influence is based on trust, and to build that trust, they must ensure they have the most accurate and current data to answer key questions. By making sufficient investments in the right plans, FMs can strengthen their value to their organizations (Page 014).

As in any office, FM teams are made up of a cast of characters, each with unique abilities, personalities and backgrounds. To optimize their performance, FM leaders must allow each cast member to flourish in their roles and overcome built environment antagonists (Page 030).

The rise of public-private partnerships is bringing more transparency and focus to FM organizations. These complex partnerships present many challenges, many of which can be alleviated by implementing building information modeling and digital twins. With more pressure to deliver economic value and social good, organizations need the right tools to measure performance and plan operations and maintenance (Page 059).

Learn. Share. Execute. That's a great strategy for success.

Cheers!

Interested in writing for FMJ?
Email **bobby.vasquez@ifma.org** article ideas to be considered for future issues of FMJ.

From the **Chair**

LAURIE A. GILMER

P.E., CFM, SFP, LEED-AP

Chair, Board of Directors

Each year, we know, and look forward to, what we can expect from World Workplace: spending quality time with colleagues, getting up to speed on the latest information and products for our industry, and celebrating what it means to be part of a vibrant profession and a dynamic association.

That spirit of celebration was felt throughout this year's conference. My thanks to all attendees, exhibitors, sponsors and speakers for such an excellent turnout and a truly uplifting experience that reflects the core message of our annual report: IFMA is stronger than ever.

Moving forward as an industry, we have a higher level of confidence and a broader scope of support as we take a lead role in an evolving built environment. Moving forward as an association, we are on solid footing and committed to advancing the FM profession.

For the long term, we have developed a strategic plan that, through the lens of our mission, vision and values, identifies our goals and initiatives, laid out in our balanced scorecard, keeping us focused and attentive. It's the "what" of what we do. But equally important is how and why we do it.

Earlier this year, the board and executive staff developed "strategic bridge statements" — language to bridge the gap between high-level strategic objectives and the detailed plans for achieving those objectives. We recognized that is it important for us to communicate why our strategic objectives are important so that all IFMA leaders can understand, adapt and incorporate our strategic objectives into the activities of our components across the globe.

World Workplace was a clear example of "how" we live out our objectives: with exuberance, focus and teamwork. Those of you who engaged with staff, volunteer leaders and local chapter members saw first-hand the enthusiasm for connecting with our community and working to advance our profession. Why? Because we understand that success, for FMs and IFMA, flows along the lines of relationships and is steeped in that bigger picture we are all working toward.

These are the five strategic objectives we have set before ourselves and why they are so important to us (their corresponding bridge statements):

Grow and retain membership: IFMA is a community that thrives when we connect and grow together. Through membership, we work to apply our skills and talents, helping ourselves and our community toward performing at the highest levels.

Lead the global transformation of lifelong FM professional development: IFMA has developed comprehensive education programs that meet people where they are, supporting them through the maturity of their career. IFMA is dedicated to advancing FM individuals through education, regardless of experience, location or language.

Be the recognized leader of FM conferences globally: Our events bring together the essence of all we do in one place. They are a global world stage that connects FM professionals, allowing them to grow, meet, share and learn together.

Drive the evolution of the FM profession: To truly be a profession takes organization and definition. Through our professional development resources, advocacy and connected community, we are at the forefront of responding and adapting to changing needs throughout our industry.

Elevate and bring visibility to the FM profession, community and association globally: In addition to being the best kept secret of any organization, FMs influence the health, safety, security and productivity of the organizations they serve. IFMA is dedicated to advancing the profession through education, advocacy and connection.

It takes all of us, collectively, doing our part — acknowledging that we work better together in achieving a shared vision. To that end, we are leveraging the Chapter Champions program to help our components connect and align with IFMA's overall vision. This program connects association leaders, such as IFMA Fellows, with chapters that need additional support and resources. We currently have 50 champions serving 54 chapters.

I invite you to join our journey — whether as a contributor or beneficiary, we all have much to gain from our collective interest and collaborative efforts to lead the future of the built environment.

From the **President**

DON GILPIN

President & CEO
IFMA

As I sit in front of my laptop with a hot cup of coffee on this crisp fall morning, collecting my thoughts on this edition's theme of FM Finance and Strategy, my mind keeps turning to World Workplace. Firstly, we had a great time in a spectacular location. Thanks to our Nashville Chapter for their collaboration and warm hospitality. Secondly, IFMA's marquee conference embodies who we are and what we do as an association. It is directly tied to both our financial stability and organizational strategy.

IFMA volunteer leaders and professional staff have heard me refer to the "Big Three" — our primary revenue-generating channels: membership, events and professional development. While professional development represents our largest percentage of revenue, and membership represents our most valued asset and reason for being, IFMA events serve a fundamental strategic role. World Workplace, in particular, sits squarely in the middle of our value proposition and strategy for growth.

World Workplace provides a stage upon which all of IFMA's goods and services, features and benefits, even our identity and reputation are showcased. It welcomes professionals from every built environment discipline, reflecting the importance we place on teamwork as a crucial element of holistic facility management; and from every region of the globe, because IFMA is dedicated to educating, connecting and advancing FM professionals regardless of location or language. It welcomes members and nonmembers, from students to retirees, because we believe that sharing knowledge, experiences and ideas leads to greater opportunities, higher performance and a better world.

Strategy should always support an organization's mission and vision. If we roll something out that does not support our overall strategy, it places our objectives, our aspirations and our integrity at risk. World Workplace must represent IFMA's plan of action and policy to ensure we do not lose our way in meeting our goals, upholding our values or fulfilling our purpose.

World Workplace also plays a strategic role in IFMA's finances. With careful attention to expense management, customer service and revenue generation — especially the substantial investment made by our exhibitors and sponsors — we are financially able to support many IFMA programs designed to advance the careers of our members. Education and certification development, workforce development, public policy advocacy, free member benefits, market research and benchmarking all require funding. With prudent, deliberate event management, IFMA is able to invest in you.

So, if you are new to the association or have never attended World Workplace, and you're wondering why we start planning and talking about next year's conference even before the current one has ended, you can see how and why this event is essential, strategically and financially, to our path forward.

To those who joined us in Nashville, we thank you for attending and hope you are still beaming from the week's activities, as I am today. To those who could not be with us, I invite you to World Workplace 2023 in Denver, Colorado, USA. Strategically, what you learn and who you meet will do wonders for your career. Financially, IFMA members who register early enjoy a double discount!

From everyone here at IFMA Global Headquarters, we wish you a happy holiday season and success in the coming year.

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2022 CLASS OF IFMA FELLOWS INDUCTED AT IFMA'S WORLD WORKPLACE

On opening day of IFMA's World Workplace® 2022 Conference and Expo in Nashville, Tennessee, USA, Lynn Baez, CFM, SFP, FMP, CBCP, IFMA Fellow, Lesley Groff, CFM, IFMA Fellow, Tony Khoo, CFM, FMP, MBA, IFMA Fellow and Michel Theriault, FMP, LEED AP, IFMA Fellow were officially inducted as the 2022 Class of IFMA Fellows by this year's Jury of Fellows Chair Cheryl Waybright, MCR, CFM, IFMA Fellow.

"Those we honor today not only appreciate the infinite value of giving back to the profession that uplifted them and the association that supported and inspired them; but have done so, not for personal gain, but for the opportunity to help advance the industry and turn passion into progress for IFMA," said Waybright.

IFMA's Fellows Program was established in 1992 to recognize association members who have distinguished themselves by achievement in and around IFMA and the field of facility management. No more than 0.5 percent of membership may hold the title.

"IFMA Fellows represent the best of who we are as an industry and an association of active, supportive and highly motivated professionals. This year's honorees are driving progress for IFMA and FM, inspiring each of us to contribute and creating opportunities for all of us to thrive."

IFMA's 2022-23 Global Board of Directors Chair
Laurie A. Gilmer, P.E., CFM, FMP, SFP, LEED AP

Serving on IFMA's Finance, Governance and Strategic Plan Oversight Committees, as well as IFMA's Global Organization Strategy Task Force, Young Professional Task Force and the Sustainability Advisory Group, **LYNN BAEZ** is globally recognized as a subject matter expert on FM organizational development and integrated work management systems. She has been sought out twice by the U.S. Pentagon to assist in transforming the organization into one of resilience. As global chair of IFMA's International Government Affairs Committee, she led the effort to provide IFMA with a visible, audible and influential presence in Washington, D.C., USA.

With a background in civil engineering, **TONY KHOO** became an advocate for industry transformation after realizing the vast potential and opportunities for FM. As president of IFMA's Singapore Chapter, a member of IFMA's Asia Advisory Board, and serving on numerous committees within the Building and Construction Authority of Singapore, he provides insight from the FM perspective and has raised awareness of FM's importance among local developers, building owners and the Singapore government. As an adviser to several Singapore universities, he has worked to ensure that FM higher learning programs remain relevant to the industry.

In addition to serving on IFMA's Global Board of Directors and as an IFMA CFM® Qualified Instructor, **LESLEY GROFF** has been a member of IFMA's Emerging Leaders, Credentials and FMP® Scheme Committees. She served on the advisory board of the Community College of Philadelphia Associates Program in Facilities Management, providing industry perspective to the department chair and professors, and meeting with students to talk about the viability of an FM career. Groff also worked with Thaddeaus Stevens College to create their Facilities Technician Program, bringing together industry experts to build the program's curriculum.

An IFMA Distinguished Author, **MICHEL THERIAULT** has written articles for industry publications around the world. He is a participating member of ISO – Canada TC/267 Mirror Committee and an active member of the ISO 41018 (performance management in FM) working group. Theriault has spoken at industry conferences on four continents. He delivered the first FMP program in Nigeria and pioneered the five-day FMP course for the Middle East. As academic coordinator of the Facility and Property Management certificate program from Toronto Metropolitan University, he redeveloped the program to focus on FMs as business leaders.

IFMA shines a spotlight on excellence at its 2022 awards ceremony

FOR MORE HIGHLIGHTS FROM **IFMA'S WORLD WORKPLACE 2022,** SEE THE ONLINE PORTION OF THIS ISSUE!

On the final day of IFMA's World Workplace® Conference and Expo in Nashville, Tennessee, USA, IFMA announced the recipients of its 2022 Awards of Excellence, honoring the stand-out achievements of association members, chapters, councils, communities and industry partners.

Emceed by past IFMA Board Chair (2009-10) Thomas L. Mitchell, Jr., CFM, IFMA Fellow, the ceremony included Awards of Excellence winners, congratulated by current IFMA Board Chair Laurie Gilmer, and recipients of the IFMA Foundation's Board of Trustees Awards, presented by Foundation Chair Irene Thomas Johnson, CFM. Michael Schley, IFMA Fellow presented the IgniteFM! Student Competition winning team with a US$2,000 prize on behalf of FM:Systems.

"Today, we recognize those who are breaking new ground for our industry," said Mitchell. "This year's award recipients reflect our profession's range of expertise, as well as our global perspective and influence. They represent IFMA and FM on the world stage, demonstrating that ours is a community that views connection, cooperation, understanding and support between nations, industries and people as essential to making the world a better place."

IFMA's 2022 Awards of Excellence Recipients

Distinguished Author Award: Research Paper
Kay Sargent, HOK

Distinguished Author Award: Book
"Work on the Move 3," Michael Schley and Alexi Marmot

Chapter Award of Excellence in Professional Development
Greater Toronto & South Central Ontario Chapter of IFMA

Community Award of Excellence in Programs & Professional Development
Andrew Mawson (AWA) & Workplace Evolutionaries Community of Practice
Workplace Strategy and Leadership Program

Chapter Award of Excellence in Web Communications
2021-22 Communications Committee, Greater Triangle Chapter of IFMA

Emerging Professional Award
Charles Hammersla, Cushman & Wakefield

Associate Member Award
Casey Quisol, Intrepid

Facility Management Innovation Award
JLL's Dynamic Cleaning Product Team
Work Dynamics & JLL Technologies

George Graves Award for Facility Management Achievement
Ayala Property Management Corporation's Energy Management System

The Sheila Sheridan Award for Sustainable Facility Operations and Management
IBM Global Real Estate in Partnership with CBRE

Distinguished Member Award
Jenny Yeung, Hong Kong Chapter of IFMA

Student Chapter of the Year
Brigham Young University Student Chapter of IFMA

Chapter of the Year, Small Chapter
Wichita Chapter of IFMA

Chapter of the Year, Large Chapter
Denver Chapter of IFMA

IFMA Foundation Trustees Awards

Each year, the IFMA Foundation recognizes individuals and groups making a difference to students, professionals and local communities through inspired projects and programs.

IFMA Foundation Innovation Award
Joe Archie and Nancy Sanquist, IFMA Fellow

IFMA Foundation Global Workforce Initiative (GWI) Award
Chaffey College

IFMA Foundation Academic Contributor Award of the Year
Deniz Besiktepe

IFMA Foundation Chairman's Award
Eric Teicholz, IFMA Fellow

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.**

IFMA WORLD WORKPLACE

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IFMA's World Workplace Conference & Expo 2022, September 28-30, Music City Center, Nashville, Tennessee
worldworkplace.ifma.org.

Exhibiting and Sponsorship Inquiries: expoadv@ifma.org

IFMA WORLD WORKPLACE

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TOTAL COST OF OPERATIONS:

4 STEPS

toward a more comprehensive understanding

BY STUART RICH

The facility operating environment has changed significantly over the past several years. Emerging hybrid work patterns continue to shift expectations around employees' collective relationship with work. Organizations are understanding how the built world needs to evolve to empower the work to be done. Global climate change and its associated challenges are driving environmental risk assessments for all infrastructure. Rising energy costs are requiring difficult conversations about how facility management professionals heat and cool their buildings in ways that ensure health and safety. Further, the rising price of construction and materials constrains an organization's flexibility in fabricating its way to a new reality.

As these trends converge, FMs are challenged with reducing operating costs and identifying the most efficient and effective alternatives. To help an organization navigate the complex decisions related to optimizing the portfolio's performance, FMs require current and accurate data, appropriate analysis frameworks and modern information systems to manage and curate that data. In addition to excellent reporting tools, they must also hone the communication competencies required to make their insights understood by various audiences.

Technology can help address each of these challenges in many areas. New data collection technologies make it faster and less expensive to capture detailed information about the location, condition, remaining useful life and performance of buildings and associated assets. Modern, cloud-based facility information systems are more powerful and easier to use on any device in and out of the office. Thanks to ever-improving integration capabilities, these applications can support what Gartner deems as composable enterprise information systems architecture. Increasingly, mechanical systems contain fine-grained sensor systems and can even self-report critical condition and performance metrics.

However, FMs know that technology alone can never fully solve business problems. Solutions must be organized within the appropriate business processes and managed by agile teams who know what they are doing. To this end, industry standards can be beneficial in establishing best practices and recommending the types of training individuals within the organization will need to be effective.

The APPA Total Cost of Ownership (TCO) 1000 standards are a prime example of documentation that can assist an organization along its journey of understanding—ultimately optimizing one's buildings and infrastructure operations. By combining this with other international standards, such as ISO 55000, FM professionals can better understand, document and manage the TCO for their portfolio.

It is helpful to remember that maintenance and operations comprise more than 80 percent of the total cost of ownership. Therefore, FMs have tremendous control over reducing costs and optimizing their facilities' performance. To be effective in this effort requires planning, insightful analysis and timely investments in the context of an overall programmatic approach.

FMs can get a more comprehensive view of their total cost of ownership with four key steps.

1 Start With Clear and Consistent Data

Any programmatic approach to optimizing one's total cost of ownership must be based on current, accurate and complete data. Before the portfolio can be managed, it must first be understood. An asset inventory is essential to begin the journey.

FOOD FOR THOUGHT: How many facility assets does the company have? Where are they located? What is their condition? What is their remaining useful life? What is the backlog of deferred maintenance on those assets? Where are the most significant concentrations of business-critical risk?

Location is a critical element of the asset inventory. Where an asset is located influences how suitable it is to serve the organization's mission, identifies potential opportunities for expansion or consolidation, and affects exposure to different risk elements. Assets on the north and south sides of a building will often perform differently. Proximity to amenities such as collaboration spaces, food and parking will make some buildings and spaces more valuable than others.

Creating a new asset inventory from scratch can be intimidating for facility management professionals. Depending on the size of an FM's organization, they may want to collect thousands to hundreds of thousands of assets. At the same time, they must always keep quality in mind. The only thing worse than no data is incomplete, inaccurate or out-of-date data.

FM leaders must manage expectations and capture what they can confidently keep current amid ongoing business practices. Once good data management practices are in place, they should start at a high level and add granularity and specificity as needed.

Outside contractors can be a great way to start an asset inventory. Hiring an outside consulting firm to perform a facilities condition assessment (FCA) can deliver many benefits. Consultants can be excellent partners as they have:

- Engineering professionals on staff, specially trained to evaluate facilities assets. Engineering assessments are their primary business, so their experience, perspective and lessons learned are pretty valuable.

- Refined data collection tools and proven methodologies. Streamlined processes enable them to collect the data more quickly and consistently than an in-house FM team may be able to do themselves.
- Resources to capture complementary data sets at one time. With access to the latest mobile LiDAR or photogrammetry data collection platforms, firms can collect floor plans, spherical images and other deliverables in the process of an FCA. These supporting data sets can be tremendously valuable tools in managing a portfolio.

Whether a team conducts its FCAs with in-house resources or hires a consultant, a solid asset inventory is a critical cornerstone of any asset management program. This includes information about replacement costs, remaining useful life, deferred maintenance and current conditions.

2 Measure What Matters

If an FM's primary objective is to understand and manage the total cost of operations, it is essential to capture the critical elements of operational costs. For most organizations, the most significant components of operating expenses will include energy, maintenance, janitorial and lease costs. Often this data comes from other software solutions.

Energy:
Energy information may come from energy management and utility billing software. These solutions analyze energy bills at the meter level and provide analysis of monthly costs, consumption trends and local weather correlations. They can also identify anomalous patterns and report an organization's carbon footprint or other associated greenhouse gas emissions. For most organizations, energy costs will make up more than 15 percent of their overall operating costs.

Maintenance:
The most likely source of ongoing maintenance costs will be the organization's computerized maintenance management system (CMMS) or an integrated workplace management system (IWMS), sometimes known as an operations management system or facility management system. Properly implemented, these systems provide information about asset-specific maintenance cost histories, trends, asset conditions and deferred maintenance backlogs. This information is critical to understanding where there might be concentrations of business risk exposure and to help prioritize asset investments to improve the performance of the overall asset base.

Janitorial:
Depending on whether the janitorial function is done with in-house resources or contracted to outside firms, per-building janitorial costs may come from one's maintenance management system or an enterprise resource planning (ERP) solution. Regardless of the system of record for janitorial expenses, these costs should be periodically reconciled with information from an organization's space information system to ensure that cost patterns align with overall rooms and floor area being maintained by room type and flooring type.

Lease:
Lease expenses may come directly from one's ERP solution or sometimes from a bespoke lease management system. Regardless of the source, basic information about lease type, lease period and ancillary costs—e.g., utilities, janitorial, parking—that may be covered by the lease will need to be periodically reviewed. This will ensure that the organization takes advantage of opportunities to drive the most value possible from its lease footprint.

FOOD FOR THOUGHT: How does the company currently track energy usage? Does the company have a clear picture of maintenance activity and costs? How quickly can the facilities team access and report on that information? Does the organization have a clear view of janitorial expenses or lease details?

3 Enable Deeper Analysis with Integrations

One of the most important milestones in the TCO management journey is integrating, aggregating and reconciling information from multiple sources to enable more profound analysis, reporting and actionable insights. When categorized cost data is combined with space and occupancy data, valuable metrics can be developed, such as cost per square foot, cost per occupant, revenue per square foot and revenue per occupant.

These cost indices can allow FMs to benchmark performance metrics across the portfolio. The more granular the data, the more interesting the analyses one can support. It is also essential to ensure that data is collected with sufficient frequency to answer the questions about temporal variation critical to understanding optimization opportunities.

FOOD FOR THOUGHT: How easily does facility information flow within the organization today? Is critical information housed in paper drawings and local spreadsheets? Would it be beneficial to make that information more accessible for deeper analysis?

4 Ask the Right Questions for Valuable Insights

The character of each organization and the nature of its portfolio are different. Therefore, the kinds of questions that are most important to ask and answer will differ per organization. For some, a driving priority may be understanding how to reduce overall energy consumption to meet the organization's carbon footprint goals. For this analysis, understanding how energy consumption varies with occupancy patterns throughout the day, week, month and season can help drive building system management plans that reduce overall energy consumption.

For other organizations, increasing overall research productivity may be the driving priority. In this case, understanding which spaces are suitable for different research activities and which researchers are most productive is key. Other organizations may focus on identifying which buildings have the highest concentrations of operational cost and deferred maintenance to prioritize building decommissioning and reduce the overall size of the portfolio.

FOOD FOR THOUGHT: What are the organization's priorities for facility usage? Does the FM team have visibility on how the organization is performing on key metrics related to those priorities? How valuable would it be to have a better view of critical data to guide decision making?

Bottom Line: Optimizing TCO Requires Good Data and Integrated Systems

In today's dynamic business environment, FMs have a growing influence in the discussion about reducing overall portfolio costs while ensuring that the business has the best foundation to deliver on its mission. To deliver on this opportunity, facility teams must work hard to ensure they have complete, accurate and current data at sufficient granularity to answer the key optimization questions.

Once a solid facilities data foundation is established, that data can be integrated with complementary systems to deliver actionable insights. It is essential to recognize that this vision is a journey, not a destination. The perfect system will never exist. One can always do better today than one did yesterday. If facilities professionals make sufficient investments in the right plan, their overall value to the organization will continue to improve. FMJ

Stu Rich *is an industry lead at Cartegraph, an OpenGov Company, where he leverages nearly two decades of experience to help facility management professionals build higher-performing building and infrastructure operations. Previously, Rich served as the CTO of PenBay Solutions. There, he led the team that published the first buildings interior spatial data model (BISDM) as an open-source data model project for organizations interested in modeling their buildings in GIS.*

RESOURCES

appa.org/appa-tco-1000/

iso.org/standard/55088.html

fmlink.com/articles/reducing-the-total-cost-of-ownership-through-a-lifecycle-approach/

CREATING BETTER WORKPLACE EXPERIENCES

Using world-class FM

BY PAUL HEAD II

Over the past several years, there has been an increased emphasis on creating excellent workplace experiences for employees. This includes ensuring facilities are modern and functional, workstations are operational and employees are comfortable and have what they need to collaborate effectively and get their jobs done.

In a 2021 survey, Willis Towers Watson (WTW) found that 92 percent of employers say enhancing employee experience is a priority over the next three years. This is up from 52 percent before the pandemic.

Several factors are driving this trend, including the fact that the pandemic has fundamentally changed employee expectations about how they work. Remote and hybrid working scenarios are more common than ever, meaning employers need to rethink how and why they use their office space. Instead of simply giving workers a desk, a monitor and a phone, employers must reconsider the goals of their facilities. They must ensure their employees have a solid purpose for going back in person — and that, when they do, they will have a seamless experience.

TOP REASONS TO ENHANCE WORKPLACE EXPERIENCE

There are several benefits to enhancing employee experiences through better facilities and space management. For instance, with optimized workplace experiences comes higher productivity and an easier time attracting and retaining talent.

Enhancing Productivity and Optimizing Workflows

Studies have repeatedly shown that positive employee experiences increase productivity. If employees feel comfortable at work (for example, if the spaces are clean, the facilities are bright and the equipment just works), they can better focus on getting their work done.

The same 2021 WTW survey found that organizations that invest in their workplace experiences are 2.7 times as likely to report higher productivity compared to others in their industry.

Additionally, when organizations invest in rethinking their maintenance workflows, such as implementing a modern work order and maintenance system, their employees spend less time reporting issues or waiting for equipment repairs, which means they can focus on work.

If an asset like a projector or monitor is broken, employees are unable to run in-person presentations effectively. They might need to move conference rooms or join a virtual call late, thus inhibiting work from getting done.

This principle goes beyond maintaining equipment like monitors; it is just as important to provide and maintain amenities such as specialty coffee machines, as this also helps employees feel valued and productive while at the office. When a coffee machine is out of order, or it runs out of grounds, it can cause a problem for the employees who rely on it, and who then need to spend time reporting the issue. By supplying and actively maintaining these high-end amenities, facility management teams are working to create unrivaled employee experiences.

It is clear: When organizations rethink preventive and corrective maintenance workflows, employees can better do their jobs using the assets they need, right when they need them. When they are in the office, they need functional equipment to be productive, otherwise, they might be inclined to wonder why they did not just work from home.

Creating Engaging Experiences to Attract and Retain Talent

Implementing top-tier facility and space management that is focused on employee experience also helps with recruiting and retaining talent. If a company invests in its spaces and buildings, prospective employees can feel more confident that the organization invests in the success of its workers, as well.

With the rise in remote and hybrid work, there are concerns about new employees missing spontaneous networking or collaborative moments that might otherwise happen in hallways or common areas at or around the coffee machine. From an FM perspective, if leadership at an organization values in-person, collaborative experiences, they can rework their office spaces to facilitate those kinds of interactions. It then becomes easier for employees to collaborate, maximizing the time teams spend in person, fostering a sense of engagement and leading to increased retention.

FACTORS TO CONSIDER WHEN RETHINKING FM AND EMPLOYEE EXPERIENCE

Organizations with state-of-the-art FM programs know the impact that employee experience can have on an organization.

Many strive to provide the highest quality. For industries such as investment banking or legal services, they compare their workplace experience to a five-star hotel. They try to anticipate issues before they occur, so their end users do not experience any effects, and often do not even know there was an issue at all.

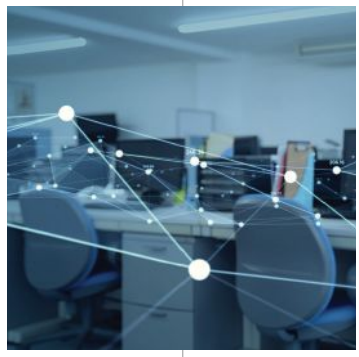
However, creating a world-class experience does not just happen; there are many moving parts and crucial steps that teams need to consider. Here are several factors to keep in mind as teams think about their FM strategy.

A Top-Down Approach

Great employee experiences come from the top, and leadership must take an empathetic approach to their employees' needs and business requirements.

This includes setting up better communication mechanisms, such as surveys or casual forums, so employees can give feedback on their environment and even help shape renovations or updates.

By engaging employees in these discussions, workers know their voices are heard, and leadership knows they are creating an experience that works for their teams.



The Right Tech at the Right Time

Another thing executive teams should consider when revamping employee workplace experience is which tools and technology their organization will need to implement their vision. There are many options, so it is important that teams decide on goals for their facilities to help determine which tech solution to adopt.

FM Tech

If one of the goals is to streamline maintenance operations, there are several smart cleaning solutions that help optimize FM procedures.

This includes implementing sensors that track usage so that teams can optimize their cleaning schedules. For example, setting up sensors that monitor traffic to restrooms and send an alert when a certain threshold is reached, letting the team know the bathroom needs to be spot checked or cleaned. This ensures the maintenance staff can keep a high cleanliness standard while focusing and streamlining their efforts.

There are also solutions that continuously monitor critical assets such as HVAC equipment or touchpoints, such as coffee machines, in the workplace. If there is an issue, the solution can send an alert to the FM team so they can immediately address the issue.

Space Management Tech

There are also many tools that help teams optimize their space across buildings, facilities and campuses. For example, sensor technology can help organizations monitor which spaces are frequently used so they can make decisions about how to optimize their layouts and floorplans; if certain types of conference rooms get more use than others, the organization can consider creating more of those types of spaces.

Additionally, if companies see that certain facilities or spaces are not used, they can begin to make smart decisions about right-sizing their buildings or real estate portfolio.

Sustainability Tech

Energy management and sustainability solutions are also vital to creating a comfortable, functional working environment. As temperatures become more extreme, staff will expect their employers to ensure their buildings are comfortable.

This includes using sensors to monitor air quality and ensure that building conditions are cool and dry, so employees can better focus on their work. By closely tracking energy usage in their buildings, FM teams can identify long-term trends. For example, if they see an increase in building traffic and energy use on certain days of the week, they can plan to meet those needs in the future.

Additionally, when companies track and manage energy usage to meet government regulations (such as new environmental, social and governance criteria), employees can feel good that their organizations are working toward protecting the environment and meeting sustainability goals.

Integrated Solutions

It is important for all this technology to integrate with each other so FM teams and end users do not need to jump between different point solutions.

There are two benefits to this: The first is that, when employees have one interface to adjust room settings, reserve rooms and report equipment issues, they have a unified, streamlined experience. They can spend less time creating an efficient, customized workplace experience for themselves and they can focus more on their work.

The second benefit is that when FM teams have a single platform for all their data, they can more easily visualize performance. They can see space usage data together with energy or asset performance data, which gives a better view into how much the building is being used, and how much it costs to maintain. They can then report on this data much more easily, enabling executive teams to make informed business decisions.

BETTER WORKPLACE EXPERIENCES

The workplace is changing, and it is more important than ever that organizations put a renewed focus on creating excellent employee experiences. Employees are better able to get their work done, and they feel more valued and engaged. However, implementing a top-tier workplace management program involves coordinating many moving parts.

Important considerations include taking a top-down approach (such as fostering a culture of empathy and listening to employee requirements) to create inclusive experiences. It is also vital to set business goals to choose the right technology that enables teams to streamline operations across maintenance, space, sustainability needs and more. However, although putting a renewed emphasis on employee workplace experience is a complex process that involves many teams, there are also clear benefits, including increased productivity, recruitment and retention, making it well worth the effort. FMJ

Paul Head II *is a digital leader and director of sales at Nuvolo. He has more than 25 years of experience delivering business processes, requirements, technology strategy, procurement, and implementation services of real estate, construction, workplace and FM technologies.*

RESOURCES:

wtwco.com/en-US/Insights/2021/07/2021-employee-experience-survey

facilitiesmanagementforum.co.uk/briefing/workplace-temperature-control-now-vitally-important-says-bcia/

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LONG-TERM SUCCESS

Leveraging real-time data to influence the C-suite

BY MARY CARNES

Workplace metrics have radically changed since the pandemic. And so have the way that facility managers gather and use them. Most workplaces today are increasingly flexible and dynamic, complicating space decisions on both the facilities and C-suite level. While this flexibility is necessary for achieving business goals and addressing changing employee needs, it also comes with a challenge and a cost.

The challenge? For the C-suite to make informed decisions about the workplace, FMs need to present them with actionable data by combining multiple, real-time data sources into meaningful reports.

And the cost? Without good space planning, a hybrid office can easily lead to unused or unoccupied real estate, resulting in wasted space and resources. But with office transformations costing up to US$290 per square foot according to JLL's 2022 U.S. & Canada Fit Out Guide, making changes without careful planning can be equally wasteful.

What data should FM teams gather in order to help the C-suite optimize the hybrid workplace while remaining agile? And what types of reports will show what is really happening on the ground?

Analytics are more important than ever

Space planning was a relatively simple process before the pandemic. Although bookable desks and working from home were on the rise, they certainly were not the norm. Everyone consistently using the office created a stable work environment across time and location.

Now, with hybrid work so prevalent, the office is no longer the default place where work gets done. Employees are enjoying flexibility that allows them to come in on different days, for a variety of different reasons and activities. Leadership in turn needs to determine how best to align this desire for more flexibility with their current and future space needs.

But given this new complexity, the C-suite may not have a clear picture of what is actually happening in the workplace. To effectively navigate these challenges, they need visibility into the office, with data pulled from multiple sources in real time. Organizations are relying on data rather than dogma to plan ahead.

Armed with this data, leadership can remain agile and make more informed operational decisions, more strategic real estate decisions and dramatically improve employee experience.

Moreover, the types of data the C-suite will need to access has expanded — desk bookings alone do not provide enough data to generate what's necessary to make insightful decisions about a space. Only by merging multiple data sources — like employee feedback, desk and space bookings, calendars, floorplans, badge swipes and more — can FMs avoid silos and present a more holistic view into their workplace.

The more dynamic the workplace, the greater the need for analytics, and the more leadership will be turning to their FM teams for insights. In other words, FMs are finding that leadership needs a lot more context now than ever before.

Ask the right questions to get the right data

Gathering the right workplace data always starts with asking the right questions. Data is not all made equally, and the burden of proof for data is getting higher, as companies are finding that desk booking information alone can be somewhat incomplete or have a margin

of error. Getting a clear picture of real employee presence requires FMs to merge many different data sources to see what is actually happening at the workplace.

Specifically, the following five questions can inform what metrics FMs should be collecting to help the C-suite more fully understand their current hybrid reality.

1 Now that the office has reopened, how many people are actually coming in?

Many companies have mandated return-to-office strategies, but just as many employees have been pushing back against inflexible requirements. In response, leadership may be working on ways to entice people back into the office, putting perks like free lunches, transit subsidies and subsidized daycare on the table. But are these incentives working? Are employees actually coming in?

In the short term, metrics like daily attendance, desk utilization and no-show rates can inform what is working and what is not in terms of drawing people back to the office.

In the long term, occupancy rates also give leadership a clearer picture of the wider trends taking place in the workplace, and whether there is enough space for those employees who are actually coming in.

2 Who is coming into the office, and when? What teams and departments come in most?

Of course the C-suite wants to invest in what people need when they are coming into the workplace. But different teams need different office configurations and amenities; folks in the product and engineering departments might need dual monitors and whiteboards, for example, while sales might need private spaces to meet with clients.

Gathering data on who is booking desks by department, location and space type will help leadership create an office that is fit for the people who are actually using it, which is how Daniel Santiago, Peloton's director of workplace operations, helped his company navigate a period of growth.

"We compare the number of people pre-booking office visits to the number of people who actually use desks in each office neighborhood," said Santiago. "And we use that data to improve desk utilization and allocation throughout the company. For example, if the content team is requesting 100 desks, we can provide 60 percent of that and reallocate those seats to other teams if they aren't fully utilized."

FMs can use this type of data to help leadership adjust desk booking allocations for specific teams. Meanwhile, daily and weekly attendance metrics can also clarify where there may be days or times when the office is nearing capacity — or when most people are working from home. This allows leadership to adjust both the office layout, and their policies around hybrid work schedules, as necessary.

3 Is there enough of the right types of working spaces for people who come into the office?

Leadership needs to know what seating type is the most popular, so that they can cater toward those employee preferences. Combining occupancy and desk booking reports helps ensure that you not only have enough space for employees, but the right types of spaces, too.

While companies should continue to survey employees to capture sentiment, the reality is that employees are not always the best predictors of their own future behavior. Having accurate data that allows you to test, learn and stay responsive to ever-changing employee needs will help to create a more productive and cost-effective workplace and a better overall employee experience.

"We use data to inform our financial projections," said Santiago. "For example, the fiscal forecast of what we expect to spend is driven by how many people are booking desks and the usage trends in each neighborhood. But it can also help with simple tasks like refining our food and beverage program; I can project a line item based on the head count and engagement that we're seeing."

4 Beyond desks, do we have the right meeting spaces for our employees to collaborate effectively?

There is some collaboration that just cannot happen over Zoom, which is why in a hybrid setting, the physical office is now often used for collaboration, teamwork and mentorship. According to VergeSense's 2022 State of the Workplace Data Report, the average amount of office space per floor being used for collaborative spaces has almost doubled since the start of the pandemic. In-office employees now need access to a host of well-planned collaborative spaces — huddle rooms, war rooms, traditional conference rooms, break rooms and even game rooms all fit the bill.

If leadership wants to make the office more of a collaboration hub, they need data around utilization, busiest hours, and popularity of rooms and room types, so they can create spaces to fit actual demand.

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FMs can also gather data on current room bookings to determine how much demand there is for each type of collaborative space: Are employees fighting over certain types of meeting spaces? Or are some rooms sitting empty, even when booked?

5 Do costs and space allocations compare across sites?

Real estate data and space allocation reports have always been needed to optimize portfolios. But it is much more challenging to keep a pulse on what is actually happening across a hybrid and/or distributed environment.

Plus, more companies are actively trying to shrink their real estate footprint, requiring more detailed reports than ever before. According to the CBRE, about 52 percent of U.S. companies are expecting to reduce their office space over the next three years.

"When you're coming into potential economic headwinds, that puts even more pressure on figuring out where you can cut expenses, so any resource that you're not fully utilizing is a target for companies," Mark Ein, chairman of Kastle, told The Wall Street Journal.

To make these big ticket investment decisions, leadership will need metrics like lease costs, average cost per employee, annual costs, space utilization by location, overall capacity, desk counts, and current and potential density to ensure they are maximizing available space.

These types of metrics can also be compared floor by floor, or even workspace by workspace, helping fuel better decisions on a more granular level. This is how Santiago helped leadership keep real estate in line with actual space needs, even during rapid growth.

"We had all these different teams that were growing their head counts so quickly," he said. "Analytics empowered us to look at usage trends and determine what made the most sense in terms of space allocation. From there, we were able to confidently procure a lot of those different spaces for our teams. We can also answer questions like 'How well have we activated each space? Did we rent out too much? Or did we lease too little?' And we're using that data to drive our next level of expansion."

Give the C-suite the full picture with comprehensive reports

These five questions are just the starting point. FMs must be able to pull flexible data from multiple sources and present it in a manner that suits the types of decisions that leadership is trying to make. The data should be real time in order to remain agile, so that FM teams can share it on a regular basis, while also pulling ad hoc reports as needed.

When FMs are able to provide timely, accurate data to the C-suite, the leadership team can then incorporate these insights into their long-term planning process. This makes FMs invaluable partners to the executive team. Ultimately, the real-time reports they assemble and present, along with the insights gained from the data generated, enables companies and their workplaces to be more responsive and adaptable.

The end result? Happier employees, more productive workspaces, seamless hybrid working and adaptable, future-proof facilities. FMJ

Mary Carnes *has almost 20 years in corporate real estate planning and management and values the impact that a workplace can have on an organization's top priorities: people and the bottom line. Carnes' leadership expertise includes the influence of the hybrid workplace in today's work styles, along with workplace strategy and trends.*

RESOURCE

wsj.com/articles/companies-plan-additional-cuts-to-office-space-amid-looming-downturn-11657186201

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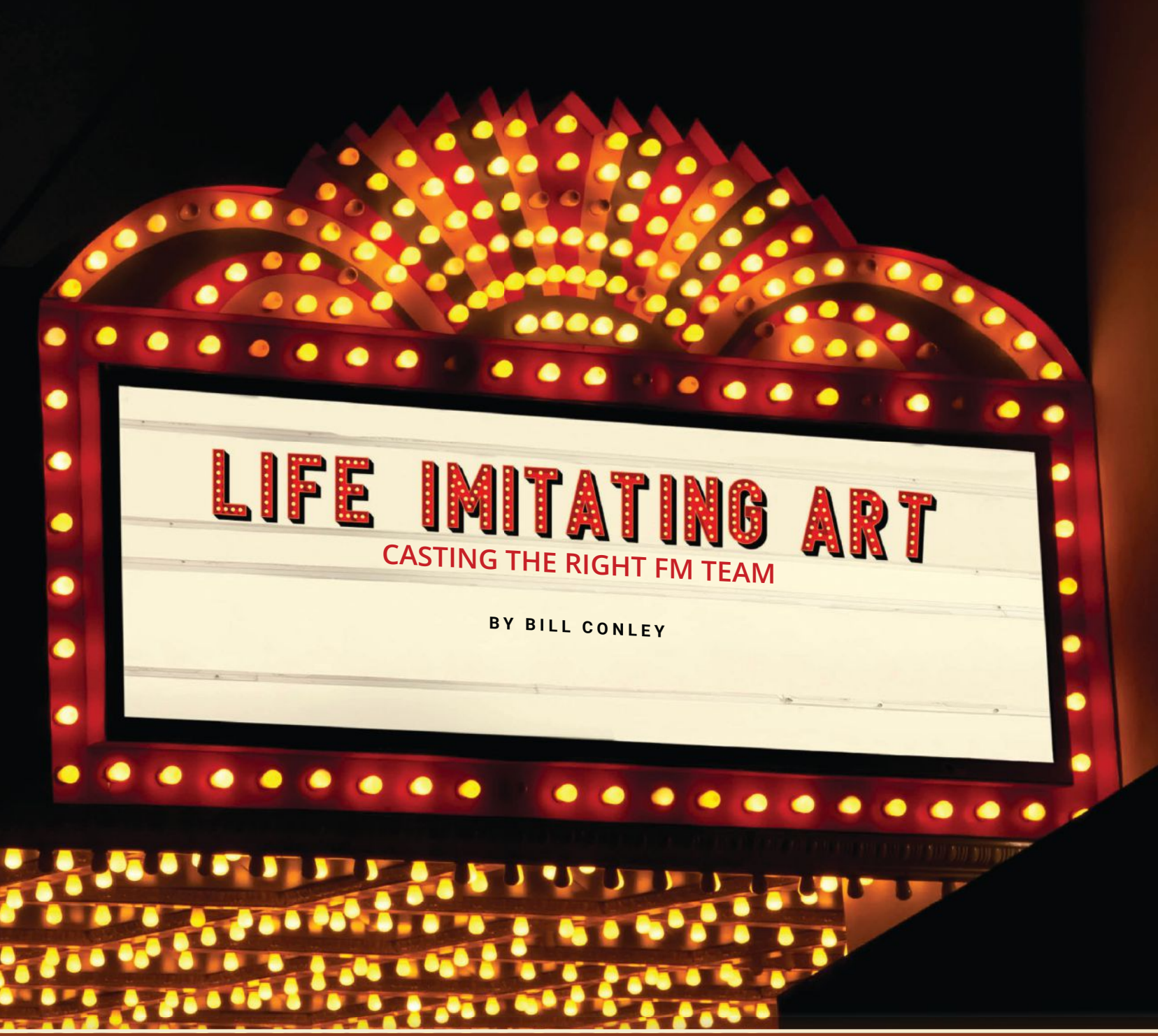


LIFE IMITATING ART

CASTING THE RIGHT FM TEAM

BY BILL CONLEY

Imagine writing a screenplay about facility management. The stage is the built environment. There are antagonists aplenty: climate change, equipment attrition and breakdowns, budget limitations, customer complaints and many others. Yet even these can be fluid based on occurrence. Right-sizing a production is a moving target; there could be a call for a cast of thousands, like “Game of Thrones” or just two, like Beckett’s "Waiting for Godot.” The story dictates the participants, just as a particular facility demands a certain staff.

What is necessary is a thoughtful development of the various roles. There are stereotypical characters in every tale and pre-defined roles and responsibilities which demand action. The same goes for FM; there are well-documented standards on the types of FM workers needed to manage the built environment.

FMs handle a multitude of tasks, and as much respect as there is for FM professionals, it is safe to say that one person cannot handle everything. This is not only due to the number of tasks, but also because of the diverse talents needed to fulfill them.

From facility maintenance and people management to safety and security needs, streamlining processes through automation, indoor environmental quality and indoor air quality, sustainability – the list is never-ending. Facility performance is not always measured by what has been accomplished, but unfortunately by what is missed, so it is incumbent on the FM to cast the best team for the job.

It is a common fallacy to equate rightsizing with downsizing. Downsizing is often a financial necessity due to economic hardship or for companies to better realize profitability. Rightsizing is all about finding the right size and structure for a department. This does not always entail reducing numbers. It could just as well mean adding personnel based on needs. Rightsizing an FM department means redefining job descriptions and reorganizing employee structures to maintain efficiency and properly equip the team with the means to meet its objectives.

The right size of employees in an FM department is a nebulous number. There is no cookie-cutter answer as there are too many variables in the types and uses of a facility. Estimates run anywhere from one full-time employee for 45,000 gross square feet (GSF) to one per 70,000 GSF. However, the right number of employees must be dictated by the needs of the facility and the business.

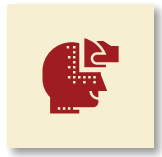
The Department

An FM hierarchy could look like this: there is the tool-belt guy, the genesis of FM. These employees are the backbone of any facility department; if something needs to be fixed, they can do it. If there are two or more of them, a supervisor may be warranted. An administrator/facility coordinator is needed as well, and in the new age of software, a facility worker dedicated to IT functions. Then, of course there is the facility manager or director of facilities.

So...onto the screenplay. Most drama is formulaic; there must be starting points and structure that define the story. A premise must be posited and a cast of characters populates the narrative.

First comes the **HERO,** and in this saga, the FM is the main protagonist. The FM sets the tone for the team, leading them by example. They delegate tasks, select the appropriate person for action needed, formulate plans and strategy, face challenges head-on and make tough decisions.

There is the **TRUSTED SIDEKICK,** a role filled by a facility coordinator/administrator. Providing support and attending to detail would be part of their responsibilities, as well as acting as a foil to the FM and keeping them grounded in reality.



The **OLD ONE,** the wily veteran. This employee is tried and true, who has been through the wars once or twice. Serving as a mentor and advisor, the institutional knowledge resident here is a necessity for any facility story.

The **YOUNG ONE** is new to the profession and will usually be taken under the wing of the Old One. Potentially getting prepared to be an emerging leader and is the hope of the future. This character has a lot to learn, and their pitfalls and mistakes may lend humor to the narrative.

The plot also needs the **SMART ONE.** This role would be filled by a software expert to help navigate the technology that is now such a large part of FM.

Finally, the **SUPPORTING CAST** must be filled. These would be the other maintenance workers. They are integral components of a successful FM adventure.

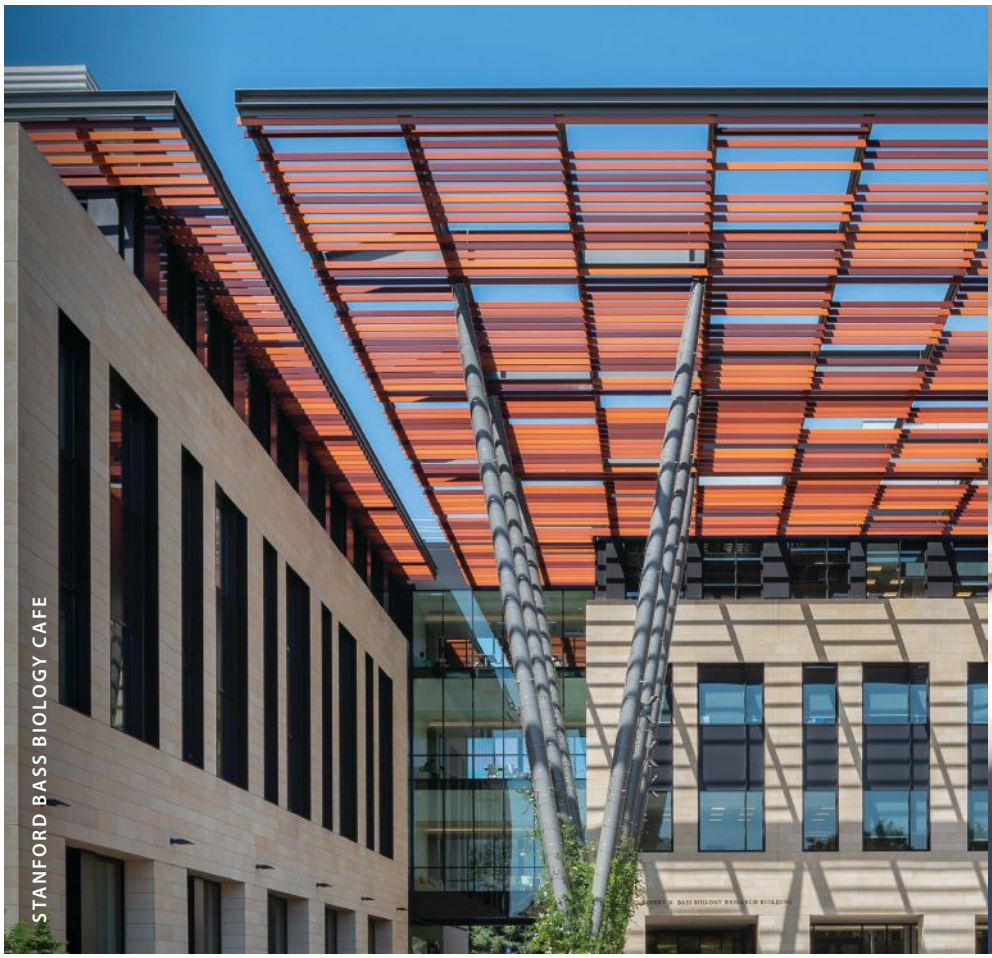
Developing these characters is of noteworthy importance. A leader without any followers is a lonely person, destined to wander aimlessly.

Just like in a script, other than the number of staff needed, in rightsizing a facilities staff, getting the right people is paramount. Not only the ones with the right training or experience, but those with the right mind-set. They must realize that perception is reality. What people think and feel are not always the same as the facts. Casting a fully developed team who plays their roles to the best of their ability will go a long way in creating a sense of well-being in a facility.

Intangible attributes

To round out the players, they must be imbued with characteristics that are distinctly necessary to be true, successful FM staff members. Starting with the leader and all the way through the ranks, there is a certain psychology that sets FM department employees apart. They know that this is not just a job, it is a commitment. Staff in FM departments do not mark time in the building to collect a paycheck. They need to be dedicated to the well-being of all employees, visitors and guests. They should have a caregiver mentality, which is usually the unifying element in the department.

Empathy is one of the most important attributes an FM team member should possess. It is the capacity to understand or feel what another person is experiencing from within their frame of reference. Definitions of empathy encompass a broad range of social, cognitive and emotional processes primarily concerned with understanding others from an internal, personal perspective. Many times, requests or

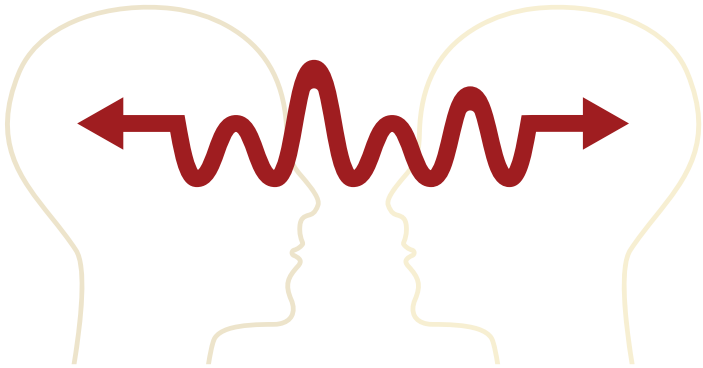


STANFORD BASS BIOLOGY CAFE

concerns from FM customers do not make sense or seem like a waste of time. Before these issues are dismissed or ignored, facility staff should evaluate the reasoning behind them. Knowing how a person feels or what they mean will help when trying to assist them. Empathy might also be linked with wisdom. Having wisdom is associated with higher levels of compassion increased confidence in one's capabilities.

There are three recognized types of empathy:

- **Emotional Empathy:** Realizing that people have extenuating circumstances that affect their needs and well-being and acting to support them.
- **Contextual Empathy:** Considering the goals and motivations of customers and the constraints and obstacles they need to overcome to achieve these ends. In the workplace, an FM must do their best to assist these employees by providing the best service and quality of life possible.
- **Cognitive empathy:** Understanding that the knowledge and mental models of people may be different. Being able to tap into how they think while explaining the FM mindset. Producing mutually understood operational definitions will go a long way in bridging those gaps.



FM staff must possess a modicum of common sense and be able to make reasonable and judicious decisions based on a simple perception of any situation or fact. They need to be tolerant of some of the weird requests they will receive and respectful during interactions that may not be going their way. Facilities staff deal with and guide many people on a day-to-day basis. When working with a variety

of personnel, it is important that they are patient and understanding. These are key components of active listening and effective communication.

Resilience is another important trait that will help when maintaining the workspace. This is the ability to manage stress and function well even when faced with challenges, adversity and trauma. It means being able to react effectively to those sudden events which tend to happen at the most inopportune time. Three main elements that resilient people possess are challenge, commitment and control.

To round out the character development, the trope of a fatal flaw must be introduced. Heroes, of course, always have an issue with which they wrestle on a consistent basis. This may open them up for specific conflicts later, when a protagonist's fatal flaw is encountered through the course of a plot.

In this scenario, this flaw is idealism. It is hard for the Hero to grasp the fact that everyone does not understand the importance of facility management to their daily lives and that they do not fully appreciate the criticality of sustainability. To fight that continual feeling of disappointment and frustration, FM staff must take pride in their accomplishments. It is unfortunate that the services provided by facilities go mostly unnoticed. It can be a thankless profession. If they need outside recognition and do not take satisfaction in performing tasks well on their own, it could prove to be a depressing experience.

Writing a screenplay can be fun. It allows the author to be creative, inventive and adventurous. Dramatic license is a blank check. However, much of what is narrated needs to be based in fact so that it is understandable by the audience and will resonate with them. In a perfect world, an FM team, made up of the right people, would be a force to be reckoned with. Especially with the goal in mind to take care of the ubiquitous triple bottom line. Are there FMs out there who are paragons of virtue, focused, dedicated and responsible? It could be hoped. Perfection may not ever be attainable, but its incessant pursuit is a noble effort.

In the classical sense, the difference between a tragedy and a comedy is the ending; if the story ends badly, it is a tragedy. FM should always be a comedy. Good FMs leave customers with a smile on their face. Even more importantly, the fate of humanity may rest on their actions. This may sound overly dramatic, but it does make for a good script. FMJ

Bill Conley, *CFM, SFP, FMP, LEED AP, IFMA Fellow, is a facility manager at Yamaha Motor Corp. in Cypress, California, USA. He previously 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 almost 100 FMJ articles.*

Finding Your Data Collection Comfort Zone

The Importance of Transparency in Workplace Utilization Data

Few people trust the internet, but that doesn't stop them from using it. The internet has made big data a multi-billion-dollar business out of tracking every search, post and purchase they make. Despite this apparent acceptance of this invasion of privacy, most will draw the line somewhere – and the workplace is one of those places.

No one wants to feel like they're being monitored at work or worry about potential repercussions. So how do you help employees feel at ease with the 4SITE sensors throughout their workspace?

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Privacy is your employees' top concern and 4SITE respects that. Make it clear to your team that the sensors are designed to track space-related activity and usage – without collecting any personal identifiable information (PII). They are 100% anonymous and only in place to give leadership a clear picture of which spaces are, or are not, used and how often.

Invested in Success

Your employees want to understand the big picture. They see how the traditional workplace has changed dramatically over the last few years, so share with them how collecting workplace utilization data can help shape the future of your organization. From reducing costs and improving safety to possible relocation, transparency around how you're using the data will go a long way toward building trust and making your employees part of your overall plan for success.

No "Big Brother" – Just Big Benefits

It's also important that employees understand how collecting data can directly benefit them. The space utilization data that 4SITE provides helps your business make decisions that make the workspace work better for them – whether that means converting unused desk space into a new employee lounge or adding additional coffee and vending machines.

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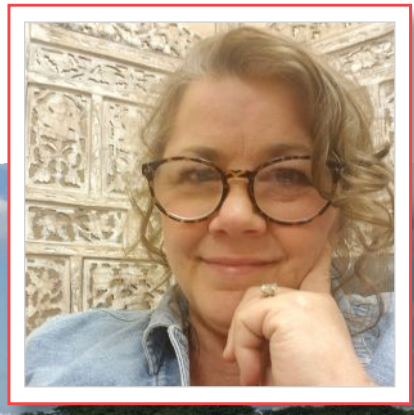
MY FACILITY

>>>>>>>>>>>>>>> MARTHA AKINS

Vizcaya Museum and Gardens
Miami, Florida, USA

Nestled on 50 acres near Miami, Florida, USA, Vizcaya Museum and Gardens offers a breathtaking glimpse into the Gilded Age. The site, completed in 1923, is home to a dozen architecturally significant buildings influenced by Italian Renaissance and Mediterranean styles. Martha Akins and her FM team face unique challenges with architecture, elements, visitors and historic preservation limitations.



Photos Courtesy of Vizcaya Museum and Gardens

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

AKINS: I came to facility management in what I would consider a non-traditional progression; however, my strengths and experience throughout my career have brought me to this unexpected place. I started in interior design, and I worked in an architectural firm doing project management and business administration. Once I got my master's degree in historic preservation, I started overseeing multiple state-owned historic sites in Tennessee, their ongoing maintenance as well as multimillion-dollar capital improvements. Now I work at a national historic landmark in Miami, Florida, USA, as the senior director of facilities. Although I benefit from and use my construction and preservation experience, I have had to lean into and grow into the FM role.

FMJ: What is Vizcaya?

AKINS: Vizcaya Museum and Gardens is the former historic estate of industrialist James Deering, and today it serves as an educational resource for our community and visitors. Deering, who made his wealth through the manufacture of farm equipment, purchased 180 acres of rustic wilderness overlooking Biscayne Bay to build a European-styled 45,000 square foot villa and a self-supporting farm village to create an impressive European-styled formal garden. He and his team of designers employed artisans to create sculptures, wrought iron gates and other decorative elements, and they also gathered antique European art objects and architectural elements, from stone fireplaces to whole ceilings, to be incorporated or showcased throughout the house and gardens. Deering spent his winters on the property between 1916 and 1925 before his death, at which point his two nieces inherited the property. In 1953, the property, now consisting of 50 acres, was conveyed to Miami-Dade County and opened as a historic house museum. Today the museum is still owned by Miami-Dade County and operated by Vizcaya Museum and Gardens Trust, Inc.

FMJ: What was it like when you stepped into the FM role at Vizcaya?

AKINS: When I started at Vizcaya, it was almost overwhelming as there was so much deferred maintenance and so little documentation. It felt as though I was starting something from the ground up. It has taken years to develop a good foundation of information to build on. From there, I have instituted the use of maintenance work order software, obtained regular maintenance contracts for most of our equipment, and drafted an emergency plan and lots of standard operating procedures. In my director role, I was also designated the chief hurricane officer, and I had never been involved in a hurricane or its aftermath; so, Hurricane Irma in 2017 was a real eye-opening experience for me. I have learned a lot about the U.S. Federal Emergency Management Agency (FEMA) and all its rules, procedures and guidelines.

FMJ: What is day-to-day life like at Vizcaya?

Accredited by the American Alliance of Museums, Vizcaya hosts more than 300,000 visitors a year and is open every day except Tuesdays, Thanksgiving Day and Christmas Day. For our daily visitors, we have a ticketing operation to facilitate guided or on-your-own house and garden tours as well as a café and gift shop. Vizcaya also has a robust calendar of community programs such as "Vizcaya Late" (thematic evening activities), "Wild Vizcaya" (programs featuring our biodiversity), the ever-popular Seersucker Social, yoga, interactive art workshops, climate collaboratives and a weekly farmer's market, just to highlight a few. Special fundraising events include a fashion-forward Preservation Luncheon and an exquisite annual gala. In addition, Vizcaya is a sought-after wedding destination and professional photography setting. The backdrop to all these events, programs and general visitation is the facilities, which must be clean, functioning, safe and secure for a fully operational site open to the public. We manage to clean the Main House

>>>>>>>>>>>>>> MARTHA AKINS
Vizcaya Museum and Gardens
Miami, Florida, USA

and restrooms before the public arrives on site, and discreetly do touch-ups throughout the day. The maintenance team schedules its work for the least amount of interruption to the daily activities, and major disturbances (noise, impact on public areas, etc.) are best scheduled for Tuesdays, when we are closed to the public. In addition, the maintenance team supports the approximately 90-person staff, whether it is delivery of water bottles or painting an office space. No two days are alike!

FMJ: Why is Vizcaya unique and what kind of unique challenges do you face managing the facility and gardens?

AKINS: "That's very Vizcaya," is something I say frequently, meaning it is unique, unusual and could only happen at Vizcaya.

The environment is one of our biggest threats. The property is bounded to the east by Biscayne Bay (Atlantic Ocean) and is affected by king tides, subject to sea level rise and faces annual hurricane threats. To complicate our tenuous environment, Vizcaya has a historic swimming pool that is partially uncovered and partially protected under the first floor of the house. To address water infiltration, we have sump pumps, lift stations, flood doors and panels, and our basement café has aquarium glass windows and doors for added protection. For hurricane protection, we install armor screens on the doors and windows that are not permanently protected, and we inflate a water bladder tube that acts as a storm surge barrier around the exposed perimeter of the estate. These measures are in addition to our yearly routine hurricane preparedness.

Compounding the external environmental conditions Vizcaya faces are the construction materials of the Main House and many other buildings, structures and elements, which present a contributory or symbiotic deteriorating effect. The main material used throughout is oolitic limestone, an extremely porous rock subject to constant wind and water erosion. Moreover, the salt in the sea air penetrates the stone easily, rusts the structural rebar as well as other metal elements, and causes spalling of the limestone and concrete.

Another challenge that Vizcaya faces comes regrettably from the public that we serve. Hundreds of thousands of visitors place the historic resource at risk through the unintended wear-and-tear of historic surfaces such as the wood and marble floors, and by touching walls and historic objects as they navigate the Main House, creating stains from grime and oils left behind. Some visitors perform more egregious acts, such as ignoring the room barriers and sitting on historic furniture for that one incredible Instagram photo or Snapchat video. When artifacts get broken or damaged, our in-house conservation staff can perform some repairs, and if not, we must outsource the repair to a professional conservation firm. Fortunately, we continuously monitor, evaluate and increase our security measures to keep these preventable incidents at bay.

Because Vizcaya is a national historic landmark, a designation by the U.S. Secretary of the Interior as nationally significant in American history and culture, we must ensure that whatever repairs, maintenance and construction improvements we undertake do not impact that designation. Consequently, we use the Secretary of Interior's Standards to guide us in all our decision making. Sometimes that may mean a project takes twice as long and costs twice as much, but at least it is done correctly and will safeguard Vizcaya for many generations.

FMJ: How much space do you manage and how is it used?

AKINS: The Main House at Vizcaya is 45,000 square feet and includes a basement, first floor, second floor, a mezzanine level and towers with a third floor. Most of the house is public space, with staff offices. There are many ancillary historic buildings and structures: Laundry Building (used for public restrooms), Fire House (used for the chillers), Tea House, a stone Barge, the Boat Landing, a Casino (small house), East Gate Lodge (staff offices), West Gate Lodge (staff offices), Garage (our largest meeting space), Mechanic Shop (our conference room), Blacksmith Shop, Paint Shop, Superintendent's House, Staff Residence, Chicken Coop, Dairy Barn, Carriage House, Mule Shed, Telecomm Building,

numerous grottos, gazebos and a pergola. New, non-historic structures are the generator building, greenhouses and horticulture sheds, restroom building and admissions booth. Staff offices are in the Main House, the Gate Lodges and the Superintendent's House. The farm village buildings are not restored yet, but with pending restoration plans, spaces will be used for public programs, curatorial and archive needs, as well as staff space.

FMJ: Tell us about your FM team.

AKINS: Vizcaya's facilities department includes both capital projects and maintenance teams. Our capital projects team includes a construction manager, a construction project manager and a construction project coordinator, and we are hoping to add another project manager or two as we move forward with the implementation of our master plan and other large construction projects. The maintenance team includes a maintenance chief, maintenance technicians and repairers, and custodial workers. Some facility maintenance teams include security and grounds maintenance. However, Vizcaya's security is provided by the security department, and gardens/grounds maintenance and landscaping are provided by horticulture department. We all collaborate.

FMJ: What are some FM challenges you face at the Vizcaya that are common across the FM industry?

AKINS: Incorporated into Vizcaya's mission, vision and core values, environmental sustainability is a key element of what we do. We started with small measures to change staff attitudes and perceptions, such as simple recycling bins in offices and a reduction in the number of personal water bottles we ordered. Since our more humble beginnings, we have built upon our sustainability efforts year after year to include having bayfront clean-up days; installing bottle refilling stations for staff and the public; composting our café and staff food waste, landscape waste and staff-used paper towels; installing hand air dryers in the public restrooms and sensor activated water faucets throughout the facility; switching to biodegradable nitrile gloves for our staff and participating in a glove recycling program; eliminating paper usage for visitor experiences by using QR codes; implementing digital processes to reduce office paper purchases; using dishes, silverware and glassware instead of disposable plastic plates and utensils; installing programmable thermostats and motion-sensor light switches; and placing attractive combination trash/recycling bins throughout the estate. As we achieve our goals, we add new ones to strive for as we are far from a zero-waste facility or other similar achievements. We continually educate ourselves, our staff, our board and the public in ways to help Vizcaya achieve its sustainability goals.

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

AKINS: Vizcaya is a truly unique, beautiful and serene place that in and of itself makes an enviable work environment. Almost seven years later, I still find or notice things for the first time. But more than that, I really enjoy making a difference, no matter where I work. It may be a successful project I've overseen, or a special staff request that I fulfilled, making his or her job better. I especially enjoy being part of a team that is dedicated, respectful, responsible, and even fun and entertaining! We celebrate success together, and we support each other when things go wrong. My colleagues make Vizcaya more than "just a job." FMJ

Healthy Buildings

THE ROLE OF PREDICTIVE MAINTENANCE

BY GINA ELLIOTT

The rise of Internet of Things (IoT) technology has added a new dimension to maintenance planning. The data from IoT devices allow facility managers and maintenance personnel to identify problems sooner and resolve them more efficiently. When combined with smart building platforms that provide analytics that inform building performance and conditions, data can guide multiple phases of planned maintenance, but none more so than predictive maintenance.

Analytics are not simply reactive equipment alarms or reports. Analytics are results – specific findings of operational issues presented to the user in clear understandable views. These views explain what the issue is, when it occurred, how long it lasted, the status of all related operating conditions and even the cost impact of the issue. Analytics provide results that show how building systems really operate versus operating assumptions.

Smart building system operators use predictive or data-driven maintenance strategies that incorporate analytics to have efficient maintenance practices. With predictive maintenance, operators can use better, more efficient methods for optimal building operations.

From Reactive to Preventive to Predictive

Building maintenance used to be about correcting issues, otherwise known as reactive, corrective or run-to-failure maintenance. Personnel would fix items when broken and mostly leave them alone when they were functioning as usual.

Unfortunately, this can be costly. According to PRSM's HVAC Benchmarking Report, reactive service calls after equipment breaks are, on average, three times as expensive as proactive calls. That is an average of around US$400 more per call.

Preventive or planned maintenance was introduced in the early 20th century with the advent of the mass production of automobiles. New technologies made equipment more complex, and Henry Ford wanted to plan maintenance to keep breakdowns from occurring on his assembly lines. He not only deployed preventive strategies within his factories, but he also gave preventive maintenance advice to his customers by including time-based maintenance recommendations in the car manuals. Auto manufacturers still use this system today.

Ford's method was undoubtedly a step up from the reactive approach of the past and innovative for its time, spurring other industries to develop their own preventive maintenance practices. But planning maintenance in this way relies on guessing how much time or usage must occur before maintenance is due.

Doing this with every possible equipment failure is not feasible or cost effective, so it is limited to likely issues based on run-time or interval time. Preventive maintenance can increase costs by relying on potentially unnecessary inspections and sometimes leading to unnecessary repairs. It also neither predicts equipment degradation based on actual condition and utilization nor will it "prevent" equipment failures.

Predictive maintenance brings innovation to traditional building maintenance by using objective data to more reliably identify issues that may impact future equipment performance, thus avoiding many of the costly problems associated with reactive maintenance. It allows stakeholders to develop a more efficient overall strategy for monitoring and maintaining equipment, comfort and cost.

Benefits of Predictive Maintenance

Maintenance should be performed when certain indicators show signs of decreasing performance or upcoming failure. This maintenance strategy detects when things go wrong before anyone notices and before repair and operational costs are higher.

Maintenance also pinpoints the root cause of any issues so that it will be much easier to diagnose and fix, reducing second visits. This process identifies design issues, such as incorrect sequence of operations, undersized duct/piping, mismatched components or inappropriate zoning.

There should also be due diligence prior to dispatch. This includes determining the exact nature of the issue and successfully dispatch the right technician with the right information and parts.

The benefits of predictive maintenance include:

- Reduction in truck rolls
- Decreased total time to resolution
- Increase in first time fix rates
- Reduce retrocommissioning with ongoing commissioning
- Reduce overall maintenance costs and improve longevity of equipment
- Lowering risks of major malfunctions
- More straightforward fixes, as problems are caught in the earliest stages
- Minimal downtime, delays and disruption
- Easier budgeting and reduced costs
- Consistent comfort and environment
- Better allocation of maintenance budget and resources
- Longer lifespan of equipment
- Lower maintenance costs with
- Easier compliance with regulatory requirements
- Better equipment performance
- Improved energy efficiency

... arming a vendor with issues detected via analytics and ML provides a comprehensive plan to fix and maintain equipment showing signs of distress, wear and tear.

IoT Sensors

In smart buildings, IoT sensor data is essential for predictive maintenance. Smart building management platforms use machine learning (ML) algorithms to analyze equipment and IoT data to identify trends indicating equipment or components status, allowing for targeted maintenance and early intervention to prevent severe and complex problems.

Predictive maintenance is guided by real-time equipment and system data. However, it takes a macro approach, combining data from different environments and conditions to create a big picture that predicts the probability of failures and possible improvements in operational performance.

The problem is that all buildings are unique, and most issues go undetected in routine scheduled maintenance. However, arming a vendor with issues detected via analytics and ML provides a comprehensive plan to fix and maintain equipment showing signs of distress, wear and tear. This reduces the impact of downed equipment including the cost and disruption to FMs and occupants.

When evaluating predictive maintenance, also known as data-driven or condition-based maintenance, versus preventive maintenance, the real differentiator is that real-time, data-driven approach is specific to the actual condition of the equipment. That means manual inspection, replacement and repair occurs only when necessary. Additionally, an ML-driven smart building management platform will produce increasingly accurate and specific predictions as it learns more about the building and its use.

Predictive maintenance anticipates problems based on data, allowing action to be taken to prevent equipment malfunctions. That means no waiting until air quality is compromised or disrupting workplaces to make emergency repairs. Instead, operators address anomalies before they have a chance to affect building health and performance.

Predictive maintenance also goes beyond building systems. Accurate occupancy forecasts allow operators to anticipate each workplace area's cleaning and sanitation needs and allocate resources accordingly. With occupants more health-focused than ever before, this is essential to ensuring they feel safe in the office.

More on Occupancy

Office spaces have traditionally functioned to accommodate full-time workers. The proliferation of hybrid work means workplaces must behave in new ways to meet changing needs and remain effective and safe.

Occupancy forecasting is a powerful tool in predictive maintenance. An intelligent building management platform can predict future occupancy using data gathered from occupancy sensors. This information helps make office square footage more efficient and ensures building automation strategies support a healthy indoor environment, even when occupancy varies drastically.

With occupancy forecasts, a smart building management platform can:

- Automatically adjust HVAC settings to ensure comfort and air quality are maintained at a level sufficient for the number of occupants
- Automatically adjust the lighting to occupant needs
- Eliminate unnecessary heating, cooling, ventilation and the illumination of unoccupied areas
- Identify areas that need improvement
- Provide valuable information to improve space utilization

Occupancy forecasts can provide valuable data for workplace apps that allow employees to reserve cubicles, conference rooms, desks, offices and other workspaces. These forecasts are similar to how hotels model daily, monthly, quarterly and annual occupancy and allocate rooms based on their predictions.

The Future is Now with Predictive Maintenance

Analytics and machine learning are the future of building maintenance. A data-driven predictive maintenance plan can revolutionize how buildings function by replacing wasteful routine inspections and providing a meaningful way to prevent equipment degradation. It allows for more proactive monitoring of system health, additional opportunities to optimize performance, and stronger decision making overall. In addition, it prioritizes the impact on performance, energy and comfort.

Incorporating a predictive maintenance plan means investing in the right smart building platform. A mobile-first platform that features innovative FDD, machine learning, IoT devices, applications and user-friendly interfaces ensure that teams have the capabilities to take building maintenance to the next level.

Building engineers must ensure building systems and applications operate in harmony in a way that makes sense for the property and tenants. Deep domain expertise in open communication protocols, data integration and system interoperability is a necessary component for designing and implementing a specific solution. Individual needs must be assessed with a partner that understands the complexities of smart buildings to obtain the full benefits of a data-driven, future-focused solution with a practical, predictive maintenance approach.

It is time to take away the guesswork and give FMs greater control. FMJ

Gina Elliott *is chief services officer with Buildings IOT where she oversees the customer onboarding, digital services and customer success. Eliott has been recognized in the industry as Person of the Year nominee (2017), 100 People You Should Know, Women of the Year and 2018 nominee for The Power 100: The Most Powerful Women in the Channel and 2019 winner of ControlTrend's Small Business Executive of the Year.*

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[1] Ellen MacArthur (2019) From Principles to Practices: Realising the value of circular economy in real estate. Acharya, D., Boyd, R. and Finch, O. A Report of Ellen MacArthur Foundation and ARUP.

[2] Ness, D.A. and Xing, K. (2017) Toward a Resource-Efficient Built Environment, A Literature Review and Conceptual Model, Journal of Industrial Ecology, 21(3), 572-592, DOI: 10.1111/jiec.12586.

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RON ALLAN GO-ACO, ENG., MA/MBA, LEED AP, CEM, CMVP, SFP, CRE
ENERGY PROGRAM MANAGER | SACRAMENTO COUNTY

I gained a lot of [sustainability] vocabulary and vernacular from the SFP. This credential helped me translate ethereal concepts into practical application.

LYNN BAEZ, CFM, FMP, SFP, CBCP, IFMA FELLOW
DIRECTOR OF FACILITY OPERATIONS FOR THE BAY AREA | GOOGLE

Earning the SFP helped me to see the interconnectivity we have as FMs with procurement, HR and others to accomplish the sustainability goals of our companies.

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FM & BUSINESS CONTINUITY

High alert, high awareness, the right technology

BY JACK RUBINGER

Facility management and business continuity go hand in hand. Business continuity takes many shapes, forms and roles depending on the type of industry.

Threats to business continuity can be categorized by common environmental threats, which may include rain, drought, fires, high winds, snow, ice, hail, earthquakes, tornadoes, floods and temperature extremes.

Manmade threats to business continuity might include water damage from plumbing, theft and violence, employee negligence, workplace violence, terrorism, bombs, civil unrest, release of toxic materials or damage to key systems caused by construction or equipment maintenance.

Finally, there are technological threats which may include cyber-attacks, internet outages, satellite failures, transmission line damage, pipeline malfunctions, and inaccessible or inadequate transportation systems.

Whether the threat is environmental, manmade, technological or a combination of the above, FM teams must use all five senses when making rounds to gauge the potential risk to business continuity and share observations with other departments and local first responders.

Schools and universities, for example, are highly visible. In many ways, campuses are like mini cities. For example, universities may house teaching hospitals where medical procedures, research and classes take place.

Of course, there are major sporting events, concerts and classes. Institutions are constantly under scrutiny from parents, students, researchers, donors and alumni.

If science labs are subpar, then grants are jeopardized. If classrooms are not conducive to learning, schools lose ranking and enrollments, and donations decline. These are serious interruptions to business continuity.

Interruptions, disruptions, eruptions — while potentially costly and dangerous — can teach FMs about risk mitigation, emergency preparation and continuous improvement.

When major incidents occur, continuity of operations suffer, which could cost millions, and result in lost time and productivity due to repairs and recovery.

Making facility rounds is one of the simplest ways for campus and corporate FM teams to catch minor issues before they escalate into major disasters.

One way to mitigate risk in education and other facilities is to literally build in features that protect building residents — whether they are students, employees or staff members.

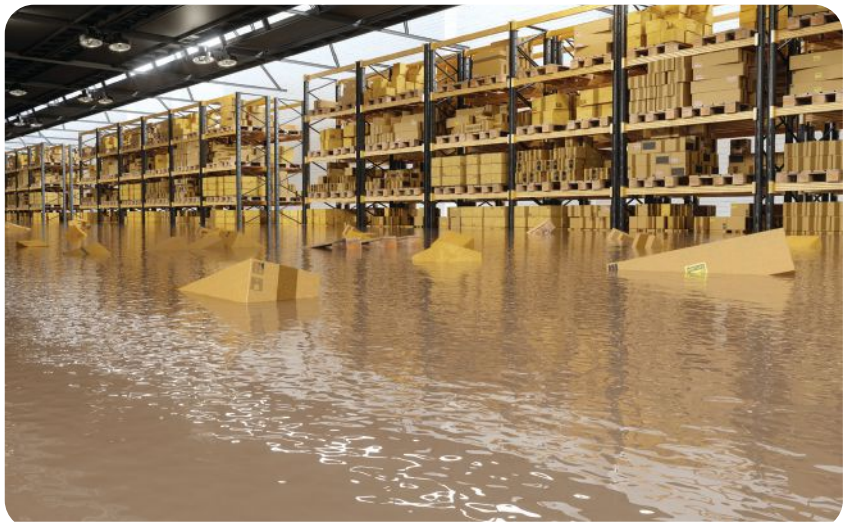
For example, a restroom, built into the center core of a building can double as a tornado or active shooter shelter, especially if there are no windows in the restroom.

This is a subject addressed in FEMA's Design Guidance for Shelters and Safe Rooms.

While there are hundreds of causes of disruptions, there are several disruption impacts, including loss of facilities, profit losses, productivity losses, damage to the resources used by business, reputational damages and security breaches.

When discussions about FM and business continuity arise, the good news is that both facility and security teams can and should work closely together. Communications and information sharing via mobile devices are recommended for both facility and security officials.

"...both facility and security teams can and should work closely together."



"On weekends, we have one custodian working and usually one district police officer, and that's to cover three sites," said Byron Woods, dean of facilities at College of the Sequoias in California, USA. "If I'm out of town and a police officer responds to a fire alarm on one of the campuses and he doesn't know where the panel is or how to turn it off, I can pull up the floor plan on my phone, click on my fire alarm panels and it'll show me exactly where it is."

Security staff spend most of their time watching others work, so they notice inconsistencies and ways to improve efficiency. What can FM learn from security and vice versa?

Security teams must know the building's layout, so when they hear a funny noise coming from a piece of equipment, they alert facilities, because that is good for preventive maintenance. For example, hydraulic pumps may make whistling, whining, clicking or banging sounds due to fluid flow problems.

FM teams know properties better than anyone else. At the same time, security officers can check fire extinguisher dates and pump rooms, while FM teams are typically responsible for maintenance of emergency equipment.

There is no doubt that security departments must know what is behind the doors or up above the ceilings.

One recent trend that is putting both facility and security teams on high alert for business continuity interruptions is ransomware attacks, which are hitting health care hard. In such situations, entire systems are brought down, patient information may be compromised, payroll systems can go down, and recovery is a complicated, time-consuming and expensive process. Building automation systems, which the facility team is responsible for, may be vulnerable to intrusions, so FM, security and IT teams should be properly trained to deal with ransomware attacks.

"Facility managers should help their organizational leaders maintain a constant state of readiness with the people and property in each of the four phases defining the emergency management life cycle: mitigation, preparedness, response and recovery."

Thomas Mitchell, *chief operating officer for FM3IS Associates LLC, facility performance consultants.*

Facility and security teams should also meet regularly with local police departments to discuss crime patterns and concerns. Even basic tasks like closing doors and gates should not be overlooked in these discussions. FMs might know how and why a property works, and they also need to put thought, time and action into reasons why they may be vulnerable.

Often, local police and fire departments have information about a particular facility campus. Information passed off from the FM team to the security team could really come in handy when no one else is at the property except for security personnel during an event.

FM and security team checks and balances can make a huge difference whether a facility uses onsite security or a patrol service.

Encouraging cross-team training, creating a central repository for critical building information or emergency info, renovation, equipment documentation accessible with mobile devices, and planning for worst-case scenarios are among the tactics FM teams should consider when addressing business continuity challenges.

"Facility managers should help their organizational leaders maintain a constant state of readiness with the people and property in each of the four phases defining the emergency management life cycle: mitigation, preparedness, response and recovery," said Thomas Mitchell, chief operating officer for FM3IS Associates LLC, facility performance consultants.

In addition to the financial and operational impacts of business continuity, interruptions can cause damage to a facility's reputation, what some call negative PR, which may start with poor customer experiences — like a call center going down.

People quickly get frustrated when services are not working as expected, no matter the reason. No one wants to sit on hold, waiting to talk to tech support or customer support. Frustrated customers will vent their frustrations, tell everyone they know, which gets back to the provider in the form of email complaints and negative reviews. In some cases, the media will pick up on the negativity, too.

Recovering from a bad reputation can take time, careful planning, cultivation of a company spokesperson, and a quick response and explanation, along with a plan to take corrective steps.

Having a solid emergency preparedness plan or playbook is critical for survival, whether the property is a hospital campus, university or financial institution.

Having a plan, being able to multitask, having great contractors, plus relationships with cities and municipalities and the right technology to share and update critical building information go a long way for FMs who must deal with emergencies and business continuity challenges.

Remote access to building information can help ease the challenges of labor shortages/retirements and speed emergency responsiveness — important considerations for operations, business continuity, risk mitigation and FM.

Access to as-builts, shut-off maps and equipment locations means FM technicians can quickly resolve any maintenance or emergency situations.

At College of the Sequoias, Woods and his team have gone in and created color coded layers for irrigation, sewers, and they are dropping in manhole pins, shutoffs — all potential sources for business disruptions — using technology available on mobile devices.

Basics like replacing broken windows and checking roof and basement access should not be overlooked, either, as well as upgrading security cameras, so facility and security teams are alerted when a door is breached, or a person enters a building. Staff members should be up to speed on security processes and procedures.

Emergency preparedness, responsiveness and business continuity should not be the domain of just a few individuals. FM teams and the the teams they coordinate with can all participate. Does the building look easy to break into? Share concerns with management, administration and IT. FMJ

Jack Rubinger, *ARC Facilities, has more than 20 years of experience creating facility, technology, health care and education content.*

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COMPANY NAME: IAdea
EXPERTISE: Scheduling (Room)
CSP LEVEL: Platinum
CSP SINCE: 2020
WEBSITE: iadea.com

How is IAdea changing and improving the FM industry?

The FM industry is continuously evolving into a better version of itself, and this is acutely evident now in how the profession made great strides through a period of great disruption. As technology uptake grows — becoming ever more symbiotic with all aspects of our lives — digital transformation is being fueled sufficiently for us to witness organizations becoming stronger and more resilient than ever before.

The next phase of digital transformation within the profession is already underway, and just as FMs had to upskill and retool at the start of the pandemic, they will have to once again to continue pushing and levelling up their facilities. IAdea is aiding the profession in its transition by equipping FMs at the forefront with the tools they need to access a host of benefits not just for the FMs themselves, but for the employees and their organizations.

Let's take a closer look at how IAdea is doing so. In terms of the employees, hybrid working is now a done deal for many, and they have reassessed their relationship with workplace accordingly. They have adapted how they work and no longer hold the mindset of a one-size-fits-all workspace. Rather, different environments with different tools better foster different types of work. As such, our products help employees smoothly navigate their way through this diverse new world of spaces and locate the one they need so that they may approach and complete their work in a more meaningful way.

For FMs, operating hybrid workplaces is all well and good, but understanding how employees are interacting with workplaces and then measuring it is a whole new ball game. We believe that by FMs taking the approach of employees as their customer, they can better meet their needs. With the right tech tools to gather data on how facilities and workplaces are being interacted with by their customer, FMs can adjust and fine-tune their product (i.e., the workplace) to better serve the employees and enticing them into coming back to the office.

Finally, we support FMs in driving several larger organizational goals. This is achieved by facilitating organizations to better gather data on their workspaces and then rightsize or densify them accordingly. With smaller better optimized spaces, organizations — and particularly those with large spaces dispersed globally — can quickly start to accumulate large savings both in property costs and in enhanced energy management. This also directly supports organizations in their environmental, social and governance (ESG) goals.

How does IAdea help companies in achieving their ESG targets?

ESG reporting of key metrics such as carbon emissions is likely to become less of a nice-to-have and more of a legal requirement in the coming years, perhaps to the point of even holding equal importance to that of corporate financials reporting.

When looking at sustainability in the workplace and supporting ESG strategies along the way, it is the behind-the-scenes technology that will help FMs contribute to achieving ESG goals. First, it is necessary to collect and assess data to better understand use of space. Only then can it be utilized to refine strategies that better meets the needs of people and to start improving.

We need to ask how technology can support environmental and experience goals, as well as ESG metrics as they become increasingly important for organizations that believe in sustainability and realize its business value. Office buildings themselves do not use energy. People do. Therefore, it is critical to understand occupancy on a real-time basis. What we saw during the pandemic was buildings still running based on a time clock. Vacant buildings were being operated as if they were fully occupied. A tremendous amount of energy was wasted because we didn't have the ability to detect whether people were in the space and run the building based on that information.

Now is a pertinent time to establish a baseline for ESG reporting as organizations are faced with the challenge of vacant workplaces. Sensors and platforms can help FMs do just that, as once initiatives are rolled out, there is a benchmark to compare them to, otherwise there is no way to evaluate change. With that, the success of initiatives can be accurately reported, and a mindset established of continuous improvement and optimization of facilities.

What's on the horizon in your industry, and how is IAdea meeting those challenges and opportunities?

It is a golden age for facility managers in terms of technology options for advancing digital transformation. That presents the fresh challenge of choosing the ones that have longevity to them. We need to be looking not just at what works for the next one or two years, but potentially the next five to 10. IAdea always advocates for resiliency — it is simply better for everyone. Therefore, helping organizations choose solutions for not just what is on the horizon, but what is beyond it is very important.

COMPANY NAME: Schneider Electric
EXPERTISE: Building Automation
CSP LEVEL: Platinum
CSP SINCE: 2020
WEBSITE: se.com

How can artificial intelligence (AI) help facility managers succeed?

Today's building owners expect FMs to contribute to business growth. Their role has advanced far beyond space and resource optimization to transforming facilities into more energy-efficient and sustainable buildings while lowering operating expenses (OpEx). AI automation helps make this a reality.

With the proliferation of the Internet-of-Things (IoT)-enabled sensors, controls and other natively connected assets, buildings are smarter and generating massive amounts of data. With AI tools, this data generates actionable insights to help boost performance and sustainability, decrease OpEx and improve occupant comfort.

What should FMs consider before they start an AI implementation?

There are several steps FMs should follow before beginning an AI project, both in preparing their systems and exploring potential partnerships.

First, assess existing BMS to ensure basics are in place, such as an open architecture to easily transfer data across building systems. Many control systems develop over the years as technologies evolve, leading to proprietary solutions that can inhibit data flow across multiple applications.

Second, clearly define an AI implementation's short- and long-term goals. What business goals do you want to achieve? What metrics will you use to judge success and make adjustments moving forward? If energy costs are a primary motivator, then future utility bills would be an obvious metric. If occupant comfort is a key motivator, then the number of service tickets could gauge whether the system is working as planned. Establishing key metrics in advance is essential because, as the saying goes, what can't be measured can't be managed.

Third, complete the due diligence on selecting potential partners. AI is a rapidly evolving technology with marker players having a wide range of experience. FMs should consider AI solutions with a proven return on investment, and service providers should be experts in their domains and request daily collaboration.

Given that each project has unique qualities, is there a standard or general schedule for rolling out an AI implementation?

In general, there are three phases to AI implementation — Onboarding, AI learning and AI control.

The process begins with onboarding, establishing and testing connections between the cloud-based AI solution and the BMS. Middleware — software acting as a data aggregator and translator between applications — is installed to facilitate connections between the BMS and the cloud. It scans the BMS for all accessible data points from sensors and connected devices throughout the building. Data is classified as either "observable" (e.g., measurements like energy consumption or temperatures) or "actionable" (e.g., data points that can be changed, like a temperature setpoint). Live data tests are initiated to verify building and cloud interactions.

With the AI/BMS connections established, the AI learning phase begins. Remotely, the AI provider verifies the BMS data delivered and focuses on any erroneous data that sensors may transmit (e.g., signal noise). AI training helps the model learn how the building behaves when changes occur — for example, how are indoor comfort and related energy costs impacted if an airflow setpoint is changed? Finally, the AI model is tested — as new data arrives in the cloud, the model is retrained daily to improve accuracy.

Once the model knows the building behavior, it begins the AI control phase, automating the building controls to optimize performance. As the AI system continues to learn, the model and building performance continue to improve from this point.

It's important to note that the AI solution doesn't need to be told how to perform but rather what the goal is — in this case, what is considered good and bad in terms of indoor comfort, energy consumption or any other factor considered critical. For example, the combination of the model, a performance measure and a weather forecast can determine the best course of action in the coming hours or days.

Any other advice for FMs or recommendations for where they can learn more?

AI is a powerful tool that can help FMs meet the challenges of their expanding roles, using intelligent automation to optimize BMS performance and improve the efficiency of FM teams. To learn more about how AI has helped SISAB reduce energy use and greenhouse gas emissions while improving occupant satisfaction, download our new Schneider Electric whitepaper by scanning the QR code below.

Behind the Brand

COMPANY NAME: ARC Facilities
EXPERTISE: FM Software Provide
CSP LEVEL: Silver
CSP SINCE: 2014
WEBSITE: arcfacilities.com

ARC® Facilities

How is ARC Facilities improving the FM industry?

ARC Facilities is helping improve the FM industry by giving on-the-go technicians a huge productivity boost by eliminating the time-consuming task of locating building drawings and equipment documentation.

Technicians face a major conundrum: How can we access critical building information we need when we're in the field? Many facilities store building plans in document storage rooms. These areas are filled with boxes of files, folders piled up or three-ring binders. At some campuses, building plans may be found on desktop computers or file servers — which still make document searches laborious. This problem is worsened as facilities teams travel great distance between campus locations to do maintenance.

ARC Facilities has looked at the challenges facing FM teams and has used artificial intelligence, machine learning and optical character recognition to extract intelligence from building documents. Ultimately, your facility history is available to your team via an easy-to-use app on mobile devices. On-the-go facilities teams can instantly access building plans, emergency information, equipment information, renovation information.

Savvy FM teams are using the mobile app to pin key equipment and campus locations using color coding. Anyone on the team can update campus facility information from their devices.

The result? Greater on-the-job confidence and consistency.

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2022 Academic Scholarship Awardees

PERCEPTION is REALITY

Why commercial cleaning remains essential

BY TIM CONN

Will there be another infectious disease outbreak that is as severe as — or potentially worse than— the COVID-19 pandemic? It's a basic deduction: there are simply more possibilities for future pandemics to take place compared to the likelihood that none of them occur at all. Regardless, COVID-19 taught businesses an important lesson, which was the proven value and role that commercial cleaning played. This was not only in eliminating germs from public spaces, but also alleviating some of the stress brought on by the pandemic for these business owners and facility managers. Cleaning is no longer just a perception for businesses; aesthetics are important, but a germ-free environment is necessary. Beyond this point, there are three crucial components for why commercial cleaning will continue to be an essential service.

By combining the expertise gained from the past few years, the technological advancements, and resilience of employees and employers, the industry will excel in the coming years. Those in this industry should still be mindful that anything is possible and nothing is guaranteed. Likewise, they should prepare accordingly for future outbreaks, emergencies or lulls in business. But given current trends and public sentiments — at least for the remainder of the decade — these are the three elements that are leading commercial cleaning forward.

1. Awareness has already been instilled

There is now a greater respect for front-line cleaners than in the pre-COVID days. Members of the cleaning community are no longer just "the janitor" or "the cleaning team." They have the responsibility to maintain the health of any other number of public spaces. Due to this perception in role change, there has been a boost in morale for commercial cleaners. The industry strives to clean for health, but the current sentiment and circumstances are now prioritizing this rationale — as opposed to the previous mindset of cleaning for aesthetic purposes. This desire by businesses to recalibrate their desires toward germ reduction has taken the forefront whereas it was frequently pushed aside in the past. It was one of those "out of sight, out of mind" situations: if an area did not look dirty, management did not feel it should put money into cleaning something that was ostensibly free of contamination. Sometimes it was the result of the company being parsimonious, sometimes it was just a lack of fully understanding the ramifications of inaction. Companies that reviewed data surrounding the flu seasons were more attuned when the pandemic happened than the majority of businesses.

According to a medical journal that was posted onto the NIH website, it was estimated that in the 2017-18 flu season, employees missed 111 million workdays. It was an especially bad year for the flu, and USA Today even reported that around US$15.4 billion was lost in productivity as a result of sick days being taken. The pandemic only exacerbated this phenomenon of employees being unable to show up to work, either from sickness or fear from exposure to the virus. Flu season was a part of life that companies coped with, but COVID-19 kicked these extremities into overdrive, leading to a pleading desire to control sickness in offices and as a byproduct, increase productivity. It was no longer about seeking the lowest bidding offer to clean; companies began pouring thousands of dollars into cleaning since it could make a big difference. An extra cleaning investment allowed for companies to quickly scale up as they rebounded. Expertise and training on the part of commercial cleaners has been refined over the past few years as companies have become more privy to cleanliness. Concerns over potentially germ-filled areas are taken much more seriously by management, not just from the possibility of economic losses associated with many employees quickly becoming sick, but also from a place of wanting to build a safe and sanitary work environment.

From surgical centers installing UV lights to kill bacteria to robotic equipment that scrubs floors, there is an incentive like no other to find innovative solutions to keep facilities clean.

2. The array of technology available

From surgical centers installing UV lights to kill bacteria to robotic equipment that scrubs floors, there is an incentive like no other to find innovative solutions to keep facilities clean. For the latter, UV lights began being installed in operating rooms because research showed that nearly three-quarters of hospital surfaces had not been properly disinfected with traditional methods, and using this technology — which is able to mimic sunlight — was an effective way to reduce germ spread, but requires a higher budget.

Electrostatic spraying chemicals, which are approved by the EPA, have been shown to have a 98.6 percent chemical efficacy for up to 30 days and are significantly cheaper than other cleaning chemical alternatives. Some studies have even suggested that electrostatic spraying chemicals last for 90 days with a 92 percent efficacy rate. The chemical's effectiveness also depends on the product deploying it. The electrostatic sprayer (ESS) has a long track record, having been invented in 1941. However, these chemical solutions have shown a lot of room for growth in new industries, as companies began

turning to ESS in 2020 as an appropriate solution on airlines and in hotels. Early in the pandemic, hospitals and nursing homes and police departments had priority over ESS equipment supplies, but now they are widely available for other commercial usage. FMs recognize the importance of these solutions in their sanitary duties, even when the general public may not be familiar with them. Because of this, people will look up to FMs who are guiding the way toward safer and cleaner building spaces as a result of this refined sanitary knowledge.

In terms of technological and scientific responses to a future contaminant, the COVID-19 pandemic can be used as a guide to tactics that were effective and those that had minimal effects — or even those with negative efficacy. UV lights, robotic cleaners and ESS can all be thought of as weapons used to wage war against germs and diseases. Just like a long-range missile is more effective than a cannonball, an FM will be well-equipped to know the precise timeline for rolling out an "assault" on dangerous contaminants in a building. And furthermore, they will know which solution to apply to the given situation. Certain tasks may become solely delegated to robotic devices, but of cleaning professionals will know which tactics to employ. This knowledge base held by professional cleaners will be just as essential in a decade as it is today.

Estimated at US$97.6 billion, the janitorial services industry has expanded by roughly 45 percent since 2012 in the U.S.

3. Industry resilience against the Great Resignation and Great Regret

With the exponential rise in recognition that is much deserved for professional cleaners, there was an added positive impact on those in the industry. This came from commonly serviced markets such as commercial offices and gyms, but opened into new arenas such as the manufacturing space. No one had imagined the sort of supply chain issues that occurred, but facility cleaners stepped up to the plate and played a big role in helping where they could to minimize supply chain disruptors. Frontline cleaners do have a relatively quick turnover rate, so there is still a high demand for them. Consequently, this has led to higher pay for professional cleaners as companies try to meet their supply of workers with the current demand.

Professional cleaning has a lot of room to grow. Estimated at US$97.6 billion, the janitorial services industry has expanded by roughly 45 percent since 2012 in the U.S. This resulted in wages being pushed up for those in the industry. And while people from the industry will come and go there is an appeal and known demand for these services. In a sense, it combines the demand of the trucking industry with the frontline respect as the health care sector. This environmental structure for work has shielded employers from experiencing the Great Resignation. As a result of this resilient workplace, those who quit other industries over the past few years are finding themselves a welcoming home in the facilities cleaning industry. Because of its strong reputation for being economically sturdy, the commercial cleaning industry has been bolstered to, hopefully, withstand a future germ-related event and learn from the successes and failures of the previous few years.

Striving for a cleaner future

Even though the future of the commercial cleaning industry and facility management looks bright, now is not the time to become complacent. In many ways, complacency with the approach to germs in early 2020 is the reason why so many businesses were caught off guard by COVID-19; it was a deer-in-the-headlights moment for many of them. By 2019, technological advancements were at its peak, but these technologies or tactics — anything from ESS or even washing hands — were not utilized or enacted everywhere. Moving forward, educating the public in an objective fashion about the options available to them is a way to begin the conversation on what actions should be taken. Business owners and clients and other departments will look toward FMs as the guiding figure who will determine the best course of action for the given circumstance. Leaning into this role, it will reaffirm the positive public consensus about those in the cleaning industry. FMJ

Tim Conn *is the president and co-founder of Image One USA, a commercial cleaning franchise that trains franchisees in all facets of the business, including sales, operations and quality control. Conn has made a career in the cleaning industry, beginning as a sole proprietor at the age of 14 when he started his first cleaning business and grew it through college before venturing into the franchising world.*

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P3 Building Life Cycle Management

THE BENEFITS OF BIM

BY KELLY WIDGER

Why is it that public infrastructure projects so often seem to end up astronomically over budget and enormously delayed? Danish economic geographer Bent Flyvbjerg coined the phrase "megaprojects paradox" to describe how large-scale infrastructure projects continue to increase in number despite costing too much money, taking too long to complete and routinely under-performing.

Flyvbjerg — who cited famous examples such as Denver International Airport in the U.S., which opened in 1995, came in 200 percent over the initial budget, and welcomed only half of the passenger traffic initially expected — blamed a lack of accountability, inappropriate risk sharing between stakeholders and a lack of direction during the project or building life cycle.

A common issue is that the building life cycle is fragmented. The lack of data, transparency and communication between the different stakeholders — from design and build all the way through to operations — means agreements are broken, service delivery suffers and partners fall out. For facility managers, whose role is to steward the ongoing maintenance and service-delivery requirements in the operational phase of these projects, it is an all-too-familiar story.

The good news for FM and other stakeholders is that existing and emerging technologies can help create a more data-rich and joined-up building life cycle. By integrating integrated workplace management systems (IWMS) with building information modeling (BIM) and performance management software, long-term infrastructure projects can run on time and in budget while achieving their primary objectives.

THE RISE OF P3S

The U.S. public sector is turning to the public-private partnership (P3) to deliver new infrastructure and public services. Although the P3 model is more mature in countries such as Canada, the U.K. and Australia, U.S. decision-makers increasingly see its value. Indeed, a 2016 Syracuse University study concluded that there is a significantly higher likelihood of meeting cost and schedule objectives under P3 models compared with traditional public sector project delivery for which projects are owned, managed and financed by government.

Despite their advantages, however, P3s are not without their challenges. They tend to be highly complex, including many different stakeholders, systems, locations, requirements and targeted end users. And these factors often result in different organizational goals between partners; inadequate monitoring and evaluation of the PPP processes; inconsistency between resources inputs and quality; unreliable mechanisms for sharing risk and responsibility; and a lack of transparency around ongoing performance.

THE ROLE OF BIM & THE DIGITAL TWIN

The key to a successful P3 project is effective building life cycle management, an unbroken chain of information from the design of a building to operation and maintenance, but this is an almost impossible task through conventional methods.

That is where BIM comes in. Although BIM is by no means a new concept in FM, the process has struggled to gain a foothold in the sector like it has in engineering and construction. Its slow adoption is down to ongoing confusion around what it is and how it can benefit FM.

A common misconception is that BIM is another word for 3D CAD drawing. That is wrong. BIM is a process for creating and managing a comprehensive digital record of a building's physical and functional components, both for new builds and retrofitted projects well into the operational stage of the life cycle.

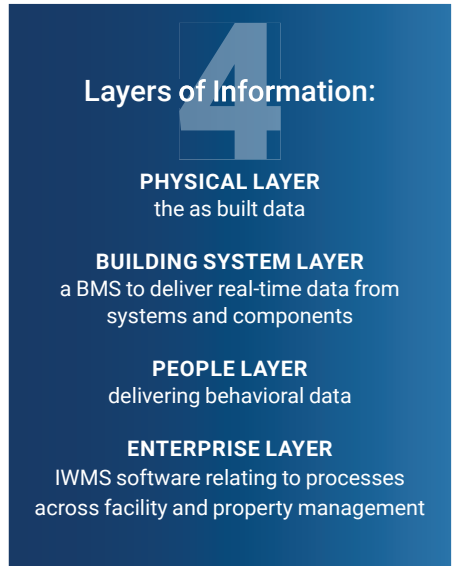
Another misconception is that implementing BIM requires specialist knowledge and software. That too, is misguided. By digitizing building life cycle data, BIM helps capture well-structured, essential information which can be used by FMs to optimize building assets. A two-way integration with IWMS software allows FM to access all the required information through a familiar IWMS interface, thereby forming the basis for effective operation and maintenance of a facility within the IWMS software.

It enables FM teams to view an asset's location, including access or permit requirements, and retrieve information about the asset itself, such as service history, manuals, warranty details, minimum/maximum temperatures, types of materials and more. 3D BIM viewing technology provides operatives with insight into assets and components that may normally be out of view — for example, behind a wall or in a ceiling void.

This granular detail guarantees more efficient information sharing between the numerous stakeholders that collaborate to build and operate facilities. It reduces the number of errors, improves first-rate fix times, minimizes maintenance and energy costs. It also allows FM service providers to leave behind a fully up-to-date BIM model once the contract comes to an end and the building is handed back to the public sector client.

DIGITAL TWINS FOR P3 PROJECTS

Once BIM has gained access to continuous operational data, such as through building sensors, it can become what is called a digital twin — a spatially aware, fully digital 3D replica of the building and its performance. This includes four layers of information: the physical layer (the as built data); the building system layer (a BMS to deliver real-time data from systems and components); the people layer (delivering behavioral data); and the enterprise layer (IWMS software relating to processes across facility and property management).



Importantly, the digital twin compiles this data to form the virtual replica in real time. Whereas a P3 project would historically produce data from various sources on multiple reports, the digital twin of a P3 project allows stakeholders to model future performance, identify trends and predict future performance against service level agreements.

GAINING FINANCIAL TRANSPARENCY

Another key element of BIM for P3 projects is the integration of performance management capabilities within an IWMS used to manage FM service delivery. This feature allows users to keep track of the contract's legal requirements, including a detailed payment mechanism (paymech) that determines when and how a service provider is penalized for underperformance, thus creating an incentive for better service delivery.

The paymech ensures that the risks associated with maintenance and services are the responsibility of the service provider(s). In a P3 project, the public sector organization can impose deductions if the availability of the physical assets or the quality of the services fall below agreed standards, so the paymech provides the much-needed transparency around the provider's performance against the contract.

Often, P3 projects will have numerous locations with very different operational needs and key performance indicators. The nature of a facility can have a significant impact on service delivery from site to site, meaning the IWMS needs to allocate jobs and calculate when they are due in a dynamic way. One building might have offices with standard business hours, whereas a hospital requires 24/7 uptime. Here, inadequate response time could trigger a significant financial penalty.

With P3 contracts lasting as long as 25 years, IWMS software with integrated paymech capabilities can also be retrofitted into buildings with great effect. This allows stakeholders to review the latest technology, create operational efficiencies, increase flexibility, identify and address issues within existing contracts, minimize penalty deductions and improve the overall quality of asset and service delivery data.

The public sector organization also benefits from paymech software, by gaining significant insight into how efficiently the P3 project is being operated, using the data which the system provides, through integrated reporting, to assess their confidence in the service provider. Meanwhile, the service provider can use the retrofit to formalize local practices outside of the contract and leverage the IWMS functionality to deliver improvements to operational efficiency. Ultimately, the retrofitting process is an ideal opportunity to take a step

back, examine the range of activities being delivered and incorporate this properly into the paymech, ensuring that everything works in support of the public sector organization's objectives while protecting the service provider from penalties which can be avoided through efficient management.

Over the course of a P3 contract there may also be occasions in which the public sector organization benchmarks the existing provision with alternatives or even invites other suppliers to compete with the incumbent. This happens when the current supplier falls into default for a specific service they are contracted to deliver, and the public sector body undertakes what is referred to as a market testing exercise. Having accurate performance reporting from the integrated paymech and IWMS software clearly helps to support any decisions regarding potential changes to FM service provision.

In either case, whether the paymech is in place from the outset, or retrofitted to a P3 contract, it is in the best interests of both parties to have a clear, transparent and objective record of the level of performance, scope of services delivered and value generated.

THE LAST WORD

BIM has the potential to revolutionize P3 projects by providing unprecedented cohesion, transparency and intelligence to public infrastructure projects. More importantly for FM, it has the potential to strengthen its role in the building life cycle and maximize its value for customers and end users alike.

In recent years, the industry has made substantial progress in the provision and delivery of technology, responding the growing demand for more and better data around asset, real estate and business strategy. But FM cannot afford to stand still. The world is changing again. After COVID-19, there is increasing scrutiny on organizations, especially those in the public sector, to deliver economic value, provide social good and prevent environmental catastrophe. A digital strategy in building life cycle management will be fundamental to that happening. FMJ

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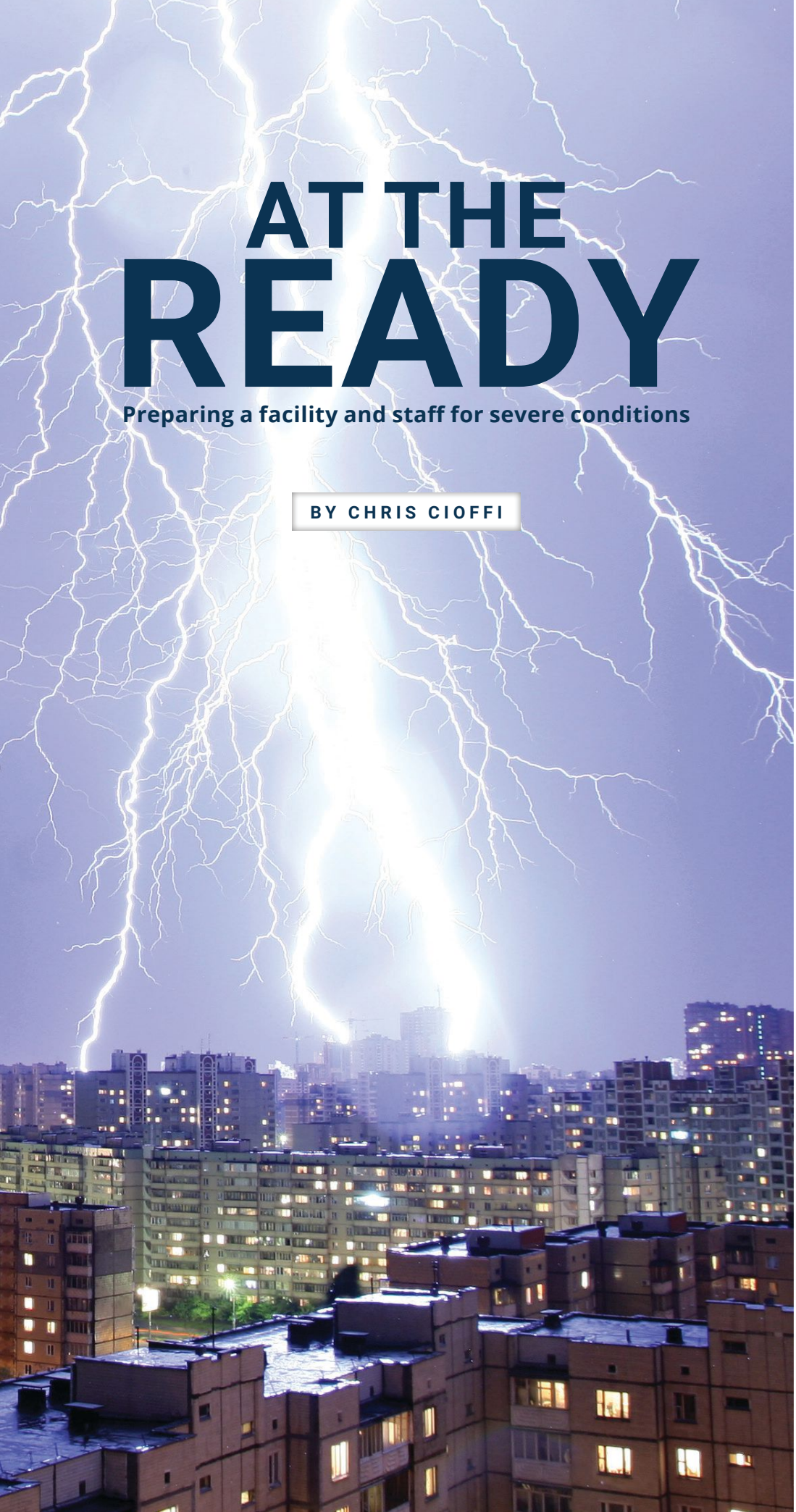
RESOURCES

aiai-infra.info/wp-content/uploads/Syracuse-Univ-P3-Research-Report-FINAL.pdf

Journal of Infrastructure, Policy and Development (2021) Volume 5 Issue 2.



AT THE READY

Preparing a facility and staff for severe conditions

BY CHRIS CIOFFI

Preparing now for severe weather can help protect a facility from major destruction that can occur from just one storm.

What is the concern?

A severe thunderstorm brings winds up to 58 mph, hail of at least one inch in diameter, and sometimes even a tornado that can threaten facilities. While severe weather can damage buildings, facility managers are not powerless against Mother Nature.

Real-world solutions based on scientific research

A nonprofit, scientific research organization, the Insurance Institute for Business & Home Safety (IBHS) studies the impact of severe weather on buildings and provides real-world solutions to strengthen businesses. While storm damage cannot be eliminated, there are steps that can be taken to reduce its extent.

Inside the IBHS Research Center, engineers recreate winds up to 130 mph, produce rainfall rates of up to eight inches per hour, propel laboratory-manufactured hailstones and generate wildfire ember storms to test a building's vulnerabilities. By testing buildings as a system, important steps to protect a building during severe weather can be identified. Protecting a building is vital to maintaining a sense of normalcy for any organization — no matter the weather.

Simple steps can produce significant results

Making a building thunderstorm ready can start with a simple step like having a reliable source for weather information. Paying attention to severe weather forecasts from local weather information as well as national agencies and having multiple ways to receive severe weather alerts, such as from a NOAA weather radio, are important ways to have the latest updates.

Develop a severe weather plan so employees including FM staff, tenants and visitors can react quickly if severe weather arises. Do not rely on outdoor sirens for alerts. IBHS offers a free toolkit called EZ-Prep to help businesses plan their response to operational disruptions from severe weather. For any disaster, a business continuity plan like Open for Business-EZ can help, too. Practicing the plans so staff members know what to do if needed is critical. Having the insurance agent's contact information stored in the FM's phone is a great idea, just in case.

The first line of defense: a roof

Reducing storm damage to a building starts with consistent maintenance — especially when it comes to the roof, which is the first line of defense against the weather. Inspect and maintain all aspects of the roof from roof cover to roof drainage to roof-mounted equipment and more.

For low-slope or flat roofs, standing water can cause excessive weathering, which makes the roof become brittle and shortens its useful life. Signs of standing water include mold, vegetation growth on top of the roof and discoloration of the roof membrane. Different roof covers show signs of wear and tear differently. On a ballasted roof system, be sure the entire roof membrane is evenly covered with rocks. If some of the rocks need to be adjusted, be careful not to damage the membrane while doing so. On built-up roofs and modified bitumen roofs, watch for bubbles, blisters and tears. Similarly, monitor single-ply membrane roofs for tears, worn seams and punctures. In addition, keep an eye out for any fasteners that have started to back out of the roof. Around the edge of a low-slope roof, check for loose perimeter flashing, which is found along the roof edge where the roof meets an exterior wall. Loose and improperly fastened flashing increases the potential for roof cover failure and water intrusion during a storm.

On a steep-slope roof, be sure the roof is holding its shape. Look for missing or torn asphalt shingles and cracked or missing tiles. For a metal panel roof, inspect for missing screws or deteriorated washers. Look for discolored or worn-off paint, too, as the paint acts as the anti-rust layer.

Whether the facility has a low-slope or a steep-slope roof, check its drainage. Remove any objects or debris that may have found their way into roof drains, gutters and downspouts that could clog drainage in heavy rain. If there are no blockages, but standing water continues

to accumulate in the gutters, be sure the gutter is properly sloped to the downspout. While clearing out the gutters, check to be sure they are well attached to the building so that they do not become flying debris during a storm.

While up on the roof, inspect roof-mounted equipment. Look specifically at the connection between the equipment and the curb it sits on as well as any signs of a leak. Pull gently on any cables and straps to verify they are tightly secured with little to no slack; consult manufacturer guidelines for specifics on the equipment on the roof. Be sure all service panels have all their fasteners in place in order that they do not become dislodged. Any time service is performed on the roof, re-inspect equipment to be sure all screws, cables and straps are tightened back into place, and no debris is left behind.

When it is time to re-roof, consider installing the new roof to the FORTIFIED Commercial™ standard. Based on the research in the IBHS lab and engineering insights, the FORTIFIED Commercial standard employs superior construction practices and verifies proper compliance to help the roof better resist high winds and hail.

Considerations beyond the roof

Beyond the roof, consider all the openings in the building. From windows and doors to skylights and garage doors, every opening is an opportunity for Mother Nature to find its way inside the building.

Upgrading to impact-resistant skylights provides better protection from flying debris and hail. Impact-resistant skylights should meet one of the following: ASTM E1886 cyclic pressure test requirements and be ASTM E1996 missile impact rated B through E; FM Approved per ANSI/FM 4431, with Severe Hail rating; or Miami-Dade County Approved (MDCA) Notice of Acceptance including impact resistance.

Check the seals around the windows. Water can seep into the building around a window and lead to damage. Use sealants compatible with building materials to seal any cracks and gaps to keep water out. Remember, some cladding and storefront systems have weeps that are intended to stay open and should not be caulked.

Flying debris can cause damage to the building, particularly windows. Flying debris could be part of a neighboring building that has sustained damage, but wind can also pick up any unsecured object and turn it into flying debris. Make sure signs, patio furniture, pallets and trash cans are well secured so they do not become flying debris. Check signs for missing bolts or screws and be sure no rust is present. If there is temporary signage on sidewalks, be sure to have a plan to bring those signs in before severe weather strikes.

Garage doors and roller doors can be a pathway for the wind to enter buildings. If the wind gets inside, it can lead to a cascade of damage. Check roller doors and garage doors for a wind label. If there is not a wind label, contact the door contractor to be sure the correct door is used for the area. Then, double-check the brackets that connect the door frame to the structure. Ensure the brackets are tightly secured to the building structure and are not missing any bolts or nuts. When storms are forecasted, be sure to keep garage and roller doors closed to reduce the risk of wind damage to the building.

Lightning occurs in every thunderstorm. To protect the building, consider installing a lightning protection system. If a lightning protection system is installed, be sure it is designed to meet the wind requirements for the building. To protect equipment inside the building, contact the local power company to see about having a surge protection system installed where power enters the building. Also, consider adding surge protectors to individual pieces or sensitive equipment.

Some severe thunderstorms bring hail, which can damage HVAC equipment and dent the fins and coils, leading to costly repairs and even system replacements. Installing hail guards, hail shields or even wire mesh around HVAC equipment can protect the pricey equipment from the impacts of hail. Install hail guards properly to withstand high winds as well. Hail guards must be properly specified and installed by a licensed contractor. Ill-fitted or improper guards can lead to deficiencies in the operations of the mechanical unit.

The landscaping surrounding the building is also key to being thunderstorm ready. Trim trees back away from the building and be sure branches do not overhang the roof. Remove any diseased or dying trees before they fall in a storm. To reduce the chance of a power disruption, pay extra attention to trees within falling distance of overhead power lines.

A final word of advice

Be sure to follow safe operating conditions and use proper fall protection when implementing these improvements. If fall protection is not available, hire a licensed contractor to help.

Because thunderstorms can happen year-round, consider adding these steps into a regular maintenance routine so the building can always be thunderstorm ready.

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RESOURCES
disastersafety.org/business-protection/ez-prep/
disastersafety.org/business-protection/ofb-ez/

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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.

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IFMA™ FM Consultants Council
International Facility Management Association

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."

STRATEGIC PLANNING:

Do you have a strategy & plan and is that enough?

There are helpful publications regarding FM and strategy that provide guidance on strategic thinking and facility planning. Information must be collected, discussions need to evolve, scenarios must be debated and decisions made. This requires a dedicated and structured effort to facilitate this process with stakeholders. While having a plan is essential, this mandate requires a framework that encapsulates the key process, strategy and governance components. From the core guiding principles that are defined to the final goals and action plans that ensure the alignment of strategic initiatives with demand organization objectives, it takes a lot of collaboration and communication for a strategic plan to bring successful outcomes today and tomorrow.

When FM takes part in strategic planning, changes in the workplace and expanded roles often arise, especially in the area of sustainability. Sustainability objectives, because they are relatively recent as strategic considerations and evolving quickly, benefit from a planning and service delivery approach that consistently embraces the Asset and Facilities Management standards of ISO (41000 and 55000 series) and best aligned practices. The integration of technology is a further key element to incorporate in the master plan, so that an imperative in every strategic initiative is diligence to ensure the solution best aligns with the business case and with the culture and mission of the demand organization.

A predominant characteristic to embed throughout strategic planning is flexibility. Changes are inevitable FMJ

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His practice features facilities & asset management consulting, workplace management, strategic facilities planning, P3 consulting, FM training, and IoT technology solutions for various vertical markets.

Collins is chair of the ISO TC/267 Mirror Committee (Facility Management Standards) and President of the AFE GTA/Southern Ontario chapter.

He is passionate about the AM/FM profession and supports knowledge transfer to asset and facility managers worldwide.

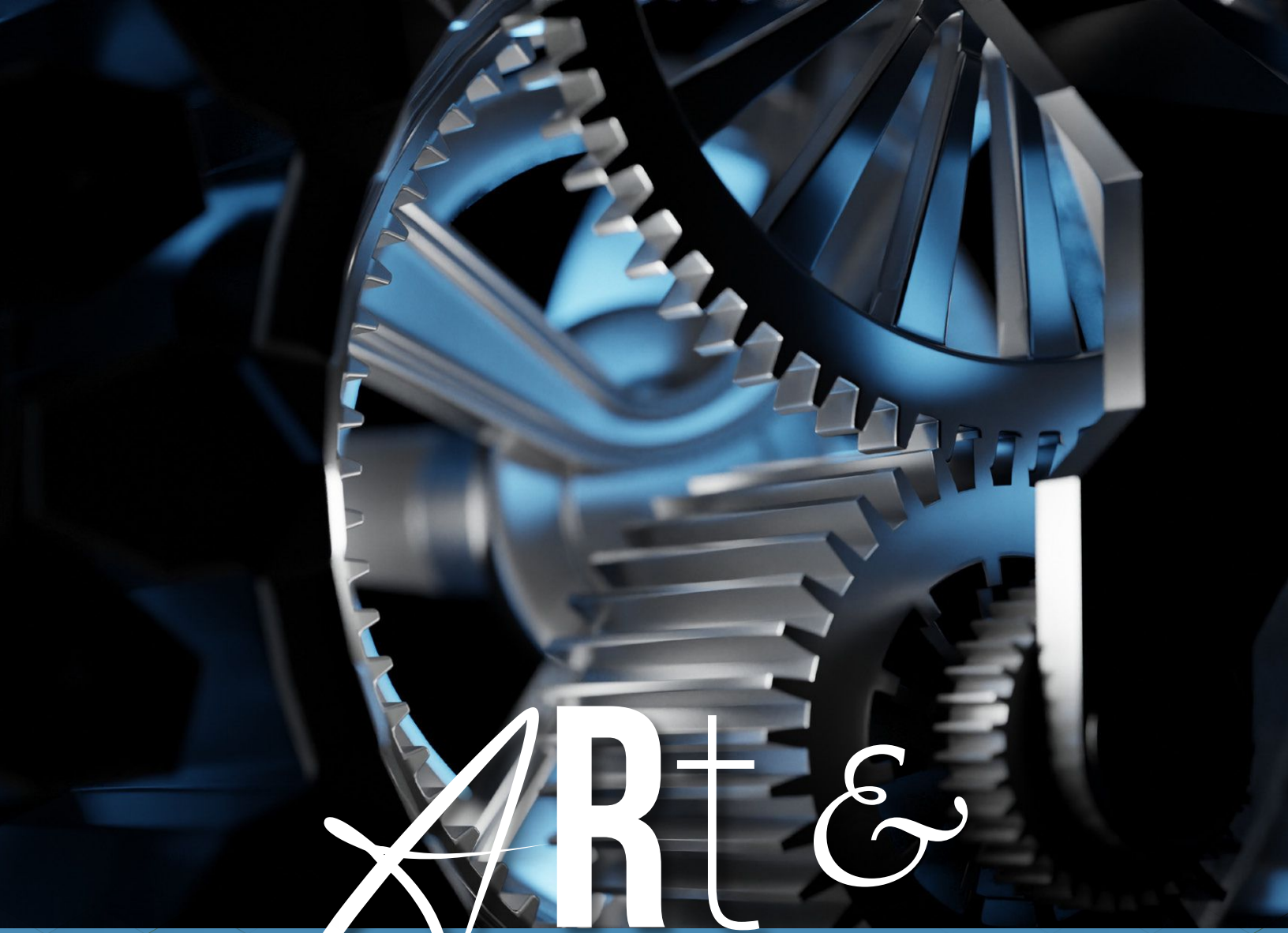
RESOURCES:

What's your Facility's Value Proposition, Barry Lynch, CFM, SFP, MBA, NCARB, IFMA Fellow (2013), IFMA White Paper: Strategic Facility Planning (2009), and IFMA FMJ, Ask the Experts: Strategic Facility Planning (2016)

41000 series introduction enatun.com/iso-41000-series-fm-standards-the-genesis-of-a-new-era-video/

ISO 55000 series introductions iso.org/news/2013/12/Ref1805.html

HBR-In a volatile world your strategy must be flexible (2022)



Art & SCIENCE

Planning for equipment upgrades

BY TODD CULP & MATT THIEL

> Equipment might be technical, but the environments they work within and the people who operate them can be more complicated.

Determining the necessary steps for upgrading test equipment and systems for research and development or end-of-line production requires a balance of proven protocols, real-world experience and intuition. When facility managers and decision makers face changing regulatory mandates, systems integration responsibilities, new training requirements and long-term financial commitments, equipment upgrades become formidable tasks. Factors such as industry metrics, technology assessments, evaluation of suppliers, budget development, age of the facility and company culture all play critical roles in this decision-making process. Add an ever-expanding and competitive technology market to the mix, and equipment upgrade planning becomes a complex process that must be undertaken on a recurring basis.

Successful equipment upgrades rely on a careful balance of art and science. Identifying data-driven business and technical drivers are still the critical first step, but data can only take teams so far. Equipment might be technical, but the environments they work within and the people who operate them can be more complicated. Integrating equipment upgrades within daily operations cannot happen without a well-developed plan that identifies the "who, what, where, when, why and how" of a potential project in detail. That plan must also leave room for adaptability driven by decision makers' intuition. When done well, this approach effectively supports equipment functionality, integrated operations and the overall business goals of an organization.

Equipment monitoring and timelines

Typically, the most efficient facilities are those that run continuously. This requires equipment to function at peak performance and enables the facility to provide vital, continuous data. Naturally, a 24/7 operation necessitates some form of equipment monitoring, which is a full-time job that requires distinct scheduling and measurable results to be effective.

The ideal facility, including its process support equipment, is empowered through artificial intelligence (AI) and machine learning (ML). They handle mundane, repetitive tasks such as consistent testing or data entry, thereby providing maintenance teams with more time to focus on complex problem-solving and efficiency upgrades. AI-augmented systems and equipment are becoming more available and intelligent with the continuously growing ability to learn and make evidence-based decisions based on internal and external data. The tradeoff is that teams become more dependent on the technology that helps them perform their duties. As much as today's AI-augmented machines can "think on their feet" and do much of the repetitive tasks that people have traditionally performed, they require ongoing maintenance to ensure they themselves are operating as expected. And with that comes hard and soft costs that must be accounted for. There is a cost of time and related resources in addition to the financial costs when equipment repairs or upgrades are warranted.

> Objectives and limitations of technology must be carefully considered in order to develop an achievable vision.

These costs grow significantly when there are delays in identification and resolution if more rigorous asset management is not practiced.

Whether the interval is weekly, monthly, quarterly or annually, it is important to follow a regular asset assessment that covers:

- Installation records
- Dates of service
- Equipment capacity vs actual output
- Availability of spare and replacement parts

Projected utilization

With regular and thorough review, risk and ROI can be assessed to determine the appropriate timeline for upgrades to deliver on benefits and cost while sustaining business operations.

In terms of execution and much like the equipment service interval being followed, there should be a consistent, dedicated individual or team that conducts the asset monitoring. All too often this is an "add-on" responsibility to a support technician's or engineer's main role. This task is preventive and long-term in nature, as opposed to being necessary for day-to-day operation, which can mistakenly fall to the bottom of the list. Sometimes this oversight ultimately results in the task going undone. At best, this results in lost insight, and at worst, it can cause critical downtime.

To reduce the likelihood of delays or stoppages, focused sub-lists can be developed to divide and prioritize tracking equipment maintenance tasks, aiding time management for those responsible for monitoring this information. In terms of tools, there are database systems designed specifically to support this job, and technology is advancing to tie them directly to their assets and their own local AI systems. However, AI and monitoring technology is not a one-for-one replacement for the expertise, time, and focus of operations staff. Objectives and limitations of technology must be carefully considered in order to develop an achievable vision. With this strategy in mind, teams can operate with a well-vetted plan informed by the help of expert consultants and internal support resources.

The role of technology

Not all technology moves at the same speed. Equipment, regardless of its type, has a unique life expectancy determined by various factors. This includes wear and tear, availability of parts, hardware and software innovations, supplier closures and buyouts, market needs or general technology evolution. The risk of equipment becoming obsolete over time is always a reality and is important to assess early and regularly. As technology improves, it offers the opportunity to upgrade for better performance and ease of diagnostics and maintenance, but the potential for technology failure or obsolescence must also be strategically considered.

The automobile industry provides one example of how changing technology drives the need for facility upgrade and equipment replacement plans. The electrification revolution is driving vast investments in new equipment, including charging systems, battery cyclers and battery emulators that will require a new set of maintenance requirements to remain operational and efficient. Adjustments to the existing tools and in some cases a new infrastructure are required to keep facility operators up to date with the most recent tech offerings. To facilitate the process, it is necessary to develop a mechanism to stay informed about the latest market trends and how the available technology

> When equipment no longer meets its requirements or is at the end of its life cycle, recognition of needs is the first step.

and equipment can impact the facility operation. In the absence of reliable internal resources, consulting relatable reference material and establishing reliable connections within the industry including supply chain professionals and consultants is a productive way to gather appropriate insights and benchmarking.

Balancing, data, analytics and intuition

When expensive, work-intensive decisions need to be made, most professionals want to see the numbers first. For facilities of any size, leaders and their engineers are accustomed to digging through historical data and market insights to ensure the right equipment, technology and processes are in place to deliver on efficiency, safety and productivity. Hard data helps FMs make informed decisions on anything from a building's energy consumption to heavy equipment servicing schedules to product development timelines.

Data alone, however, is not enough. Even with heaps of internal data, access to industry insights and the right analytics tools to extract and organize the information, businesses will not achieve results without strategic planning that is both experience-driven and open-minded. This comes down to intuition. Oftentimes, even the most experienced leaders are uncomfortable when they are told to rely on instinct. When a judgment comes down to a gut feeling that cannot be concretely defined or backed by hard data, it begs the question, "how do you really know?" Intuition might be hard to measure, but it is scientifically proven that one's gut feeling is actually the human body's natural response to stimuli generated by the unconscious mind sifting through its past experiences and cumulative knowledge. By tapping into both intuition and hard data, alongside the advice of entrusted people who are on the "frontlines" of the job, facility teams and management can come together to strike a balance between the art and science of equipment upgrades.

When equipment no longer meets its requirements or is at the end of its life cycle, recognition of needs is the first step. This step is easier said than done, especially when facility equipment central to operations feels like an immovable mainstay. Whether recognized by executives or engineers on the ground, intuition drives the desire to implement change in the first place. On the other hand, making the case for equipment changes requires data-driven backing to get off the ground. Whether a physical plant upgrade, new software integration, or regulatory improvement, it is necessary to determine if the needs can be met with an optimal solution or in an alternative, more cost-effective, but perhaps less efficient way.

Some things can be easily quantified and justified. A blown fuse is one example. A decision to address this problem does not demand strategic alignment. On the other hand, the implications are large for replacement or upgrade of mission-critical facility equipment that carries the burden of obsolescence. There is also the reality that outdated equipment or failed integration can compromise the business' bottom line. This calls for that balance of art and science: someone must be in place who understands the fundamentals of the equipment's operations, but who also provides an objective, insightful perspective that can illuminate new opportunities for efficiency or function. Ultimately, decision making should come down to being proactive versus reactive while combining real-world experience and intuition with hard data.

> Clear and frequent communications are fundamental to striking a united plan.

Organizational size, culture and decision-making practices

An interconnected and collaborative company culture is extremely important within any facility, and its effects can be extended to equipment upgrades. Collaboration among knowledgeable personnel expedites decision making, empowered by the information and experiences of team members across all roles and levels. It helps shape a clear, visible roadmap of how decisions impact the entire organization. Fostering this type of culture requires a commitment to consistent and open communication from the top down. Regardless of the size of the company, it does not take much of a disconnect in communication to create a negative impact on business and slow the critical decision on next steps. To ensure the best interests of the organization are considered when evaluating equipment upgrades, a system of checks and balances should be implemented to make sure the needs of impacted parties are being met.

Generally, decisions are nimbler within smaller companies because the web of interconnection involves fewer key players versus their larger counterparts. But this does not mean alignment is a smaller task. Clear and frequent communications are fundamental to striking a united plan.

Understanding the needs of both stakeholders and end users is crucial to avoiding blind spots across strategy and implementation. This ensures employees can accomplish their jobs in a safe and efficient environment in a way that positively contributes to overall business goals. Collaboration can occur in a one-on-one fashion or in a large group setting, but a key player must be in place to stitch together various departmental needs and find a middle ground for all involved parties. It makes sense to implement a cross-functional team of informed staff members who understand the site, the equipment and how to use that equipment. This cross-functional team can develop a system that aims to both minimize or eliminate failure modes and support proactive upgrades. Smaller organizations might be able to appoint a single person, but generally, it is prudent to bring in multiple team members to avoid tunnel vision and encourage collaboration resulting in a proactive plan.

A process of evolution

As technology evolves, the demands for new and updated equipment increase for many reasons, including market changes, competition and regulatory requirements. Developing a plan, in advance for equipment upgrading provides the structure for decisions that support business goals and reflect processes effective for all staff involved. FMs can achieve this by committing to a combination of listening to what their experience and intuition tells them, what they learn from communicating and collaborating with employees and stakeholders, and appropriately examining available data and the life cycle of their equipment. Resist the urge to drive every decision solely based on cost or superior performance. Instead, strike a balance of science and art that integrates intuitive insights with key data to propel facility and business goals forward. FMJ

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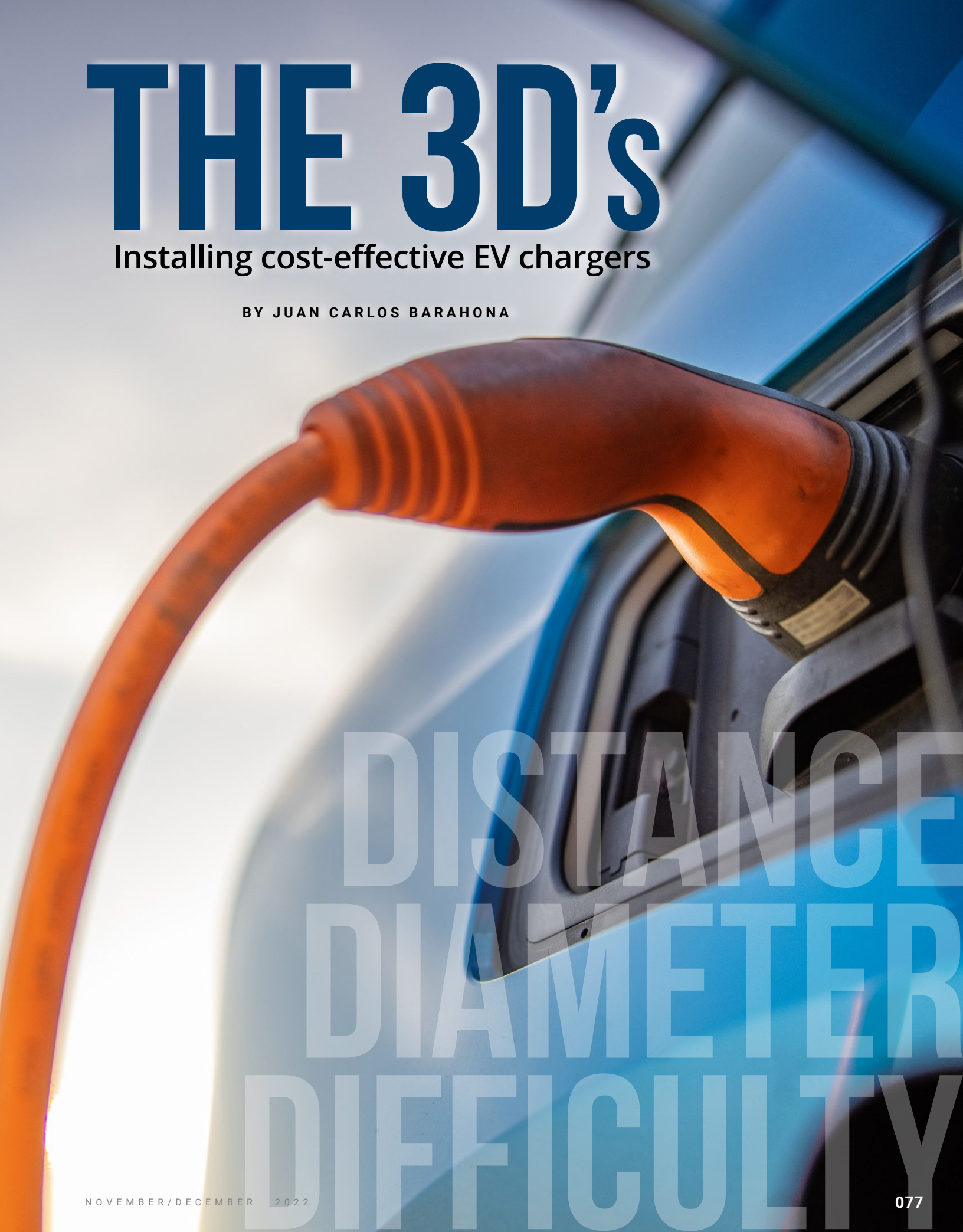
RESOURCES:
livescience.com/54825-scientists-measure-intuition.html

THE 3D's

Installing cost-effective EV chargers

BY JUAN CARLOS BARAHONA



Industry headwinds from recent state and federal legislation, like the Inflation Reduction Act, to billions in investment from OEMs are rapidly accelerating the growth of the electric vehicle (EV) industry. With the number of EVs in the U.S. forecasted to reach 26.4 million by 2030, 12.9 million chargers are needed across the country to meet this demand.

Experts across the EV industry anticipate that the millions of new EVs on the road will be charged not at refurbished gas stations, but in single-family homes, residential buildings, office spaces and other commercial properties where drivers already live, work and visit around the country.

Misconceptions about the high cost and difficulty of installing EVSE (electric vehicle supply equipment) should not hold facility managers back from investing now to be prepared for the electrified future. With enough pre-planning and asking the right questions upfront, installing EV charging stations is a simple process that typically takes an electrician less than one hour to connect, commission and test. The below framework, the 3D's can help guide building owners and FM through the installation process, with key considerations to keep costs low.

DISTANCE

The first consideration facility managers should keep in mind is the distance from the power source to the EV charger. Generally, the closer the chargers are installed to the power source, the cheaper the total installation cost. When feasible, consider pulling power from a nearby electrical room or wall panel versus installing a new meter and service from a nearby utility transformer.

Installation of EVSE at commercial locations can be complex and typically require local permitting or submittal documentation. A few items to keep in mind when conducting commercial EV installs:

- Check local zoning codes and requirements
- Keep in mind community design guidelines
- Electrical source and metering
- What parking and signage is needed
- If there are any permit and inspection fees

Some commercial installations may require a modification to an existing use permit or site plan addressing specific community or zoning design criteria. Be sure to address those needs and requirements with the municipality or county prior to submitting permits to understand all of the codes and fees.

DIAMETER

When installing an electrical conduit to connect the electrical panel to the pedestal or wall-mounted charger, FMs should consider pulling more conductors than needed. This allows property owners the ability to increase EV charger capacity without installing additional panels, conduit, wiring or needing to go through the permitting process again to install more chargers. Planning for the future can save businesses additional costs down the road as they expand EV charging capacity to meet new growing demand.

Diameter choice and pre-planning also enable the facility to offer the fastest charging experience available. Installing EV chargers with the highest possible amperage will allow for the best customer experience and allow managers to better prepare the location for future demand as well as create a higher return on their investment for the power from charging stations. For example, a 100 amp EV charging station will put out 80 amp an hour, versus a 40 amp charger that only puts out 32 amp per hour that results in a lower ROI. Before starting the installation process, FMs should contact their local electrical company to determine options.

An additional consideration is to contact an electrical provider to see if flat rate pricing can be obtained for the property, so that electricity pricing does not change throughout the day as demand increases. Controlling the cost of electricity is a key component

of the ongoing operation once the EV charging stations are operational.

FMs should think critically about their current charging needs and equipment cost. Not all buildings will need DC fast chargers, as they can add an unnecessary burden to energy bills. In addition, Level 2 chargers use electricity at a lower rate and are often hundreds of dollars less expensive than DC chargers in their early stages of development.

DIFFICULTY

Approaching the EVSE installation process with the goal of reducing the level of difficulty will reduce costs and shorten the installation process. FMs who partner with EV charging companies will run through installation options during the site visit and should consider simple solutions whenever possible, such as:

- **Location of the charger.** Installing a wall-mounted EV charger over a pedestal charger can reduce costs and avoid the need to trench or bore. Wall-mounted EV chargers can take less space when installed in small parking facilities.
- **Boring vs. Digging.** Many organizations find it much more cost effective to rip up and replace grass and landscaped areas rather than the process to bore under or cut and replace concrete or asphalt. Running through landscape easements is preferred to sidewalks or driveways/concrete parking areas.

To that end, simplicity will accelerate the approval process for local and state permitting.

OTHER CONSIDERATIONS

Along with the prominent 3D's of charger installation, FMs should consider other relevant factors such as prioritizing placement of EV chargers in areas with reliable cellular service, so the chargers are able to connect to app-based and in-car EV charging station locators. Connecting chargers to Wi-Fi, instead of a direct cellular connection, may create technical problems down the line when Wi-Fi networks are down for maintenance. Whether connecting via Wi-Fi or a cellular signal, maintaining a stable connection will ensure that installed chargers will appear for EV drivers on platforms such as Plugshare, Google and Apple Maps. For sub-basement facilities that may not have cellular access, installing a cellular repeater is a good option to ensure connectivity.

Solving data connectivity issues during the installation process maximizes the return on investment and ensures that EV charger customers will have a seamless and fully interoperable experience.

Many municipalities and agencies are including ADA standards to be applied in the installation of EV charging stations, although the ADA Standards for Accessible Design do not specifically address EV charging stations as of yet. However, accessibility must be considered in the design and placement of charging stations to provide equal access for people with disabilities in the use these charging stations.

FMs should also consider financial benefits to EV charging installation. EV charging stations can convert locations into prime destinations for visitors, encourage EV drivers to linger longer at locations, and create direct revenue streams by billing customers for the amount of energy used or the duration of their charge (dependent on state).

In addition to this framework to keep costs low during installation, there may be incentives and rebates to offset EV charging stations from local utilities. More details can be found by speaking with an EV charging service provider or visiting the Alternative Fuels Infrastructure Database at https://afdc.energy.gov/laws/search.

Partnering with an experienced EV charging provider that considers the 3D's of EV installation will ensure that the key questions can be answered before a shovel hits the ground, keep costs low, and maximize long-term ROI. FMJ

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RESOURCES:

eei.org/News/news/All/eei-projects-26-million-electric-vehicles-will-be-on-us-roads-in-2030

afdc.energy.gov/laws/search

MOBILE ACCESS CONTROL

Building a better facility-experience platform

BY
TROY JOHNSTON

Facility managers share a common set of objectives across their building and campus footprint, from the parking garage to the office suite:

- Make these spaces safe and secure for both people and assets;
- Minimize friction at each access control touchpoints; and
- Give people valuable services, amenities and experiences.

This is especially true as employees express their strong desire for flexible, hybrid work styles across multiple locations including work-from-home and hot-desking at the office. Employees also want touchless access to doors and elevators, and a variety of intuitive capabilities as they make their way to and from the office. They have already made the ubiquitous mobile phone a daily command center and would like to extend this model across both work and life. FMs can accommodate them through a modern physical access control system (PACS) that enables these experiences, supports mobile adoption across their systems and delivers touchless access control that can be adapted to future needs.

Upgrading Today's Building Experience

From their home to the office suite, people have faced different and disparate systems when accessing services, requiring them to manage multiple keys, cards, fobs, passwords and other credentials. This has been an often- frustrating experience.

People would prefer a seamless process of coming into a turnstile or other perimeter, interacting with a destination elevator system and then entering their office space, all with a single credential. This is especially true in large buildings that might have thousands of employees and thousands of visitors each month.

The pandemic brought forth additional requirements through a new awareness of collective health and safety. This drove organizations to pursue solutions to new challenges, from reducing surface touchpoints to understanding who is accessing their facilities. They also needed to ways to keep common areas congestion-free and automate compliance with social distancing policies. In this new environment, they also needed to capturing data for more efficient systems management and to make better facility decisions.

These capabilities can be achieved with a cloud-based PACS deployment that is hosted in the cloud (off-site data center) and often procured on a subscription model. It enables centralized management of the cloud-connected access control devices and all associated applications and trusted mobile identities. This approach enables remote management of PACS systems in multi-location environments and delivers a seamless experience through a high level of integration across systems and access points, from the turnstile to the elevator to the basement data center. All these entitlements become part of a single digital identity.

The underlying mobile access technology creates a daily engagement model at home or in the office that leverages the ubiquity and inherent security of today's mobile devices. From the administrator's standpoint, the mobile access model enables over-the-air credential provisioning and remote administration across one or many facility locations. It eliminates the archaic workflows and face-to-face time involved with managing physical credentials for what might be thousands of people, and is much better aligned with the short-term credentialing requirements of a hybrid workforce model.

People no longer wait for cards to be shipped to them or go pick them up – instead, thousands of mobile credentials can be issued remotely to the users' phones, allowing them to proceed straight to and through building entry points.

Mobile devices also integrate easily with a visitor management solution to simplify credentialing for building guests as well. Another benefit is the eco-friendliness of mobile access solutions, which is important to both FMs and users.

Supporting Facility Tenants

Many FMs are tasked with supporting tenants whose lease extensions depend on how satisfied they are with their building experience. Ensuring a positive tenant experience is complicated. It spans many different property uses, on the part of many distinct tenant organizations, visitors and contractors. Each user requires access to his or her unique set of services. Each access point has its own particularly functionality. Tenants want the experience at each access point, for each service, to be seamless, using a single device to access any touchpoints across any system.

One way to accomplish this is with a desktop or mobile application that serves as a tenant experience platform. This platform brings together in one solution everything prospective tenants should evaluate when exploring properties. The application is the mobile access solution as well as a remote control for how a tenant interfaces with their physical space, from wayfinding to information on local restaurants and gym classes to weather and traffic updates.

A Peek Into the Future

In February 2022, Silverstein Properties announced that it had added contactless access to its 7 World Trade Center office building through an employee badge in Apple Wallet. It provides an example of the kinds of facility experiences that are on the horizon.

To help create this experience, a partner organization's access cloud manages and connects disparate access control systems across owner and enterprise portfolios with mobile credential platforms, user directories, and other systems that influence physical access requirements. This allowed their proprietary apps to integrate with a cloud platform for the lifecycle management of mobile credentials. Tenants at 7 World Trade Center use their iPhone or Apple Watch to easily access office buildings and their tenant floors, fitness centers and amenity spaces. The first step is adding their employee badge to Apple Wallet after an initial set-up through the property app. This enables them to hold their device near a door's NFC-enabled lock to access secured areas. Employee badges stored in Apple Wallet also work in power reserve mode when the iPhone needs a charge.

With solutions like these, employees who worked from home for an extended period can now have the same digital conveniences of that environment at the office. Other employees who need the assurances of touchless access, social distancing, and hygiene management will know that these measures are being efficiently managed because the tenant experience platform's beacon-based location services technologies have been integrated with other automated solutions to deliver these capabilities.

Still others are operating in both environments, and these solutions enable them to seamlessly move back and forth with the same experience in each. Their identities become the new,and often only, perimeter. In these hybrid workplaces, FMs are implementing multi-factor authentication and other measures associated with a Zero Trust security model. These measures also rely on the foundation of today's cloud-based, mobile-first tenant experience platform.

Mobile access based on a cloud-based approach to PACS enables companies to modernize buildings and add innovations as needs evolve. It also enables the deployment of tenant experience platforms designed to support the more adaptable multi-location and hybrid work styles that emerged during the pandemic, including touchless access and more intuitive and high-value interactions with building features and amenities. FMJ

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Storm Proofers

frontline defense for flood-prone infrastructure

ELLIOTT T. HAMBROOK & MARC A. LORANGER

Flooding affects more people globally than any other environmental disaster. A 2021 study published in the Nature Journal claims that the percentage of the global population at risk from flooding has risen by almost a quarter since the year 2000 and millions more will face increased flooding by 2030. Although almost US$651 billion in flood damages occurred globally from 2000 to 2019, only 13 percent of disaster funds are allocated to preparedness, mitigation and adaptation.

While severe flooding can endanger life, even moderate levels of flooding can lead to extensive damages and disruption of infrastructure operations, including high-value data centers, healthcare, power generation stations and other important building occupancies. Based on updated, worldwide flood maps, many areas not previously categorized as being at risk now fall within flood-prone zones.

Many of these buildings, sites and occupancies are situated on older sites and within older buildings with little resistance to rising water tables, flash floods and rising sea levels. These occupancies and users are at risk of repetitive flood, water damage and loss of use, which have economic and health-related consequences. Water source contamination and uninhibited ingress are significant problems, resulting in damage or loss to structural systems, building enclosures and interior contents. Water can enter below-grade areas, compromising electrical and mechanical infrastructure. Existing stormwater systems also risk being overwhelmed by anticipated increased storm intensities as climate change accelerates. To successfully address future flooding events, building owners need to be prepared by developing flood mitigation plans and weatherproofing practices.

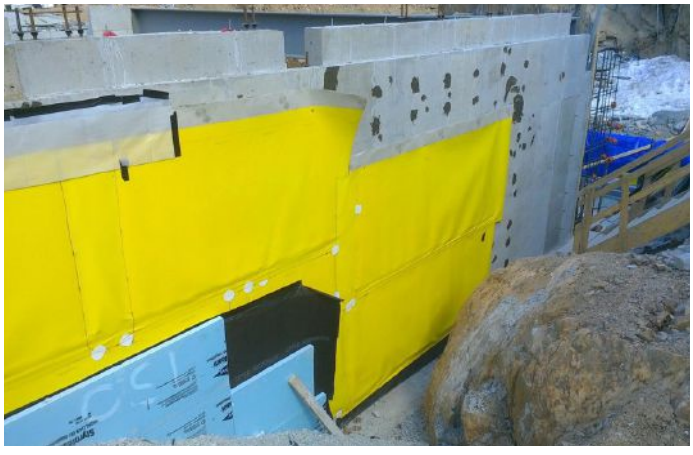
Addressing potential hazards at existing and new facilities is generally not as easy as building a levee around the perimeter of the property. Oftentimes, a hybrid solution is most effective. Hybrid solutions can incorporate a variety of systems, including physical barriers, flood gates, deployable flood walls, backflow devices, storage tanks and ejector pumps, upgraded storm water systems, structural improvements and building enclosure waterproofing systems.

Control of Water Sources

The source of water varies depending on the site/building location. In coastal areas, sea level rise may be of primary concern. At inland areas, flooding of streams and rivers are the primary water sources. Coupled with climate change, high-intensity storms, and fluctuating water tables, these water sources must be effectively controlled.

As part of improving flood resistance, facility mangers must examine planning for and reacting to flood warnings. Each facility/site and its infrastructure system(s) requires an emergency response plan that includes a process for monitoring flood warnings and a deployment plan. A capital plan of mitigation measures should be developed for long-term improvements.

Mitigation measures may utilize hard and/or soft solutions. Hard solutions include sea walls, dikes, floodwalls, levees, drainage swales, graded slopes, and structural waterproofing. Physi-



cal barriers, such as flood shields, are used to protect individual openings. Soft solutions can include dune creation and beach replenishment, but these measures are subject to deterioration.

Adapting to water sources, while maintaining and improving infrastructure via capital projects, may include storm drain improvements, sewer infrastructure improvements, raising streets, addition of pumps, sustainable green roofing to slow stormwater run-off, and raising equipment above flood levels.

A more direct option is to retreat to areas above the flood plain. If this is feasible, relocating sensitive equipment and power sources to higher elevations on the same or different sites is optimal. Programs to deter development in vulnerable areas and reward development in higher elevations, updated zoning restrictions and better planning for coastal and flood-prone sites may also assist in reducing risk.

There are different methods available to decrease the detrimental effects of flooding when it does happen. Wet floodproofing uses flood-damage-resistant materials and construction techniques to minimize flood damage to areas below the flood level of a structure. Dry floodproofing (or waterproofing) is a combination of measures that results in the building structure and its supporting utilities being watertight and substantially impermeable to floodwater penetration.

Design Considerations

The most common causes of waterproofing failures in below-grade structures include reliance on a single barrier, complex foundation geometries, and the misunderstanding of moisture intrusion sources. It is important to remove any occurrence of a repetitive problem detail, curb the use of untested and unproven materials, improve contractor/designer coordination and monitor workmanship while the system is installed. Structural settlement, existing soil types and proposed back-fill types interacting with the waterproofing system must be reviewed. It is important to determine water/soil quality because various contaminants within the soil or water can deteriorate certain membranes or render them ineffective.

Hydrostatic Pressure and Structural Capacity and Augmentation

When considering the type and placement of waterproofing on or in your structure, the depth and pressure exerted on it must be defined. This hydrostatic pressure exerts a lateral force on foundation walls, and buoyant forces on slabs. Where structural support systems experience hydrostatic conditions, structural analysis and engineering for augmentation may be required. Each project must be evaluated on a case-by-case basis.

Waterproofing Types

Positive-side waterproofing is installed on the exterior side of a structure. This method is often the least problematic and most successful method because it creates a continuous exterior barrier against water infiltration. Disadvantages of positive-side waterproofing include leaks due to faulty installation, failed material or building movement. Repairs need to be made via costly excavation or post-applied negative-side waterproofing techniques.

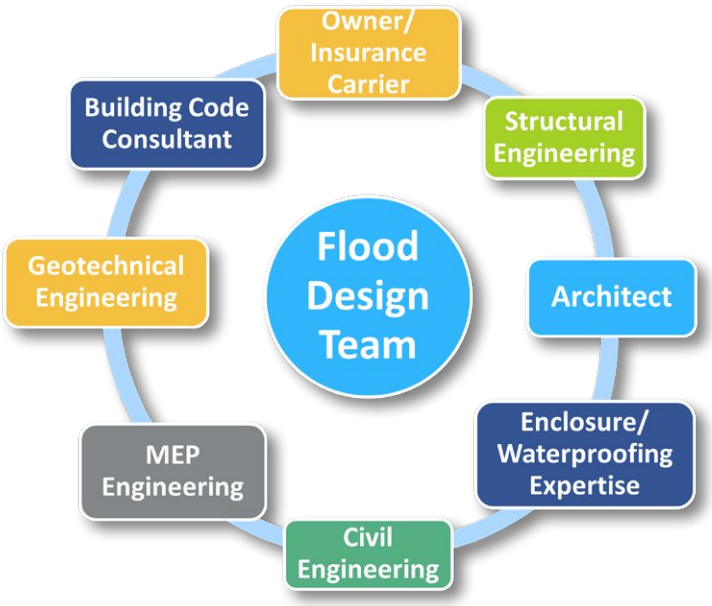
Blind-side waterproofing is a type of positive-side waterproofing installed prior to concrete placement. It is often used on projects where property line encroachment or other space limitations prohibit the ability to access the positive side of the foundation once constructed.

Negative-side waterproofing is generally applied to existing building interiors when exterior access is unfeasible. Negative-side waterproofing is often used in new construction at recessed elevator or other pits where waterproofing is not provided on the positive side. Negative-side waterproofing is generally used for problem-solving rather than problem prevention. This type of waterproofing is a preferred choice when positive side waterproofing techniques are not feasible.

Fluid-applied positive side systems can either be hot- or cold-applied rubberized asphalts, urethanes, polymethylmethacrylates, polyurea and other emulsions. They can be poured and squeegeed, mopped in place or spray applied. They adhere to substrates to prevent lateral migration of water between the membrane and substrate. A downside to fluid-applied systems is that they are susceptible to pin holing, due to vapor drive from moisture in the substrate during application. A benefit of fluid-applied waterproofing is that it conforms to irregular substrate conditions and requires less pre-detailing than sheet membrane systems.

Sheet waterproofing membrane systems include thermoplastic, modified bitumen, rubberized asphalts and high-density polyethylene (HDPE). They are typically adhered to substrates to prevent lateral migration of water between the membrane and substrate. One downside to sheet membrane systems is that they are particularly susceptible to wrinkles, fish mouths and blisters during installation. For blind-side applications, the protection of transitions must be coordinated with the adjacent construction and installation of positive-side membrane system(s).

Hydro-active (bentonite/polymer) waterproofing membranes "self-seal" when the material reacts with water and swells under confinement. When utilized in blind-side under-slab applications, the use of mud slabs is common since they provide a consistent substrate for membrane installation and subsequent concrete reinforcing cages. Construction sequence and protection are critical for these materials since premature exposure to moisture can result in unconfined swelling and displacement of the hydro-active materials.



Quality Control and Testing

There are several important quality control measures used during the waterproofing process. Quality control testing may include adhesion tests, electronic field vector mapping (EFVM) and flood testing. Coordination with other trades, installation methods and limitations, construction sequence, and inspection and observation of the installed system(s), are crucial. Construction sequence often dictates the way in which details are installed and, as such, coordination is required to define proper installation. Required inspections are most effective when initiated early to establish a standard of work. Frequent and thorough inspection to review unique conditions, clarify detailing, and to correct any concerns to maintain warranty coverage is encouraged.

Summary

As the saying goes, "an ounce of prevention is worth a pound of cure," and this stands true with flood mitigation for protecting buildings, sites, and infrastructure from the effects of uncontrolled flooding. It is generally more effective to take preventative actions now to minimize impacts rather than after a flood has started or has occurred. Implementing a systematic plan now will prepare us for future. FMJ

RESOURCES:
nature.com/articles/s41586-021-03695-w.epdf

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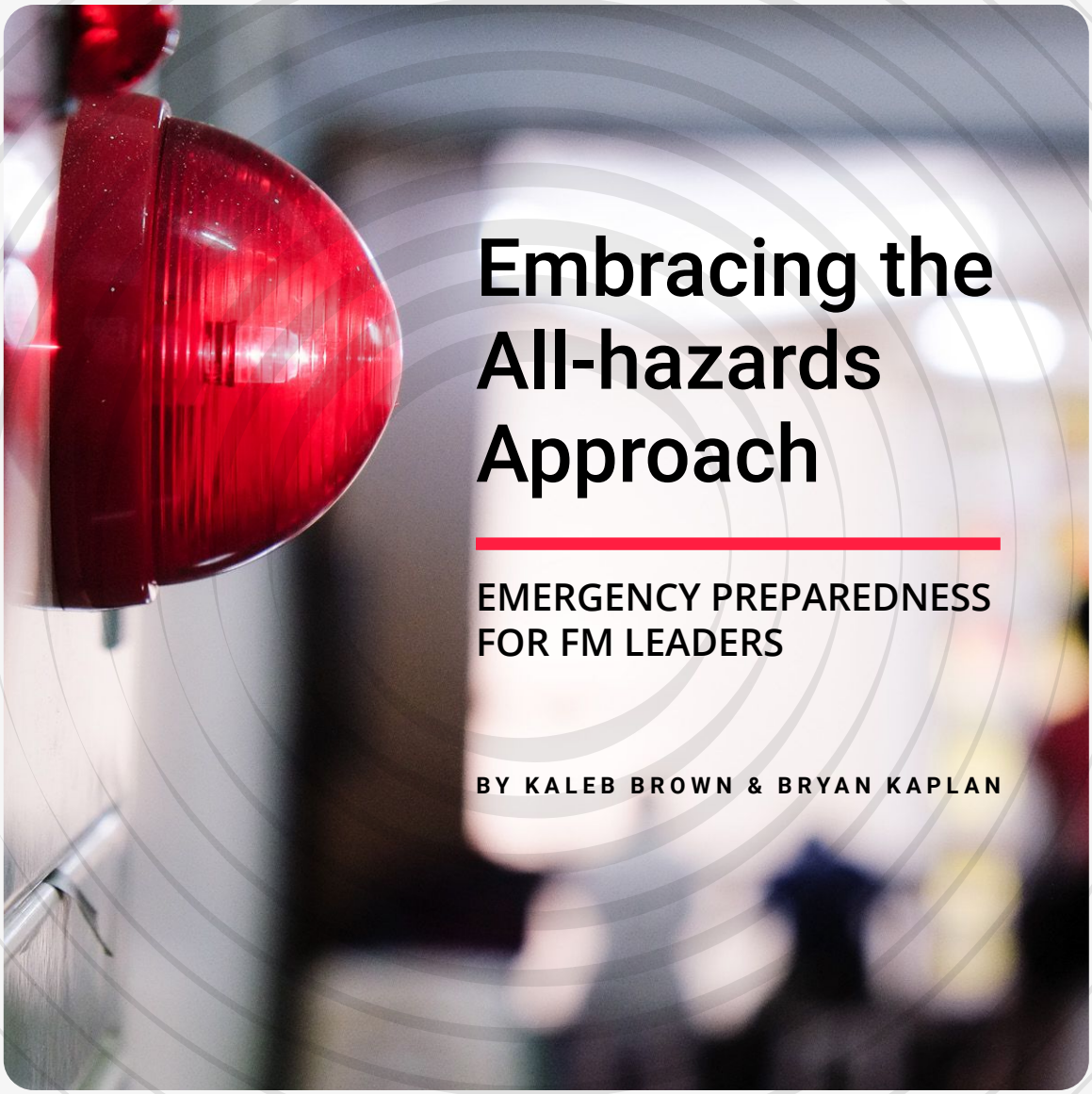

Embracing the All-hazards Approach

EMERGENCY PREPAREDNESS FOR FM LEADERS

BY KALEB BROWN & BRYAN KAPLAN

FACILITY MANAGERS MUST BE PREPARED FOR ANYTHING AND TO EXPECT THE UNEXPECTED. WHETHER IT BE A NATURAL DISASTER, BOMB THREAT, ACTIVE SHOOTER OR A MASS CASUALTY INCIDENT, EMERGENCIES ARE DIFFICULT TO PREDICT. EVEN SO, FM TEAMS ARE RESPONSIBLE FOR LIMITING OPERATIONAL IMPACT AND ENSURING ORGANIZATIONAL RESILIENCE WHEN UNEXPECTED EVENTS OCCUR. THIS UNPREDICTABILITY OF EXOGENOUS EVENTS THAT CAN IMPACT OPERATIONS REINFORCES THE IMPORTANCE FOR FACILITY EXECUTIVES TO BE INTIMATELY AWARE OF THE POTENTIAL HAZARDS DISTINCT TO THEIR ENVIRONMENTS AND DEVELOP EMERGENCY RESPONSE PLANS THAT ADDRESS THESE VULNERABILITIES.

Responding to specific incidents or crisis situations can span everything from using a spill kit to restoring a work site following a toxic spill to assisting authorities during an active shooter event. An effective response requires a clear set of mission objectives, which could be minimizing casualties in the aftermath of an incident or a speedy restoration of services. The response must consider the context of the facility and other stakeholders that might factor into the response. For example, if a school is in the vicinity, the response might be different (e.g., school lockdown initiated) than if the facility were in a commercial area.

Emergency preparedness and response plans can help bridge the gap between anticipation and action by conducting a risk assessment. Risk assessment is the first step in planning for any hazard. Emergency management and business continuity professionals must catalog solutions to the potential problems that prevent their organizations from resuming normal operations after an external shock. In practice, this means adopting an all-hazards approach that helps FMs anticipate potential challenges, assess risks, address outcomes and provide the best response possible when necessary.

STATE OF CRISIS: THE EVOLVING EMERGENCY LANDSCAPE

A recent uptick in significant crisis events has made it clear that organizations cannot afford to ignore their impact on business operations. Climate-induced crises are becoming more common. Last year was one of the costliest and deadliest years for natural disasters, as scientists warn that climate change could make extreme weather more common. Hurricanes are expected to get more powerful as the ocean heats, higher temperatures will bring on worse droughts and winter freezes could become more common. All of this makes an FM's job even more unpredictable. Consider the development of a large atmospheric river in late 2021 that wreaked havoc on facilities across the Pacific Northwest regions of Canada and the U.S.

On Nov. 14, 2021, 24-hour rainfall in this area broke multiple records. Hope, British Columbia reported 6.8 inches of rain in one day. Meanwhile, in the state of Washington, the Nooksack River crested at 23.76 feet, causing damage to neighborhoods, businesses, and farmland forcing the evacuation of more than 500 people. While just a small sample size, imagine the roughly 36,000 facilities made inoperable in the U.S. if they were faced with these same floods. Clearly, FMs assume a high level of risk from floods alone.

This trend is unlikely to reverse course. It is expected that over the next 30 years, an additional 66,000 commercial properties, 6,100 pieces of social infrastructure, and 2,000 pieces of critical infrastructure will have flood risk that would render them inoperable. The U.K. reflects the same trend as the U.S. and Canada with nearly one in three commercial properties at risk of flooding. Experts and facility managers are acutely aware of the situation; almost 70 percent of subject matter experts surveyed by the MIT Sloan Management Review agreed or strongly agreed that their corporations are planning for the increased operational risks and potential liabilities caused by climate change.

The ever-changing climate will continually develop new threats and exacerbate existing ones. FMs must become proactive in reducing the costs of natural disasters and climate-change-induced crises. To address this evolving emergency landscape, businesses are best served by developing robust and repeatable preparedness and response plans that help blunt initial impacts, contemplate and mitigate the consequences of the initial effects and set the stage for a speedy recovery.

KEY ASPECTS OF AN EMERGENCY PREPAREDNESS AND RESPONSE PLAN

The initial actions taken in the face of an emergency are critical. Employees must be promptly advised on the appropriate course of action, whether to evacuate, shelter, or enter lockdown. A call for help to public emergency services that provide complete and accurate information will help partner organizations send the appropriate level and type of personnel and equipment.

The challenge? While the first few moments of an emergency are the most critical, they are also the most stressful, leaving the organization vulnerable to early missteps that can add undue challenges to meeting recovery objectives. Robust emergency preparedness and response plans can help FMs navigate initial crisis stages and make informed decisions. Three aspects of any facility's emergency preparedness and response plan are critical, an all-hazards approach, a clear chain of responsibility and a repeatable process.

AN ALL-HAZARDS APPROACH

Practitioners know that there are many different types of incidents. They also know that an all-hazards framework that takes a comprehensive approach to emergency preparedness and response works best. While this requires work upfront as a part of preparedness and planning, it sets organizations up for success by providing plans that cover the most contemplatable scenarios and provide components whose permutations can effectively respond to new circumstances. An effective all-hazards approach requires an understanding of the baseline risk, the sources of potential shocks, their likelihood and their potential impact.

CLEAR CHAINS OF RESPONSIBILITY

When emergencies happen, multiple stakeholders seek information and direction, causing crippling stress for an unprepared response team. To ensure an effective response, FM teams should have readily accessible and familiar templates that create clear chains of responsibility and action. This includes identifying information that must be shared, pre-assigning specific people and responsibilities, and locating where critical functions may 'fall over' if primary operational channels are no longer available. While these are unlikely to be perfect, they provide a vastly superior starting point as opposed to an ad-hoc response.

An effective response can reinforce the trust people place in the leadership and the brand; an ineffective one can cause significant long-term damage to the brand.

REPEATABLE PROCESS

To be effective, plans need to be trusted, familiar, and practiced. The scenarios must be relatable — stakeholders investing their time in the planning process must be convinced that they are focusing on the most relevant issues; the plans must be repeatable — both by design and practice, ideally becoming a part of organizational muscle memory. This relatable and repeatable approach makes it more likely that procedures will be effectively followed, reducing risk while reducing the time it takes to resume normal operations.

BUILDING A BETTER EMERGENCY RESPONSE PLAN

From routine issues to major crises, FMs and their teams can be confident that unexpected events will happen. These events may originate internally from unexpected failures or downtimes of machinery or software, internal or external persons acting in a manner that compromises the facility or natural disasters. Regardless of the origin, emergencies can pose a threat to a facility, its physical assets, and its occupants within minutes. This uncertainty makes an effective and practiced response plan mission critical. An effective response can reinforce the trust people place in the leadership and the brand; an ineffective one can cause significant long-term damage to the brand.

Building a better emergency response plan starts by identifying vital operational vulnerabilities, potential business impacts, and desired recovery time objectives (RTOs).

Each of these is critical for vulnerability assessments. Vulnerabilities may be location-dependent: a coastal facility is more likely to face a hurricane/typhoon than one in a landlocked desert, for example. By identifying areas of potential vulnerability before emergencies happen, businesses can create plans that specifically address these threats without trying to boil the proverbial ocean. Vulnerability assessments are not a siloed exercise; while the FM team can inform building users about what to expect, they need to work with a cross-functional team to understand business impact.

While assessing potential business impact, FMs must work with their organizations to answer three key questions:

- What happens if a line of business is taken out because of a disaster?
- What resources are required to transfer those operations elsewhere?
- Who is responsible for this process?

Finally, creating a standardized and comprehensive way to achieve recovery time objectives is crucial. This means identifying ideal RTOs, the potential impact of not meeting these objectives, and the steps required to achieve RTOs in different circumstances. For example, while a flood that disrupts a local data center might require a failover to cloud services to meet RTO objectives, the situation changes if the cloud provider is also impacted by the emergency. As a result, FMs need plans capable of responding regardless of circumstance.

TESTING, TESTING — THE NEED FOR ONGOING EVALUATION

Ongoing evaluation is critical for any emergency response and preparedness plan to succeed. While exercises may vary by organization, over time, they must comprise tabletop exercises, focused drills, or full-scale drills. Only when all stakeholders are involved will plans be tested.

However, no matter the approach, it is critical for organizations to test their tooling and ability to create a single source of truth for data required before, during and after an incident or event. They must create and maintain muscle memory for the organization to effectively use these tools — the best tools provide no value when left unused or used inappropriately. The right tools can provide this source of truth to improve coordination and collaboration. FMs should look for tools that provide after-action review and improvement plans and the ability to capture comments and create a document that lets you link back to critical areas for improvement.

Organizations and their FM teams require processes and procedures to minimize damage to physical assets and save lives when an emergency occurs.

Emergencies are naturally unpredictable. Organizations and their FM teams require processes and procedures to minimize damage to physical assets and save lives when an emergency occurs. Armed with all-hazards emergency preparedness and response plans, appropriate practice, evaluation, and the right tooling, FMs will not only mitigate the impact of unexpected events and create sustainable frameworks for ongoing success but also develop a reputation of being able to respond seamlessly in the face of challenges. FMJ


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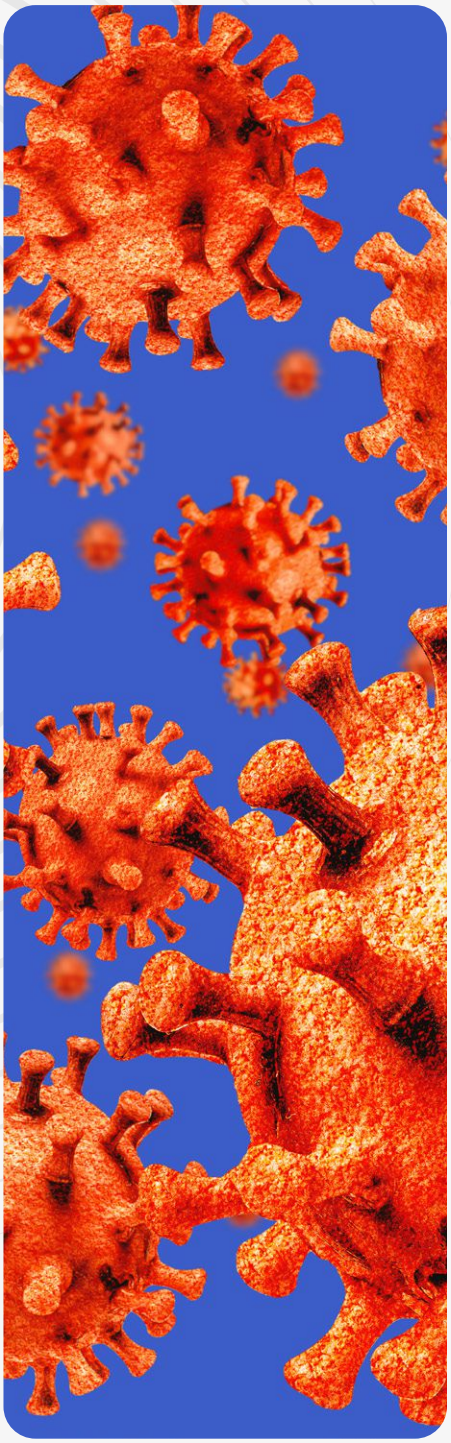
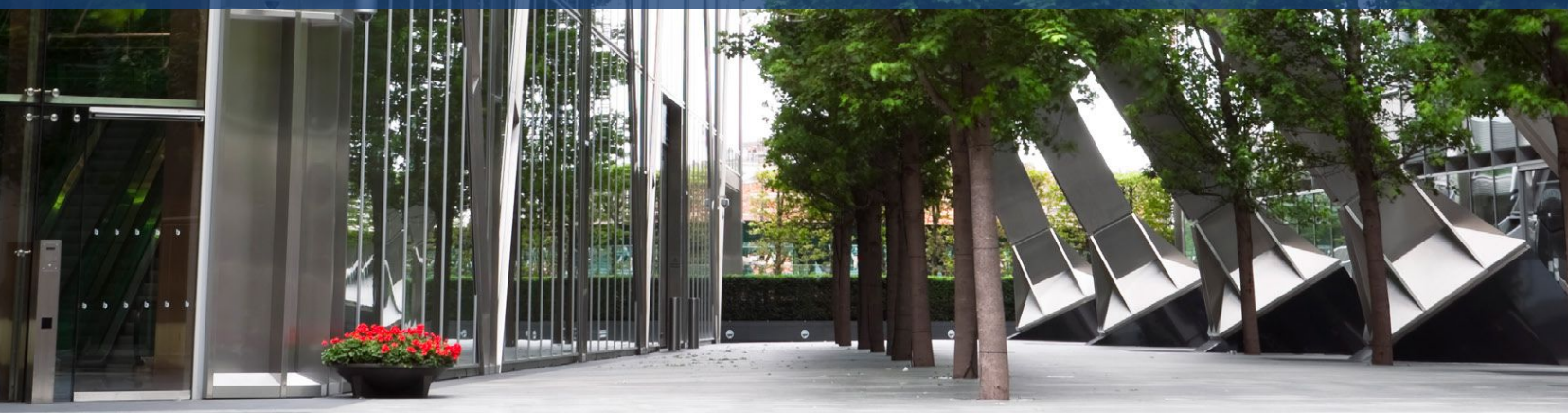


Gauging Building Health

FM METRICS & STRATEGIES FOR BUILDING HEALTH

BY BRIAN BAKER & JOHN McCARTHY



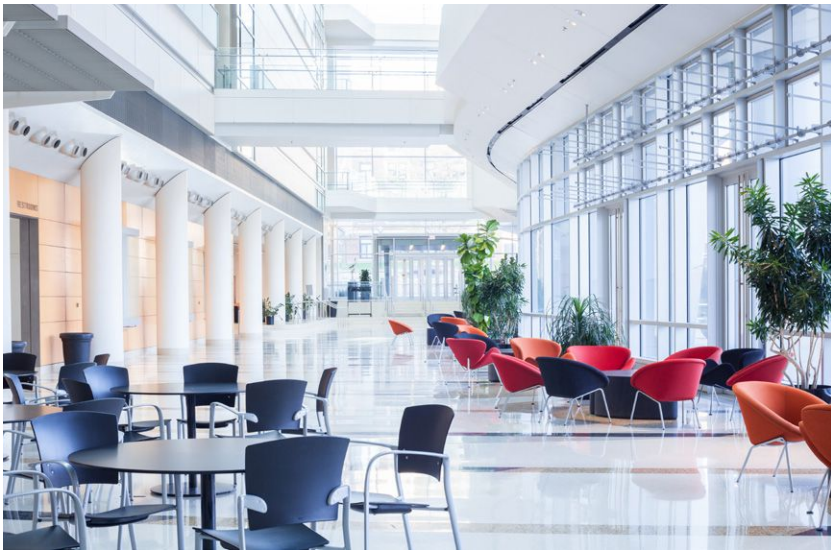
The COVID-19 pandemic changed how building owners, managers and occupants think about buildings and their importance in supporting human health. Buildings that are constructed and operated consistent with best practices — what is increasingly called a healthy building — can support health, well-being, productivity and even serve as a place of refuge from the increasing occurrence of adverse environmental events such as smoke from wildfires, or exposures to viral particles such as COVID-19. Although there are many benefits associated with a healthy building, this can also leave many building owners and facility managers with a hefty challenge: **Setting a standard definition for a healthy building that is also recognized by occupants.**

In the past, a building's health may have been gauged by the levels of complaints, for example, thermal comfort coming from occupants. However, in a post-COVID-19 world, this reactive approach could prove detrimental to many organizations.

In fact, many employees are pushing back on their employers over their return to offices, often citing concerns about potentially unsafe workplaces. After requiring employees to return to in-person work in April, Apple has several times had to put those plans on hold due to increases in COVID-19 cases among employees. Employees garnered national attention with a petition against the company's inflexibility, citing accommodations for safety, health and environmental concerns as reasons to allow remote work. Other companies, including JPMorgan and Goldman Sachs, have faced similar pushback from employees. While there is research to support both sides of the conversation about the comparability of productivity in person versus working remotely, what has been lacking for many companies is evidence that executives can point to about the health benefits of their in-person work environments.

Having seen firsthand the impact of COVID-19 on their bottom lines, corporate culture and their employees' health, companies are looking for ways to make their operations more effective and resilient. In response to local and global concerns facing these corporations regarding health and environmental, social and governance (ESG) initiatives, business leaders have pushed for more structured programs. In 2021, the Harvard School of Public Health created the Public Health & Business Leadership (PHBL) Program to bridge public health and business interests in establishing safe workplace environments. Company owners who believe in the need to connect in person to achieve more fruitful collaborations and greater productivity and the need to meet the demands of the emerging "health-first" era must partner with their FMs to provide ongoing proof of building health.

Today's FMs must have quality data to which they can turn to refute complaints or to show that appropriate measures have been taken to address potential health issues. FMs must be able to demonstrate the healthy building strategies that have been implemented and be prepared to discuss the metrics by which building health is measured. Corporate success and credibility may depend upon this evidence.



LOOKING OUT FOR BUILDING HEALTH

Since March 2020, FMs have largely sought to ensure building health by following ASHRAE recommendations for increasing filtration effectiveness, employing higher ventilation rates, and pre- and post-occupancy purge rates. While these higher rates of ventilation and frequent flush-outs may ensure healthier air – and have been shown to diffuse the risk of airborne transmission of the COVID-19 — they may also not always be necessary and instead be detrimental to other facility objectives.

Typically, these pandemic response actions were performed in the absence of specific goals based on well-defined performance objectives and lacked measurable air quality data that may indicate the presence of a problem or that FMs can reference as proof of building health. As a result, building owners and FMs are driving their operational and energy costs up and, for many, operating against their sustainability pledges without any true benefits.

Many FMs have lacked a formal process for ongoing assessment and verification of system performance. With the right strategy and performance metrics, FMs can more effectively solve problems today and plan their response to future building air quality challenges and improvements.

The foundation of any program verifying building health follows the FIRST step approach outlined below.

Focus discussions on setting meaningful and verifiable objectives and get agreement from upper management. This will get FMs a "seat at the table."

Inspect the building regularly, using a standard approach or a trained building engineer. Although it sounds simple, it is important to know what is being looked for. For example, a visual inspection of the air handling systems can tell FMs if fans are running normally and air filters are clean and appropriately seated in their frames. It indicates that outdoor air dampers are working and discharge air temperatures are meeting expected set points even under hot and humid conditions. From there, FMs should make visual inspections of occupied spaces to look for unusual conditions. This might include inspection for stained ceiling tiles, unusual odors, temperature differences between zones, or other indications of abnormal conditions.

Retrocommission buildings to optimize system performance. Tremendous improvements can be realized by implementing proven no-cost or low-cost modifications. Further, this process can uncover significant energy savings that can often fund the initial steps and continued program.

Supplement with temporary measures as may be needed to meet goals. This may involve the use of localized filtration systems to meet specific ventilation rate requirements or use of UV lights to reduce the airborne bioburden and increase the effective air exchange rates.

Test the air quality regularly and analyze the results against established guidelines. Low-cost sensors and analysis packages are available that will permit meaningful communications to be developed that showcase the impact of the program.

MEASURING HEALTH BY CLEAR METRICS

Visual inspections will provide a great deal of data about where to investigate further. However, as noted above, FMs should be prepared with baseline measurements for key building metrics. This will help in documenting the need for any response actions and achievement of performance goals, as well as for communicating building health to the C-suite and building occupants.

While FMs may be familiar with some if not all of these measurements, the key is to ensure these readings are part of a formal IAQ verification process. FM teams must have a clear understanding of what the various measurements mean through easily remembered and communicated talking points. Key metrics include:

- **Carbon dioxide (CO_2) levels:** CO_2 levels are a useful gauge of outdoor air delivery, ventilation effectiveness and overall building health. In fact, research by British facilities management company EMCOR UK, conducted over two years by academics at Oxford Brookes University and LCMB Building Performance, found that people worked 60 percent faster in buildings with reduced CO_2 concentrations. Employees completed tests in a mean time of 8.2 minutes, compared to 13.3 minutes in buildings with more CO_2 in the atmosphere.

  For indoor air quality (IAQ), the recommended upper limit for carbon dioxide levels is 600 parts per million (ppm) of CO_2 above outdoor background levels. For example, if outdoor air is 450 ppm CO_2, then the recommended upper limit would be 1050 ppm CO_2 and would correspond to approximately 15 cubic feet of outdoor air being supplied per person. This recommended upper limit is based on ASHRAE ventilation standards for adequate ventilation and provides a more tailored assessment of outdoor air delivery rate, rather than defaulting to the "traditional" threshold of 1000 ppm as the recommended upper limit. However, as the term "adequate" implies, this standard is focused on comfort and not necessarily public health. "Good" air quality levels generally correspond to levels that will be approximately 400 ppm above background. Maintaining this level of carbon dioxide in an occupied space will help achieve the benefits described above.

  As with most IAQ measurements, it is important to collect the samples in a central, occupied area but six to eight feet away from the nearest occupant (people passing by as a normal course of activity is fine). For a typical work pattern, collect the data after people have occupied the space for two to three hours and plan on taking the samples over a one- to three-hour period.

  With this information, FMs can document maintenance of appropriate amounts of outside air needed for a healthy environment and identify opportunities to reduce the amount of outside air brought into the building at certain times. This allows FMs to reduce ongoing energy demand while optimizing system performance and maintaining a healthy environment.

- **Particulate levels.** There are many types of particulate matter that can cause respiratory problems, throat irritation, and other ailments. These include viral particulates like SARS-CoV-2 as well as emissions from traffic, pollen, and smoke from wildfires. Although limited in number, research has shown a significant decline in cognitive tests when indoor levels of fine particulate matter, also known as PM 2.5, routinely exceed 12 ug/m3. Many reliable low-cost sensors are available to help obtain accurate measurements of PM 2.5. Samples should be collected in parallel with the CO_2 measurements.

- **Temperature and humidity set points.** The ability to maintain occupied area temperature set points indicates that the building HVAC systems are able to adequately provide properly conditioned and dehumidified air to its spaces. Space temperature monitoring is particularly important as outdoor ventilation rates increase; a common tactic used to diffuse particulates. Many FMs periodically test HVAC system performance at higher outdoor air ventilation rates by slowly increasing the outdoor air ventilation rates on a hot day and checking the HVAC system discharge air temperature to ensure it maintains its setpoint.
- **Building and Space Pressurization.** It is desirable to operate buildings at a slight positive pressure relative to outdoors. This is achievable through overall balancing of the buildings HVAC outdoor air intake rates and the mechanical exhaust rates. Buildings that operate at a negative pressure with respect to outdoors will have higher infiltration rates of unfiltered and unconditioned outdoor air, which can result in indoor thermal comfort complaints, increased indoor particulate levels and can contribute to conditions conducive to indoor surface condensation. Space to space differential pressure is also important to consider to minimize the transfer of air between occupied spaces and potential contaminant or odor source areas including restrooms, mechanical spaces and loading docks. Measuring the pressure difference between the indoors and outdoors or between specific spaces on a quarterly basis may determine the need for adjustments to mechanical systems.
- **Complaints.** While less scientific, this remains a useful metric to track. FMs should ensure they log all complaints received about thermal comfort and other building problems, as well as action taken to resolve them. Developing a standard collection process is critically important in analyzing complaint data to see if there is a pattern that emerges or to document success in resolving complaints. All of this information can help to build a better understanding of how a building operates and key issues to address proactively to satisfy building occupants.

WHAT TO DO WITH THE DATA

With all of the information available to FMs — including visual cues and the key measurements noted above — the next critical step is analysis. For some FMs, this analysis may be already available through their building automation system. A talk with a system vendor may even be able to identify opportunities to track additional data or customize reporting. For other FMs, an outside consultant may be able to more effectively monitor, analyze and track this data without burdening the FM team.

By regularly analyzing amassed data, FMs can begin to track trends, build connections and identify issues before they grow. This analysis may also prove useful as a communication tool to help building occupants feel safe as they return to work and can also help determine when system adjustments are needed.

Prior to making any changes, there are three additional considerations.

- **FMs must understand the overall operational capabilities, and limitations, of their HVAC equipment.** It has always been a recommended best practice to have ventilation rates consistent with ASHRAE recommendations. That does not mean it is something that is always monitored, measured and adjusted on a regular basis.

  Since COVID-19, adjustments have become more frequent, but adjusted ventilation rates are not always consistent with equipment performance capabilities or the needs of the occupants. Surprisingly, newer HVAC systems are often designed to ensure compliance with building and energy codes and no more than that. That means calls to significantly increase outdoor air ventilation may not be physically possible without sacrificing a system's cooling or dehumidification capacity. This is particularly true during periods when outdoor temperature levels are high.

  For other systems, small adjustments can improve ventilation rates. For example, research from Washington State University indicates that nearly 50 percent of new airside economizer installations have one or more problems that reduce their effectiveness. Simply checking this and other functions with a visual inspection can maximize outdoor air flow while minimizing energy consumption.
- **Examine filtration.** Historically, the primary intent of HVAC filtration was to protect heating and cooling coils from clogging due to dust and other contaminants. This was accomplished using lower efficiency filters, with efficiency ratings of MERV 7 or MERV 8. It is not unusual for newer HVAC systems to be specified with higher efficiency filters, as a higher level of filtration provides both component protection and cleaner air to the occupied space. During the COVID-19 pandemic, MERV 13 filters were introduced as the recommended standard for HVAC systems filtration as these filters provide a higher capture efficiency compared to MERV 7 or MERV 8. According to ASHRAE, MERV 13 filters are at least 85 percent efficient at capturing particles ranging in size from 1 µm to 3 µm and their use in HVAC systems will result in a higher delivery rate of clean air to the occupied space. There is little benefit to be gained for typical office installations to go to a higher MERV rated filter.

One limitation with using these higher efficiency filters is that they are more restrictive to airflow compared to MERV 7 or MERV 8. This higher resistance can result in a decrease in total HVAC system airflow. For a majority of HVAC systems, the additional pressure drop created by the higher efficiency filters may result in a negligible airflow reduction. However, for some older or smaller packaged HVAC systems, the airflow reduction may be significant and result in performance problems. This should not discourage FMs from considering higher efficient filtration systems. In general, most FMs have been able to effectively upgrade their filters in the last two years without any problem whatsoever. The key is to measure and verify performance before and after any changes.

- **Control indoor source areas.** The proper operation of building HVAC systems may be of primary importance when it comes to building health, but there are additional steps that can be taken to improve IAQ and occupant perception. Most building have similar indoor potential contaminant sources and areas where these sources are contained. Containing these source areas is important to prevent sources or odors from circulating to occupied areas. For example, in buildings with hydraulic operated elevators, elevator machine rooms are a source of odors and these rooms often require space depressurization. Other source areas include copier rooms or kitchen areas, restrooms or shower rooms and mechanical spaces and loading docks. Sources in these spaces may best be controlled by localized exhaust.

A KEY PARTNER IN BUILDING RESILIENCY

Building operations are being held to a higher standard than they ever have been in the past. For those executives who see work in the building as critical for corporate success, they will rely on their FMs to have data that proves their workplace is safe and in line with their ESG and corporate objectives.

Building occupants will be looking for evidence as to how FMs are assessing potential hazards. They will want proof that a plan is in place to protect occupants from future hazards, including pandemics as well as natural disasters and the ongoing impact of global warming. Many will want assurance that their buildings are in fact safer than the dangerous conditions outside in their communities.

By taking clear, measurable action to manage HVAC system performance today, FMs can create safer and more resilient buildings for the future. FMJ

RESOURCES:

ashrae.org/file%20library/technical%20resources/covid-19/ashrae-building-readiness.pdf

workinmind.org/2018/12/05/study-reveals-c02-levels-in-offices-are-silently-damaging-uk-productivity

epa.gov/indoor-air-quality-iaq/indoor-particulate-matter

energy.wsu.edu/documents/AHT_Economizers%5b1%5d.pdf

ashrae.org/technical-resources/filtration-and-disinfection-faq

Know When and Where to Look for Signs of Poor IAQ

Several years ago, a hospital needed to identify the cause of a significant indoor humidity issue. During inspection it was found that gypsum wallboard had become so damp that some wall-mounted television sets were falling off the walls. It turns out, the building's managers had not noticed the HVAC system had not been properly rebalanced after a ventilation modification that reduced the amount of outdoor air being delivered to a number of primary areas throughout the facility. This action resulted in an excessively negative building and extreme infiltration of unconditioned air, via not fully sealed wall penetrations, into the patient wards.

More regular inspection of those rooms would have alerted a facilities professional to the uncomfortable humidity in the space before the problem became severe. FMs should consider performing these visual inspections on a regularly scheduled basis to help prevent a wide range of potential problems.

FMs should also plan a visual inspection following any change in building construction or operation. Another hospital needed to identify the cause of the building's excessive negative pressurization. The hospital was in an area that had been impacted by wildfires the season before. A visual inspection soon revealed that when the outdoor air intakes had been closed to prevent the intake of particulate matter from the wildfires, the building team neglected to reopen those intakes. There had been no plan for how to ascertain that the building had shifted back to normal operation. Having a plan to verify performance with a visual inspection would have helped.

John McCarthy, *Sc.D., C.I.H. is chief executive officer and chairman of the board of EH&E. He specializes in the research, resolution and communication of complex environmental and occupational health risks, particularly in the built environment. He has led large interdisciplinary teams to analyze business critical issues and develop and implement effective solutions for healthcare systems, private corporations, government and non-profit organizations to improve health and safety and their operational performance.*

Brian Baker, *P.E. is principal engineer, commissioning services at EH&E. Baker has significant experience in engineering and building science. Baker has participated in hundreds of indoor environmental quality (IEQ) investigations and has conducted numerous building assessments in large and small office buildings, schools, hospitals, industrial sites and residences. His technical experience includes conducting forensic engineering investigations relative to building performance, potential pollutant sources and the impact that these have on the indoor environment.*

IFMA WORLD WORKPLACE

SEPTEMBER 28-30, 2022

MUSIC CITY CENTER | NASHVILLE, TENNESSEE, USA

Connection takes center stage at IFMA's World Workplace 2022

From skill-building and networking to line dancing and songwriting, IFMA's marquee event focused on the uniquely collaborative nature of the FM community.

Held Sept. 28-30, 2022, at Music City Center in Nashville, Tennessee, USA, IFMA's World Workplace Conference and Expo recaptured the excitement, engagement and rapport that have made the association's largest live event legendary.

After two years of pandemic-driven shutdowns, travel restrictions and health concerns, attendees, exhibitors, sponsors and speakers were elated to reconnect, share personal stories and professional practices, exchange thoughts and ideas on individual achievements and collaborative efforts to advance the industry.

Day one opened early with a lively First-time Attendee Breakfast. Hugs and smiles were the order of the day — in fact, warm greetings, easy conversation, big laughs and selfies were in force throughout the week.

"I cannot state strongly enough just how bright the future of facility management is. With a renewed level of professional respect; opportunities to embrace and own evolving technologies that will have a positive impact on businesses and humanity; and an open door to all comers who are bright and dedicated and want a career without limits, I am excited for where FM and IFMA can and will go."

— IFMA President and CEO Don Gilpin, House of Delegates

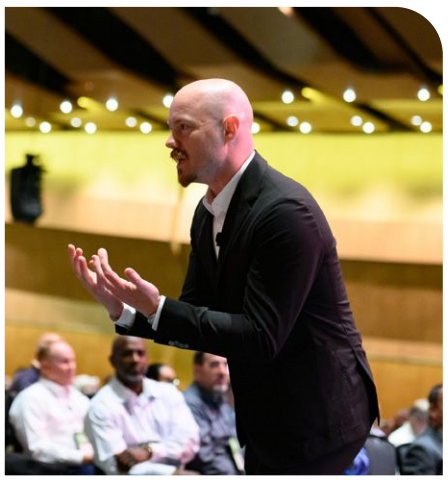
"Our brains are wired to connect," said 2022-23 Chair of IFMA's Global Board of Directors Laurie Gilmer in her opening remarks. "Our social connections have the power to ground us, uplift us; elevate our sense of purpose, enliven our sense of belonging. Our personal relationships provide support and comfort. Our networks help us build the skills and endurance we need to thrive. Our professional communities ensure that none of us walks alone or unaided on our career paths."

"In our volunteer organization, where does our strength lie? Our relationships; our connections."

— Laurie Gilmer

This year's Jury of Fellows Chair and IFMA Fellow Cheryl Waybright inducted Lynn Baez, Lesley Groff, Tony Khoo and Michel Theriault as the 2022 Class of Fellows (see Page 010); then keynote speaker and expert on making business and life meaningful Phill Nosworthy took the stage — and the auditorium aisles — to engage the audience in exploring the five critical gaps that hold back even the highest performance.

Trailblazers, innovators, educators, authors, speakers, techies and respected FM practitioners, IFMA Fellows serve as association advisors, ambassadors and mentors.



"We will never go professionally where we are afraid to go personally."

— Opening Keynote Speaker Phill Nosworthy

IFMA WORLD WORKPLACE

SEPTEMBER 28-30, 2022

MUSIC CITY CENTER | NASHVILLE, TENNESSEE, USA

The World Workplace expo gives professionals a chance to see products in action and ask solution providers any question that comes to mind so they can make the best buying decisions for their facilities. It's like FAO Schwarz for FMs — test the toys, talk to the toymakers; then play games, win prizes, have a professional headshot taken or a caricature drawn, listen to live music, join the line dancers and grab a snack.

Over the two-day expo, Education Arenas — some standing-room only — covered topics such as hybrid work, the smart workplace, mitigation awareness and response, facility maintenance, employee communication, and balancing expectations versus outcomes as an FM.

The World Workplace welcome reception is always a good time, typically held in a venue representative of the host city. For this year's Hoppin' Honky Tonk Party, attendees unpacked their Stetsons, boots and bolo-ties to blend in with Nashville natives at Jason Aldean's Kitchen + Rooftop Bar and Luke's 32 Bridge in the heart of Broadway.

Vice Chair of IFMA's Global Board of Directors Dean Stanberry opened day two's plenary session, featuring Dr. Jessica Green, co-founder and CEO of Phylagen, a DNA data harvesting and analytics company committed to making the great indoors healthier and safer.

Dr. Green's address was preceded by the presentation of student scholarships by the IFMA Foundation and sponsoring organizations. Twenty-seven undergraduate and graduate students studying in FM or FM-related programs received scholarships ranging in value from US$1,500 to US$10,000.

"Germs! They're everywhere! But what if we could test the air, instead of the person, to identify the presence of pathogens? That's what our speaker, Dr. Jessica Green, and her colleagues at Phylagen set out to accomplish — essentially, exposing a facility's DNA."

— **Dean Stanberry**
(after sanitizing his microphone)

Education is the cornerstone of World Workplace. Attendees had more than 70 sessions to choose from both Thursday and Friday, on topics ranging from workplace strategy, facility security and digital technologies, to environmental, social and governance (ESG) reporting, designing for diversity, equity and inclusion, strategic sustainability and more.

The week concluded with IFMA's Awards of Excellence, hosted by IFMA Fellow Thomas L. Mitchell, Jr. (see Page 011). "The talent that's about to take center stage all have that special something. Their amazing feats of skill, initiative and ingenuity advance opportunity and recognition for our entire industry," Mitchell stated.

The awards ceremony was preceded by a seated luncheon. Attendees were treated to a special presentation by Music City Center's Executive Chef Max Knoepfel, who spoke on his culinary team's sustainable practices, including the locally sourced lunch ingredients.

Award-winning songwriters Billy Kirsch and the Kidbilly Music Team led the audience in a jam session, creating and recording a one-of-a-kind song about IFMA and FM.

"In Brazil, we have a phrase: que bacana. We use it to say to say: That's awesome; or how cool! Que bacana describes how I feel about being here at World Workplace: together again — that's awesome; starting back to work on Monday with a head full of new knowledge and ideas — how cool."

— Francisco Abrantes, Second Vice Chair, IFMA's Global Board of Directors

IFMA's Nashville and Denver Chapters joined Laurie Gilmer on stage for the traditional Passing of the World Workplace Cube, setting the stage for next year's event.


IFMA™
Annual Review 2022
START READING

The following product and service providers offer solutions for your everyday and specialized facility management needs.

BUILDING MAINTENANCE

Aerotek

For more than 35 years, Aerotek® Inc. has built a reputation for providing the highest-quality staffing and workforce management solutions. With deep expertise in the manufacturing, logistics, construction, aviation and facility management industries, we partner with 13,000 clients and more than 200,000 light industrial and skilled trades contract employees every year. Our people-focused approach connects quality talent with meaningful work and continuous opportunities. Headquartered in Hanover, Md., Aerotek operates a unified network of over 250 offices across North America. Aerotek is an operating company within Allegis Group, a global leader in talent solutions.

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BUSINESS SERVICES

4SITE by CORT, A Berkshire Hathaway Company

No matter what size your workspace, 4SITE works for you. Overhead costs, renewing a lease...or not, employee productivity and even more important, their safety. These are the tough decisions you are having to make on a daily basis, which can be challenging without all the information. At the heart of 4SITE is a desire to empower businesses to make better decisions. By harnessing data collected from your workplace, you now have insights into planning, operations, space usage, and employee utilization like never before.

4sitebycort.com

CONSTRUCTION/DESIGN

Construction Specialties Inc.

Founded in 1948, Construction Specialties (CS) is a specialty building products manufacturer. CS provides solutions to complex challenges that architects, designers, building owners, facility managers, and contractors face every day.
Since inventing the extruded louver, CS has become a global leader in interior wall protection, impact-resistant doors, entrance flooring, expansion joint covers, architectural louvers and grilles, sun controls, specialty venting, cubicle curtains and tracks.
CS draws upon extensive expertise to design custom, high-quality products — many of which are a part of the Cradle to Cradle Certified™ Products Program.

c-sgroup.com

ENERGY MANAGEMENT

CBRE

CBRE Group, Inc. (NYSE:CBRE), a Fortune 500 and S&P 500 company headquartered in Dallas, is the world's largest commercial real estate services and investment firm (based on 2021 revenue). The company has more than 105,000 employees (excluding Turner & Townsend employees) serving clients in more than 100 countries. CBRE serves a diverse range of clients with an integrated suite of services. Please visit our website at www.cbre.com.

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FOOD/BEVERAGE

Easy Ice

Easy Ice combines the best ice-making machines with reliable, expert support. With our preventive ice maker maintenance, cleanings, and replacement ice, you'll have a dependable supply of ice seven days a week, 365 days a year. Best of all, these features are all included in an affordable, flat monthly fee, to keep your overall ice machine costs low.

bit.ly/3CGT8jt

HVAC/IAQ

Heraeus Noblelight America LLC

Heraeus Noblelight manufactures Soluva UVGI air purification devices that protect building occupants from illness due to infectious aerosols such as COVID-19 pathogens and seasonal flu. The Soluva product line offers both in-room and in-duct devices using intense UVC light to directly inactivate microbes in the airstream. Office buildings, schools, senior care centers and other facilities already use Soluva to improve indoor air quality in occupied spaces.

soluva.com
linkedin.com/company/heraeus-noblelight

OFFICE PRODUCTS/ACCESSORIES/SUPPLIES

Vaask

The Vaask® touchless hand sanitizing fixture is available in customizable finishes and designed to complement the style of any space. It uses AC power or POE (power-over-ethernet) – no batteries required. Vaask is available recessed into the wall, in a wall-mounted stand or freestanding. Built to last, the U.S.-manufactured fixture is made of aluminum and backed by a 5-year warranty. The large-capacity, refillable cartridge is compatible with any alcohol-based sanitizer gel. Its PalmPilot® sensor accurately detects hands, eliminating mess. An array of LEDs both attract users and notify staff when it's time to refill. Learn more at Vaask.com.

vaask.com
linkedin.com/company/vaask/

ROOFING

The Garland Company, Inc.

The Garland Company, Inc. manufactures high-performance roofing and building envelope solutions. For over 125 years, Garland has raised the bar of performance while exceeding the needs of customers throughout the world. Our network of over 220 local building envelope professionals located throughout the U.S., Canada and the U.K. provide quality building envelope solutions for single and multi-property facilities. Garland, headquartered in Cleveland, Ohio, is an ISO 9001:2015 certified company.

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IFMA™

2023 Events & Conferences

WORLD WORKPLACE EUROPE '23

22-23 March | Rotterdam, Netherlands

IFMA, FMN and EuroFM join forces in a new location at the Schiecentrale in Rotterdam, Netherlands. This content-driven conference will emphasize the leading role that FM plays in creating a better world.

worldworkplaceeurope.ifma.org

IFMA's FACILITY FUSION23

Conference & Expo

April 11-13 | San Francisco, CA, USA

IFMA's Facility Fusion builds facility management leaders. New in 2023, learning labs, team-building exercises and a community service project to help strengthen your personal and professional skills.

facilityfusion.ifma.org

IFMA Global China

IFMA Global LATAM

IFMA Global India

IFMA WORLD WORKPLACE

SEPTEMBER 27-29, 2023

COLORADO CONVENTION CENTER | DENVER, COLORADO, USA

IFMA™ ADVOCACY DAY 2023

FIND AN IFMA EVENT NEAR YOU

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