

FMJ



WWW.IFMA.ORG/FMJ | MAY/JUNE 2021

inside

Budgeting for Solar

Recognizing the
workplace evolution

Parking lot care & protocols



O&M Planning AND Project Management



FIELD-TESTED BEST
PRACTICES &
INDUSTRY TRENDS



PRACTICAL, CURRENT TIPS & ADVICE
FROM 23,000+ FM PEERS & EXPERTS



RESEARCH, ARTICLES,
VIDEOS, WEBINARS



JOB SEARCH
RESOURCES



**FROM DAY-TO-DAY CHALLENGES
TO ONCE-IN-A-LIFETIME CRISES,
IFMA IS YOUR FM SUPPORT.**

HELP DEFINE THE FUTURE OF FM WITH YOUR IFMA MEMBERSHIP.

>>> [IFMA.ORG/MEMBERSHIP](https://www.ifma.org/membership)



4SITE
by CORT®



Reforming Office Space— What is the New Normal?

See it before you change it with 4SITE.

- How and when will your employees use the office in the months and years to come?
- What is the right amount and mix of space for the future for your unique workforce?
- How can you make smart decisions about your office space requirement?

4SITE sensors can be installed underneath desks and on conference room walls to provide objective data on your workplace occupancy

4SITE captures the occupancy data needed to provide confidence in your long term office space strategy.

Discover the benefits of having 4SITE



Leverage data to make strategic real estate decisions



Reduce real estate CAPEX and OPEX



Scale agile workspace initiatives like hot desking or hoteling



Optimize workspace type allocations



Contact proximity/tracing



Identify areas in need of deep cleaning

©2021 4SITE. All rights reserved.

Put data to work for your workplace
Contact us at 833.274.3736 or visit 4SITEbyCORT.com

Features

- 018 Case Study**
Developing Exceptional FMs in APAC
Theresa Rynard
- 022 Budgeting for Solar**
Lowering future costs while improving building performance
Gerald Espinosa
- 028 Mapping the Journey to Improved IEQ**
Navigating the complexities and risks to reoccupy buildings
Christopher Ashworth & Sean McCreedy
- 032 May the Force Be With You**
BIM data gives FM a new hope in O&M
Edwin Elmendorp
- 038 Tomorrow's Office**
Recognizing the workspace evolution
Bill Conley
- 042 FM's New Role**
Keeping tenants safe during reentry
Brian Miller
- 047 Ready for Takeoff**
Creating healthy, safe and resilient airports
Ramsey Newar
- 050 From the Ground Up**
Combatting bacteria & pathogens within occupied spaces
David Dembowitz
- 055 The Big Chill**
Antifreeze code compliance for fire sprinkler systems
Mark Knurek
- 058 My Facility**
Royal Museum of Fine Arts Antwerp
Woulter Covens
- 062 The Tech Factor**
How better process helped FM in the pandemic
Zach Rose
- 066 Ready for Anything**
Using O&M to best prepare for emergencies
Richard Alexander
- 072 Safe & Sound**
Tech's role in risk management
Kim Hartman
- 076 IFMA's Accredited Degree Program**
University of Minnesota
Minneapolis, Minnesota, USA
- 080 The Recruiting Game**
The search for fresh faces in FM
Anthony Piucci
- 083 Lessons Learned**
Integrating COVID protocol into parking facilities
Stephen Bochniak
- 091 Lots of Care**
Assessing parking lot needs
Bob Lester
- 094 If You Build It, Will They Come?**
On-site electric vehicle charging
Alison Alvarez

Sections

- Editor's Column 006
- Chair's Column 007
- President's Column 008
- Industry News 010
- On Standards 014
- Credential Recipients 070
- Behind the Brand 086
- Corporate Sustaining Partners 088
- Advertiser Index 098



ABOUT IFMA IFMA is the world's largest and most widely recognized international association for facility management professionals, supporting 23,000 members in more than 100 countries. This diverse membership participates in focused component groups equipped to address their unique situations by region (142 chapters), industry (16 councils) and areas of interest (six communities). Together they manage more than 78 billion square feet of property and annually purchase more than US\$526 billion in products and services. Formed in 1980, IFMA certifies professionals in facility management, conducts research, provides educational programs and produces World Workplace, the world's largest series of facility management conferences and expositions. For more information, visit www.ifma.org.

FMJ FMJ (ISSN 1059-3667) is published six times a year (January/February, March/April, May/June, July/August, September/October, November/December) by the International Facility Management Association, 800 Gessner Road, Suite 900, Houston, Texas, 77024-4257 USA. Periodicals postage paid at Houston, Texas and at additional mailing offices. One electronic copy of each issue is supplied to IFMA members. Printed copies are available to members at an additional US\$48 per year. Nonmembers can purchase a subscription for US\$84 per year. To receive a subscription, mail a check to FMJ, attn: Subscriptions; 800 Gessner Road, Ste. 900; Houston, Texas 77024-4257 USA or visit www.ifma.org/fmj/subscribe. For advertising rates call +1-281-974-5674 or email diana.maldonado@ifma.org. FMJ is printed in the United States. FMJ reserves the right to edit any articles received or solicited for publication. This right includes the discretion to select titles, artwork and layout. Opinions expressed in articles are those of the authors, not necessarily those of FMJ staff. © 2021 International Facility Management Association.

POSTMASTER Send address changes to: FMJ, 800 Gessner Road, Suite 900, Houston, Texas 77024-4257 USA.

PLEASE RECYCLE ♻️



With the goal of minimizing our carbon footprint, FMJ is printed by an FSC®-certified company.

Online

ON THE GO?

FMJ can be viewed on your mobile device, so you can get your FM content fix anywhere, anytime.

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.

041 Article

Building New Leaders
in the Virtual Workspace
[fmj.ifma.org/
publication/?i=672343&p=132](http://fmj.ifma.org/publication/?i=672343&p=132)

059 Video

Virtual Tour from
World Workplace Europe 21
[youtube.com/
watch?v=PkFV5E00sME](https://youtube.com/watch?v=PkFV5E00sME)

091 Article

Preparing the lot for
a returning workforce
[fmj.ifma.org/
publication/?i=672343&p=120](http://fmj.ifma.org/publication/?i=672343&p=120)

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.

Member Spotlight

Ask the Experts

The Experience Factor

Asking the right questions
Allison English

Real Time Tech

Building trust with mobile access
Mark Robiton

Designing to be Better

CRE's safe, sustainable & smart future
Dan Brown & Bill Moten

HR + FM = Teamwork

Enhancing safety and compliance
Jenna Dobrovolny

Resilient Design is Good Design

Adaptable strategies throughout
the workplace
Jen Singson

Planning to Improve

Raising Your Facility's IAQ
Deborah Hetrick

Building Blocks

Knowing your building's history
Kim Kilory & Jeff Ziske

Instant Access

Keeping information safe & searchable
Jack Rubinger

Standard Success

Using comparisons to build KPIs
Dr. Shanmugam Mohan & Dr. S. Kumar

Vendor Profiles



Editor's Note Bobby Vasquez

“I think that you will all agree that we are living in most interesting times. I never remember, myself, a time in which our history was so full, in which day by day brought us new objects of interest, and, let me say also, new objects for anxiety.”

– British Statesman Joseph Chamberlain, 1898 speech reported in “The Western Daily Press” of Bristol, England¹

Today's front-page headlines report that NASA's Perseverance rover made oxygen on Mars, and that Japan, India, Canada, South America and the U.S. are experiencing an alarming surge of COVID-19 cases. Interesting, anxious times.

COVID-19 vaccines are being widely distributed, yet there is still hesitancy – still concerns over safety, still doubts about efficacy. Frustration is prevalent. While some are eager to get back to the life we knew, free from masking and social-distance protocols, others who are earnestly following prescribed safety measures are agitated by those who are not.

We are armed with information and practices that allow us to function and move about within our communities, but some have chosen to dismiss guidelines. Global health organizations warn that vaccines alone will not stop surges of the virus – we must continue employing and practicing proven public health measures.

We all share common ground in that we want this to be over. Life may not be what it was like before, but we're ready to turn the page – to read more headlines about exploration, imagination, unity, humanity, ingenuity, conservation and recovery.

Turning the page takes planning. For more than a year, FM has examined and devised the best-possible ways to bring people back into their facilities. IFMA has provided manuals, webinars, virtual events, white papers, a groundbreaking global Experts' Assessment, training and other resources to help FMs position themselves and their facilities for what's next.

This next phase will not be easy. Some occupants may be tentative to reenter. They will have questions and fears regarding protocols, sanitation and the habits of other people within that space. Others will ignore recommendations, forcing themselves and others into uncomfortable situations. Cross-functional teamwork will be essential, as FM will need the back-up of human resources, and possibly security, to uphold policies and maintain a safe and healthy environment.

In many ways, FM has planned for irregular situations throughout their careers. By virtue of the job description, FM was already planning the logistics and execution of how the facility operates, supports its occupants and rebounds following crisis.

This is a major reason why FM has moved to the forefront of trust during the pandemic. Before reentering a building, people want to know that building is safe. FM has ensured vital building systems such as water, HVAC and vertical transportation are ready for users; FM has overseen cleaning and disinfecting protocols; FM has implemented tools and tech where feasible for their organizations. If FM says we're good to go, we can believe them.

Always expecting the unexpected, FM lives perpetually in interesting times. No industry is better equipped to handle sudden changes or to safely, calmly and expertly ease us all into the next phase of this ongoing societal experiment.

Cheers!

1. May You Live In Interesting Times, Quote Investigator: Exploring the Origins of Quotations, quoteinvestigator.com/2015/12/18/live/

STAFF

EDITOR IN CHIEF
Bobby Vasquez
bobby.vasquez@ifma.org

SENIOR COPYWRITER
Chablis Lindquist
chablis.lindquist@ifma.org

ADVERTISING ACCOUNT SPECIALIST
Diana Maldonado
diana.maldonado@ifma.org

DESIGNER
Ellen Peoples Cregan
ellen.cregan@ifma.org

IFMA 2020-21 BOARD OF DIRECTORS

IFMA CHAIR
Peter Ankerstjerne, MBA, COP, FRICS, IFMA Fellow
Chief Strategy Officer The Planon Group
Copenhagen, Denmark

IFMA FIRST VICE CHAIR
Laurie A. Gilmer, P.E., CFM, SFP, LEED AP, CxA
Vice President/COO
Facility Engineering Associates, P.C.
Santa Rosa, California, USA

IFMA SECOND VICE CHAIR
Dean Stanberry, CFM, LEED AP O+M
Chair, IFMA Environmental Stewardship, Utilities and Sustainability Community
Denver, Colorado, USA

IFMA PAST CHAIR
John Carrillo, CFM, IFMA Fellow
San Ramon, California, USA

Jos Duchamps, MSc. Eng.
Managing Director
PROCOS Group
Antwerpen, Belgium

Hari Hegde
General Manager, Operations Support
WIPRO Technologies
Bangalore, Karnataka, India

Luis Morejon
Senior Managing Director
CBRE
San Francisco, California, USA

Kate North
Vice President, Workplace Innovation Advisory, Corporate Solutions (Americas)
Colliers International
Chicago, Illinois, USA

Michael Redding
Managing Director
Agile OAK LLC
Sparta, New Jersey, USA

Lorri Rowlandson
Global Senior Vice President, Strategy & Innovation
BGIS
Markham, ON, Canada

Colette Temmink, CFM, FRICS, CPM, CRE, MCR, SLCR
Chief Strategy & Product Officer
Blue Skyre, IBE
Los Angeles, California, USA

Mindy Williams-McElearney
Director
Turner & Townsend
New York, New York, USA

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



From the **Chair**

**PETER
ANKERSTJERNE**

MBA, COP, FRICS,
IFMA FELLOW

*Chair,
Board of Directors*

We are probably in the most redefining period of the facility management profession since the 1980s. As we move into the aftermath of COVID-19, there are a series of issues which will define FM's short- and long-term success.

Work, both as a place and an activity, has dramatically changed over the past year. FM faces an opportunity and challenge to rethink the workplace as we know it to enable new productivity gains with a renewed focus on corporate culture, health and well-being, sustainability, digitization and elevating the social aspects of work.

This edition of FMJ focuses on Operations & Maintenance Planning and the importance of Project Management. These important topics have become more complex in the new hybrid work setting. From the early stages of the post-COVID-19 reopening of the workplace, we already know that reentry strategies will vary. Some companies will go back to an old "new normal" where focus will be to get back to the way things were, while others (most) will develop a new "next normal" that will add to the flexibility and choice of the workforce utilizing remote working and flex-offices much more extensively.

In last year's IFMA Experts' Assessment study, it was estimated that more than one-third of knowledge workers will continue to work remotely more than two days a week. Several other studies provided similar statistics and proof points that work, and the workplace as we know it will no longer exist. As workers, we must adapt to this next normal, and as FMs, we must be ready to drive the change and adapt our workplaces and work procedures in close collaboration with our colleagues in HR and IT.

Most employees expect that they will be offered flexibility when workplaces are fully reopened. But flexibility in the workplace is about to take on an entirely new meaning, as it has often been used as a catch-all phrase to describe working remotely. Flexibility is more accurately a double-edged sword that describes the way expectations affect work-life integration. When every individual has the power to set his or her own expectations, it creates autonomy for the individual, but subtracts from the collective balance. To find success, organizations must focus on a hybrid work model at both the organizational and individual levels.

Developing this approach requires more thought, some critical thinking and a good workplace strategy. To successfully navigate hybrid work also requires a lot of change preparation and adaptability from the FM teams. As we manage the unpredictability embedded in this model, it will require change readiness and a strong ability to manage projects and execute change. We must be able to constantly adjust the entire service and workplace set-up on the fly, which will also include our O&M plans and other operational aspects of the FM zone of influence.

I'm sure you will find a lot of inspiration on how to work with these new aspects of the FM function and to lead the disruption in this edition of FMJ. Enjoy the read.

Celebrating **FM**



DON GILPIN
President & COO
IFMA

For generations, the facility management profession has flown under the radar, quietly and skillfully leading the evolution of the built environment, implementing the strategies, technologies and procedures that support functionality, productivity, efficiency, safety, resilience and experience.

Now, more than ever before, FM is in the public eye. Occupants are mindful that someone is advocating for their safety through constant, transparent communication and continuous action. FM is not just the function that fixes things. FM is the people that keep us safe, comfortable, productive.



LINDA HAUSMANIS
CEO
IWFM

Since this time last year, the world has become more FM-aware. As interest in building health and safety increased, so did a curiosity about who is responsible for managing it. As buildings lay dormant, a realization grew that someone had to keep them maintained. As more guidelines for safely reopening were circulated, more attention was paid to who would implement them.

An FM's work is not always easy. People do not always cooperate or understand. However, your response to the threats and demands of the pandemic, your longstanding role in tackling the effects of climate change and other serious concerns has amplified your importance to the world.



NICHOLAS BURT
CEO
FMA

By doing your job – quietly, skillfully – you have educated countless people about a profession they never knew existed. On behalf of owners and occupants the world over, IFMA and our partners IWFM and FMA thank you for your service, diligence, proficiency and care. On May 12, we will celebrate you on World FM Day for standing tall throughout the pandemic and beyond.

While this is a moment for celebration, the job is certainly not over. In fact, it has never been more important. Technology must be harnessed and optimized. Our spaces must continue to be well-maintained and flexible to support new ways of working. Our occupants must always know that they can enter and exit our facilities without harm.

Recognizing the vital work that the facility management industry contributes to business worldwide, World FM Day facilitates global knowledge sharing to promote the FM profession. It's a day of celebration and recognition for the facility management profession. It's a time to bring the behind-the-scenes heroes of the built environment and those who enable work beyond it, into the limelight and share well-deserved thanks for keeping our facilities – our workplaces – healthy, safe and productive in a time of so many questions and fears.

In short, we are successful when the work we do becomes a seamless part of the fabric of the day, just as it did pre-pandemic. The difference is now, the world knows the value and importance of FM.

Join us on May 12, wherever you are. You don't need to register to participate – simply commit to celebrating the profession, whether that's by thanking your team, attending or hosting an FM-related event or taking advantage of free resources from IFMA. Remember to add your celebration plans to Global FM's map of events around the world.

Thank you for your work then, now and forever.

IFMA's FACILITY FUSION

2021

Conference & Expo

April 21-22

Virtual Edition

Thank you to all Sponsors & Exhibitors for making this year's Facility Fusion virtual event a success.

► Premier Sponsors



U.S. DEPARTMENT of STATE

► Exhibitors

AkitaBox
Amtrol a Division of
Worthington Industries
AQUALIS
Bradley Corporation
Century Sign Builders
Davey Tree Expert Company
Disruptive Technologies
GermLogic
Gordian
Green Building Initiative

IFMA
InMapz
iOFFICE
iSIGNS Inc.
ISSA
Kao Specialties Americas LLC
LaserCycle, Inc.
ManhattanONE
NanoTouch Materials, LLC
OfficeFlow

OpenWorks
Pacific Floorcare /
Pure Protective Equipment
R-Zero
SCLogic
Spacesaver Interiors
SportsClean Solutions
The Detection Group
U.S. Department of State
VueOps

► Participating Partners

Building Service Management
Continental Automated Buildings
Association
California Buildings
Facility Executive

Facility Safety Management
Firestop Contractors
International Association
FMJ
FMLink

MediaEdge
The McMorrow Reports
The Real Estate Network Magazine
Work&Place

► Exhibiting, sponsorship and advertising inquiries: expoadv@ifma.org

facilityfusion.ifma.org

IFMA ANNOUNCES NEW MISSION AND VISION STATEMENTS

At IFMA's Facility Fusion 2021 Virtual Conference and Expo in April, IFMA Chair Peter Ankerstjerne announced new mission and vision statements for the association. In place since 2001, the previous statements no longer represented IFMA's purpose or what drives members. Among member leaders, the consensus of opinion was that IFMA successfully achieved its prior mission and vision.

"We have an opportunity to shift the facility management conversation – to be the leader and voice of authority, influencing the profession, industry and policies," said Ankerstjerne. "We need to recognize that FMs have an impact much bigger than their individual department, facility or company. We need to elevate FM to become a profession of choice for students and young professionals. We need to

speak to existing members and stakeholders, as well as future members, sponsors, policymakers and all professionals involved in facility and workplace decisions."

To develop the new statements, IFMA engaged a strategic consultant, conducted five international focus group workshops and solicited feedback from IFMA member leaders including its global board of directors, IFMA Fellows, young professionals, chapter presidents, and community and council chairs.

Mission: We advance our collective knowledge, value and growth for facility management professionals to perform at the highest level.

Vision: Lead the future of the built environment to make the world a better place.



DRIVE THE FM PROFESSION FORWARD

BE THE VOICE OF AUTHORITY

INFLUENCE GLOBAL POLICY

Sustainability, climate change, resilience, well-being, digital, community development and planning

ALL ENVIRONMENTS

PHYSICAL + NON-PHYSICAL SPACES

COLLABORATE WITH OTHER PROFESSIONS

MAKE THE WORLD A BETTER PLACE

PEOPLE

Health, safety, well-being

SUSTAINABILITY + ENVIRONMENT

Fight climate change + minimize harm

DIVERSITY + INCLUSION

Environments where everyone can do their best work, feel respected and accepted

New IFMA.org website launched in conjunction with brand refresh



Introduced in 1983, IFMA's reverse-image logo was the identifying mark of the association for 30 years. To better represent IFMA's position as a global leader and its image as an innovative, collaborative, cutting-edge organization, a new logo and comprehensive rebrand were unveiled in 2013.

Reflecting the rapid progress of the FM industry, the accelerated growth of the association and IFMA's commitment to provide an exceptional user experience, a refresh of the existing logo, overall brand and website was launched at IFMA's Facility Fusion in April.

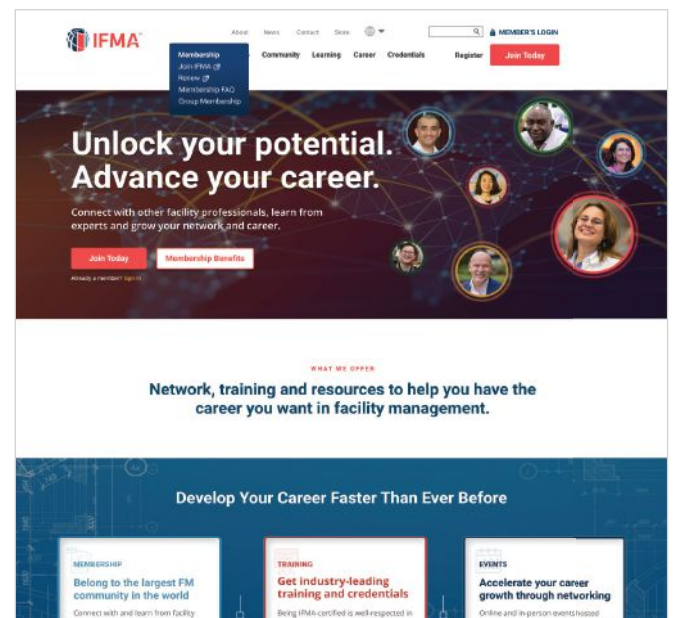
The refreshed logo/brand maintains the recognizable IFMA icon in a more sophisticated color palette, using fonts both easier to read and use. IFMA's design team ensured that updates are compatible with the previous color palette so that any existing collateral can be used until necessary to replace.



"The past few years have been full of exciting changes and progressive action both in IFMA and the larger FM industry. The IFMA brand is still strong and viable, but it must evolve to better reflect current tastes and trends."

IFMA Chair Peter Ankerstjerne

In conjunction with the rollout of the refreshed logo/brand, IFMA launched a redesigned website. The IFMA.org site was carefully developed to ensure an optimal user experience for FMs worldwide. Easier to read and navigate, IFMA.org includes an all-new homepage, as well as updated membership, professional development and leadership pages. The site works seamlessly with the recently launched fm.training and new learning management system; and future iterations will include a new IFMA Leader Portal and a new myIFMA.



"The site redesign focused on being the go-to asset for all built environment professionals — anywhere you work at every stage of your career, you can easily find what you need, when you need it," said Ankerstjerne. "With a more professional look and feel, IFMA.org projects the image of who we truly are to the world."

A brand guide, logo kits and IFMA component resources will be provided directly to chapter, council and community leaders and administrators. IFMA components are welcome to start using the brand but are not required to reprint branded items, such as brochures or letterhead. To ensure consistency across the association, components are strongly encouraged to incorporate the refreshed brand logos into all digital presences by the end of 2021.

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

Industry News

RBI launches improved Resource Advantage Platform



Recently updated, the FM Research and Benchmarking Institute's (RBI) online Resource Advantage Platform (RAP) allows facility professionals to customize operations and maintenance (O&M) reports and access accurate data designed for specific facility needs. Users can compare regions, facility use, facility size and facility age data in the O&M areas of maintenance, sustainability, janitorial or utilities costs.

The RAP tool helps FMs fill knowledge gaps and access key metrics for strategic planning. Basic and advanced static reports are available for purchase. Data-driven professionals can become PowerUser® subscribers to create unlimited custom reports, tables and figures benchmarking over 30 industries. **Visit ifma.simplarbenchmarking.org**



IFMA's FMP® offered in Simplified Chinese

As an additional resource to the training available for those who wish to earn the Facility Management Professional™ (FMP®) credential, at the time of this writing, the following FMP modules are due to be released in Simplified Chinese at fm.training:

- Finance and Business
- Operations and Maintenance
- Leadership and Strategy
- Project Management

IFMA's Global Job Task Analysis, a recurring survey of facility professionals worldwide, determined that these four subjects form the foundation of knowledge for FM.

Additional course translations are in development, beginning with the Essentials of Facility Management, an online workshop series that teaches FM basics to those new to the industry. The initial Essentials of FM translations will be from English to Brazilian Portuguese and Latin American Spanish. To inquire about translation sponsorship opportunities, email corporateconnections@ifma.org.

IFMA's FMP is an online program that offers optional print materials. Once students have completed the coursework, they can complete the final assessment at the end of each module. When all four final assessments are completed, students can apply for the lifelong, ANSI-accredited credential.

IFMA JOINS ISSA IN SUPPORT OF A HEALTHY WORKPLACE TAX CREDIT

According to the National Safety Council, employers have spent an average of US\$5,208 per employee on various workplace safety practices since the COVID-19 pandemic began. Businesses and nonprofits already struggling financially should not have to decide between safety and going out of business.

More than 50 trade associations representing a cross section of the economy have joined ISSA, the worldwide cleaning industry association, in support of a healthy and safe workplace tax credit — a bipartisan-supported proposal to help offset the costs of cleaning, disinfecting and air filtration solutions; personal protective equipment; physical distancing and safety technologies; and employee training and certification. Visit issa.com/TaxCredit to learn more and join IFMA in urging Congress to pass this legislation.

For World FM Day, IFMA thanks facility managers for their exceptional work in supporting people and the places where they **work**
eat
sleep

stay safe
raise families
serve communities
live

Thank you for making the built environment a better place for life.

Throughout May 2021, accelerate your career:



- ▶ Take US\$100 off of the Facility Management Professional™ (FMP™) bundle or the Sustainability Facility Professional® (SFP®).

PROMO CODE: FMDAY100



- ▶ Take US\$50 off any one of our new, self-paced Individual FM Learning Courses.

PROMO CODE: FMDAY50

You are essential. Keep learning.



FM Strategy — Why Should You Care?

BY PETER STROUP

Most organizations exist in an ever-changing environment. There is not a better example of this than the COVID-19 pandemic. Facility managers must continuously review their strategies to ensure close short- and long-term alignment with the demand organization; however, this action is imperative in time of turmoil. FMs facing the pandemic's impact on their demand organization may be rethinking real estate, occupancy (e.g., building density, remote versus in-person presence), financial (e.g., cutbacks, preserve and protect versus maintain and operate) and other strategy. Alternatives to delivering the newly forming FM plan constitute changes in strategy, policy, organizational design and implementation.

FMs face the danger of becoming complacent, following and not leading when things seem “okay.” Remaining in standby mode because there are no complaints can leave the FMs unprepared to address a crisis. To be prepared for turbulent times, FMs should continuously evaluate their FM strategy to ensure that they are on the same page as the demand organization. That frequency is often a product of the changing business environment. “Continuous” should not be confused with “constant.” Evaluations should be at least at regular intervals; however, they are most crucial to success when sensing the need or witnessing change either in consideration, or underway. A nimble FM organization, in front of change, is an ever learning, improving and renowned organization.

Continuous evaluation means asking, What could be interpreted differently? How could services be improved or costs reduced? What changes have there been in top management that may impact operations or expectations? What is the workforce understanding of the strategic direction?” These answers, and other factors, should trigger a review of current FM strategies.

Some of the important areas to review include:

- provided services
- consolidated services
- hours of operation
- in/out/hybrid sourcing
- lease versus buy options
- costs
- energy procurement and use
- organizational goals
- continuous improvement outcomes
- event analysis and corrective actions

Strategy is the design basis for determining what gets done. A formal strategy document is the most comprehensive avenue to aligning FM strategic objectives with those of the demand organization to developing real requirements and the most efficient means of executing them, to identifying performance indicators, and to collecting constructive feedback from stakeholders, including upper management and the workforce. A formal strategy document seems daunting and unnecessary; however, for the same reasons that specifications and draw-

ings are prepared for new construction or renovations, an FM leader enriches the organization by investing the time and effort into a written strategic plan that offers clarity for how FM objectives support the demand organization's strategic goals.

Being in step with the demand organization requires a close reporting relationship, constant communication or unfiltered access to the appropriate top management. Being out of step, for whatever reason, leaves the FM leadership perplexed, feeling disassociated or worse case, ineffective and embarrassed. A review of the FM strategy can be accomplished within a small team or widespread among the FM organization. The inclusion of stakeholders will provide for a better outcome, however, some changes in the demand organization may yet be confidential and could lead to an unfavorable outcome for some, therefore, discretion on the part of FM leadership is critical.

The process approach to developing FM strategy has been defined by the recently published standard, ISO 41014 Facility Management — Developing facility management strategy.

This document includes steps, such as:

- Structure
- Human Capital
- Value System and Culture
- Governance
- Risk Management
- Developing Requirements
- Stakeholders
- Scope of Services
- Services — specifications, technical, levels, delivery options
- Sourcing
- Outputs and Targets
- Budgetary Requirements

ISO 41014 provides a process approach to strategy development beginning with the demand organization, context, governance, risk tolerance and strategic alignment. The guidance provides FMs with an understanding of how to identify stakeholder requirements, such as those of the demand organization, other interested parties and authorities having legal or industry specific jurisdiction, with consideration for priorities, services, delivery options, sourcing and more.

ISO 41014 outlines the following benefits of constructing or updating an FM strategy:

- Improved understanding of the demand organization objectives, needs and constraints, and an appropriate approach to FM and facility services;

- Reduced likelihood of a disconnect between the demand organization’s objectives and needs and the means to support them;

- Alignment between FM requirements and the demand organization’s core business activities;

- Improved efficiency in the management of FM in general and in the delivery of facility services in particular;

- Consistent management practices from a methodology for developing strategy for FM that is transparent, reproducible and measurable;

- A baseline for measuring improvement in the operational effectiveness of FM and its contribution to the core business of the demand organization;

- Contribution to the cost-efficiency of the demand organization and, where applicable, its competitiveness;

- Contribution to sustainability through the more efficient use of scarce resources.

The document is intended to enable the most appropriate approach to delivering FM services and is supported by four annexes that provide examples of threats and opportunities, factors affecting business strategy, considerations when formulating the document and, finally, an example of an FM strategy.

If the nature of the business demands an on-site presence around-the-clock either by security, FM, IT or other departments, the strategy would consider alternatives, such as a monitoring system, supplemented with artificial intelligence or the long tradition of an on-call program. It may be that the scale of operation would allow a single individual to respond to all the identified needs. However, when considered within the larger strategy of the demand organization, the costs might outweigh the presumed risk and no longer be perceived as a priority. These decisions become the basis of operations and outline the strategy for deployment of the FM organization. It is important to document those decisions and the rationale and to share that knowledge with the FM organization and other stakeholders (e.g., production managers, scientists, process operators).

Many may feel that compliance with voluntary standards adds an unnecessary layer of complexity to FM operations. ISO 41014 — and the ISO 41000 series of FM standards — offer a sound framework for developing the FM organization.

The ISO 41000 series is the product of the collective wisdom of FM practitioners and academics from around the world — from Malaysia, China, South Africa, Spain, Russia, the U.K., Brazil, Panama and the U.S., just to name a few. These experts share their experience to inform the best practice guidance. Key considerations in preparing the standards are scalability, level of organizational maturity, flexibility for the wide range of industries, adapt-

PUBLISHED	ISO 41011 FM vocabulary
	ISO 41012 FM Guidance on strategic sourcing and the development of agreements
	ISO/TR 41013 FM scope, key concepts and benefits
	ISO 41001 FM Management systems — Requirements with guidance for use
	ISO 41014 FM Development of FM strategy
UNDER DEVELOPMENT (titles may be subject to revision)	ISO 41011 FM vocabulary (2nd edition revision)
	ISO 41015 FM influencing organizational behaviors for improved facility outcomes
	ISO 41016 FM Technology in FM — Scope, key concepts and benefits
	ISO 41017 FM Guidance on emergency preparedness management of an epidemic
	ISO 41018 FM Development of FM policy
	ISO/TR 1019 FM The role of FM in sustainability and resilience
	ISO 41020 FM performance measurement and improvement

ability to differing cultures, and ability to translate language while accurately maintaining the intent. Professionals devoted to ISO/TC 267 work closely across geographical and political boundaries for the betterment of the FM profession globally.

ISO 41001 is the FM management systems standard, the parent of the series, designed to improve performance by outlining repeatable steps that proactively influence successful completion of organizational goals and objectives. Each subsequent 41000 series standard provides expanded details in crucial areas. For illustration, strategy taken from the needs of the demand organization becomes policy. The policy sets the framework for distinct, detailed plans. FM plans are implemented and processes are set to check and measure that plans are appropriate, that actions are in compliance, and that performance meets objectives. Checks and measures are quite often referred to as performance measures, metrics and a derivative of metrics, key indicators. The search for continuous improvement, whether it be technique, structure, technology, process, tools or behavior completes the cycle for improved policy, strategy, plans and/or implementation.



Under development is a complementary standard, ISO 41018 Facility Management — Development of FM policy, expected to be available in the latter part of 2021.

In the very early stages of development is the intricate performance measurement standard. Other documents and standards, including an updated review of FM vocabulary originally published in 2017, are also underway.

For the best results in any FM organization, refer to the ISO 41000 series and prepare for the accolades to follow.

For a list of other ISO 41000 standards either published or in development, visit iso.org/committee/652901/x/catalogue/



Peter Stroup is executive director of facilities at Harvard Medical School and oversees all aspects of facilities maintenance and operations, sustainability, energy procurement. He holds a Bachelor of Science degree in civil and environmental engineering, an MBA and is a registered professional engineer. A member of APPA, IFMA, NFPA, NFMT and NSPE and a US ANSI Member Expert to ISO TC/267 Facility Management. Stroup is also Principal of SAGE International Facility Management, LLC, an FM consultancy.



INNOVATIVE

FLEXIBLE

PASSIONATE

The way we're built changes with every company we serve.

Your company is unique. Your needs are unique. So why settle for a cookie-cutter facility services solution? At UG2, we structure our people, process, and innovations around your unique requirements. No matter how specialized your industry, we can help you achieve your goals and objectives. [Learn more at UG2.com](https://www.ug2.com)



The New Standard
of Facility Services

CASE STUDY



EXCEPTIONAL FACILITIES MANAGEMENT

DELIVERING WORLD-CLASS WORKPLACES

CBRE

FACILITIES
MANAGEMENT
CERTIFICATION



Recognizing the need to upskill its FM personnel in the Asia-Pacific region, CBRE turned to IFMA to strengthen its teams at all levels. This partnership is not only advancing the careers of mid-level FMs, but also is building new leaders for CBRE FMs wanting to attain leadership roles. With IFMA, CBRE is raising the bar for its employees and its vast clientele in the region.

DEVELOPING EXCEPTIONAL FACILITY MANAGERS IN THE ASIA-PACIFIC REGION

How CBRE & IFMA are advancing
FM talent & excellence

BY THERESA RYNARD

The rapid development of the Asia-Pacific (APAC) region continues to drive higher client expectations, more complex workplace experience needs, and greater challenges in attracting, developing and retaining talent. The facility management services market has felt this acutely given the considerable reliance on a capable, responsive FM workforce.

As leaders in the FM industry, CBRE identified the need to contribute to the professionalization and advancement of FM – both as a practice and as a career. By doing so, the firm sought to elevate the FM profession and cement CBRE as an employer of choice, where FMs can build a rewarding career. In addition, with FM outsourcing being a relatively new approach in certain markets across the region, organizations are discovering how this professional service can improve employee experiences, help save energy and resources, as well as provide a positive contribution to sustainability.

To tackle these challenges, CBRE sought to understand the future of FM services for building owners and occupiers and thereby, the skills and knowledge that future FM professionals would need. Wanting to equip future FM professionals with these skills while remaining engaging and relevant for today's workforce, CBRE leveraged its findings as a basis for the firm's recently launched, comprehensive Asia-Pacific Facilities Management Certification Program.

Identifying Learning Needs for an Evolving Environment

CBRE did extensive research and analysis to better understand current industry trends, identify the future skills required for the profession, and define the behaviors and mindsets needed to be successful.

Client expectations and needs are also changing, with clients regularly requesting advice and expertise from CBRE as market leaders. FM professionals must have a broad understanding of many different functional and technical areas, and they need to think laterally, responding to global, regional and local changes — and support clients when they need it the most. For these reasons CBRE needs to ensure its FM teams have relevant and up-to-date tools, resources and training to respond.

Structuring the Program for Continued FM Career Development

Competency and comprehension levels evolve throughout an FM's career as their role and experience grows. To cater to this evolution, CBRE's program was designed with two certification levels. The first level, the Core Certification, is appropriate for FM staff with less than five years of experience, as well as those who are new to the role or pursuing a career in the FM industry. The certification focuses on building a consistent level of baseline knowledge across key competencies regardless of the country or client they support, strengthening foundational knowledge and preparing them for success in their role.

Those with more years of experience and skills pursue the second level Advanced Certification, in which they can build and enrich their existing knowledge. This

approach ensures CBRE's clients receive a consistent level of services and expertise and allows the firm to provide an engaging employee value proposition, anchored on a clear development pathway for staff as they progress in their career.

Collaborating with the Best

CBRE also recognized that for the program to be successful, it was critical to design a comprehensive curriculum that would resonate with FMs. It had to be robust, credible and relevant, giving participants both formal and informal qualifications and credentials, which could only be accomplished by collaborating with industry experts and professional associations.

As such, the program integrates content and industry best practice from sources including CBRE subject matter experts, world-class experts and courses from Harvard ManageMentor, LinkedIn Learning, as well as highly sought-after industry recognized qualifications from IFMA and the Institution of Occupational Safety and Health (IOSH). This holistic and collaborative approach provides FMs not only with the knowledge and skills they need for today, but also gives them professional industry recognition they can carry into the future.

Specifically, the collaboration with IFMA helps CBRE bring world-class professional certification to APAC, aimed at providing systematic training to our employees at scale across the region. This will further enhance consistent quality of CBRE's professional services while instilling professional pride in employees.

New bespoke training modules have also been developed by CBRE and approved by IOSH where relevant, bringing additional quality assurance and industry standards to the training content.

By designing a comprehensive curriculum that leverages best practice across multiple sources, the program can quickly adjust content to match the latest industry trends and client requirements. This approach has proved invaluable as CBRE quickly responded to global changes and educate FMs on how to adapt fast — especially around pandemic insights and how this will influence the workplace moving forward.



Learning Trends for FMs

In such a rapidly evolving profession, continuous learning for FMs is necessary to provide the best service to clients. While this covers a broad spectrum of topics, FMs should stay abreast of key trends including:

- **FM Professional Qualifications** — as the industry becomes more competitive and demanding, qualifications and credentials will be essential to ensure the FM profession remains credible. Individuals will need to become more marketable, as both clients and the industry demand more. However, training programs must be diverse with education across different topics, incorporating a variety of sources and industry bodies to get different insights and perspectives from experts.
- **Innovation** — there is no doubt that disruption and innovation are transforming the FM industry. FM professionals must understand how new technology, products and services are changing the practice and how they can harness innovation to their advantage.
- **Energy and Sustainability** — FMs are in a unique position and have a vital role to influence change around sustainable practices and reducing carbon footprints. FMs must be accountable and committed to developing their knowledge and understanding of these practices, and helping clients create more sustainable facilities.

These are just some of the key topics and insights included in CBRE's Program, helping FMs think differently, reimagine their role in creating workplaces for the future and delivering exceptional outcomes for clients.

The Importance of Having a Health, Safety & Well-being Culture

As FMs adapt to COVID-19's challenges, the focus on maintaining a productive, healthy and safe workplace continues to be central alongside a culture of prioritizing health and safety. This means everyone should anticipate unsafe acts or conditions and take corrective actions or steps to help minimize risk and ensure the safety of all.

FMs are essential to creating and maintaining a safe and healthy workplace or environment for tenants, employees, contractors and visitors. With CBRE's FM certification Program, participants have access to training modules that provide the knowledge and skills needed to manage health and safety effectively, as well as how to meet legal and compliance obligations when managing facilities.

The pandemic emphasized the need to effectively manage health and safety risks within facilities, producing unprecedented challenges, as well as opportunities, for FMs to play a pivotal role in supporting clients to harness changes, while minimizing risk. It is essential that FMs have the required risk management training and skills to support clients when they develop their health and safety protocols and reopening strategies.



Attracting Talent

Attracting more talent and bringing excellence to the FM profession is critical as the industry grows and becomes more competitive. Client needs and expectations are also evolving, and they look to CBRE as a source of advice and expertise. The COVID-19 pandemic has accelerated this process and highlighted the powerful benefits of a true partnership. Organizations are looking to the FM industry to help lead the way and guide them.

The CBRE FM Certification Program in APAC not only helps to attract new talent into the industry and profession, but also helps to retain and develop FM staff, which increases the quality of service. A collective workforce that has consistent skills and knowledge enables more mobility and agility. It creates a pipeline of strong talent within the organization, with the ability to adapt as the business changes.

Key to Success

The CBRE FM Certification Program in APAC has been hugely successful since its launch in June 2020, reaching the target enrollment goal within the first six months. FMs going through the program have been incredibly enthusiastic and are immersing themselves in the program, all highly driven to complete the certification.

Looking forward, CBRE's FM Certification Program content will evolve and adapt to the latest industry trends, innovations and client needs. The continued collaboration with IFMA and IOSH will strengthen the FM industry across APAC. By developing exceptional FMs through the program with recognition and qualifications they desire and are proud of, CBRE is championing excellence within the FM profession and creating more visibility for FM as a respected and valued career of choice. FMJ



It is envisaged that the pandemic will have a lasting effect on the future of work and the workplace. Therefore, it is imperative for FMs to evaluate the impacts on FM operations, assess to what degree these impacts change pre-COVID-19 workplace risks and be able to continue to adapt as the environment and client needs change.

As organizations bring their employees or tenants back into their facilities, FMs play a critical role in preparing the facilities and supporting how organizations continue to actively adapt to new health and wellness practices.

Organizations are also looking to the commercial real estate industry for innovative ways to integrate health and well-being programs into the workplace. FMs require the health, safety and technical training to identify opportunities to enhance the well-being of client employees and occupants, whether through the introduction of new technologies, equipment and/or processes.



Theresa Rynard is the division president for CBRE's GWS Enterprise business in Asia Pacific. Based in Singapore, she leads the business responsible for the company's larger, regional and global single- or multi-service accounts. Originally from Canada, Rynard has more than 25 years of experience in real estate, management consulting and strategic sourcing in Asia Pacific and the U.K. Passionate about developing talent, she mentors people in and outside of CBRE and is a founding member of CBRE Singapore's Women's Network and launched its mentoring program in 2018.



BUDGETING *for Solar*

BY GERALD ESPINOSA

LOWERING FUTURE COSTS WHILE IMPROVING BUILDING PERFORMANCE

Be it consumer demands, compliance or just good business sense, solar energy is becoming a critical part of built landscapes in many countries. Facility managers are familiarizing themselves with the technology and its opportunity to lower costs and meet sustainability goals.

FMs juggle a lot of responsibilities to ensure properties are running as cost-effectively as possible. These responsibilities include keeping track of different maintenance and operations expenses as well as finding new ways to improve building performance. Monthly electricity costs are a direct result of this process and one of the most important variable costs for an organization.

While the cost of utilities is already one of the most substantial budget line items, it is steadily rising due to increased demand, higher prices for generating energy and unstable fossil fuel costs.

So, how can FMs prepare for and lower future electricity costs for their properties?

One effective option for properties is on-site solar. On-site solar includes solar photovoltaic (PV) panels that are either installed on the rooftop, mounted on the ground or sometimes built as canopies over parking lots. These solar arrays generate energy that offsets energy procured by the utility.

By incorporating solar into the budget, FM can see returns on their investment for decades to come.

LEVERAGE INCENTIVES TO REDUCE COSTS

Solar energy incentives are a critical component that directly impact a system's cost and return on investment (ROI). The availability of incentives will vary by location, utility service territory and sometimes the local government. By working with an experienced solar developer, FMs can ensure that relevant incentives are secured.

Some of the common incentives include:

- Net metering or the 1:1 retail crediting of excess generation
- Property tax exemption
- Solar renewable energy credits (SRECs)
- Federal Investment Tax Credit (ITC)

■ OFFSET COSTS WITH NET METERING

Installing on-site solar energy on the property can directly reduce the facility's electricity bill and translate to a better Net Operating Income (NOI) for the company that owns the building, thanks to a policy framework known as "net metering." Net metering allows customers with distributed energy sources, like solar, to give the excess energy produced by their system back to the electricity grid. In exchange, customers receive credits that lower their electricity bill.

Solar energy systems are typically designed with a building's annual energy usage in mind. This means that the system can "over-produce" solar energy, particularly during the summer months, and draw from that bank of credits when there are more loads than what can be supported by the system. Similarly, because the target is to offset the property's historic annual consumption, there is no need to be concerned when the solar array is covered by snow a few days a year, or there is an unusually cloudy week. Simply put, the more energy the solar system produces, the less the electricity bills will be. According to EnergySage, the average commercial property saw an 89 percent decrease in their annual utility bill after installing solar. However, it is important to note that customers on tariffs that include demand charges will still have demand, measured as the highest power draw over a 15-minute interval for the month. Over its useful life, solar will reduce demand from time to time when peak loads match peak output from the array.

■ INCREASE PROPERTY VALUE WITHOUT PAYING MORE TAXES

In the U.S., 36 states offer a property tax exemption for the value that a solar system adds to a property. Some states even exempt solar 100 percent from a building valuation. Because a property's value can increase by US\$20 for every US\$1 reduction in annual utility bills, there is a huge benefit from this incentive. Building owners can enjoy a higher market value without having to pay any additional taxes.

■ MONETIZE ENVIRONMENTAL BENEFITS

FMs can also take advantage of the environmental benefits produced from on-site solar. In many states, a company that owns a solar array can receive a solar renewable energy credit (SREC) for each megawatt-hour (MWh) of electricity produced by their system. These credits can be worth hundreds of dollars when sold to other entities. The only downside for companies that own the facility is that they give up the right to "claim" the renewable energy production as a carbon offset. However, it can be lucrative to reassign RECs to the utility, should they offer such an incentive program for commercial customers.

■ APPLY FEDERAL TAX CREDITS

If a facility is not located in one of the U.S. states that offers a property tax exemption for solar or administers the SREC programs, companies that install solar can still benefit from federal incentives. The federal Solar Investment Tax Credit (ITC), gives businesses across all states a one-time dollar-for-dollar reduction on

their corporate taxes for installing on-site solar. Coupled with accelerated bonus depreciation, which allows system owners to frontload their depreciation, almost half of project costs are recouped via tax benefits.

UNDERSTANDING THE BUDGET IMPACT

Even with such great incentives for the U.S. solar market, FMs might wonder how much needs to be allocated in the budget to install solar. The impact on the budget will depend on the company's preferred procurement method.

Businesses can either directly purchase a system to reap all policy benefits (like the ITC) and earn ROI over time. The other option is to enter into a power purchase agreement (PPA) to reduce installation costs, which does not require an upfront investment. With a PPA, a facility would agree to buy electricity from an energy provider or solar developer. In exchange, the developer would install a solar power system on the facility and sell the energy produced by the panels to the owner of the property at a predetermined rate. As investment parameters are specific to

each company, solutions can be tailored to meet those needs. In short, solar has never been more attainable.

INTERNATIONAL BENEFITS

Some of the best markets for solar energy include China, Germany and Japan. India, Kenya and Costa Rica are rapidly expanding their solar outputs as well. The governments of each of these countries are implementing policies that incentivize companies to install solar power on their facilities.

For example, China, Japan and Germany have a solar Feed-in Tariff policy. Under the Feed-in Tariff framework, the government sets a fixed price for every kilowatt hour (kWh) produced from the solar energy system for a fixed period of time. The price is high enough that companies that adopt solar are able to receive credits at or close to the retail price of electricity.

LONG-TERM BENEFITS OF SOLAR

By including solar in the budget, companies can simultaneously reduce operation-

al costs, advance sustainability goals, and aid in increasing the property's competitive advantage.

■ REDUCE COST UNCERTAINTIES

Incorporating solar in the budget will allow the facility to achieve financial resiliency and reduce cost uncertainty. For U.S.-based FMs, one of the greatest advantages of the PPA option is reducing risk by hedging rising energy prices. With a PPA, FMs can lock in a rate over the length of a contract (typically 20-25 years) that is lower than the rate that is being paid to the local utility. The result is budget certainty and long-term savings.

If it is decided that the solar energy system will be purchased directly, there would be a higher upfront cost. However, the ongoing energy expenses would be substantially less, giving the facility owners a greater ROI and extra money to pocket over time. It is an opportunity to effectively turn an expense into an asset.

Once there is space in the budget, even more can be accomplished. Money can be put towards more important line items

BUDGET IMPACT	SYSTEM PURCHASE	POWER PURCHASE AGREEMENT (PPA)
UPFRONT COST	Facility owner pays for the system either out of pocket or through a loan. This can also include Property Assessed Clean Energy loans.	A solar developer will pay all upfront costs in exchange for a long term agreement for the facility owner to purchase the energy at a predetermined rate.
PAYBACK	Typically achieved several years after investment, earned through offset utility costs, tax benefits and incentive income if available.	Immediate. PPAs are often structured so facility owners pay a lower price per kilowatt-hour to a solar company for the output of the project than the current rates paid to the utility.
OWNERSHIP	Yes	Depends. While the PPA contract is active, the PPA provider / solar developer is the owner of the system. However, once the contract expires, facility owners would have the option to become the sole owner.
TAX CREDITS	Facility owners earn and receive any tax credits or other incentives.	The solar developer (system owner) earns these benefits and passes them to facility owners in the form of a lower electricity rate.
MAINTENANCE AND OPERATIONS COST	As the system owner, facility owners are in charge of all maintenance and operations costs for the solar energy system.	The PPA provider will be in charge of all maintenance and operations related to the installed solar system.

than energy, such as upgrading lighting, essential repairs or installing new windows. It is important to remember that there is no return on funds spent each month on the electric bill. Therefore, solar energy helps FMs take greater control of their overhead.

■ LOW MAINTENANCE COST

Another advantage of installing solar through a PPA contract is that FMs do not have to be responsible for upkeep and maintenance of the arrays; the PPA fee includes operations and maintenance services. Hence, going solar does not necessarily raise the costs for other parts of the budget.

Solar maintenance is relatively minimal. Each year, the inverter's intake vents should be cleaned, and in years 11-13, the inverters will need replacement.

■ SUSTAINABILITY IMPACT

Beyond the monetary gains, it is also important to note that the environmental benefits are increasingly important as companies reduce their carbon footprint as part of a larger sustainability strategy. Some of the most well-respected global brands are looking to solar to meet their sustainability targets and are developing projects around the world.

For every kW energy of solar installed, the facility can lower its CO2 emissions by more than 3,000 pounds annually. If the installed solar system has a capacity of 150 kW, a facility will prevent more than 450,000 pounds of CO2 from going into the air each year.

Given this growing trend, integrating sustainability measures like solar into commercial properties has become a market necessity to attract tenants, draw emerging talent into the company and comply with shareholder demands. The facility, and by extension, the company that owns the property, can differentiate itself, increase revenue, and keep different stakeholders satisfied by including solar in the budget. **FMJ**



Gerald Espinosa has seven years of experience in solar energy, including installation, operations, project feasibility and project development. As a business development manager, he works with Pivot Energy's customers to understand their unique needs and deploy solar energy solutions that aid their competitive advantage.

GLOBAL

FACILITY

MANAGERS



U.S. citizenship is required. An equal opportunity employer.

U.S. DEPARTMENT *of* STATE

The U.S. Department of State's Bureau of Overseas Buildings Operations (OBO) is the real property manager for all diplomatic facilities abroad focused on its mission to provide safe, secure, functional, and resilient facilities that support diplomacy throughout the world.

With more than 81.8 million square feet of office space abroad, 25,466 total assets, 16,578 residences, and more than 971 office buildings, our Facility Managers are responsible for managing a \$71 billion dollar portfolio. They lead large, diverse teams while experiencing the world, engaging with different cultures, and doing meaningful and interesting work.

Contribute your different perspectives, life experiences, and innovative thinking as you collaborate and serve with colleagues throughout the world who work to support and advance U.S. interests worldwide.

Learn more at careers.state.gov/OBO, or if you are ready to apply, visit USAJOBS no later than May 25.

If you have specific questions, please contact us at OBORecruit@state.gov.



Custom Reports & Data for Your Facility Needs



Resource
Advantage
Platform



Customize reports and get accurate data designed specifically for your facility needs. Design custom Operations & Maintenance benchmarking reports comparing maintenance, sustainability, janitorial or utilities costs based on your choice of region, facility use, facility size and facility age data.



Analyze O&M data globally or within specific sectors & verticals.



Identify where cost benchmarks may be exceeding like facilities.



Purchase a single section or purchase globally for an economical price point.



Evaluate and improve operational strategies to limit expenses and improve resource allocation.



Access current data for selected years & inflation-adjusted data in other years.



Identify and communicate metrics to company executives more effectively.



Compare current costs with similar facilities in the market.

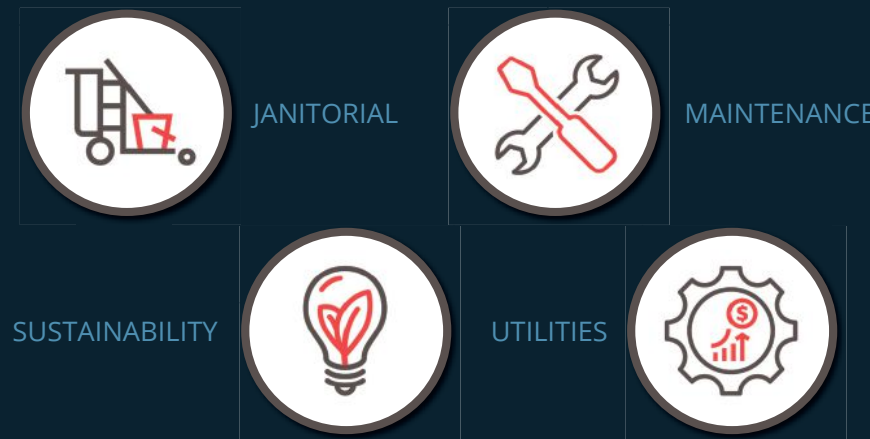


Only purchase content you need.

Learn more at ifma.simplarbenchmarking.org

Delve into benchmarking data to fill your knowledge gaps and get key metrics for your strategic planning

Design custom benchmarking reports comparing maintenance, sustainability, janitorial or utilities costs based on your choice of region, facility use, facility size and facility age data.



Analyze data with benchmarks you have selected in four key areas.

Choose how much data you need

BASIC USER

Access to static reports measuring **15 key metrics**

ADVANCED USER

Access to static reports measuring **35 key metrics**

POWER USER

Create **unlimited** custom reports
Over 30 industries in each section
Custom tables & figures online
Best tool for data-driven pros





Mapping the Journey to Improved IEQ

Navigating the complexities and risks to reoccupy buildings

BY CHRISTOPHER ASHWORTH & SEAN MCCRADY

Awareness of indoor environmental quality (IEQ) and the importance of buildings that support human health and wellness skyrocketed in 2020. With COVID-19 remaining top-of-mind on a global scale, occupants are more interested than ever before in the actions taken by building owners, facility managers and employers to ensure the safety of indoor spaces as they return to school, work and everyday activities. A recent survey conducted by the Conference Board indicated that 70 percent of employees are only “moderately comfortable” returning to the office.¹

FMs face the challenge of responding to this growing demand for buildings that support occupant health. Uncertainty, a lack of clear regulatory guidance and a dizzying array of IEQ elements can make the path to improved indoor environmental quality challenging.

As FM enters an era of heightened awareness of health and wellness, proactive IEQ management remains an important component of mitigating risk to the brand, bringing competitive building spaces to market and protecting occupants.

Why is IEQ important?

IEQ refers to an indoor space’s ability to support the health and well-being of occupants. Indoor air quality (IAQ) is perhaps the most widely studied component of good IEQ, but the criteria essential to delivering good IEQ have expanded to include water quality, lighting, acoustics and many others. IEQ remains a priority among a growing number of people. According to a survey from Lighthouse, 74 percent of consumers said they would feel more comfortable about the safety of their office if they received IAQ data about their building.² Customers and occupants place greater expectations on employers and FMs to provide safe and healthy indoor environments.

... employees in buildings with better IEQ increased their productivity to the tune of earning an additional US\$6,500 per year.

A building with good IEQ can affect changes to cognitive function and quality of life for its occupants according to data from the COGfx Study released by the Harvard T.H. Chan School of Public Health’s Center for Health and Global Environment. According to the study, employees in buildings with better IEQ increased their productivity to the tune of earning an additional US\$6,500 per year.³ These productivity improvements and related cost savings are critical considerations for corporations when selecting their office spaces.

Higher tenant satisfaction may also be a result of better IEQ, as well as reduced liability based on preventing exposure and sickness among tenants. Buildings that focus on sustainability, including good IEQ,

often achieve higher occupancy levels and even earn higher lease rates.

The impetus for FMs is not only the desire to provide healthy spaces for tenants, but also to remain competitive in the marketplace, as well as mitigate risk and reap potential cost savings.

Consider the destination: The future

As proof points emerge connecting improved IEQ with better occupant health and performance, pressure will mount on FMs to create indoor environments that support occupant health and wellness. Numerous green building programs, previously maintaining a primary focus on reducing environmental impact, have expanded performance criteria to include IEQ.

The widely recognized United Nations Sustainable Development Goals are also bringing increased attention to the importance of supporting human health and wellness.

Real estate investment trusts (REITs) and other green investors are maintaining pressure on leading CRE developers and owners to engage in environmental, social and corporate governance (ESG) reporting and, as health topped the list of priorities in 2020, the provision of good IEQ will settle under the increasingly important social portion of the reporting.

The first step: Map the path

For all these reasons, it is important to take a proactive stance on IEQ, particularly when reopening a facility that has experienced a significant period of low occupancy or vacancy.

Ensure due diligence — Individuals, communities, businesses and governments are bringing forward new processes, ideas and innovations in an intense effort to combat the spread of COVID-19. This has resulted in an array of products and recommendations from all kinds of institutions. While innovations may well pave the way to future breakthroughs, not all products and services have the proven science and validation to back their claims. When confronted with these solutions, it is well worth the time to conduct some due diligence. How does the product work? Have trusted third parties verified effectiveness claims? Do processes follow established best practice standards from established institutions? Accepting claims at face value can lead to a transfer of liability from the provider to owner, as occupants are the ones who suffer if the product or service does not perform as advertised.

Follow best practices — Respected organizations like The Occupational Safety and Health Administration (OSHA), The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), the Centers for Disease Control (CDC), just to name a few, are widely recognized as the guardians of best practices, trustworthy standards and dependable guidelines. If measures are taken to follow their standards or to enroll in programs that cite and follow their guidelines, it can reduce liability by demonstrating that they have followed widely accepted best practices that are recommended and used by industry leaders.

Start with the fundamentals — The provision of good IEQ spans a broad array of elements from air and water quality to lighting and acoustics, ergonomics and security. For FMs just beginning the journey, the task of achieving good IEQ can seem daunting. However, to establish a baseline of healthy indoor spaces and verifying safety for reoccupancy, it is not necessary to tackle the full list of elements. Ensuring safe indoor air and water provide an excellent starting point. The provision of healthier air and water can help avoid serious illnesses among occupants.

Communicate carefully — While it is reasonable and important to communicate the measures taken to pursue a healthy indoor environment, take care to communicate clearly to avoid liability due to overstated claims or guaranteed outcomes. For example, attesting that 99 percent of germs in a facility are killed is not a reasonable claim. There is no way to scientifically validate that kind of claim for an entire building, not to mention people are coming in and

out of buildings constantly, potentially reintroducing germs at any time. Do not make claims that are not backed up by proof. This step can help avoid misunderstandings among occupants and litigation.

Consider a third-party program — A growing number of programs provide third-party guidelines, standards and verification for IEQ accomplishments. Whether one chooses to engage a qualified third party to conduct air testing, review and assess HVAC systems, or evaluate janitorial effectiveness, the reliance on trusted resources demonstrates objectivity of claims and reliance on experts.

A giant leap toward improved IEQ

In response to the growing demand for objective, third-party verification of IEQ performance, UL has developed the Verified Healthy Building program. This voluntary, tiered program verifies that indoor spaces achieve exceptional indoor environmental performance based on a range of criteria. Companies can choose the program tier that best represents their focus and accomplishments to date:

- Verified Healthy Building for Indoor Air
- Verified Healthy Building for Indoor Air and Water
- Verified Healthy Building for Indoor Environment: Air, Water, Hygiene, Light and Acoustics

By participating in the UL Verified Healthy Buildings program, companies can:

- Demonstrate their proactive approach to improved IEQ
- Undergo testing and assessment by a qualified third party that verifies given aspects of IEQ, providing reliable, science-based evidence of superior IEQ
- Identify potential problems early and address them prior to incidents
- Potentially reduce liability with a proactive stance toward IEQ

The UL Verified Healthy Building program is designed to support FMs in their efforts to ensure the safety of their buildings as tenants return. It also offers an opportunity to initiate the journey to improve IEQ, starting off with fundamentals like air and water, and then advancing to additional tenant wellness and comfort features.

Begin the journey

Providing excellent IEQ is not a specific point on the map but rather a vast destination to explore. In a dynamic, quickly evolving world, the ways in which we support human health and wellness

change over time. As an example, the effectiveness of cleaning (largely overlooked in the past) has become a top priority in a year of pandemic. No approach is foolproof or completely risk-free. It is impossible to guarantee outcomes or control circumstances. However, it is possible to take action and demonstrate a concerted effort and commitment to IEQ and tenant health. By following some of these guidelines, building owners and FMs can begin their journey toward better IEQ and the peace of mind that comes with knowing they are supporting human health and wellness for all stakeholders. **FMJ**

- 1 The Conference Board, “Employee Readiness Reopening Survey,” October 2020.
- 2 Carbon Lighthouse, U.S. Consumer Sentiment on Indoor Air Quality and COVID-19, October 2020.
- 3 Harvard T.H. Chan School of Public Health, COGfx Study.



Chris Ashworth has worked with commercial real estate, Fortune 500 companies, financial institutions, U.S. GSA, architects and general contractors, specializing in the energy, indoor air quality, ESG and sustainability areas for more than 15 years. Ashworth is the national manager for UL’s Sustainability and Energy advisory teams. Previously, he was the regional manager of the headquarters office and vice president of National Business Development for Healthy Buildings International, Inc.



Sean McCrady leads the Indoor Environmental Quality service line at UL. McCrady is a certified environmental infection control consultant, certified microbial consultant, certified indoor environmental consultant and a LEED-and WELL-accredited professional.



MILLER ELECTRIC COMPANY
Powering the Possibilities

RELIABILITY
SUSTAINABILITY
CONNECTIVITY
SECURITY



1.800.554.4761
www.mecojax.com



MAY THE FORCE BE WITH YOU

BIM data gives FMs A New Hope in O&M

BY EDWIN ELMENDORP

Those words are universally known for wishing people good will as they head on to a great quest. Managing large buildings or a portfolio of buildings is no different in the need to wish people well. The sheer volume of information, regulatory requirements, IoT information, green certifications, BIM level compliance requirements, reversing climate change, and much more require the field to rethink the life cycle of data. The end game for data is to turn it into information to make better decisions more reliably. For this, the Force is needed to work with and interpret data at ever-increasing volumes.

DRIVERS FORCING CHANGE

The figurative Force is the ability to use and manipulate data in such a way that it supports operations, maintenance, and planning operations for a building in a manner that improves safety, lowers usage costs, and extends the lifetime of the building and equipment it houses. During the pandemic, the pressure has increased dramatically for flexibility and safe usage.

The decisions made to adjust to the changing circumstances are all based on the data collected and generated as part of the life cycle of a building. Something as seemingly simple as adjusting to COVID-19 protocols can force reconfiguration of airflow patterns, which in turn is based on data derived from a building model. The challenges arise as organizations are not always equipped to handle the volumes and technicalities of data, which leaves a greater risk of imperfect decisions. The underpinning challenges are:

- An ever-increasing volume of data
- The complexity of building information modeling (BIM) data
- The environmental impact

AN EVER-INCREASING VOLUME OF DATA

Data grows at unprecedented rates. What is often less clear is how this translates. Many data specialists split data into two major categories, the first one being the structured kind, such as databases for a facility management system, ERP systems, HR, etc. The second one being unstructured data such as email, BIM models, drawings, certificates, contracts, video, IoT devices, social media and much more. As an interesting statistic, the prediction is that by 2025, 80 percent of worldwide data will be unstructured.¹ While structured data can be analyzed relatively easily and used for decision making, unstructured data is much more complex due to its sheer volume and variety of formats.

Going back to the sample of the airflow reconfiguration for an office building, the data collected during that process is a good combination of BIM, airflow simulations,

inspection reports, certificates, and much more. Not having good control over that data can be a real legal risk if and when an outbreak of COVID-19 happens.

If an organization is struggling to manage unstructured data, with the above prediction, things will be getting worse over the next few years, and it would be wise to act upon it.

THE COMPLEXITY OF BUILDING INFORMATION MODELING DATA

BIM data is one of the great evolutions for the AEC space. The use of BIM technologies has driven innovations and efficiencies during all life cycle stages of a building. From initial design, planning, construction and operations. A major challenge is each of the life cycles has a different need for a BIM model. Where design and planning will focus on technical aspects and questions like constructability, for an operations BIM model, questions arise around asset management, maintenance records, BIM-IoT integration and others. From recent research into 590 publications, it became clear that interoperability across the models is a hot topic among practitioners.²

THE ENVIRONMENTAL IMPACT

Multiple studies have shown that the building sector is a large global energy consumer and contributor to global emissions. The numbers are a staggering 40 and 33 percent for a country like Germany who, along with the U.K. and U.S. are among the largest contributors.³ The good news is there is a very large potential for improvement, and smart building technology such as smart sensors can contribute up to 16 percent in CO2e abatement by 2030, as seen in Figure 1.

The side effect of these technologies is a large influx of data and the need to manage it. Many large corporations — such as Cushman and Wakefield — have pledged their alignment with the U.N. sustainability goals.⁴ As a result, they focused on lowering greenhouse gases across their buildings by looking very closely at energy usage patterns using smart monitoring and sophisticated software at scale.⁵

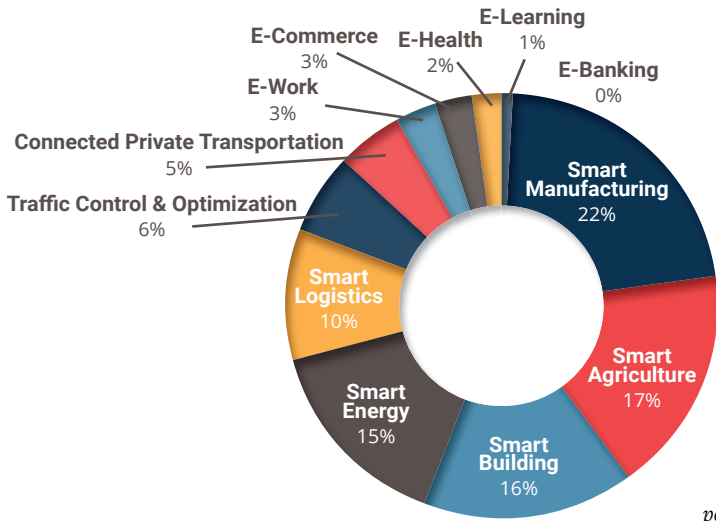


Figure 1 - CO₂e abatement potential by use case (2030)³

Cushman and Wakefield are not the only ones. Even the big corporations in the energy capital of the world have all pledged towards carbon-neutral programs.⁶

WHAT DATA IS MANAGED FOR A BUILDING?

When one thinks about the different life cycles of a building, such as design, planning, construction and operations, a very large amount of data will arise. As a building flows through these different stages, the data created and used is somewhat unique for that step in the life cycle. One of the bigger problems contributing to the interoperability of data is that BIM models are designed around the specifics of the life cycle and do not take into consideration what the owner wants to do with the data. When a building is being commissioned, the owner typically receives a mixture of information that describes the building, as shown in Figure 2.

This is a shame as the greatest value for a well-constructed BIM model comes post-construction as renovations and as-

set maintenance take place. With a focus on the operational phase of the building, Figure 2 shows the different types of information that are managed and all influence decision making.

Based on the details in Figure 2, it is easy to envision that the lack of management around these structured and unstructured sources can be the cause of frequent hair pulling to address issues as they arise, or decisions are made based on the wrong data. To address this challenge, virtual building information systems (VBIS) is a classification schema designed to connect data in different locations⁷. The classification was designed with the end-state in mind to address questions like:

- How to embed in a BIM object property a code that can be passed through to federated models and function in the FM phase?
- How to standardize the naming of assets on project drawings, schematics, commissioning documentation and labeling in the field?

- As the world moves to SaaS systems, how to standardize inter-system communication?
- As the world moves to predictive maintenance, what is required to analyze FM databases of assets and service history records?
- How to accommodate the Internet of Things and potentially relate thousands of sensors to asset databases?
- How do to categorize assets in the built environment?
- How do to categorize documents associated with the built environment?

The idea behind VBIS is that useful object codes for FM are embedded early in the model and allow for easy use of the model for FM purposes. The challenge, as with many of these standards, is that they need to be backed by the industry and ideally enforced by government entities, such as the case when BS1192 was enforced for projects in the U.K. many years ago.

THE NEED FOR END-TO-END DATA INTEGRATION

When buildings are created or renovated, the on-set data silos must be avoided at all costs, agreement on data standards, applications, usage of standards and what the end goal of the data is are all critical components for the project data to be FM enabled. This term is introduced in the research performed by Pishdad-Bozorgi and is described as:

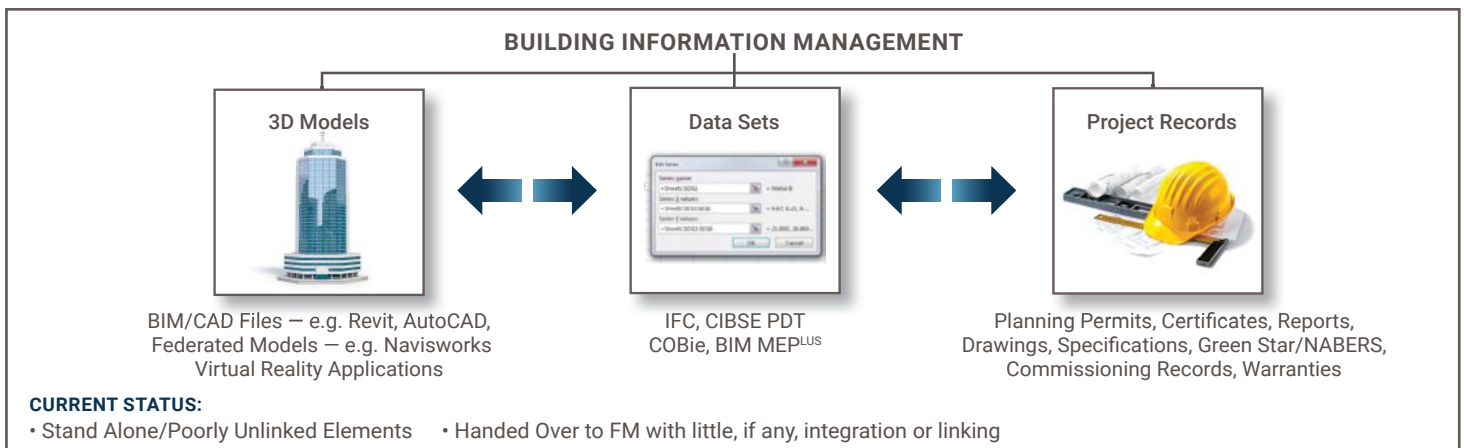


Figure 2 - Building information management handover⁷



BIM/3D Walkthrough

- 3D Models
- Design Data
- As-built Data



CMMS/AMS

- Asset Register
- Lifecycle Plans
- Planned & Reactive Maintenance Records



Documents

- As-builts
- Technical Specifications
- Drawings
- Functional Descriptions



Service/Helpdesk System

- Fault Logs
- SLA Records



Finance System

- Operational Expenditure
- Capital Expenditure



Safety System

- Safety History
- Near Misses
- Hazards & Risks



Building Systems

- Real-time and Historical Performance Data

Figure 3 - Information needs for a building⁷

“FM-enabled BIM implementation is the process through which essential facility information is captured, maintained and shared digitally in a set of integrated BIM models. At the handover phase, this process ensures that important project information is readily available to auto-input into the relevant CMMS. Through FM-enabled BIM, maintenance personnel have access not only to FM information, but also to the geometrical BIM model, which provides information such as equipment location, accessibility and maintainability.”



Powerful Germ Kill.
PURELL® Peace of Mind.

Unlike products that contain harsh chemicals like bleach, PURELL® Surface Disinfectant is gentle enough to use throughout your school — even on food-contact surfaces — with no rinsing at all.

- **Proven to kill human coronavirus in 30 seconds**
- Formulated for use on hard and soft surfaces, including desks, reading rugs, upholstered furniture, and more.
- Lowest toxicity rating in its category — no harsh fumes or formulations.
- EPA Design for the Environment Certified: combines high performance with sustainable chemistry.

To order, contact your distributor or visit [GOJO.com/SurfacesIFMA](https://www.GOJO.com/SurfacesIFMA)



That definition is easier said than done. The research describes in detail the different challenges that had to be addressed on technology as well as an organizational level for a project to be FM-enabled upon completion of the building. As an important conclusion, researchers describe how the virtual world and the physical world need to be aligned and follow the same life cycle stages as the physical building, as can be seen in Figure 4. As the physical elements progress, the digital assets must follow along to provide a usable model at the end of the project. Next to technical aspects, another observation was the requirement for breaking down contractual silos and ideally organize the project in the form of an IDP (integrated delivery project) contract.

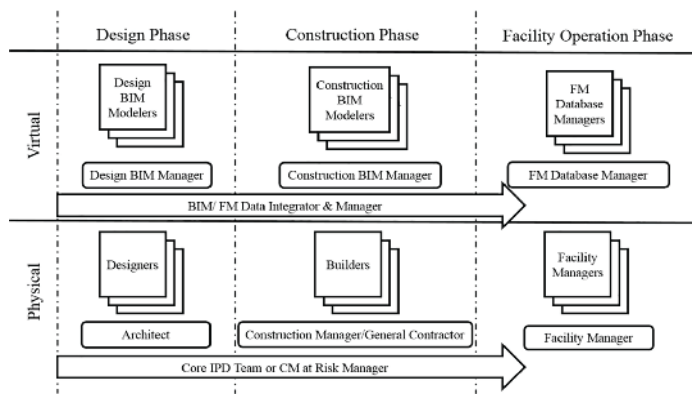



Figure 4 - Virtual versus physical managers and need for lifecycle integration⁸

THE FORCE IS WITH YOU

Utilizing BIM information for O&M is not hindered by the technology and standards available. A lot of good work has been done to support FM goals, but technology misalignment, owner readiness as well as organizational project structures can severely hinder the output of the digital building. A digital version of the building should not be an afterthought but design and communicate the needs upfront to ensure that the organization is ready to embrace the information as the project is delivered. 



Edwin Elmendorp, information architect at Kinsmen Group Edwin has almost 20 years of consulting experience in engineering information management. After initially graduating as an electrical instrumentation engineer, he moved on, added a computer science degree, and recently graduated cum laude with a master's in business process management and IT. Aside from a solid academic background, Elmendorp has worked with many owner-operators to digitally transform how companies manage their information assets spanning many different software solutions.

REFERENCES

1. T. King, "80 Percent of Your Data Will Be Unstructured in Five Years," 2019. solutionsreview.com/data-management/80-percent-of-your-data-will-be-unstructured-in-five-years/ (accessed Feb. 03, 2021).
2. A. S. of C. Engineers, "Construction Research Congress 2020: Computer Applications," no. 2008, p. 1384p, 2020, Online. Available: trid.trb.org/view/1760497.
3. Global e-Sustainability Initiative, "#SMARTer2030-ICT Solutions for 21st Century Challenges," 2015. Online. smarter2030.gesi.org.
4. "Sustainable Development Goals," Sustainable Development Goals, 2015. sustainabledevelopment.un.org/sdgs (accessed Sep. 25, 2019).
5. E. N. Rudakova, D. A. Pashentsev, R. M. Myrzalimov, Y. M. Alpatov, and V. A. Baranov, "Corporate social responsibility," *Espacios*, vol. 40, no. 22, 2019.
6. T. Axelrod, "Shell unveils plans for emissions cuts," *The Hill*, 2021. thehill.com/policy/energy-environment/538392-shell-unveils-plans-for-emissions-cuts (accessed Feb. 03, 2021).
7. VBIS, "VBIS - Bridging Construction and FM," 2020. vbis.com.au/practise-notes/vbis-for-vdas%0A vbis.com.au/practise-notes/2020/12/9/vbis-amp-standards-the-vbis-relationship-to-standards%0A (accessed Feb. 03, 2021).
8. P. Pishdad-Bozorgi, X. Gao, C. Eastman, and A. P. Self, "Planning and developing facility management-enabled building information model (FM-enabled BIM)," *Autom. Constr.*, vol. 87, no. December 2017, pp. 22-38, 2018, doi: 10.1016/j.autcon.2017.12.004.





Questions for managing the modern workplace?

IFMA'S KNOWLEDGE LIBRARY HAS FM SOLUTIONS.

 **CUTTING-EDGE
FACILITIES KNOWLEDGE**

 **FIELD-TESTED
BEST PRACTICES**

 **INDUSTRY-CONFIRMED
BENCHMARKS**

 **HOW-TO'S AND
FM TEMPLATES**

 **VIDEOS AND
WEBINARS**



Find the answers to your
burning FM questions

 community.ifma.org/knowledge_library/





*Work at
HOME*

TOMORROW'S OFFICE

RECOGNIZING THE WORKSPACE EVOLUTION

BY BILL CONLEY



An office is a room or set of rooms where business is conducted and to differentiate between types of workplaces, qualifiers are used: home office, office building, third-place office, virtual office and the future office. The COVID-19 pandemic has made workers ask where they would work in the future. Management wondered if employees would be efficient and productive when not in a contained environment and not managed or supervised.

Telecommuting and remote work have been around a long time, but in some businesses, it was never fully embraced. The preponderance of remote work implemented during the pandemic has proven it works.

How People Work

When looking at the shape of the office as employees are expected to return to the office building, give thought to the validity of the workplace as it was, even a year ago. Analyze what people are doing, how long they spend doing it and where they like to do it, and determine what would be the best type of space to use for that work.

It is no longer about having people in a standard office. It is now about effectiveness, expectations, needs and employee satisfaction. It is about having people interacting in different ways, depending on the type of work that they are doing and enjoying.

The future office will include a much more diversified portfolio of flexible and on-demand workspaces. Both the nature of corporate portfolios and their own personal workspaces will become a series of locations to work, based on convenience, function and comfort. This will mean they are much simpler and used intermittently but much more intensively.

Employees liberated from long commutes and travel have found more productive ways to spend that time, enjoyed greater flexibility in balancing their personal and professional lives, and decided they prefer to work from home rather than the office. Through telecommuting or remote work, organizations have access to new pools of talent with fewer locational constraints, adopt innovative processes to boost productivity, create an even more influential culture and significantly reduce real estate costs.

Remote Work Options

If employees are not coming back to the workplace, then the work must be brought to them. Employees interact through video conference from their PCs, laptops, tablets and even smartphones.

A hybrid model will balance the efficiency gained by remote work with the benefits of social interactions and creativity and innovation generated by working in-person with others. Employees may be given more choices on where to work based on necessity and preference: either fully remote, in a hybrid remote or on-site and the workplace will be distributed across home, office and satellite offices. During a recent webinar concerning the future of the office sponsored by IFMA's WE Community, attendees were polled about their preferred working conditions post-COVID. Some respondents opted to continue working from home, but the majority liked a hybrid approach — and not one opted to work solely in the office.



For these plans to succeed, technology must enable multiple modes of working. Data can be saved in the cloud — with access and security tailored for different working modes — and applications that allow seamless virtual collaborations. Another challenge is that leaders must learn how to manage, coach, collaborate, evaluate performance and motivate their team remotely. The culture must prioritize trust and belonging. This will present a major learning curve and attitude adjustment.

Return to Work

When employees return to the office, there are changes that can be implemented that could improve the work experience. The decades-long push toward fitting as many people into the office as possible may finally reverse. More flexible seating should be planned, as well as larger, more robust and numerous group spaces. Offices will have more common space than personal space. Traditional workplaces are approximately 80 percent cubicles and offices and 20 percent common space; that ratio could flip.

In a well-planned return to offices, management can use this moment to reinvent their role and create a better experience for talent, improve collaboration and productivity, and reduce costs. A transformational approach to reinventing offices will be necessary. Instead of incrementally adjusting the existing footprint, companies should take a fresh look at how much and where space is required and how it fosters desired outcomes for collaboration, productivity,

culture and the work experience. Companies must move past decades of orthodoxy about 9-to-5, office-centric work. Recent events created an opportunity to retain the best parts of office culture while freeing employees from bad habits and inefficient processes, from ineffective meetings to unnecessary bureaucracy. This coming transformation could entail a variety of space solutions such as owned space, green leases, open space configurations, coworking options and remote work.

In the office itself, open seating is the new trend. Most open-plan scenarios allow a flexible design offering a variety of work environments, including quiet spaces, and grants them the ability to move around. When working from home, employees had the choice of where to work, anywhere in the home with freedom of movement not experienced in a typical office setup. The whole adaptation of the office to what people do during the day is a difference maker. It provides employees that type of freedom. If they are no longer tethered to a desk, they can find suitable spots within an open plan office that allows them to choose where to work and when. They can select spaces more consistent with their needs, undisturbed or with a team.

Feels Like Home

As the history of office design evolves, it has reached a point where the modern workplace should take inspiration from the home. Using warm colors, intimate lighting and soft seating, the work atmosphere can

become more appealing. Employees working at home may miss the social interaction of the workplace, so the comfort, flexibility and freedom they experience at home will need to be replicated to retain and attract personnel. The shared spaces supporting this purpose also bring a welcomed warmth and energy to the workplace. Employees will continue to be drawn to those collaborative spaces in more residentially inspired, comfortable settings which also support their performance. This approach focuses on the comfort and well-being as companies have become aware that the office is a valuable tool that can be used to attract and retain the very best talent in a competitive marketplace.

Some trends come and go, but there has been a significant rise in biophilic office design and companies bringing a little of the outdoors to inside the work environment. The need for emphasis on sustainable design has become more prevalent. Ambient factors like access to daylight, access to an outdoor environment and integration with nature is more in demand. This could be achieved through the addition of fresh shrubbery, increased access to natural light and air, and installing living walls as a feature. Such environmentally friendly design will have a positive impact on people's perception of their space, and it is here to stay.

Design Considerations

Challenges regarding design and creation of safer work environments have come to the forefront. Physical distancing, spatial context and circulation patterns have become paramount. Understanding distancing and density and their relationship to wayfinding and interoffice travel is key to solving challenges for safety guidelines in shared spaces. The workplace must be designed to reduce the number of people accommodated within a space to satisfy a minimum six feet (two meter) physical distancing requirement. Elbow-to-elbow meetings will be outdated as social distancing is now so ingrained.

Furniture arrangement must be changed to maximize distance and minimize close face-to-face orientation. Install screens or panels to create barriers between people, spaces and pathways. Shared spaces must pivot towards supporting required physi-



cal distancing and cleaning protocols. Spaces that employees enjoy must be adapted or created to not only enhance productivity but to ensure that the people using them can be safe and feel safe.

These strategies should be combined with established performance principles to address the design challenges for creating shared spaces. The goal is creating a place where workers can safely come together. As FMs adapt and design workplaces to these predominant aspects of employee expectations, shared spaces offer the greatest ability to flex as needs toggle between creating greater distance and coming closer together.

Collaboration

The office will be a place where people come in to work together and to maintain an office culture. It is possible fewer people go into the office all the time, while the vast majority still want office space, they can go to some of the time. When they do, they want to be able to work with others. The coronavirus made working from home more widely acceptable, but it also made being together more important than ever.

To enhance these efforts, FMs must provide and leverage space. Shared social and collaborative spaces should be in the open, rather than in enclosed spaces with fixed walls. This design can more easily respond to challenges by providing greater flexibility for physical distancing and circulation patterns. Shared spaces must be equipped with essential tools for generative collaboration while transforming existing shared spaces to facilitate enhanced performance and safety. The spaces must have flexibility to expand and contract by integrating more individual seating, modularity and flexible pieces. FMs must also rethink traffic directions and situate furniture, boundary elements and accessories to cue behaviors. Additional wayfinding signage and directional arrows may be necessary to assist safe passage through the office.


Looking Forward

The office is a continual work in progress, influenced by the needs, values, technology and culture of each organization. Today's office has evolved to solve a particular problem. Its function was/is to host a large number of people, enable communication, and ensure the proximity and easy access to important documentation. Through the pandemic, virtual solutions such as cloud-based hosting and video-conference calls have altered this perception. The focus has shifted from having the workplace dictate performance to creating a space where people feel inspired, motivated and happy. The goal is to have employees produce the best work possible.

Office design does not happen by chance. Work psychology, developments in technology and other cultural factors have shaped the office employees use today and will continue to do so. Senior managers would be well served by taking this opportunity to learn how to apply the innovations and advances implemented in recent months. They should develop an approach for ongoing workplace reinvention that is more resilient to all types of accommodation needs.

FMs understand these concepts and see the ways that remote work and the need for social interaction mesh. Look-

ing at their facilities from a holistic perspective provides them with insights that individual department managers may not understand.

They are also cognizant of the need for enhanced health and safety measures. The scenario of a different, improved workplace can be invigorating and exciting. Once the dust settles (and is vacuumed up), it will be in their best interest to step up the evolution. 



Bill Conley, CFM, SFP, FMP, LEED AP, IFMA Fellow, is a facility manager at Yamaha Motor Corp. in Cypress, California, USA. Prior to that, he served as owner and chief sustainability officer of CFM2, a facility management company. Conley has more than 40 years of experience in the facility management profession and has been a proponent of sustainable operations for more than 20 years. Conley has served on the IFMA board of directors, is a recipient of IFMA's distinguished member of the year award and has received the association's distinguished author award three times. He has been a regular contributor to FMJ for more than 20 years and has authored more than 70 FMJ articles.

Unlock a new world of possibilities

to future-proof your real estate and
facility management strategy

Discover the market-leading IWMS with an
Open Platform Architecture

- Easily **connect & extend functionality** with the external technologies and solutions you want
- Benefit from an **extensive partner ecosystem**
- **Build your own apps and connectors**
- Improve your business **responsiveness to change**

Learn more at planonsoftware.com

PLANON
AIM FOR THE OPTIMUM

FM's new role: Public Health

KEEPING TENANTS SAFE DURING REENTRY

BY BRIAN MILLER



Facility managers have shifted from prioritizing aesthetics to prioritizing health. That is not to suggest FMs were not interested in providing safe, sanitized spaces even before the pandemic — they were.

Nevertheless, their overall focus usually led with questions around building aesthetics: “Is this space visually pleasing? How can I best impress visitors and welcome people into the space? How can I best tailor the space to drive occupancy?”

Now, the primary focus has turned to health, and FMs are asking, “Does this building seem safe for tenants and visitors worried about contracting or spreading contagion?”

This pivot toward tenant health has not come without its obstacles. FMs rearranged every aspect of their protocols, procedures and even products to accommodate the needs of a concerned public. The sites they maintain still need to look good, as they always have. Yet protecting occupants’ health and well-being is now the priority. That is the focus of the modern market, and it is not likely to change, even with widespread rollouts of the coronavirus vaccine.

For many FMs, this change in mindset may be challenging, but it is an opportunity to cement their positions as public health stewards. Those who take the change seriously, stay on top of their LEED and WELL Building certifications, and choose Green Seal partners can differentiate themselves and their spaces. That may bode well for holding on to current tenants or wooing new ones.

For instance, consider the clear advantage a FM could enjoy by making indoor environment wellness their top priority. Most people who still work in buildings spend more waking hours there than they do at home. Consequently, they will be excited to work in a place that feels healthy, from the air they breathe to the way furnishings are laid out. Their positive feelings will spill over into the concentration they give to their jobs, not to mention their overall cultural engagement.

Of course, creating and maintaining a building atmosphere built on emerging safety standards and guidelines requires thoughtful planning and proactivity. FMs ready to take on their new roles and responsibilities can start by implementing the following strategies to promote wellness without sacrificing good looks.



1. SWAP OUT HIGH-TOUCH COMMUNAL FEATURES FOR HANDS-FREE OPTIONS.

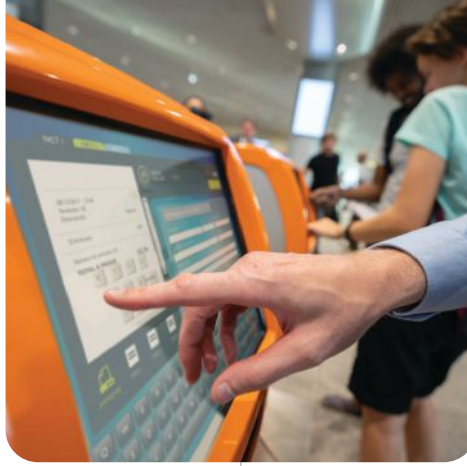
Upgrading high-touch communal features like drinking fountains and sinks for their touch-free counterparts is one crucial way to protect tenants’ health. In the old days, drinking fountains were standard: to get a drink of water, users turned a knob or pushed a bar and then leaned forward, almost touching the spout. Now, fountains and other high-touch communal features are increasingly going contactless. A Bradley Corp. survey in April 2020 found that 60 percent

of its American respondents felt a heightened desire for touchless bathroom fixtures since the pandemic began.¹ Many building occupants are demanding touch-free everything, including doors.

While it may not be possible for FMs to swap out every object in their building for a touchless or hands-free alternative, some items — such as water fountains — are easy solutions. Consider bathroom fixtures such as paper towel dispensers, forced air dryers and sinks that respond to motion. FMs may have to budget carefully for these add-ons, but they are worth the price. Occupants are becoming more accustomed to seeing them elsewhere and will wonder why their building is not up-to-date.

There may be times when a touchless product is not feasible or cost-effective. In those cases, tenants may be satisfied with acc-

ess to disinfectant wipes so they can wipe down tables, conference chairs and door handles to reduce the spread of pathogens and keep feeling safe.



2. LEVERAGE TECHNOLOGY TO REDUCE WAITING AREA DENSITY.

In the age of social distancing, people become edgy when they feel confined in spaces with too many other people. FMs can reduce tenant and visitor anxiety by embracing technologies to provide less stressful social experiences. One way is to scrap the old pen-and-paper check-in sheet and ask visitors to check in digitally from a different place. They can come in after receiving a text, which lessens the likelihood of having too many people in a waiting room at once.

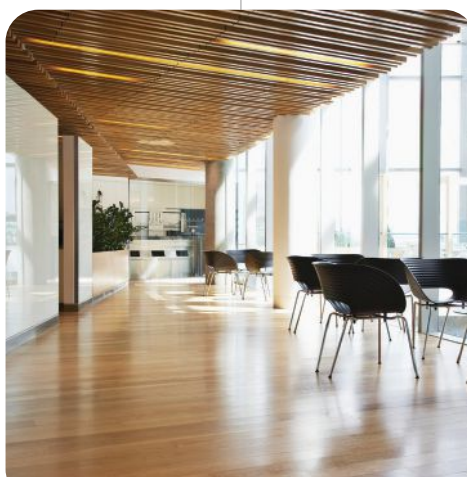
Another method to keep waiting rooms from getting overfilled is by designing intelligent lobbies with self-service kiosks. Guests are not engaging with one another or employees as much, and they can conduct their business discreetly. Plus, FMs reduce the amount of waiting room furniture, which can extend the life span of assets like chairs and sofas while encouraging social distancing.



3. PAY ATTENTION TO THE BUILDING'S BIGGEST AIR FILTER: THE CARPETS.

Carpeting serves several functions in creating a healthy, attractive space for tenants. From a design level, it provides noise reduction and adds eye-catching elements to a space. From a practical level, it serves as the largest air filter in any room. Carpets in commercial spaces trap untold amounts of bacteria, debris, viruses, germs and other pollutants in their fibers.

However, they accumulate dust, silica, volatile organic compounds and grime. If they are not relieved of their load, they will stop working and will start sending particles back into the breathable air, harming the building's air quality. As Harvard University research² indicates, that is a recipe to potentially exacerbate the concerns of anyone who contracts COVID-19.



Breathing in particulates can increase respiratory issues for some people who have been diagnosed with the novel coronavirus. Keeping breathing space free from airborne irritants, however, may help reduce the severity of complications.

The key to keep tenants breathing easy is helping carpet maintain its air-filtration function, and a main way to reduce any carpet's debris load is through daily vacuuming. Yet vacuuming pulls up only the dust, dirt and particles from the surface. It does not extract the ground-in waste clinging to the carpet fiber base and backing. Only professional cleaning can bring up all the unwanted detritus. Ideally, dry extraction is a better choice than wet extraction methods. Wet extraction leaves carpets damp, which can lead to mold breeding and unpleasant odors. Preventing those conditions is key to maintaining a pleasant tenant experience.

4. REPLACE SOFT FLOORING JUDICIOUSLY.

To create the best tenant experience, it is essential to prepare for upgrades over time. FMs should remain realistic when it comes to replacing the soft flooring in their spaces such as rugs and carpeting. A carpet that has been around for a decade and has not been well-maintained may be beyond the point of return in terms of how it functions as an air filter. Certainly, attempting a restorative deep clean run makes fiscal sense, but a full-on replacement may be needed sooner rather than later.

Replacing carpeting en masse throughout a facility can be quite expensive. Therefore, FMs may want to construct a transition plan that addresses the need to replace carpeting gradually over a longer period. After evaluating the age and condition of carpeted rooms and hallways, the FM team may be able to stagger carpet replacement. Highly trafficked areas such as entryways, common corridors and similar areas should be prioritized for immediate replacement. On the other hand, the cubicle section on level four that receives traffic from only the same 10 or 20 people

each day may get enough benefit from routine vacuuming and textile deep cleanings to function at least a few years longer. Keeping maintenance and replacement schedules will keep the flooring attractive and will ensure better health and safety for tenants.

5. ADD EXTRA PROTECTION TO HARD FLOORS.

Keeping the office building's hard surfaces clean, smooth and protected will improve indoor air quality and increase the slip coefficient on the floor, giving occupants more traction, creating ease in walking, and preventing slip-and-fall insurance claims.

Luxury vinyl tile flooring, for example, tends to be extremely popular in facilities because it is affordable, looks good and appears straightforward to clean. But it hides a major flaw: though the individual pieces snap together, they can leave a tiny beveled edge between the tiles. Dust, debris and germs settle into the edge and inevitably get kicked up into the air. Some luxury vinyl tile also mimics the texture of wood with peaks and valleys. The small crevices trap dirt, however, and traditional mopping will not reach it.

Solving this issue requires adding a performance coating on top of the flooring. The performance coating hermetically seals the hard surface, eliminating concerns associated with the cracks between or on the tiles. In many places where tenants are susceptible to airborne pathogens, such as hospitals and long-term care facilities, hermetically sealing luxury vinyl tile flooring is a well-established solution. Now, taking extra precautions to prevent the spread of airborne pathogens is just as important in Class-A spaces and buildings because of COVID-19. Adding extra protection to hard-surface floors is another crucial step to providing the safe, healthy environment that tenants deserve.

SCIENCE TO THE FOREFRONT

Without a doubt, the FM's role has changed rapidly — and the concerns underpinning this evolution will remain on the same trajectory for the foreseeable future. Back in the day, FMs may not have had to be LEED-certified or been asked to show their WELL AP certification. They might have had the option to choose Green Seal-certified products or not. It is all different now. From this point forward, FM's actions to promote health in their spaces will be explored with a fine-toothed comb, which means FMs will be expected to follow the science.

This is not a bad thing. Understanding the science behind making a building healthier for tenants can only boost the FM's skill level and professional worth. Will it take time to learn what works, especially because every building is unique? Absolutely. Nevertheless, shifting priorities from merely "What's most appealing?" to "What's safest and provides the healthiest tenant experience?" will pay off for all stakeholders. **FMJ**



Brian Miller is a business support specialist at milliCare Floor & Textile Care. His career in the field began when he was attending Ohio University. In 2007, he took a job as a technician while working toward his bachelor's degree in marketing and strategic leadership, which he graduated with in 2011. In his current role as business support specialist at milliCare Floor & Textile Care, his primary responsibility is supporting the company's franchises and helping them to improve their efficiency and productivity as they provide essential services to commercial facilities in their local markets.

1. chainstoreage.com/survey-covid-19-accelerates-consumer-demand-touchless-fixtures-restrooms
2. projects.iq.harvard.edu/covid-pm

Electric Vehicle Supply Equipment

Smart Power Load Management System

Engineered to allow for more charging stations on a limited electrical infrastructure, than any other EVSE manufacture.

- Large Facility
- Apartments & Condos
- Fleet
- Commercial
- Multi-Family Residents

“Not just planning on today's Electrical Vehicle charging Demands, But preparing for the demand of the future.”

TECL#20219 www.kevcoelectrical.com

Green Energy Energy Division

KEVCO ELECTRICAL

310 E. Trinity Blvd. #100
Grand Prairie, TX 75050
972-790-0335
Info@kevcoelectrical.com

Free Quotes: Backup-Generators LED Lighting Solar



Compete in the job market -
today and in the future -
with online access to
IFMA's FMP[®]

Increase your depth-of-knowledge
in the 4 core FM topics:



Operations &
Maintenance



Finance &
Business



Project
Management



Leadership
& Strategy

The FMP[®] is designed for independent e-learning.
All program modules and final assessments may
be taken online in any order.



Add the virtual class,
and you'll move through each
FMP[®] module in 6 weeks or less.

- ▶ 90 minute weekly sessions with:
 - ▶ a high-level summary of each chapter, and
 - ▶ real-world examples from IFMA qualified instructors
- ▶ Live Q&A with instructors and peers

 IFMA[™]

fmp[®]

Facility Management
Professional



Learn more at ifma.org/professional-development



READY FOR TAKEOFF

Creating Healthy, Safe and Resilient Airports

BY RAMSEY NUWAR

The transportation industry has undeniably been hurt by the COVID-19 pandemic, but airports in particular have been hit hard. On Dec. 6, 2020, the U.S. Transportation Security Administration (TSA) screened approximately 837,000 passengers, a 64 percent reduction when compared year-over-year. To regain public trust and keep travelers and employees safe, airport administrators and facility managers have been tasked with providing data-powered facilities that are healthy, safe, efficient and ready for anything.

Beginning airports' data-driven digital transformation with healthy buildings

With vaccine distribution underway, airport leaders are hopeful that the industry is approaching a key turning point, and many are questioning whether they will need healthy building solutions in the years ahead. However, the data-driven nature of these technologies is not just an investment in pandemic response, they will pay dividends long after this crisis has passed.

The industry was already hurtling toward a data-powered digital transformation wherein every data touchpoint is connected, allowing airport administrators to systemically manage buildings that have memory intelligence. But the pandemic has supercharged this transition with the creation of data-driven solutions including social distance monitoring, temperature screening and contact tracing. Once the pandemic has ended, these technologies' data collection processes — including sensors, video cameras, facial recognition and more — can be repurposed, allowing them to contribute to a safe and efficient passenger experience. As a result, these solutions are not just critical to navigate the COVID-19 pandemic and other future emergencies; they are the foundation for the future.

Creating a safe, healthy environment for employees and travelers

A safe and healthy airport is key to protecting employees and passengers while encouraging airline travel. When reinstating trust in air travel, both passengers and airport employees benefit from investments to create an enhanced environment. Beyond this pandemic, consumers now expect a higher level of public health and safety protocols, especially in high density indoor areas like airports, and will take note of airports cutting corners. Specifically, airport administrators should focus on the following five outcomes to ensure a modern and healthy airport for years to come:



1. CLEAN AIR – Clean air must remain a goal long after mask mandates end. Airport administrators and FMs can install the latest HVAC systems to maximize a space's clean air delivery rate (CADR); implement advanced air and surface disinfection solutions like ultraviolet (UV) lighting; and upgrade to the latest minimum efficiency reporting value (MERV) and high efficiency particulate air (HEPA) filters.



2. SOCIAL DISTANCING AND MASK COMPLIANCE – AI-enabled video surveillance provides real-time, around-the-clock monitoring of airport occupants' compliance with healthy building protocols. Should an individual remove their mask or stand too close to their fellow employees or passengers, the digital alert system can detect and alert FMs to the situation for swift, discrete and professional intervention. Social distancing solutions can even send reminders to employees to remain six feet apart at all times.



3. EFFICIENT CONTACT TRACING – The latest in contact tracing solutions provides airport employees and travelers with the peace of mind that their health is being prioritized. Should someone fall ill, FMs can leverage solutions to retroactively trace their interactions and identify and notify at-risk individuals. As a result, contact tracing technology reduces the number of employees who must self-isolate and enables effective scenario planning for the future.



4. TOUCHLESS ENVIRONMENTS – To minimize touch contamination, thermal imaging cameras installed at entry and high-traffic points can rapidly scan moving crowds for elevated temperatures, removing the need for an employee to manually take temperatures. Additionally, airport administrators can install frictionless access control, which leverages AI-powered facial recognition technology to replace standard badges and keypads. From there, replacing traveler boarding passes with hands-free biometric devices helps protect passengers and streamlines security processes, allowing travelers to spend time relaxing and shopping ahead of their flight.



5. EMERGENCY PREPAREDNESS – Security operations personnel rely on standard operating procedures (SOPs) to respond quickly and appropriately to security incidents. These operators can leverage digital solutions that automate these SOPs to effectively identify, manage and record any public safety event and present operators with actionable next steps. Based on the incident, operators can use these solutions to quickly alert emergency responders and initiate evacuations through the integration of site-wide paging and digital signage.

Revenue generation and cost efficiency

With air travel capacities still struggling to return to normal, non-aeronautical revenue generation is critical to airports' survival. The best way airport administrators can maximize profits is by ensuring passengers have ample time to shop and dine on the premises. By leveraging digital solutions that capture location and passenger data for easier traffic flow, such as radio frequency identification (RFID), airports can move customers through security faster, giving them more time to explore and shop.

In addition to revenue generation, creating cost savings has proven to be just as critical to airports' financial success. Through advanced asset monitoring and reporting, FMs can identify and resolve inefficiencies to maximize energy savings. Preventive and predictive maintenance help FMs ensure crucial building equipment remains functional and high performing, avoiding costly asset repairs and downtime. These measures allow airport administrators to redirect previously lost resources into new initiatives, technologies and more. For further cost savings, airports can integrate building systems like HVAC and lighting with flight schedules for terminal optimization, allowing them to automatically shut down gates that are not in use.

Remaining prepared for an uncertain future

While the industry is seeing the proverbial light at the end of the tunnel, the greatest takeaway has been the critical need for airports to have the technology infrastructure in place to ensure they are future-ready, whatever that future may require. Through innovative technology integration that connects buildings to unique software capabilities, airport FMs will have the insight to deliver higher traveler value like improved health and wellness, improved sustainability, safety, security and enhanced experiences. With data-collecting technology in place, airports can accelerate their digital transformation and become intelligent, connected facilities of the future. FMJ



Ramsey Nuwar is the vertical market director, transportation for Johnson Controls. Nuwar's 30-year background has involved all aspects of the global aviation industry; he has worked for several international airlines as well as various related suppliers. During the last 12 years, his focus has been within North American airports, providing leading-edge passenger processing solutions and support systems.

Over 100 Commercial and Industrial Chillers

Buy, Sell or Trade-Up your Commercial / Industrial Chiller

- Thoroughly Tested, Performance Proven Chillers Ready to Ship Now
- Don't wait months for Production Chiller to be manufactured
- Steam Turbine Chiller for Co-Generation application
- Commercial and Industrial Chillers, Heat Exchangers, Cooling Towers & Pumps
- Equipment available for Immediate Shipment
- Commercial & Industrial chillers from 50 Nominal Tons to 1500 Tons
- 208/230-460-4160 Volt Chillers Available



Email us: Sales@surplusgroup.com

Call us: 1-800-665-2117 or 1-214-321-4200



Click to see Your
Pre-Delivery Test Lab
Video only from Surplus Group

From the Ground Up:

Combating Bacteria & Pathogens
within Occupied Spaces

BY DAVID DEMBOWITZ



Harmful bacteria flourish in areas with heavy foot traffic. Grocery stores, restaurants, schools, retail stores and hospitals all show the presence of dangerous bacteria such as E. coli, salmonella, listeria, staphylococcus aureus and more. A study also revealed that harmful bacteria, including fecal bacteria, was present in every grocery store that scientists tested.¹ Further studies demonstrated that 40 percent of E. coli and other related bacteria strains transfer from surfaces to hands.² The effects of these dangerous bacteria can be devastating — nausea, vomiting, dehydration and even death can occur in people of all ages, especially those with low immune systems, such as the elderly and young children. However, scientists have discovered better flooring choices can substantially reduce harmful bacterial growth and exposure.



Flooring the Way to Safety

Floors are uniquely important in shared spaces — they are in contact with and used by everyone within that space. Vinyl and concrete are two of the most popular flooring types for shared spaces, primarily due to their durability. But how does each surface stand up to a post-COVID-19 scrutinized look at its impact on public health? Though both surfaces do well against everyday wear and tear and can mask damage, the spread of COVID-19 has demonstrated a need for more careful thought about how societies build and maintain occupied spaces. While durability is important, a floor's impact on public health must also weigh heavily in the design process if communities hope to avoid additional outbreaks. Because floors can encourage or cease the spread of infections and disease, it is of utmost importance to support public health and a functioning society with safe, clean floors.

Testing, Testing

Identifying the most bacteria-resistant floors requires a look into the porosity and permeability of the floors themselves. Porosity is a measure of the volume of voids in concrete. Permeability is the rate of flow of moisture through [a surface] under a pressure gradient. Voids through which moisture can move must be interconnected and of a certain size. Discontinuous pores and pores with narrow entrances retard the flow of moisture. Therefore, [a surface] that is more porous tends to be more permeable.⁷³

Bacteria thrive on porous and permeable surfaces — the more porous the floor, the more open gaps and spaces available for bacteria to occupy. Relatedly, a permeable floor surface allows liquids and microbes to pass through and into the surface, sometimes becoming trapped to create bacteria or elements that encourage the growth of bacteria. While porous



or permeable flooring may not be a concern within homes or other small spaces, larger community spaces must avoid porous or permeable flooring to minimize exposure to dangerous bacteria.

As two of the most popular flooring choices, scientists tested both concrete and vinyl in a controlled bacterial growth environment. The scientists then analyzed the samples, investigating each surface's porosity and permeability and identifying the amount of bacterial growth on each surface type. Concrete quickly emerged as the more porous and permeable of the two. Concrete's permeability allowed water and other elements to seep through the surface and create a thriving environment for bacteria. The research teams also investigated a common assumption that polishing concrete with increasing grit will reduce its porosity; however, this proved to be a misconception that has not been demonstrated in any lab tests. Though notoriously durable, the study revealed concrete's weakness: low resistance to bacteria. Regardless of its grit, concrete's porous and permeable nature creates an environment poised for bacterial growth and the spread of sickness and disease.

A Vinyl Victory

In comparison, the tests revealed that vinyl was far more resistant to bacteria than concrete. The surface was not only less porous, but it also absorbed significantly less water than concrete at any grit. When compared to float, 200-, 400- and 800-grit concrete samples, vinyl reduced absorption by 62, 67, 54 and 61 percent, respectively.

Some designers are reluctant to use vinyl flooring because of a misunderstanding of the surface's benefits. Vinyl is emerging out from an old reputation





of being synonymous with linoleum, a flooring type once considered cheap and undesirable. Indeed, vinyl does offer many of the same positives as linoleum in terms of durability, affordability and versatility, but technological advancements have moved vinyl far above and beyond linoleum, even placing it firmly into the luxury flooring category due to its enhanced performance, detailed embossing and quality aesthetics. Today, luxury vinyl rivals all other flooring types, making it a major contender with various color and pattern options (both natural and digital). The result is a surface that not only boosts public health and demonstrates high durability, but also easily complements a spectrum of design preferences.

The Worldwide Wake-Up Call: A Healthy Future Through Flooring

Though perhaps the presence of bacteria in large, occupied spaces does not surprise some, the impact of COVID-19 has revealed a pressing need to support public health and minimize the levels of these bacteria. In a post-COVID-19 environment, societies are called to seriously evaluate their shared spaces and their effect on public health. The difference between concrete and vinyl's resistance to bacteria is a worldwide wake-up call. Polished concrete flooring is used across sectors, industries and countries. As a result, the floors of some of the most cherished shared spaces — schools, hospitals and food suppliers among them — are poised to threaten public health. Even if the floors are cleaned thoroughly, a surface's porosity cannot be altered; therefore, bacterial growth will continue despite any cleaning team's best efforts. The results could be catastrophic with the rampant spread of harmful bacteria and disease.

Public health and wellness rely on the cleanliness of occupied spaces. Utilizing flooring with minimal permeability is imperative to maintain human safety by preventing bacterial spread and growth.³ To preserve the safety of these spaces, bacterial growth and exposure must be minimized. While regular cleaning remains necessary, a floor's porosity and permeability are major factors behind its ability to boost and preserve public health. Both vinyl and polished concrete flooring types have enjoyed popularity due to high durability levels; however, concrete fails to match vinyl's resistance to bacteria. Of the most popular flooring surfaces on the market, vinyl stands out as the safest and best choice to preserve community health and wellness. FMJ



David Dembowitz is the senior vice president of sales for Mohawk Group. With more than 21 years of industry experience, his extensive background in the flooring industry includes sales, strategic account management, segment marketing and product development.

RESOURCES:

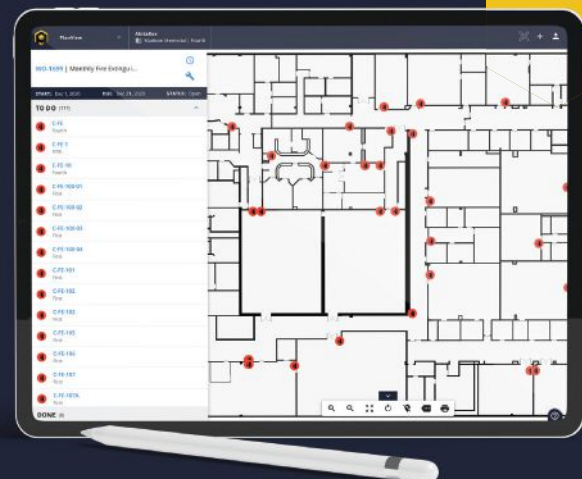
1. Morris, M. A. (2010). Molecular detection of fecal-bacterial contamination on grocery shopping cart handles within the Sacramento region. Sacramento State ScholarWorks.
2. Rusin, P., Maxwell, S., & Gerba, C. (2002). Comparative surface-to-hand and fingertip-to-mouth transfer efficiency of gram-positive bacteria, gram-negative bacteria, and phage. *Journal of Applied Microbiology*.
3. Westbrook, M., Bennett, H., & Belkowitz, J. (2020). An Analysis on Bacterial Growth on Vinyl and Polished Concrete.



FACILITY MANAGEMENT, TOTALLY REVOLUTIONIZED.

Improve operational efficiency so your teams can focus on what matters most.

Discover more at [AkitaBox.com](https://www.AkitaBox.com)



Get the training you need, when you need it.



**Knowledge = confidence.
Find the FM knowledge
you need at [fm.training](https://www.ifma.org/training).**

- ▶ 11 competency courses
- ▶ 0 knowledge gaps
- ▶ Complete at your own pace
- ▶ CEUs
- ▶ The only ANSI credentials for the global FM community
- ▶ Digital badge to demonstrate your knowledge
- ▶ Certificate of completion
- ▶ Techniques/practices applicable worldwide
- ▶ Corporate plans available

**Your mastery of facility management is unique to you.
Shouldn't your training be, too?**

Leave behind the old FM learning of the past and fill your knowledge gaps with IFMA's new individual eLearning courses — a cutting-edge approach to professional development that focuses on what you need to know, when you need to know it. Affordable, targeted training on your schedule saves you time, money and worry. Take only what you need to build your knowledge, skills and confidence in a specific FM area.

Designed for all built environment professionals, at any career stage — aspiring, emerging, transitioning, middle to senior management.

Developed and delivered by IFMA — an ANSI-accredited provider of world-class FM education, credentialing and certification.

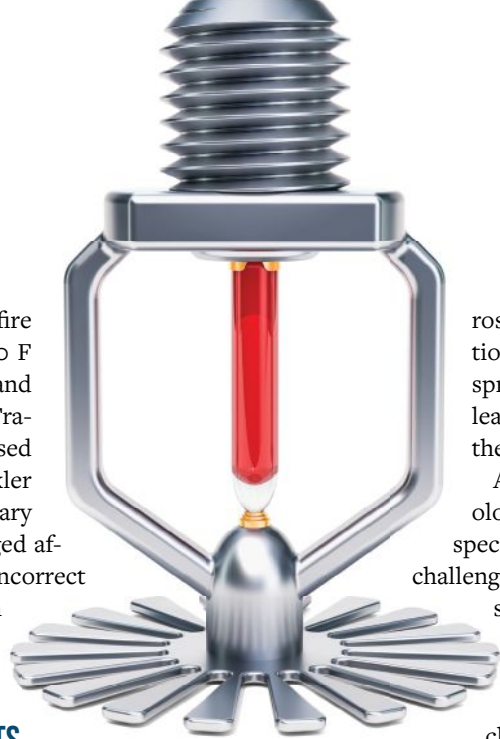


THE BIG CHALLENGE

ANTIFREEZE CODE COMPLIANCE FOR FIRE SPRINKLER SYSTEMS

BY MARK KNUREK

Over the next year, facility managers whose properties have fire sprinkler systems that use antifreeze can expect to have a different conversation than usual with their sprinkler system inspector. This is because of the September 2022 deadline for compliance with National Fire Protection Association (NFPA) fire sprinkler standards. The standards require agency-listed antifreeze in new and existing antifreeze systems to ensure every system is designed and installed using the safest and most reliable practices in the industry.



In cold weather, water-filled pipes for fire sprinkler systems must remain above 40 F (4.44 C) to prevent severe damage, leaks and pressure drops caused by severe freezing. Traditionally, glycerin and propylene glycol-based antifreeze solutions have been used in sprinkler systems in residential, light hazard, ordinary hazard and storage applications. That changed after several well-publicized tragedies where incorrect concentrations of flammable ingredients in these types of antifreezes ignited and led to injuries and fatalities.

NEW ANTIFREEZE SOLUTION REQUIREMENTS

In response, NFPA and UL conducted extensive research that showed certain concentrations of antifreeze would actually intensify a fire. Based on the research, UL established requirements for the performance of antifreeze solutions for wet fire sprinkler systems. Now, for an antifreeze solution to obtain an agency listing, the solution, which must be factory premixed, must pass rigorous tests to prove that it will not only protect the fire sprinkler system from freezing, but also enable it to operate properly and effectively suppress any fire. A listed antifreeze solution should:

- Have a freeze point that remains consistent over time.
- Flow free through the sprinkler pipes.
- Never freeze when the temperature is at, or warmer than, its minimum use temperature.

Additionally, listed antifreeze must incorporate corrosion resistance properties to protect sprinkler pipes against premature degradation, costly repairs and possible system failure.

While new systems have had to use listed antifreeze since 2012, NFPA 25, the Standard for Inspection, Testing, and Maintenance (ITM) of Water-Based Fire Protection Systems, gave existing systems until Sept. 30, 2022 to be drained and replaced with a listed antifreeze solution. For FMs responsible for antifreeze systems, this means planning in 2021 for the next annual ITM visit. Older glycerin and propylene glycol antifreeze cannot demonstrate that they can deliver fire protection safely and effectively.

DEFENDING AGAINST COSTLY CORROSION

A significant aspect to achieving a UL listing is developing and validating the formulation's corrosion resistance. The constant presence of water and oxygen in contact with metal pipes and fittings makes wet sprinkler systems vulnerable to high levels of corrosion. Galvanic corrosion can also be a problem when the system is comprised of more than one metal. Corrosion can not only render a sprinkler system unable to hold water, but can also compromise the system's designed flow and pressure values. Debris from cor-

rosion builds up, pinhole leaks form, and friction from surface roughness obstructs flow in sprinkler drops and feed mains, all of which can lead to the system not operating effectively in the event of a fire.

A separate form of piping corrosion, microbiologically influenced corrosion (MIC), was not specifically addressed by UL, but is a significant challenge that plagues both wet and dry fire sprinkler systems. According to FM Global, MIC is responsible for 10-30 percent of corrosion in U.S. piping systems. In addition to steel piping, other areas susceptible to MIC include caps, valves, fittings and supply tanks.

MIC is the localized and rapid development of metallic corrosion, manifested in the form of pitting, crevices and craters. This degradation is caused by the growth of certain aerobic and anaerobic bacteria, or hybrids of the two, which tend to form biofilms. In turn, this creates a sub-environment with different flow characteristics, pH levels and chemical concentrations. Together these conditions can spur MIC and can combine with the more well-known nonbiological corrosion caused by oxygen and acidic exposures.

In areas subject to freezing conditions, a key factor that can worsen the growth of MIC in sprinkler systems is the use of antifreeze that lacks high-quality corrosion protection. Antifreeze solutions can add to the acidity of sprinkler system water, leading to biofouling from bacterial growth and setting up the conditions for a persistent MIC problem that will compromise the reliability of the system piping. Therefore, using a product that has built-in safeguards is worth considering.

MAINTENANCE OF WET VERSUS DRY SYSTEMS

During the years before listed antifreezes arrived on the market, dry pipe systems were often chosen to fill the void and protect fire sprinklers from freezing. To this day, dry systems are commonly used across many applications including attics, unheated warehouses, commercial freezers, overhead canopies, loading docks and parking garages.

However, to avoid corrosion in dry systems, the sprinkler system piping must be pitched to promote drainage of condensation at its lowest points. The arrangement requires piping to be pitched a half inch per 10 feet (4 mm/m) for all branch lines, and one-fourth inch per 10 feet (2 mm/m) for all other sprinkler piping. This adds to the installed costs of such a system, which also requires auxiliary drains for each pipe section to collect condensates from the pressurized air while minimizing loss of air pressure during maintenance. These systems are also often equipped with heat tracing to provide freeze protection, the cost of which ranges widely. Furthermore, the need for pitched piping presents installation and inspection challenges in smaller facilities or those with complex roof systems.

BEAT THE DEADLINE

FMs should be proactive on compliance to enhance their life safety practices. A listed product provides peace of mind that the antifreeze meets or exceeds the most rigorous standards. Once implemented, the system needs only be tested annually by a qualified inspector to ensure the freeze point is being maintained.


FMs should ask the following questions before selecting an antifreeze for a fire sprinkler system:

- Does it meet the rigorous technical challenges of becoming listed as required by NFPA?
- Is it listed and approved for use with the application and the size of the system?
- Will it protect the system against damage from exposure to the severe cold?
- How does it contribute to the prevention of corrosion and MIC?

WHY ANNUAL ANTIFREEZE TESTING IS CRITICAL

Finally, with new safeguards for life safety in place, closing the loop with annual testing by a qualified inspector, as required by NFPA 25, ensures that the antifreeze maintains its proper concentration and freeze point. Either of these can be disrupted by leaks, pressure surges or temperature changes, which may lead to antifreeze flowing out of, or water flowing into, the system.

The concentration of an antifreeze solution should always be no more than the least amount necessary for the anticipated minimum temperature. If concentration conditions deviate from allowable tolerances, the fluid must be drained and replaced.

With a little due diligence today, FMs can have peace of mind that they have taken the most advanced steps to protect building occupants and assets from devastation by fire. 



Mark Knurek, North American sales and marketing manager, Lubrizol Advanced Materials has more than 20 years of experience in strategy, marketing, sales, product development, engineering and brand management. He is an executive governing board member of the International Fire Sprinkler Association (IFSA), a member of the Suppliers and Manufacturers Council, Quality Assurance Committee and Residential Committee for the National Fire Sprinkler Association, and strong supporter of the American Fire Sprinkler Association. He holds a degree in mechanical engineering and an MBA.



MAKE A *STAND* AGAINST COVID

Reopen your facility safely by providing Bradley's hand sanitizer stations in high traffic areas. Plus save up to 80% on sanitizer costs when you use Bradley dispensers.

Visit Bradleycorp.com/sanitizers





Founded in 1810, the Royal Museum of Fine Arts Antwerp is home to pieces from some of the most important artists from the 15th century onwards. The museum has been closed since 2011 for renovations, offering FM Wouter Covens and his team a unique opportunity to reimagine the space when it reopens. When visitors are able to reenter the neoclassical building, they will be treated to works and masterpieces from Jan van Eyck, Peter Paul Reubens, Rene Magritte and many more.

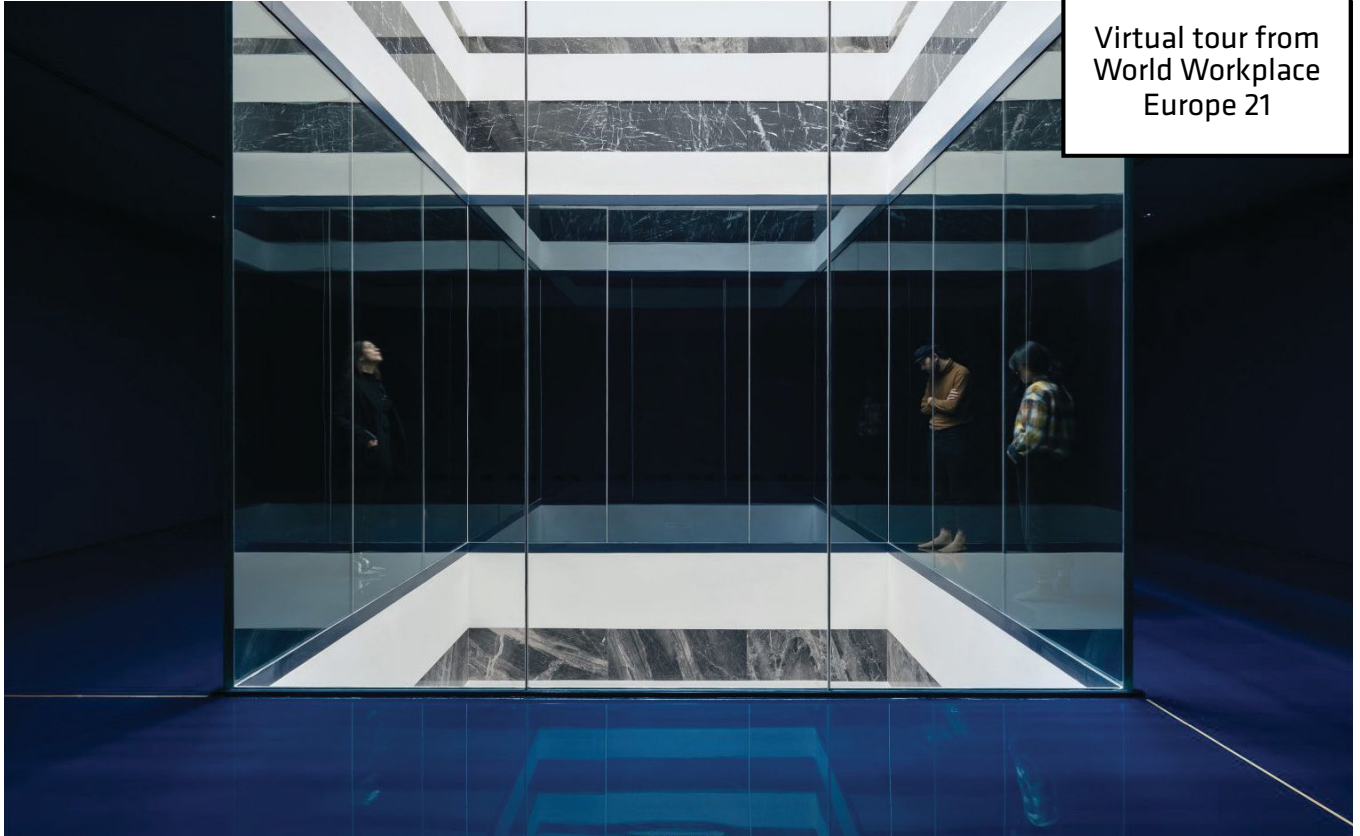


Photo by Karim Borghouts



Photos Courtesy of the Royal Museum of Fine Arts





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

COVENS: As an engineer, I was always interested in buildings and how they work from a technical point of view. I started as an engineer for HVAC and energy projects for the city of Antwerp in 2009; this gave me the opportunity to get to know various types of facilities such as swimming pools, museums, administrative centers and schools, and the technologies used to make them work for their users. In 2012, I was appointed as coordinator of buildings for a high school in Antwerp and later as a team manager infrastructure for the University of Antwerp. During this time, I learned more practical and technical aspects of buildings.

What I really like in buildings and building technology is the variation; almost every smart thing invented can be used in buildings and therefore, it also belongs to the FM world.

We ensure the building works for every user. To me that is not only the technical aspect, but also ensuring it is clean and the logistics are efficient.

In the museum context, this means our facility supports the visitor experience and the conservation of masterpieces.

FMJ: *What is day-to-day life like at your facility?*

COVENS: At this point the museum is still closed due to ongoing renovations. As FM, I am involved in renovation projects and I am preparing for the reopening of the museum. A lot of my time is also in the preparation of tenders for various contractors.

Due to the renovations our organization had to move to other buildings, so this also means facility work for those sites. We

have a library that still operates, an external art depot with offices and an extra depot for materials.

We also host events and have sponsor visits.

Every day is a busy day and brings new challenges. In FM you must always be prepared for anything.

Our current team consists of 10 people. This will expand to about 30 people, including security before reopening.

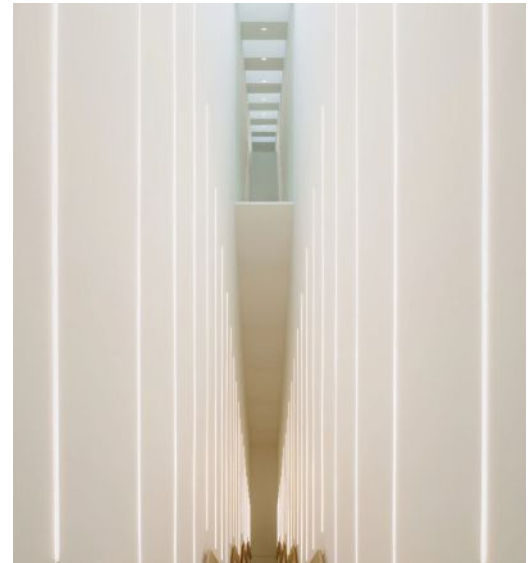
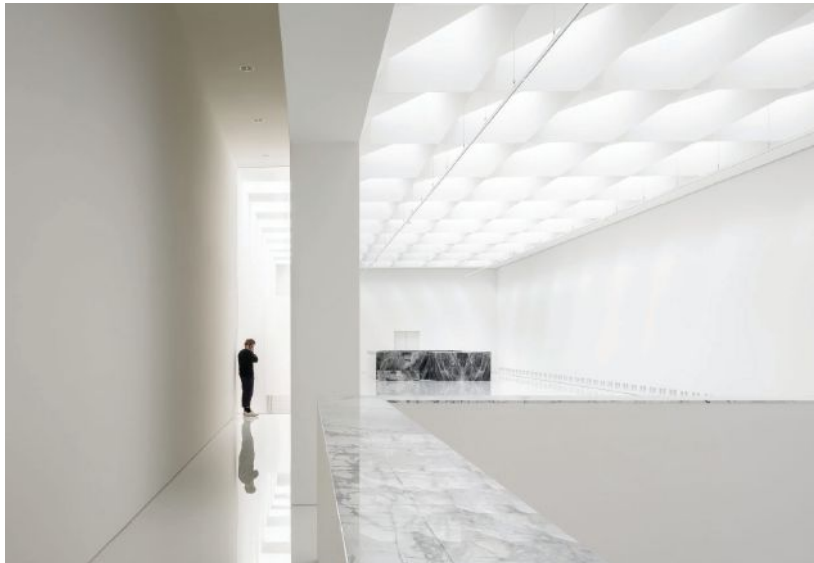
FMJ: *What are the challenges and advantages of managing a facility that has been closed to the public for 10 years?*

COVENS: Over the past 10 years the building has totally changed, and much of the FM team's operational knowledge was lost as personnel changed. This means we only have a small basis of experience of how the open museum will really work and this experience is dated. As a leader, it will be a challenge to address this uncertainty.

Moving back into the museum will be a challenge, but the biggest challenge will be our agility towards the things that we did not foresee.

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

COVENS: The architecture of the building is unique, which means that the maintenance is very demanding. For instance, the high ceiling rooms require automatic platforms and racks and people who can operate or install them. In this respect there are skylights that will be challenging to clean, and special fit-to-size racks will have to be developed to make it possible.



FMJ: *How has COVID-19 changed the way you and your team operate your facility?*

COVENS: At the beginning of the pandemic, there were some urgent issues every facility manager addressed such as signage, decontamination, masks, new procedures and more.

We have also reviewed our circulation plans for the museum in case the pandemic or another is present at the time of opening. We have detailed plans involving some structural changes in the entrance and exit zones of the museum. We really hope that we will never need to use these plans.

FMJ: *How does security shape the way you are able to perform your day-to-day duties?*

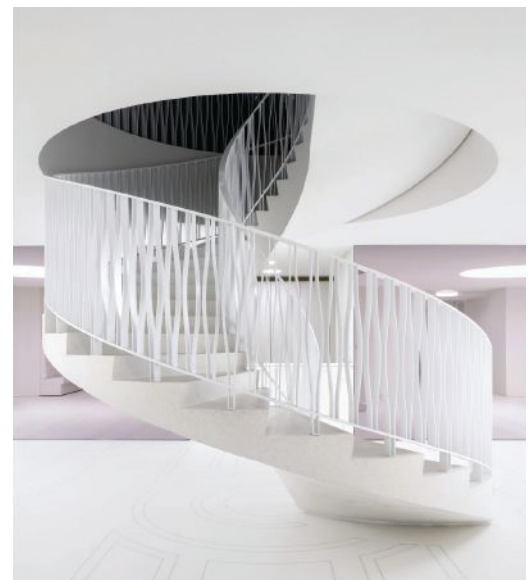
COVENS: Security and facility are both my responsibilities, and both present the opportunity to gain time and efficiency in our daily operation. The security of the building and the artworks has a significant impact on how we take care of our facility. Every contractor that visits is registered and will not be left alone in the building. The cleaning of the building must be supervised and planned in around alarm groups.

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

COVENS: The bar is very high at the museum, but in general the problems we face are all the same. We all want our facility to work for the users and to serve its goals. It is all about running the management cycle of planning, doing, checking and acting every day. We are continuously improving our operation and constantly adapting to new situations.

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

COVENS: I like that not one day is the same as another. We have so much variation in the building – historical and modern, public and private – that we must also maintain alongside the technical and functional aspects. I also like being a part of the museum and its artwork. Being able to work for these beautiful masterpieces is an energy boost like no other.



THE TECH FACTOR

How better process helped FM in the pandemic

BY ZACH ROSE



COVID-19 has forever altered the way people work. Operations and maintenance is one area that has changed dramatically.

Traditionally, O&M teams have employed hub-and-spoke models to assign work orders, log hours and capture job completion/status information. In a hub-and-spoke, technicians will typically visit a central dispatch office to collect their paperwork orders before venturing out into the field. At the end of each shift, the same technicians will usually return to the dispatch office to hand in the completed work orders, where hand-written job details will be entered into the organization's enterprise asset management (EAM) system by the office staff.

During COVID-19, the central dispatch office was often inaccessible due to social gathering and distancing limits, forcing changes in the way work is assigned, work orders and assignments are carried out, and completed jobs are recorded in the EAM system. These new ways are likely to remain permanent.

Because of advances in technology, FM functions did not have to shut down or suffer massive slowdowns to comply with safe gathering limits and social distancing recommendations. As O&M functions evolved over the pandemic, several observations became clear:

1. Mobile devices for FM technicians became ubiquitous

Though many forward-thinking teams had already adopted mobile devices to assign and track work orders, many more had not.

In March 2020, paper-based orders were still the norm in many organizations, meaning staff had to pick up assignments in a physical office and return them to the office once the work was complete. With COVID-19, each of those physical touchpoints introduced risk. As the virus spread, these organizations scrambled to arm staff with mobile devices to elim-

inate the exchange of paper forms and minimize, if not eliminate, visits to the dispatch office.

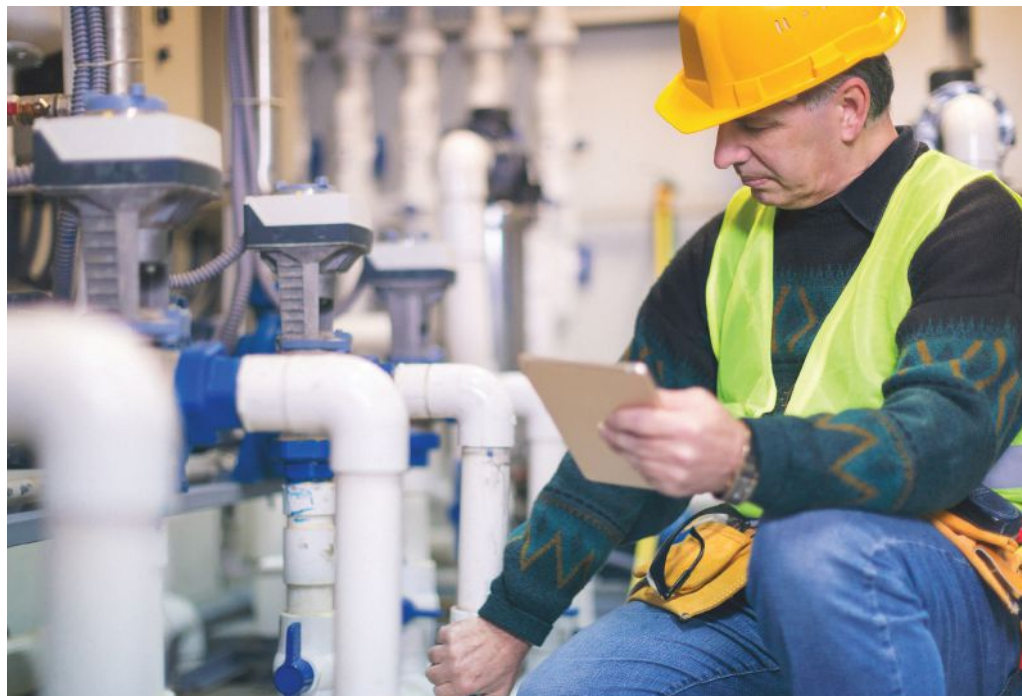
One convenience store chain operating more than 600 locations needed to maintain stores and equipment to supply freshly prepared foods, groceries and gasoline to the communities it serves. By providing tablets to its O&M teams, they were not only able to eliminate dispatch office visits but were able to streamline work for their field technicians, as well as improve productivity, first-fix rates and equipment availability across their stores.

2. Tighter inventory control

It is quite common for O&M teams to use EAM software for inventory control, but some organizations are better than others at keeping records accurate. COVID-19 highlighted the need for better record-keeping and inventory control, mostly due to the need to manage scarce Personal Protective Equipment (PPE). Many hospitals kept PPE under lock and key, treating

it almost as they would medicine in the hospital pharmacy. Losing a box of light bulbs may not be a big deal, but losing a case of masks early in the pandemic would have had a significant impact on staff and patient safety. Virtually every health care organization had to up their inventory control game, adopting barcode scanning to quickly and accurately log the issuance of PPE items to hospital personnel.

Mobile was also widely deployed for processes such as receipt and issuance, where newly arrived shipments are scanned as they arrive in the receiving area and then scanned again as they are distributed to storerooms across the facility. Along the same lines, mobile devices are also being used to audit storeroom balances to assure that the receipts and issuances reconcile, or in larger facilities, perform physical cycle counts (a partial, statistically determined sampling of critical inventory), and well as enable item reservations to set aside specific quantities of PPE or earmark respiratory equipment.



3. Extensive use of push notifications for staff and community updates

Emergency management plans — which many organizations activated for the first time during the pandemic — typically require the means to notify the community, including staff, of an incident or new restriction. During and after the COVID-19 era, that might include letting staff know that a building had been shut down or flagged due to an outbreak. When staff members are equipped with mobile devices, it is very easy to send out push notifications to those devices informing everyone of new restrictions.

One of the advantages of push notifications is that most mobile users are already familiar with them. According to Accengage's 2018 Push Notification Benchmark, overall consumer opt-in rates for app push notifications are 67.5 percent, with a 91.1 percent opt-in rate for Android and 43.9 percent for iOS devices. The disparity is driven by the fact that iOS users must explicitly consent to push notifications, whereas Android allows push notifications to be enabled automatically. In a work environment, opt-in rates typically approach 100 percent because the mobile app is critical to the operations of the facility.

Many organizations are also using those notifications to remind staff to maintain safe working environments, such as updated protocols for social distancing, new disinfection requirements, PPE guidelines or vaccination regimens.

Push notifications have also been effective in alerting operations and maintenance staff to changing priorities, allowing key personnel to be pulled off of a current assignment and redeployed to respond to a COVID-19 incident.

4. Increased use of checklists and audits


While most organizations already utilized checklists for multi-step tasks, inspections and audits, few had digitized them, and many did not track the completion of the assignment. Now, in the era of COVID-19, new health and safety guidelines may require proof that checklists were followed, and completed tasks logged. For example, universities are required to clean and sanitize common areas, and high-touch surfaces such as door handles, as frequently as every 30 minutes. Because many of these areas are subject to inspection and audit by local health authorities, the sanitization teams are required to show proof that all surfaces on the checklist were cleaned, and the start and stop times for when the cleaning was performed. In response to new health requirements, university O&M teams are digitizing their checklists to guide staff through the sanitization processes or inspections, and to record completed actions and subsequent inspections in their mobile app — providing an easy way to share detailed documentation with administrators and health department auditors.

5. Contractor Check-in

When dispatch offices were dialed back to eliminate the need to gather staff in a central location, there was still a need to communicate with outside contractors and tradesman that perform critical tasks across the organization's facilities. Pre-pandemic, those tradespeople typically checked in at the central dispatch office to pick-up paperwork orders, and alerted the FM team that they were now on site. With the use of mobile technologies, the organizations eliminated the paper-

work orders while enabling the contractor to check in, either through an explicit action that creates a notification, or by GIS features that detect the contractor's arrival on the facility's grounds. This is sometimes tied to the activation of access-control badges allowing the contractor access to specific areas of the facility.

The adoption and expanded use of mobile will not end when COVID-19 eventually does. Many of these mobile-enabled work and safety practices have made FM and O&M teams significantly more efficient, and as such, it does not make sense to revert to the old way of doing things. While it is really hard to find a silver lining from all that has transpired over this last year, it did create the impetus for organizations to adopt and/or expand the use of mobile technologies to comply with health and safety guidelines.

By doing so, they were also able to streamline operations, adopt better processes for functions such as inventory management, inspections, receiving and physical counts, improve audits and enhance organizational communications via push notifications. The use of mobile technologies has transformed the operations and maintenance function, improving transparency and efficiency, and perhaps more importantly, preparing organizations to rapidly respond to the next crisis or outbreak. 



Zach Rose is director of technical services at InterPro, and has served as developer, sales engineer, and implementation lead. He has a deep technical and functional understanding of Maximo and EZMaxMobile, learned through years of experience implementing products in a variety of industries. Rose has led implementation efforts for a number of Fortune 500 companies across a variety of industries. He holds a BS in Computer Science from Rensselaer Polytechnic Institute.



IFMA WORLD WORKPLACE

OCTOBER 26 - 28, 2021

GAYLORD PALMS RESORT | KISSIMMEE, FLORIDA | USA



Register at
worldworkplace.ifma.org



READY FOR ANYTHING

Using O&M to best prepare for emergencies

BY RICHARD ALEXANDER

Operations and maintenance, similarly to facility management in general, is often overlooked and underinvested, save for highly critical and sensitive operations. The importance of O&M during the pandemic has been highlighted with hibernating systems in unoccupied buildings. Key workers such as electricians, plumbers, HVAC technicians and others responded to building emergencies while many employees stayed safe in their homes. Maintenance and repairs are being carried out to make occupied spaces compliant with new government guidance.

As parts of the world begin reentry and count the cost to business and commerce, let this be a catalyst for change and a force for good. A huge lesson learned for those responsible for operating and managing buildings is the criticality of investing in their assets and the people responsible for their maintenance. This must be done as part of a broader emergency preparedness campaign and business continuity plan.

However, amid an economic crisis, it is understandable why the idea of spending more money now is difficult to accept, not least in mitigation of an event that has not, and may not, ever materialize. However, it is this short-sighted view that exacerbated the chaotic response to the pandemic. The “kicking an issue under the carpet and worrying” type approach is frankly the easiest direction to take. This pandemic has demonstrated the ramifications that a lackadaisical approach can have, not only on the global economy, which contracted by 4.3 percent in 2020¹, but on redundancies and livelihoods, health, business closures, commerce and customer service.

The premise that doing nothing in terms of emergency preparedness is simply not an option. To do nothing would be an even greater tragedy than the pandemic itself. FMs can start with small things that can make a big difference in managing an emergency. For those responsible for operating and managing buildings, start by taking a hard and honest look at the organization’s plans to respond to a fire, bomb threat, flood, gas leak and power failure. These are just a few examples of problems

that can be easily mitigated with the right investment in planning, maintenance, drills and testing. Complex emergency scenarios, such as a terrorist act and pandemic response, may warrant the investment in special advisors who can develop plans and forecast associated expenditure.

Identifying emergencies and assessing their impact against a baseline do-nothing approach versus a best practice risk-based approach can help make wise investment decisions. The approach can also convince those holding the purse strings that investing in long-term emergency preparedness rather than throw money into a last-minute reactionary response is a sensible approach to take.

So, what can be done? There seems to be a plethora of O&M strategies openly debated in asset management and this debate must now consider O&M tasks, including drills, tests and risk assessments in direct response to different emergencies. Emergency preparedness and O&M planning cannot be siloed, and it is wrong to assume that an escalation procedure alone is a satisfactory mitigation measure in emergency planning.

Global supply chains are commonplace. But the pandemic has shown how fragile this approach can be. According to Baker McKenzie, intellectual property issues and complex production processes, or in a bid to reduce unit costs, firms can sometimes become overly reliant on a single company or geography to source particular goods. This has left many companies with limited contingency plans to deal with supply disruptions.² A recent Deloitte poll found that

32 percent of clients believe there will be less outsourcing when the crisis ends³. According to Deloitte, this may be due to the inflexibility (perceived or real) of hard contract terms and conditions, that may have hampered the immediate actions needed in response to the sudden changes that the crisis presented.⁴

According to PWC, firms will need to show better risk management and resilience capabilities. Clients will demand less emphasis on economies of scale, and more emphasis on service providers building in some redundancies, greater resilience, and more focus on business continuity.⁵ Deloitte suggests considerations for service providers in relation to business continuity planning. These include scenarios such as global shutdowns and other prolonged business disruption, standardizing global processes, shift away from local testing to global crisis management, integrated planning with client organizations and diversity vendor strategy to deploy planning scenarios across regions.⁴

This is about robust supply chain risk management and Baker McKenzie suggests this would involve elements of human intelligence as well as data collection and organization. Such information helps paint a clear picture of the fundamental structure of the supply chain as well as the key contacts, suppliers and stakeholders along the supply chain specific to each company. Having clear and updated accounts of such information will enable companies to identify areas of potential vulnerability and opens the conversation on how to minimize, manage or eliminate

these risks.³ This is particularly important in terms of global recovery in the wake of the pandemic as wealthier regions of the world bounce back quicker than poor and emerging regions and what this may mean in terms of global supply chain resilience in the coming years.

Tech-enablement is not just about the continuity of service; it's about cost efficiency and transforming at scale as services are unshackled from geographical constraints.⁵ In a world where cashflow and appetite for expenditure for businesses is challenging, Deloitte proposes refocusing investment where clients and service providers (O&M being one) can work together to find common goals that focus on transformational spend and look to drive innovative ways to expand capabilities and re-design internal operations.⁴

The shift from manual to digital service provision in O&M is happening, albeit reluctantly. The pandemic has shown how enabling technology can improve an organization's resilience and secure business continuity. According to PWC, firms able to embrace digital tools and services have largely prospered during the crisis, capable of providing continuity of service to their clients while remaining in operation. Those with lower-tech capabilities, whether yet to digitize paper-based processes or because their service relies on physical location and resources, have suffered by comparison.⁵ So perhaps the pandemic will teach organizations and those responsible for O&M to invest further to speed up the transition from manual to digital processing instead of delaying the inevitable and remaining exposed to further risk.

Many predict a transformation in the way organizations manage real estate and space. In the U.K., PWC modeling revealed

that during the pandemic, 58 percent of people can work from home. This increases to 72 percent for those working in the business services sector.⁵ Organizations will respond to this and ramifications for O&M need consideration. Perhaps as demand for real estate reduces, so too will the scale and capacity for traditional O&M service provision and a greater focus on technology and digitization to serve a smaller intelligent real estate market while supporting an increased remote workforce.

Emergency scenario management and preparedness remains one aspect of health and safety where O&M planning can make a real contribution to mitigating risk.

The potential catastrophic impact of emergencies on people, business, property and assets is the same the world over and this must call for a standardized approach to emergency planning. There are many aspects of O&M that call for localized approaches befitting of the culture and environment where the organization operates. This has implications for customer service, communication and maintenance. However, emergency planning is one aspect of O&M that should bring the community of responsible building owners and FMs together. A unified approach rightly places the importance of safety and value

of people in the same category of risk deserving of equal investment and planning regardless of geographical positioning.


With the benefit of hindsight, one can only begin to think of the benefits organizations may have reaped from this standardized approach, not least in terms of their preparedness to deal with a pandemic. Emergency scenario management and preparedness remains one aspect of health and safety where O&M planning can make a real contribution to mitigating risk. The International Standard Organization (ISO) 22320 provides helpful guidance for incident management: ISO 22301 on business continuity planning and ISO 31000 on risk management. How many organizations can truly say they undertake O&M planning in cognizance of these international standards? Perhaps their separation from O&M industry standards and guidance means due consideration is missed in the O&M planning process? Perhaps it is time for a more harmonized approach in the development of industry standards.

The British Standard (BS) 8210 Facilities Maintenance Management Code of Practice provides excellent guidance to those responsible for operating and managing buildings with specific guidance on health, safety and the well-being of people in the context of O&M. The Standard stipulates the management of occupational health and safety should be viewed as an integral component of facilities maintenance management and not a separate function or as an add-on. The same must be true for emergency management and preparedness. Unfortunately, the standard does not allow for a designated section for emergency management and preparedness. Instead, the standard leaves the user to consider emergency

of people in the same category of risk deserving of equal investment and planning regardless of geographical positioning.

scenarios as individual risks to people and the organization that should be mitigated accordingly. Coupled with potential progression to ISO status, the standard has the potential to reach FMs with a consistent and global approach to emergency management and preparedness while developing O&M strategies and plans for facilities.

In the interim, for FMs, the tools are there, albeit in separate form. They need to be recognized and then applied, which requires a concerted effort by those holding the purse strings to invest, and for those involved in O&M planning to think more laterally in their planning processes.

It is easy to preach best practice — acting on it is much more difficult. But planning for operations and maintenance with due consideration for emergency preparedness and managing risk is a sensible and sustainable approach. Emergency preparedness is manageable and affordable when one invests and plans incrementally and should be a key consideration in the formulation of budgets by all organizations operating in all sectors of industry. 



Richard Alexander is an FM consultant with more than 20 years of experience. He works for Troup Bywaters+Anders in the U.K. as a project associate providing strategic FM advisory services. Alexander has previously worked for Mace Group in the UAE and Qatar for 10 years providing strategic FM advisory services to public and private sector clients. Prior to this, he worked for Turner and Townsend and WSP Knowledge Solutions.

REFERENCES:

1. worldbank.org/en/publication/global-economic-prospects
2. bakermckenzie.com/-/media/files/insight/publications/2020/04/covid19-global-economy.pdf
3. Deloitte "Leading GBS through a time of uncertainty – Respond, Recover, Thrive" webinar participant poll results, April 2020
4. deloitte.com/content/dam/Deloitte/uk/Documents/consultancy/deloitte-uk-covid-19-a-wake-up-call-for-the-bpo-industry.pdf
5. strategyand.pwc.com/uk/en/reports/strategy-where-next-for-business-to-business-services.pdf?WT.mc_id=CT11-PL1000-DM2-TR3-LS4-ND30-TTA9-CN_Strategy&WhereNextDownloadNowCPBusinessServies

Accomplish More Work In Less Time

Gordian's Job Order Contracting (JOC) solutions are proven to help busy facilities professionals complete more work in less time. Each year, facilities teams rely on Gordian's unique approach and unmatched expertise to accomplish more than \$2.4B in construction volume.

See why by visiting gordian.com/JOC/IFMA

GORDIAN®





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

JAN. 2021:

Atul Deshmukh, CFM
Government of Nunavut
Pond Inlet, Nunavut, Canada

Barry Compton, CFM
Celeste, Texas

Oluseyi Olufadeju, CFM
JLL
Manatoba, Canada

Adam Erickson, CFM
4j Energy Services
Wolseley, SK, Canada

Andrew Villarete, CFM
AutoNation
San Clemente, California

Richard Breitenberg, CFM, FMP
STCU
Coeur d'Alene, Idaho

Wesley Mills, CFM
Portola Ranch Association
Portola Valley, California

Jeffrey Fano, CFM, FMP
Charter Communications
Rego Park, New York

James Layton, CFM, FMP, SFP
FAA William J. Hughes
Technical Center
Mays Landing, New Jersey

Nicole Carroll, CFM
Walters Kluwer
Dardenne Prairie, Missouri

Francis Martineau, CFM
Daikin Applied
Savage, Minnesota

Ossie Lewis, CFM
Lancaster, California

Richard Allen, CFM
Fort Sam Houston ISD
San Antonio, Texas

Mike McCarthy, CFM
Mount Horeb, WI

Jared Conrad, CFM, FMP
Fluke Corporation
Marysville, Washington

Joe Abrain, CFM
Walters Kluwer
Kennesaw, Georgia

Jerico Johnston, CFM
Harvard Medical School
Litchfield, New Hampshire

Mohamed Ismail Abdul Rahman, CFM
Jones Lang LaSalle Property
Consultants Pte. Ltd.
Singapore

Antonio De Armas, CFM
Raytheon
Seminole, Florida

Vaughan Elliott, SFP, FMP, CFM
Bosch Rexroth Canada Corporation
Ontario, Canada

The following people were awarded the Sustainability Facility Professional® (SFP®) designation:

Scott Kapper, SFP
Brentwood High School
Ballwin, Missouri

Leopoldo Munoz, FMP, SFP
Los Angeles Unified School District
North Hollywood, California

Ron Andell, FMP, SFP
San Jacinto College
Friendswood, Texas

Talal Balaa, FMP, SFP
GeoAIM Green Energy
Los Angeles, California

Vanessa Flores Andersen, SFP
Ace Hardware Corporation
Chicago, Illinois

Matthew Hickman, SFP
New South Wales, Australia

Rachele Lopiccio, FMP, SFP
San Bruno, California

Marlen Gapuov, FMP, SFP
North Caspian Operating Company
Nur-Sultan, Kazakhstan

Christine Jones, SFP
King County Metro Transit
Arlington, Virginia

Nate Stevens, SFP
Pacific, Washington

The following people were awarded the Facility Management Professional (FMP®) designation:

Ahmad Ali, FMP
Modern Architecture
Contracting Co.
Jeddah, Saudi Arabia

Michael Graham, FMP
Mount Sinai Hospital
Hyattsville, Maryland

Rishma Ramdath-Moorgen, FMP
Scarborough, ON, Canada

Manoj Shinde, FMP
Cipla Ltd.
Maharashtra, India

Mike Archibald, FMP
OCDSB
Nepean, ON, Canada

Chris Mehrkens, FMP
City of Plymouth
Corcoran, Minnesota

Kristen Cables, FMP
Staatsburg, New York

Michael Inman, FMP
Equinix
Ashburn, Virginia

Greg Marchant, FMP
CBRE
Victoria, BC, Canada

Matthew Kerns, FMP
The Episcopal Academy
East
Norriton, Pennsylvania

Amanda Ouellet, FMP
Edmonton, AB, Canada

Dylan Sisler, FMP
Incyte
Wilmington, Delaware

Eric Welton, FMP
Warrenton, Virginia

Justin McCoy, FMP
Polaris Industries, Inc.
Maple Plain, Minnesota

Neshanth Santhakumar, FMP
AMS CAD & CAFM Solutions
Wayne, New Jersey

Walter Hammer, FMP
Newton, Pennsylvania

Dan Andrus, FMP
Blair Academy
Bangor, Pennsylvania

Jose A. Castillo, FMP
Anderson Center For Autism
Tuxedo Park, New York

Jacob Painschab, FMP
Entrust
Chaska, Minnesota

Brian Huber, FMP
Boeing
Bristow, Virginia

Elias Mata, FMP
Fort Belvoir, Virginia

Hayley Kreckler, FMP
Toast, Inc.
Stoughton, Massachusetts

Richard Howard, FMP
Woodbridge, Virginia

Greg Harrington, FMP
Bennington Rutland
Supervisory Union
Peru, Vermont

Charles Vo, FMP
Equinix
Garden Grove, California

Benito Sanchez, FMP
Fort Leonard Wood, Missouri

Jeff Posey, FMP
BCBSAZ
Phoenix, Arizona

William Johnston, FMP
Shopify
Kanata, ON, Canada

Dave McCormick, FMP, SFP
Oshawa, ON, Canada

Rich Merrill, FMP
Facility Engineering
Associates, P.C.
Cheyenne, Wyoming

De Lin, FMP
McCormick Taylor Inc.
Philadelphia, Pennsylvania

Erin Juergens, FMP
Armed Forces Europe

Steve Landers, FMP
FCPS
Fairfax, Virginia

Danielle Rutherford, FMP
Cabtree, Rohrbaugh and
Associates Architects
Mechanicsburg, Pennsylvania

Randy Schulz, FMP
Ercot
Lexington, Texas

Robert Allen, FMP
Walt Disney Company
Orlando, Florida

Bart Zurek, FMP
Toronto Community Housing
Corp
Toronto, ON, Canada

Katie Prater, FMP
Frauenschuh
Savage, Minnesota

Jeff Thompson, FMP
Midtown Athletic Club
Lake Forest, Illinois

Andy Wilson, FMP
Cox Communications
Hammond, Louisiana

Shane Banning, FMP
Government of Canada
Ottawa, ON, Canada

Steve Delmas, FMP
Toast, Inc.
Montreal, QC, Canada

Kenneth Case, FMP
LCRA
Manor, Texas

Jonathan Mattingly, FMP
Smithsonian Institution
Suitland, Maryland

Tony Gallo, FMP
USAF
Frisco, Florida

Dwight Jackson, FMP
Queen Margaret's School
San Antonio, Texas

Tom Nowlin, FMP
Lake Cowichan, BC, Canada

Eric Wohlford, FMP
North Ridge Country Club
Fair Oaks, California

Stacey Graner, FMP
Bain & Company
Washington, DC

Daniel McDermitt, FMP
City of Dayton
Troy, Ohio

Aris Avelar Escoto, FMP
Equinix
Frederick, Maryland

Brie Schmutte, FMP
Equinix
Ashburn, Virginia

Edwin Vazquez Jr, FMP
Salus University
Columbus, Pennsylvania

David Fiorillo, FMP
L'Arche GWDC
Washington, DC

Mohammad Rehawi, FMP
The Red Sea Development
Jeddah, Saudi Arabia

Mohamed Fareed, FMP
Al Yasra Fashions
Riyadh, Saudi Arabia

Karim Dabboussi, FMP
First Gulf Company
Riyadh, Saudi Arabia

John Santiago, FMP
Dart
Camana Bay, Cayman Islands

Abdullah Shati, FMP
SAL Cargo Company Ltd.
Jeddah, Saudi Arabia

Wael Hamed, FMP
Elofog Facility Management
Cairo, Egypt

Mindy Huang, FMP
Sydney, New South Wales,
Australia

Shane Banning, FMP
Government of Canada
Ottawa, ON, Canada

Friday Odigie, FMP
Provast Limited
Delta State, Nigeria

S Meenakshi Sundaram, FMP
Bangalore, India

Santosh Singh, FMP
Adani Enterprises Limited
Gujarat, India

Samreder Singh, FMP
Cognizant Technical Solutions
Maharashtra, India

Steven Shu, FMP
Transcenta Holding Ltd.
Jiangsu, China

Lizzy Ni 倪丽姿, FMP
Shanghai, China

Dawei Zheng, FMP
ICM
Shandong, China

Sabeel Sulaiman, FMP
Bahwan Engineering Company
Ruwai, Oman

Carl Surret, FMP
U.S. Army
Willow Spring, North Carolina

Richard Schmidt, FMP
Columbus, Nebraska

Chris Defayette, FMP
Ottawa, ON, Canada

Mark Chesser, FMP
Defense Threat Reduction
Agency
Charles Town, West Virginia

Gabriel E Silva Leon, FMP, SFP
Rockville, Maryland

Jason Jaros, FMP
MTH Pumps
Marseilles, Illinois

Tracey Fobia, FMP
Comcast
Pottstown, Pennsylvania

David Hart, FMP
Equinix
Elizabeth, Colorado

Dennis Ramos, FMP
Nutrafal
Bay Shore, New York

Jon Read, FMP
American Electric Power
Tulsa, Oklahoma

Lisa Koenig, FMP
PROCEPT BioRobotics
San Mateo, California

Michel Lalonde, FMP
BGIS
Ottawa, ON, Canada

Edwin Salcedo, FMP
George Mason University
Woodbridge, Virginia

Jaclyn Liebscher, FMP
Bozeman, Montana

Tikya Fowler, FMP
Social Security Administration
Aberdeen, Maryland

Steve Litschauer, FMP
Siemens Government
Technologies
Honolulu, Hawaii

Randy Stelten, FMP
MTS
Jordan, Minnesota

Stacy Alexander, FMP
Saugus, Massachusetts

Garrett Gile, FMP
U.S. Military
Ewa Beach, Hawaii

Christine Woodgate, FMP
Dexterra Group
Georgetown, ON, Canada

Joe Dewan, FMP
Queensway Carleton Hospital
Ottawa, ON, Canada

Lauren Mazouat, FMP
Vertfore
Evergreen, Colorado

Alana Ledbetter, FMP
RingCentral
Aurora, Colorado

Benjamin Grimm, FMP
Iowa City Community School
District
Iowa City, Iowa

James McAlpine, FMP
Wellydne
Wesley Chapel, Florida

Anabel Casanova, FMP
Lindenhurst, New York

Jason Clarke, FMP
St. Philip, Barbados

Jaime Martinez, FMP
Toronto Congress Centre

Mississauga, ON, Canada
Travis Secco, FMP
Pittsburgh, Pennsylvania

Darod Awil, FMP
Ottawa, ON, Canada

Laura-Lee Arnot, FMP
BGIS
Nepean, ON, Canada

Nicholas Ramautarsingh, FMP
Brampton, ON, Canada

Charles Wesley, FMP
Oracle
Prosper, Texas

Tim Butchart, FMP
CBRE
Gananoque, ON, Canada

Edmundo Vitocruz, FMP
MIZUHO OSI
San Leandro, California

Christopher Fritz, FMP
DMS Facility Service
Edmond, Oklahoma

Christopher Goyne, FMP
CBRE
Hampton, Virginia

Scott Hoffman, FMP
Brown Construction Services
Inc
Annandale, Virginia

Jeremy Wright, FMP
City of Jacksonville Dept of
Public Works
Jacksonville, Florida

ESOSA UWUBANMWEN, FMP
Provast Limited
Alagomaji, Yaba, Nigeria

Mabel Okorafor, FMP
Los Lagos, Nigeria

CHRISTIAN EGBEZIEN, FMP
Provast Ltd.
Warri, Nigeria

Oyageshio Solomon, FMP
Provast Ltd.
Warri, Nigeria

Benson Idodo, FMP
Provast Ltd.
Warri, Nigeria

Sampson Mbawuikwe, FMP
Provast Ltd.
Warri, Nigeria

Idaerefaa Kelsey, FMP
Nigerian Content Development
and Monitoring Board
Buguma, Nigeria

Karim Dabboussi, FMP
First Gulf Company
Riyadh, Saudi Arabia

Ahmed Kurdi, FMP
Riyadh, Saudi Arabia

Abdulrahman AlShareef, FMP
Granada Investment Center
Riyadh, Saudi Arabia

Mohammed Alafalq, FMP
Granada Investment Center
Riyadh, Saudi Arabia

Mohammed Alalem, FMP
Saudi Aramco
Dhahran, Saudi Arabia

Talal Almutairi, FMP
Saudi Aramco
Dhahran, Saudi Arabia

Mohamed Ali Al Ameer, FMP
THIQAH
Riyadh, Saudi Arabia

**Muhammad Khaliq uz
Zaman, FMP**
Crown Prince Private Affairs
Riyadh, Saudi Arabia

Muhammad Asim Ismail, FMP
Crown Prince Private Affairs
Riyadh, Saudi Arabia

Anton Heriyanto, FMP
Pertamina Hulu Mahakam Ltd.
Balikpapan, Indonesia

**Mohammad Syamsu'Uddin
Dananjaya, FMP**
Pertamina Hulu Mahakam Ltd.
Balikpapan, Indonesia

Mohammed Al-Salem, FMP
CPA
Zulfi, Saudi Arabia

Dr. Mohamed Hesham, FMP
EFS Facilities Services
Cairo, Egypt

**Saikumar
Lakshminarayanan, FMP**
Marina Facilities Management
Abu Dhabi, United Arab
Emirates

Adnan Asseri, FMP
Riyadh, Saudi Arabia

Ahmed Al Ehadib, FMP
CPA
Riyadh, Saudi Arabia

Shi Jia, FMP
Hangzhou, China

Gopi Selvaraj, FMP
Cognizant Technology
Solutions
Tamil Nadu, India

Vikash Kr Dubey, FMP
Cognizant Technology
Solutions
West Bengal, India

**Gokulakrishnan
Swaminathan, FMP**
Cognizant Technology
Solutions
Tamil Nadu, India

Ryad Almarshhour, FMP
Musnada
Mandiant Zayed, United Arab
Emirates

Todd Evans, FMP
Gwynn Oak, Maryland

**Mohammed Ramadan
Hassan, FMP**
Safari Group
Riyadh, Saudi Arabia

Kyle Pankonien
City of Houston-Houston
Airport System
Humble, Texas



IFMA™ Credentials



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

FEB. 2021:

Mohamad Yasar Hundekar, CFM

Kempinski Mall of the Emirates Dubai, United Arab Emirates

Trent Price, CFM

Intermountain HealthCare West Bountiful, Utah

Frank Caprio, CFM

Nantero, Inc Hudson, New Hampshire

Damian Odoje, CFM

Qatar Foundation Doha, Qatar

Margaret Becker, CFM

Organic Valley Cashton, Wisconsin

Anthony Hau, CFM

Hong Kong, China

Natasa Ekaputri Purwitaningrum, CFM

JLL Singapore

Amy Reed, CFM

Middlebury, Connecticut

Lance Peterson, CFM

TSAY Federal Contracting Fleming Island, Florida

Denis Herrera, CFM

District Columbia, MD

Corey Gale, CFM, FMP

Amway Corporation Hudsonville, Michigan

Navindra Prabhudayal, CFM, FMP

South Ozone Park, New York

Michele Schuler, CFM

UKG Lowell, Massachusetts

Anthony Maddox, CFM

Charlotte County Board of County Commissioners Punta Gorda, Florida

Kwai Woon Heywood Chu, CFM, FMP

Kee Wah Bakery Limited Hong Kong, China

Vaishak Sudhakar, CFM

Waseef Facility Management Doha, Qatar

Anandha Prakash Sadasivam, CFM

M/s.CBMQatar LLC Doha, Qatar

Fabian Hinojos, CFM

Midland College Midland, Texas

Denise McHugh, CFM

Stoke Therapeutics

Mohamed Radhi Raies, CFM

Lusail, Qatar

Suresh Chandran, CFM

Consuel Qatar, AGP Group Doha, Qatar

Giulio Marandola, CFM

CBRE Livingston, New Jersey

Joshua Arnold, CFM

SUNY ESF Waterloo, New York

Stephen Clawson, CFM, FMP

Ernst & Young LLP Fairfax, Virginia

BELGHENOU Mohammed, CFM

Qatar Ports Management Company - MWANI Qatar Doha, Qatar

Jennifer Diaz, CFM

MVI Field Services Brentwood, Tennessee

The following people were awarded the Sustainability Facility Professional® (SFP®) designation:

Sintayehu Gebrewold, FMP, SFP

Alexandria, Virginia

Kimberly Kellogg, FMP, SFP

University of Colorado Denver Anschutz Medical Campus Aurora, Colorado

Dave McCormick, FMP, SFP

Oshawa, ON, Canada

Sherine El Alaaily, SFP

American University In Cairo New Cairo, Egypt

Pete Defrosia, FMP, SFP

Fresenius Medical Care Martinez, California

Andrew Macdonald, FMP, SFP

City of Ottawa Ottawa, ON, Canada

Gabriel E Silva Leon, FMP, SFP

Rockville, Maryland

Cedric Hao Krim Chan Ha Shun, FMP, SFP

African Leadership University Highlands, Mauritius

Ken Jackson, FMP, SFP

True Manufacturing Saint Charles, Missouri

Alvin Carlos, SFP

City of Cambridge Milton, ON, Canada

Sabrina Falcione, FMP, SFP

Quincy, Massachusetts

The following people were awarded the Facility Management Professional (FMP®) designation:

Oscar Oduor, FMP

Abu Dhabi, United Arab Emirates

Yazeed Abu Kabeer, FMP

Dahran, Saudi Arabia

Abdallah Herzallah, FMP

Enova by Veolia Riyadh, Saudi Arabia

Victor Kudelko, FMP

NCOC Atyrau, Kazakhstan

Abdulrehman Ghulam, FMP

CPA Riyadh, Saudi Arabia

Ahmed Alharbi, FMP

Crown Prince Private Affairs Riyadh, Saudi Arabia

Abdullah Alnuhaimishi, FMP

Care Company Riyadh, Saudi Arabia

Mohamed Samir, FMP

Kuwait City, Kuwait

Rizwan Qamar, FMP

Baker Hughes Dammam, Saudi Arabia

MOHAB ALNWIERY, FMP

CPA Jeddah, Saudi Arabia

Charles Ihenyen, FMP

Provast Ltd. Port Harcourt, Nigeria

Folorunso Adese, FMP

Segun Adekunle & Co. Lagos, Nigeria

Mohannad Omar, FMP

Jeddah, Saudi Arabia

Michael S. James, FMP

Baseterre, Saint Kitts and Nevis

Abdulaziz Mohammed

Alyahya, FMP Riyadh, Saudi Arabia

Maj Nitesh Kala, FMP

Viacom18 Media Pvt Ltd Maharashtra, India

Fakhr Zebian, FMP

Al Gosaibi Group Al Khobar, Saudi Arabia

Benjamin Bazenu, FMP

Provast Ltd. Lagos, Nigeria

Lawrence Mukorho, FMP

Provast Ltd. Lagos, Nigeria

Ohwofasa Beatrice, FMP

Provast Ltd. Lagos, Nigeria

Johnny Liu, FMP

Macau Institute of Management HK Island, China

Samer Chalhouh, FMP

World Bank Beirut, Lebanon

Adron D'souza, FMP

NMC Royal Womens Hospital Abu Dhabi, United Arab Emirates

Jason Green, FMP

Bridgetown, Barbados

Mohammed Alshurayhi, FMP

Riyadh, Saudi Arabia

Gerald Chikezie, FMP

Provast Ltd. Warri, Delta State, Nigeria

Asaad Wazayfi, FMP

United Facilities Management Kuwait, Kuwait

Mansour AlSaeed, FMP

Thiqah Riyadh, Saudi Arabia

UFUOPHU FESTUS, FMP

Provast Ltd. Lagos, Nigeria

Ibrahim Coker, FMP

Fidelity Bank Ghana Limited Accra, Ghana

Yan Ru Yi, FMP

Guangzhou, China

Onwuegbuzie Meka Collins, FMP

Alpha Mead Facilities and Management Services Ltd. Port Harcourt, Nigeria

Augustine Onwuegbuzie, FMP

Enugu, Nigeria

Hassan Alsari, FMP

CPA Riyadh, Saudi Arabia

AUGUSTA OGBEIMI, FMP

Provast Ltd. River State, Nigeria

Victor Agbara, FMP

Owerri, Imo State, Nigeria

Paul Imoisi, FMP

Alphamead Facility and Management Company Port Harcourt, Nigeria

Musaad Alawad, FMP

Crown Prince Private Affairs Riyadh, Saudi Arabia

Wael Shahata, FMP

Crown Prince Private Affairs Riyadh, Saudi Arabia

Riyadh, Saudi Arabia

Siju George, FMP International capital Trading Abudhbi, United Arab Emirates

Amjad Abduljawad, FMP

THIOAH Riyadh, Saudi Arabia

Peregre Mabinton, FMP

Yenagoa, Nigeria

Jerison Azares, FMP

Aden Services Masbate, Philippines

Paul Ukor, FMP

Lagos, Nigeria

Hope Iwuagwu, FMP

Provast Ltd. Lagos, Nigeria

Abdulaziz Almuaikeel, FMP

Riyadh, Saudi Arabia

Mohammed Herzallah, FMP

United Arab Emirates University Al Ain, United Arab Emirates

Anthony Salubi, FMP

Alpha Mead Facilities & Management Services Port Harcourt, Nigeria

RAMY AHMED IBRAHIM, FMP

Rezayat Company Limited Jubail, Saudi Arabia

Onajite Otoku, FMP

Alpha Mead Facilities Management Services Lagos, Nigeria

Maher Masalkhi, FMP

Saudi Ben Laden OGM Jeddah, Saudi Arabia

Priya Lokesh, FMP

Cognizant Technology Solutions Tamil Nadu, India

Maureen Ohaeri, FMP

NCDBM Yenagoa, Nigeria

Ghali Salihu, FMP

Nigerian Content Development and Monitoring Board Yenagoa, Nigeria

Ahmed Eid Al-Shammari, FMP

Dhahran, Saudi Arabia

Ying Sum CHAN, FMP

China, Hong Kong Special Administrative Region

Ibrahim Abdelhafez, FMP

Appulus Velosi Riyadh, Saudi Arabia

Io Fai Tang, FMP

China, Macao Special Administrative Region

Hassan Balbid, FMP

MODON Jeddah, Saudi Arabia

Wael Jawi, FMP

National Commercial Bank Makkah, Saudi Arabia

Gil Barahona, FMP

PayPal Santa Monica, California

AYOOLA ADERINOLA IKUOMOLA, FMP

Alpha Mead Facilities & Management Services Company Ltd. Port Harcourt, Nigeria

Celestine Ifejiika, FMP

Alpha Mead Facilities & Management Services Company Ltd. Port Harcourt, Nigeria

Funsho Alabi Ige, FMP

Alpha Mead Facilities & Management Services Company Ltd. Port Harcourt, Nigeria

Rayed Alabdulmanem, FMP

CPA Riyadh, Saudi Arabia

John Bender, FMP

Amtrak District of Columbia, WA

Yoko Kuwada, FMP

The Trade Desk Japan K.K. Tokyo, Japan

Angel Huertas, FMP

Shutterfly, LLC Fort Mill, South Carolina

Olga Arzhanova

Crosslinx Transit Solutions Toronto, ON, Canada

Todd Bofinger, FMP, SFP

Department of Veteran Affairs Denver, Colorado

Paola Cappelletti, FMP

JLL Milan, Italy

Breanna Conway, FMP

PROVEN Management Washington, DC

Mark Fletcher, FMP

League City, Texas

John Gravell, FMP

Knott Realty Jarrettsville, Maryland Rhonda McCleary, FMP Toronto, ON, Canada

Joey Shope, FMP

City of Dayton Dayton, Ohio

David Estep, FMP

Equinix Ashburn, Virginia

Ryan Reese, FMP

Kansas City, Missouri

Robert Danielson, FMP

City of Seattle Mountlake Terrace, Washington

Cory Mull, FMP

Equinix Garland, Texas

Wayne Fung, FMP

Equinix Arcadia, California

Kerri Seebach, FMP

ServiceNow Bothell, Washington

Ross Kullgren, FMP

Equinix Elizabeth, Colorado

Cortain Vaughn, FMP

US Army Fort Leonard Wood, Missouri

Josue De La Garza, FMP

Equinix Sachse, Texas

Victor Kavhendekete, FMP

City of Grande Prairie Grande Prairie, AB, Canada

Kevin Jordan, FMP

CBRE Amarillo, Texas

Steve Fereno, FMP

ESG Toms River, New Jersey

Jetta Tatom, FMP

Facebook Mountain View, California

Agnes Downey, FMP

Amcor Flexibles North America Pingree Grove, Illinois

Gordon Ide, FMP

Sheridan College Burlington, ON, Canada

Youssef Farah, FMP

Empiru Mississauga, ON, Canada

Theo Claxton, FMP

Equinix Torrance, California

Charlie Chung, FMP

Equinix San Pedro, California

Chris Hutchison, FMP

Fairfax County Public Schools Fairfax Station, Virginia

William Platt, FMP

Cape Lookout National Seashore Newport, North Carolina

Geoffery Atkinson, FMP

Richmond Hill, ON, Canada

Guihan Zhang, FMP

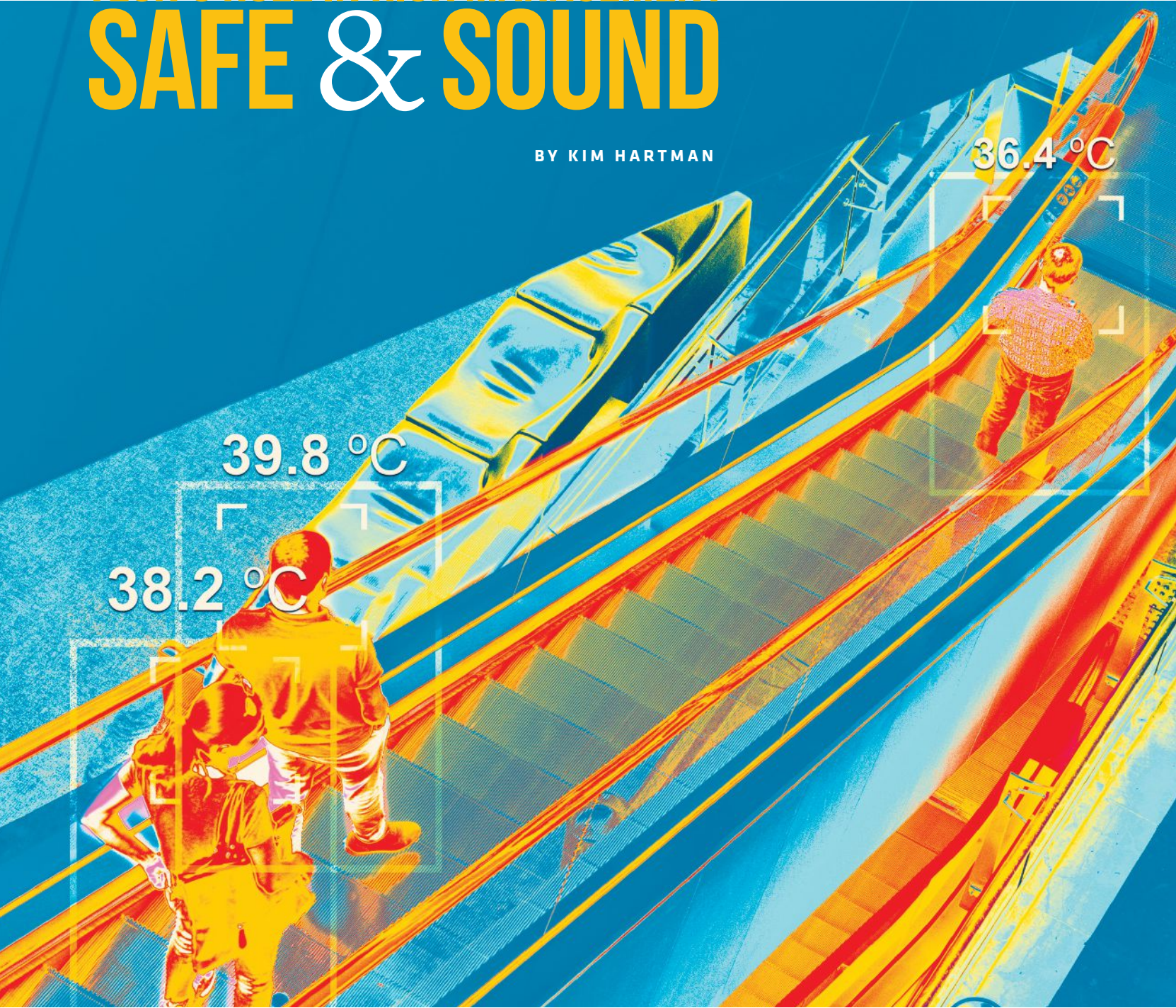
GINKGO Property and Facility Services

Redwood City, California</

TECH'S ROLE IN RISK MANAGEMENT

SAFE & SOUND

BY KIM HARTMAN



The world is incredibly reliant on security technology. During the pandemic, this technology has proven even more essential for businesses as they adapt their operations to keep employees and customers safe. From contact tracing to using touchless entry access for employees, security integrators are modifying and adding technology to their rosters as end users clamor for solutions that can keep their doors open.

While many business owners and facility managers viewed security technology systems to prevent theft, the impacts of COVID-19 have opened their eyes to the versatility of their security systems. They have learned how important an investment in quality security technology can be while they grapple with the effects of COVID-19.

ADAPTING SECURITY OPERATIONS FOR HEALTH AND SAFETY

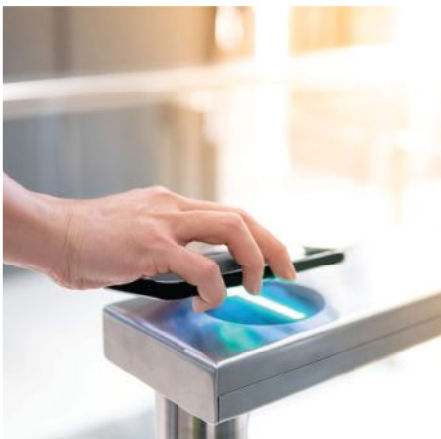
Since the world went on pause in early March of 2020, even the simplest actions have caused companies and FMs to revisit how they operate their facilities. End users seek to either improve or modify their current security systems to help solve pain points caused by COVID-19.

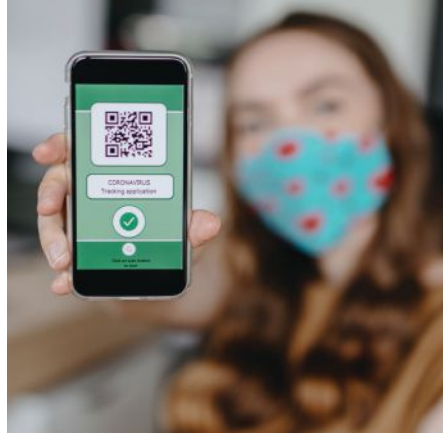
One of these pain points is the simple task of entering a building. High-frequency touch points such as door handles and buttons posed a major problem because of the possibility of COVID-19 transmission. To minimize risk, FMs and janitorial teams would have to clean these touch points after every single person entered a facility. However, the versatility of most building security technologies allowed there to be a far easier and more efficient solution: no-touch access controls. Instead of typing PINs into a keypad, swiping an ID badge, utilizing a fob or touching a door handle, end users have turned to no-touch access options, using Bluetooth technology on cell phones and installing other technology like automatic door openers to keep their employees, tenants and customers safe.

Third-party security teams are still sending their personnel on site because they need to lock doors and turn off the lights — and they still need security guards in place. When FMs have large buildings they are responsible for, they pay security guards to come to the site and make sure everything is okay.

Security technology is helping solve this problem and provides a more cost-effective solution to FMs. Security cameras can be installed and upgraded with features such as integrated audio, which is a form of audio analytic capability that can detect and analyze audio in specific parts of a building. This audio analytic technology can be triggered based on pre-set settings; so, if there was noise in a closed area between midnight and 6 a.m., an audio alert can be set off. All of these upgraded features can be programmed to feed into a centralized location so that FMs can view the entire property and their complete system from one location. This location can either be on site, or access can be granted remotely from a computer or smartphone. This feature also allows FMs to lock and unlock specific doors and adjust entrance capabilities with the push of a button, saving time and money.

Additionally, security technology can aid in minimizing interaction in parking garages. Typically, when someone enters a parking garage, they either speak with an attendant/security guard, or use a machine to print a ticket. This interaction between the driver and the security attendant has the potential to expose both parties to COVID-19, and machines would have to be cleaned after each use, which is not practical. FMs can imple-





ment technology such as license plate recognition to minimize contact between security personnel and tenants, members and customers. This technology can be integrated with a current security system so that when an approved vehicle approaches an entry point to a parking garage, the license plate is read by the system, recognized and the vehicle is granted access. Not only does this mitigate the risk of COVID-19 transmission between driver and attendant, it also streamlines access procedures. In addition to the risk management benefits, this type of technology is also used to provide VIP access. For example, many apartment complexes and health care facilities have turned to this type of technology so that only approved vehicles can access the parking garage. This helps simplify the entrance process and can be a more cost-effective option because there is no need to station parking attendants at these entrances.

USING TECHNOLOGY SOFTWARE TO KEEP BUSINESSES WITHIN COVID-19 OCCUPANCY GUIDELINES

In addition to going touchless, many FMs are looking to their security systems for analytics. When there are more than the acceptable number of people allowed within the space according to guidelines, security systems can send an alert to the FM. Security integrators offer a range of thermal camera technology that can be utilized at both the public and employee entrances.

If a customer or employee approaches the entrance without a mask, the system has the capability to notify a security guard or a FM so that they can send someone to speak with the person trying to enter the building. These thermal cameras and analytics can be used in a kiosk format as well, which allows FMs to ask health and safety questions before someone even enters the building. This helps mitigate the risk of an infected individual en-

tering the building, while simultaneously preventing an employee or security guard from being in direct contact with people who could potentially be infected.

For many businesses, crowded spaces are a common problem that need a creative solution — especially if their space is big, like a grocery store or corporate office. Analytics not only help track those with a temperature or not masking but can be a massive help with contact tracing. Through camera systems, FMs can review footage and track who someone has talked to, who they have been in front of or touched and where they have gone in the building. This can save critical time — especially when the business has been notified of a positive COVID test for an employee or customer. Additionally, it can contribute to potential contact tracing efforts by the health care industry within a particular community.

FINDING VERSATILITY IN UPGRADING EXISTING SECURITY TECHNOLOGY TO FIT YOUR NEEDS

While the concept of adding contact tracing and analytics or thermal heat tracking to cameras can sound expensive, it often only requires an update of the current security technology's capabilities — plus, it offers long-term cost effectiveness.

By combining a building's current camera system with analytics software, a security system's versatility can provide important data to FMs, such as capacity counts, people tracking and directional analytics, all of which can play a key role in mitigating the risk of COVID-19 transmission.

These software upgrades allow FMs to more easily monitor and track entrances at all points of their buildings, which prevents closing the amount of public entrances and exits.

USING WHAT YOU HAVE TO STAY COST-EFFECTIVE WHILE STAYING SAFE

Before the pandemic started, many businesses had security cameras that existed solely to help them see the goings-on on their manufacturing floors or their common use areas. Now, security upgrades give them the capabilities that will provide FMs with more efficient systems and offer real-time operational insight into their facility. The increased insight means the company does not need to hire extra security guards — and instead can monitor things remotely. Many of these systems are cloud-based, eliminating the need of traditional hardware storage and increasing an FM's ability to access, review and act on any insight they may receive from their facility's security system.

While the pandemic has created many challenges for businesses as they adapt operations to keep their business alive, the utilization of security systems can become both a breath of fresh air and a creative solution to maintaining a safe and healthy environment for staff and patrons alike. As the FM landscape shifts, security technology will play a key role in helping solve problems but will be especially helpful in aiding with risk management and mitigating the transmission of the COVID-19 virus. FMJ



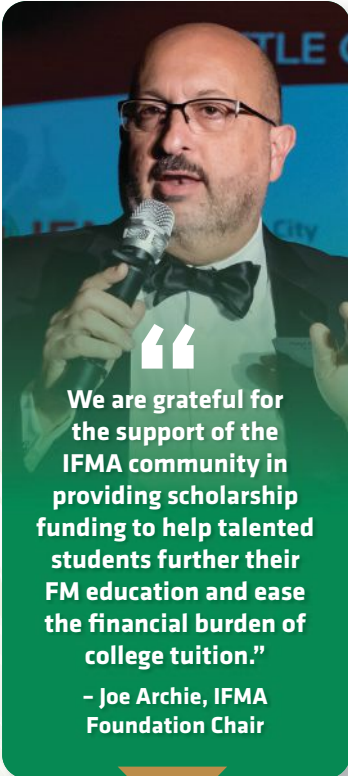
Kim Hartman is the CEO and founder of Surveillance Secure, a commercial security integration

franchise concept that consults, designs, installs and supports a full range of enterprise grade security technology for commercial clients. Leveraging extensive current technical business and enterprise experience, Hartman assists companies maximize resources for next-level expansion within the technology or security sectors.



**IFMA
FOUNDATION**
MAKING FM A CAREER OF CHOICE

Brings to you...



“
We are grateful for the support of the IFMA community in providing scholarship funding to help talented students further their FM education and ease the financial burden of college tuition.”
- Joe Archie, IFMA Foundation Chair

IFMA Foundation Professional Development Scholarship applications are available online.



Through the generosity of IFMA Fellow Eric Teicholz, the IFMA Foundation is offering scholarship opportunities to individuals interested in earning their Sustainability Facility Professional® (SFP®) in 2021.

Eligibility:

- ▶ Professionals currently in facility management or related field with a demonstrated interest in sustainability.
- ▶ Young professional members of IFMA Chapters and IFMA Councils are encouraged to apply

Applications are due by 5 p.m. CST, Friday, July 16, 2021.

▶ **To learn more about foundation scholarships, visit <https://bit.ly/3aSfhgX>**

IFMA Foundation appreciates the support of the IFMA Chapters, Councils & Communities for their sponsorship towards scholarships.

If interested in impacting the life of a future FM leader, **Contact Program Support Specialist Christina Gonzales at christina.gonzales@ifma.org to learn how to become a sponsor.**

WHAT IS FACILITY MANAGEMENT?

.....

Facility management (FM) is about supporting people where they live, work, shop and play. It's about maintaining and improving quality of life in the built environment, managing systems and processes, integrating community, culture, business and technology. Watch our most recent video. <https://vimeo.com/510438587/0fc3ec4f62>



Digital FMG badges are currently available to graduates of the Facility Management Accredited Degree Program free of charge. Graduates can also get 1 year free Young Professionals membership. Degree holders can apply for their badge with IFMA by filling out a form online at www.ifma.org/my-account/camp



ACCREDITED DEGREE PROGRAMS

SCHOOL NAME: University of Minnesota, College of Continuing and Professional Studies, Minneapolis, Minnesota, USA

FM-RELATED DEGREES OFFERED:

Bachelor of Applied Science (B.A.S) in Construction Management with Facility Management Track; Baccalaureate Certificate in Facility Management (19 credits), fully online; Minor in Facility Management* (19 credits), fully online.

IFMA AFFILIATION: Since 2011

**Must have a U of M Major to complete Minor.*

WHAT COURSES ARE OFFERED?

CMGT 3024W	Facility Programing & Design	(2 Credits)
CMGT 4215	Facility Quality Assessment Management & Commissioning	(2 credits)
ABUS 4211	Facility Asset Management & Finance	(2 credits)
ABUS 4213	Facility Management Fundamentals	(3 credits)
ABUS 4217	Real Estate Development	(2 credits)
ABUS 4218	Real Estate Finance	(2 credits)
CMgt 4022	Construction Estimating	(3 credits)
CMgt 4021	Planning & Scheduling	(3 credits)
CMgt 4861	Capstone	(3 credits)
CMgt 4542	Building Energy Systems	(3 credits)
CMgt 4073	Building Codes	(1 credit)

WHY AND WHEN WAS THE PROGRAM INSTITUTED?

Before 2011, there was no facility management program in the upper Midwest United States. The IFMA Twin Cities Chapter approached the university about starting the program. Our college was able to fill the knowledge gap as the outward facing college at the university.

WHAT TYPES OF PRACTICAL APPLICATIONS DO YOUR STUDENTS LEARN?

The FM program at the University of Minnesota is highly focused on project management and emphasizes environmental health and safety.

Students learn building commissioning, facility asset management, facility accounting and finance, facility operations and management, real estate development and real estate finance.

Internships are required as a part of the bachelor's of applied science program and encouraged for certificate and minor students. Many of our students work and go to school as most of our professional courses are offered after 6 p.m.





UNIVERSITY OF MINNESOTA

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

University of Minnesota alumni are employed in a variety of disciplines, including facilities operations management, food service management, building official, medical facility executives, universities and museums facilities management.

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

Three primary pillars are facing the next generation of facility managers are energy, environmental health and safety, and the future of work.

Energy consumption directly impacts both human comfort and systems operations within the built environment, yet the pressure to reduce consumption and improve building operating efficiency in the face of climate change, especially within older structures, will be a constant and unrelenting challenge.

Environmental health and safety was brought to the forefront as

facility managers wrestled with the twin impacts from the global pandemic and social unrest. Rapid adaptation and deployment of safety measures was, and is, critical to continued operational capability, and the lessons learned will be re-applied more consciously in the future in the face of both natural and man-made forces.

And finally, the future of work and the workplace will radically evolve as a direct result of the pandemic — changing the habits of work in the workplace, wherever that may be, and causing a wholesale re-evaluation of all real estate assets and the systems that support work.

WHAT ARE THE ACCOLADES OF YOUR ACADEMIC STAFF?

Peter Hilger is the founding board president of the Facility Management Accreditation Commission that established the basis for outcome-based education assessment, now transferred to ABET. All faculty are adjunct by charter, and all are working professionals in their fields, which is what students most appreciate in their program reviews — that the faculty bring real time experiences into the classroom.



WHAT TYPES OF STUDENTS ENROLL IN YOUR PROGRAM?

Mostly adult learners that have prior degrees and have found themselves in the FM field and need to rise in the discipline, while still working and in school.

WHAT DO STUDENTS MOST APPRECIATE ABOUT YOUR PROGRAM?

Classes are taught by real-world professionals in the discipline. They apply cutting-edge practices to their lessons. Because of our program schedule, many students can work and go to school at the same time with the convenience of evening classes.

DOES THE UNIVERSITY OF MINNESOTA OFFER STUDY ABROAD EXPERIENCES?


We have a two-week study abroad program in a working-class community in Costa Rica where students can work together on an integrated project for social service or medical agencies in need.

CAN THE FM PROGRAM BE COMPLETED ONLINE?

Yes. Our certificate and minor tracks can be fully completed online. Also, most of the BAS degree can be done online with proper planning.

HOW LONG DOES THE FM PROGRAMS TAKE TO COMPLETE?

The certificate can be completed fully online over the course of three-semester going part-time. We admit an FM cohort every fall in even years with the next being in Fall 2022.

The bachelor's degree of applied science is a four-year, 120-credit degree. 







The Recruiting Game

The Search for Fresh Faces in FM

BY ANTHONY PIUCCI

High-quality facility management services are crucial when it comes to successfully maintaining buildings of all scales. The COVID-19 pandemic has made once invisible FM teams more visible and valued than ever before. This US\$1 trillion industry, while thriving, is facing an increasing challenge of attracting fresh faces to both managerial and frontline roles. The average age in the workforce is 50.9 years old.¹

The need to replace retiring professionals with new and diverse talent is overwhelming, and largely attributed to an uninformed audience. Because FM tends to be a business-to-business industry, there is a disconnect for consumers and the general population, making talent acquisition challenging. Many FM providers struggle with finding quality candidates despite its size and prestige within the industry.

While FM might lack the cachet of other industries, there are countless benefits to joining the profession. Stable work, room for growth, safe and professional environments, and the opportunity to work within diverse and prestigious facilities top the list of industry assets.

For FM companies, partnering with IFMA can play a key role in acquiring new talent. In October 2019, members of the ABM leadership and recruitment team attended IFMA Foundation's Global Workplace Initiative IgniteFM! student competition. Through the Foundation, a connection was made with **Tanner Hulka**, a student at Brigham Young University. Throughout his last year of college, Hulka stayed connected with an ABM contact and was eventually offered a position as a site coordinator in Houston, Texas, USA.

As a promising FM candidate, Hulka shares what drew him to the industry, his challenges, career goals and more.

Q: How did you hear about FM and why have you gravitated toward the industry?

A: I went to school in Utah at BYU. I was in exercise science at first and then switched to recreation management. I was trying to figure out what I wanted to do; I was just taking general credits at the time. I was probably two years in, trying to figure out what I wanted to do and then my brother, who was in the facility and property management program, said to check it out. I looked at the course credits that they had and thought it looked interesting. I spent the next two years going through the classes and really enjoyed it.

Q: You started in February. What have you learned so far about the FM industry?

A: It's been a wild ride since I started: it's been go, go, go. I think we really appreciate skilled technicians in facility and property management. Documentation is very important when it comes to work orders and making sure things don't fall through the cracks. Things can get very busy and with a lot of work coming in, making sure that we can track the purchase orders and work orders is important. At this point, I'm just trying to be a sponge and soak up everything. People that you deal with sometimes might act like a know it all, but you can't know everything. I think being humble to learn from technicians or your manager or the people that you manage can take you far.

Q: As a site coordinator, you have a lot of different responsibilities. What would you say a good day at work looks like for you?

A: Every day is different: you come in and there might be some emergency on site. A good day would be answering everyone's emails and questions. A good day would also be setting up new vendors, so if we need a new vendor, making sure I reach out to them, get their paperwork and make sure they're in our system. Ordering any supplies, that would be a good day, making sure I stay on top of that, trying to help where I can.

Q: What challenges have you faced (and overcome) so far?

A: I think a big challenge for myself right now is just the learning curve. How ABM does things, their systems, and trying to learn that as well as our client that has their own systems and way of doing things. Trying to learn both of those and how we connect those systems together has been difficult. What's helping me out is being in those systems everyday to familiarize myself with them. I think the best way to learn something is to keep getting familiar

with it. It's hard when an emergency comes up because you have to give up the other things that you're working on to attend to that. It's also making sure that you can fully understand the situation — what is needed from myself, what other things do we need to coordinate. We're able to get with the client to talk out everything that we need, making sure that there's communication and nothing falls through the cracks. We're doing our best to meet the client standards and help them out.

Q: What appealed to you about this career path and not a desk job?

A: I think what initially brought me to this industry was that I'm fascinated by buildings. My dad is a residential appraiser and he showed us a couple cool properties that he was able to work on. Being able to work in a cool building is always something that I've liked. I still do some desk work, but most of the time I'm helping out where I can, walking around. Every day is different, which sometimes is a good thing, sometimes it is a bad thing. My priority is to make sure that our client has a comfortable space to work. I'm successful when our client is successful and their employees are able to do the work that they do. I feel like doing what I'm doing now is helping them out more than sitting at a desk.

Q: What is one thing you know about the FM industry that you think would attract other students to the field?

A: I think the first thing is the need for people in this industry, there's a huge demand. People don't even know it exists. If you walk around at a job fair, students have no idea what FM is. I think showing potential students that this is a job that is really hot right now, that you're pretty much guaranteed a job. The second is realizing that FM is everywhere. You can pretty much go wherever you want.

Q: Do you have any specific goals for what you hope to achieve in your career?

A: I don't have a desire to "climb the corporate ladder." Interacting with my boss and my boss' boss, they're very busy and I don't necessarily want that for myself. I don't necessarily either want to be in the day-to-day operations, in the trenches every day. I think my career goals are to just help my employees. Whether I'm a site coordinator or an FM or an account director one day, I just want to be able to help my employees the best that I can. I try to be service-oriented and tend to be a yes-man. It's not a very specific career goal, I just want to be successful in what I do now — making sure I put in the effort every day to help my employees as well as our clients.


CONCLUSION

As the FM services industry continues to grow, so too will the demand for talent. However, it is important that hiring managers continue to remain selective when filling roles. In Hulka's case, showing initiative and genuine interest helped him to stand out among dozens of other FM students. For FM career development and growth, initiative and determination are two of the top variables for success.

"Success in the industry requires commitment to the industry. If you're going to be in this world, you have to finish what you start. I think if you want to grow, you have to see it through," said Dustin Little, senior director of talent acquisition for ABM and IFMA Foundation Global Workforce Initiative Advisor.

While a talent shortage may seem like a substantial setback, the FM industry can take advantage of the job market and recruit candidates that may not have considered an FM career. In a time when job security is highly valued by both college graduates and veterans, FM or janitorial frontline work could prove to be a promising path. By marketing industry benefits like job stability, safety, and growth opportunity to potential applicants, chances of securing and shaping top talent could increase exponentially.

Tanner Hulka graduated from an FM degree program accredited by ABET and the IFMA Foundation. These

schools are graduating top-notch future facility managers. As a GWI Advisor, the ABM Talent Acquisitions team are able to meet students like him and others through these Accredited Degree Programs, the IFMA Foundation student scholarship programs, career webinars and IgniteFM! competitions. Partnership with the IFMA Foundation provides much needed talent to fill the looming gap in FM employment. 

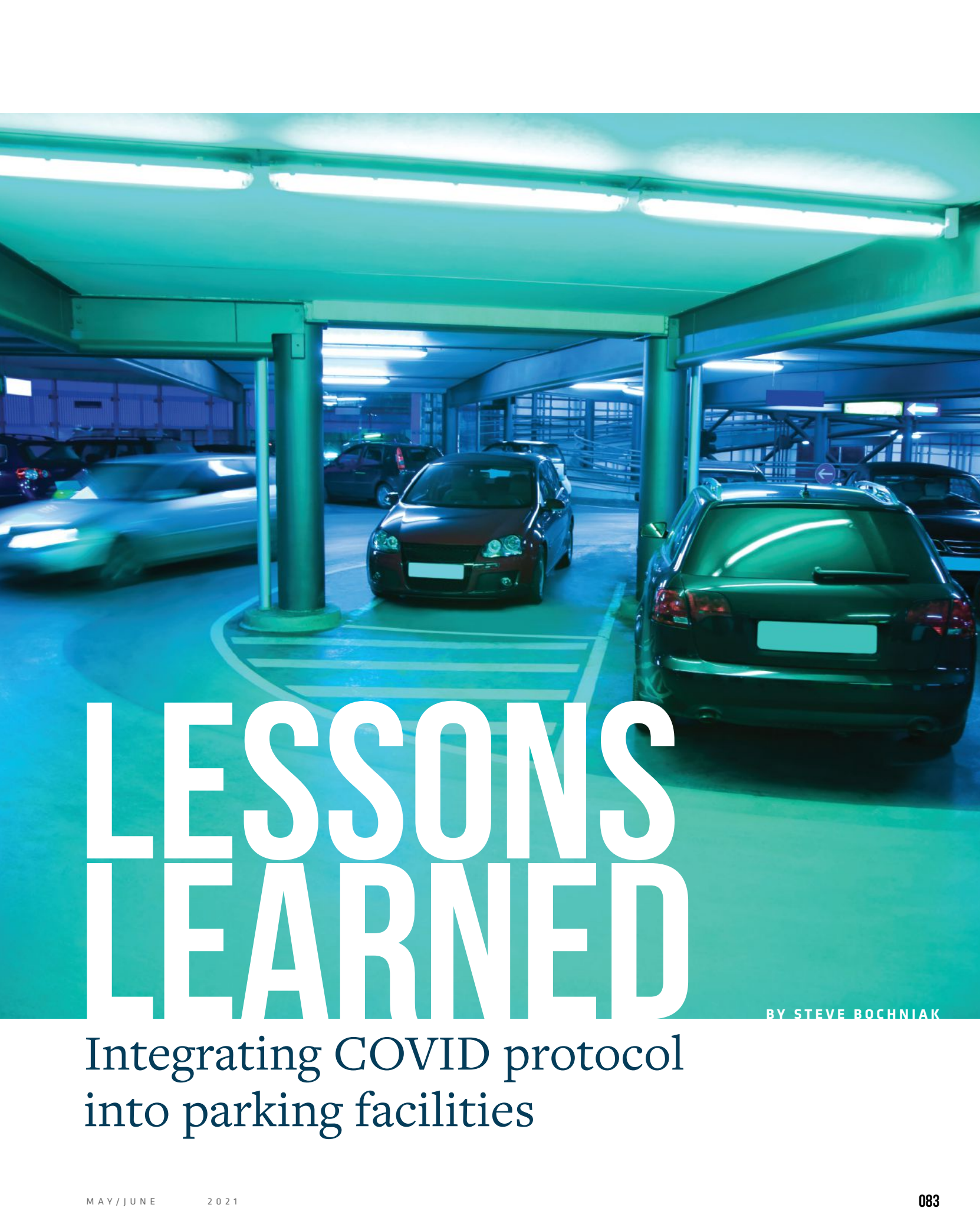
“Success in the industry requires commitment to the industry. If you're going to be in this world, you have to finish what you start. I think if you want to grow, you have to see it through.”



Anthony (Tony) Piucci, senior vice president of ABM Business and Industry Facility Services Solutions, is a 35-year veteran of the FM industry and oversees international business development. The team seeks out integrated facility services opportunities for new and existing clients in the corporate, industrial and commercial real estate markets.

Sources

1. REPORT: Facility management faces critical talent shortfall (ifma.org)



LESSONS LEARNED

BY STEVE BOCHNIAK

Integrating COVID protocol
into parking facilities

A year after COVID-19 upended lives and economies around the world, a post-crisis review would seem appropriate. Typically, after singular disasters like an earthquake or hurricane, there are opportunities to identify ways to be more resilient and better prepared (like strengthening building codes or revising weather models). An extraordinary, complex and evolving event, the pandemic is not over yet, although the deployment of vaccines means the end is finally in sight. For the parking industry, the ability to pivot and adapt quickly to consumer demands helped facilities cope with the formidable challenges of a turbulent year. Remaining agile and adopting frictionless technologies are key to navigating the transition into the post-pandemic era.

The impact of the coronavirus was dramatic and sudden. The initial lockdowns emptied garages and lots across the country almost overnight. Managing those facilities was complicated by the pandemic's volatile nature and spread. Increases in infection rates prompted more lockdowns and other restrictions in certain regions. New information about the virus emerged every few months, resulting in updated policies and revised procedures. Parking facilities were not affected uniformly or consistently, with significant differences by market segment. The only constant was change.

MANAGING RISK

Parking managers were forced to repeatedly pivot over the course of 2020. Fundamental to maintaining that flexibility and agility is understanding the customer base and their behaviors. For facilities in urban cores or linked to office buildings, for example, knowing what is happening with the tenant base is vital business intelligence. Parking managers should be in regular communication with building management to anticipate and plan for potential changes and disruptions.

While many office workers switched to a work-from-home schedule, commuting by car made a comeback in select markets.¹ People for whom remote work was not possible and in sectors that were not subject to lockdowns — such as health care and other essential services — opted to drive rather than take the train or the bus, where social distancing is not possible. This resulted in garages in big cities recovering earlier and faster than expected. Facilities in other urban centers also experienced bumps in garage utilization rates. This shift away from public transportation may extend beyond the pandemic as many transit systems are facing service level cuts in response to significant revenue losses.²

The medium- and long-term prospects for office-linked parking are unclear. Many companies, big and small, have indicated that a significant percentage of their employees will remain at home

through the middle of 2021. It is entirely feasible that some office-based businesses may never return to full, pre-pandemic occupancy levels. Traditional monthly parking models may no longer make sense in that case. Parking managers should prepare for that possibility and consider hybrid pricing structures and other flexible options that can respond to the evolving marketplace.

Event-based facilities like sports arenas, stadiums, theaters and convention centers are severely underutilized or closed entirely. These situations will likely persist until bans on large gatherings are lifted — and people feel safe in and around big crowds. Entertainment activities, including sports, are expected to bounce back first, given the pent-up demand. When that happens, parking managers should be ready for higher utilization rates as more consumers are expected to drive rather than take transit or a ride-sharing service.

The picture is arguably more complicated for convention center business. The pandemic triggered this market segment's third major downturn of the last 20 years. Many 2020 meetings and tradeshows were canceled, rescheduled or moved online.³ Virtual events were successful for many organizers who may permanently adopt that format, which would also disrupt airlines and hotels. Given the long lead time for planning conventions and meetings, this sector's recovery will lag behind the broader economy and its prospects may not be apparent until 2022 or 2023.

KEEPING IT CLEAN

When the pandemic put the brakes on air travel, airport parking skidded, too. Helping to offset some of the decrease in business were members of the still-flying public who opted to drive themselves to the airport. Ride-sharing services, which had been cutting into parking revenue, were significantly sidelined by the pandemic.⁴

Consumer confidence in the flying experience depended heavily on health considerations, so airports were quick to implement rigorous and visible cleaning programs that extended to every fac-

et of the operations, including parking. At decks and lots, efforts focused on disinfecting high-touch points and shared spaces, like elevators and shuttles.

Signage supported physical-distancing recommendations and other safety measures. Shuttle drivers, valets and other employees who interact with the public received special training and were equipped with personal protective equipment. Many of these protocols were adopted as best practices across the parking industry.


In light of the rollout of vaccines, air traffic is predicted to pick up in the second half of 2021, led by domestic leisure travel.⁵ Post-pandemic, cleaning and disinfection protocols will likely be integrated into standard operating procedures at airports, as well as all types of shared spaces. COVID-19 has permanently raised awareness of the benefits of preventative and protective methods against a wide variety of viruses and communicable pathogens.



THE FUTURE IS FRICTIONLESS

Although it will be a while before the lasting effects of COVID-19 are assessed, touchless payment systems and other technological innovations are here to stay. The pandemic was merely an accelerant for a consumer-driven trend that was already well underway.

Consumers value their time and convenience more than ever and that means faster, frictionless service. Parking facilities must be visible online and offer reservations via their website or mobile apps — ideally both. Once consumers make the decision to drive, they want to be assured that a parking spot is waiting. Just as important, they want to know that getting in and out of the facility is as quick and easy as showing a QR code or having their license plate scanned. Contactless payment options and touch-free features further ease the process.

Parking management that fails to invest in these systems will lose customers in a competitive buyer's market. As the economy recovers, they risk being permanently relegated to second- and third-tier status. 



Stan Bochniak is vice president, national parking sales for ABM Industries. He has more than 25 years of parking industry experience in roles from facility manager, regional manager and regional marketing. All these positions have enabled him to develop a strong and diverse knowledge of parking and transportation operations, FM and commercial real estate.

1. [wsj.com/articles/as-new-york-city-reopens-driving-becomes-a-tempting-commute-11592755201](https://www.wsj.com/articles/as-new-york-city-reopens-driving-becomes-a-tempting-commute-11592755201)
2. [nytimes.com/2020/12/06/nyregion/mass-transit-service-cuts-covid.html](https://www.nytimes.com/2020/12/06/nyregion/mass-transit-service-cuts-covid.html)
3. [bloomberg.com/news/articles/2020-03-18/cost-of-cancelled-conventions-to-top-20-billion-in-two-months](https://www.bloomberg.com/news/articles/2020-03-18/cost-of-cancelled-conventions-to-top-20-billion-in-two-months)
4. [knowtechie.com/uber-lays-off-another-3000-employees-is-this-the-end-of-rideshare-companies](https://www.knowtechie.com/uber-lays-off-another-3000-employees-is-this-the-end-of-rideshare-companies)
5. International Air Transport Association (IATA) revised outlook for airline industry performance. [iata.org/en/pressroom/pr/2020-11-24-01](https://www.iata.org/en/pressroom/pr/2020-11-24-01)

 ManhattanONE

Maximize today. Optimize for the future!

Flexible & scalable software for
managing dynamic space needs

For more information, please visit our virtual booth at IFMA Facility Fusion, April 21-22 or contact us: realestate@trimble.com

Real Estate that Works

COMPANY NAME Mohawk Group
EXPERTISE Flooring
CSP LEVEL Silver
CSP SINCE 2010
WEBSITE www.mohawkgroup.com

Mohawk Group

What research or product innovations is your company working on that will help FMs be more successful?

We believe that pioneering and performance are integral to our DNA. Innovation is our commitment to listening carefully to FM's needs and creating an exceptional product and service that can answer your challenges.

For instance, our M-Force Technology is an enhanced urethane finish for Mohawk Group LVT. M-Force provides the ultimate in stain and scratch protection without compromising the authenticity of the finish.

Also, to make your jobs easier, we've taken performance to the next level on the soft surface side. Duracolor Tricor nylon delivers unsurpassed stain resistance, colorfastness, durability, color clarity and enhanced soil performance. Carpet is easy to maintain with inherent stain resistance and water-only stain removal. What's more, its 30 percent recycled content makes Duracolor Tricor one of the most sustainable fibers on the market today. With more than 300 beautiful colors that last, Duracolor Tricor is the right choice.

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

One challenge brought on by the pandemic is the safe reopening of our showrooms and design studios. We've met that challenge by completing a rigorous review process to achieve the WELL Health-Safety Rating for all our commercial showrooms and design studios.

The WELL Health-Safety Rating is an evidence-based, third party verified rating for all new and existing building and space types focusing on operational policies, maintenance protocols, stakeholder engagement and emergency plans to address a post COVID-19 environment now and into the future. As one of the first flooring manufacturers to earn this distinction, Mohawk Group is proud to lead with transparency and welcome you back safely.

Additionally, we didn't stop innovating during the pandemic and are excited to bring our latest products from Mohawk Group and Durkan directly to our customers with the launch of our Waterways Project, a luxury mobile showcase. The Waterways Project emerges as part of Mohawk Group's commitment to leave a positive handprint on local waterways. This mobile showcase journeys through new products, technologies and initiatives designed to improve understanding of river health and how rivers support life. Kicking off in early summer 2021, more details will be announced in the coming weeks.

COMPANY NAME Republic Services
EXPERTISE Environmental Services
CSP LEVEL Silver
CSP SINCE 2020
WEBSITE info.republicservices.com/IFMA



What does Republic Services do?

Republic Services, Inc.® is a leader in the U.S. environmental services industry, serving commercial and residential customers in 41 states and average 5 million pickups per day. We're committed to providing a superior customer experience while also fostering a sustainable Blue Planet® for future generations to enjoy a cleaner, safer and healthier world.

How does Republic Services address sustainability?

We have been steadily building on our sustainability performance for several years. In 2019, we unveiled a set of ambitious, long-term goals we refer to as our Blue Planet: 2030 Goals. These goals are designed to significantly benefit the environment. To achieve them, we are working to increase recycling, decrease vehicle emissions, generate renewable energy, implement innovative landfill technologies, and help our customers be more resourceful through programs like Recycling Simplified.

How is Republic Services meeting new industry challenges and opportunities?

With a fleet of 16,000 vehicles — we operate one of the largest vocational fleets in the U.S. We're continuously evaluating innovative approaches and technologies to improve the performance, economics, and environmental impact of our fleet. Twenty percent of our fleet operates on natural gas, reducing unwanted noise and air emissions in the areas we serve. Also, we recently introduced our first fully electric truck into residential service and plan to incorporate 2,500 more electric trucks starting in 2023.

How does Republic Services help businesses and the community?

At Republic Services, we pride ourselves on being good neighbors. We use our resources and products to create stronger, cleaner, healthier spaces in the neighborhoods we serve and share. Throughout the challenges presented by the COVID-19 pandemic, 28,000 of our 35,000 employees remained in the field, serving our customers and communities. We are proud to be an essential service provider, which is why we launched Committed to Serve in April 2020. This initiative was created to recognize our frontline employees and help support small businesses at the heart of local economies. Since its launch, more than US\$30 million has been distributed to frontline employees to support the economy, local restaurants for employee meals, and our charitable foundation to support the rebuilding of small businesses.

COMPANY NAME Cartegraph
EXPERTISE Building Maintenance,
Space Planning/Management
CSP LEVEL Silver
CSP SINCE Since 2021
WEBSITE www.cartegraph.com



Cartegraph uses the phrase “high-performance facility operations.” What does that mean, and why is it essential for facility managers?

Whether you’re a manufacturer or non-profit, a university or local government, building high-performance facility operations means that your team is striving to be better today than you were yesterday. To achieve that, high-performance organizations know that they can’t go at it alone. Instead, they seek out expert partners and location-centric software tools to help them extend the life of their indoor, outdoor, above, and below-ground infrastructure, make smarter investment decisions, manage costs, and drive more productive facility operations.

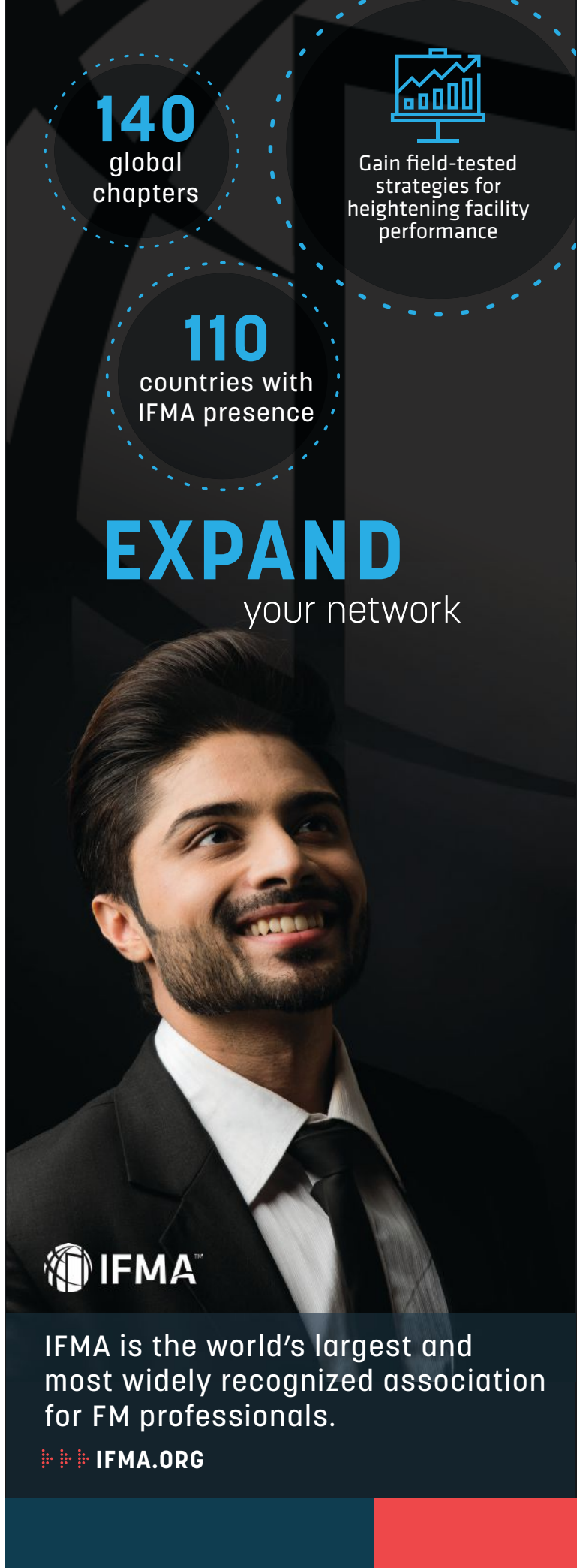
Building high-performing operations is critical for FMs because your facility portfolio represents your organization’s largest financial asset, your second-largest expense, and one of your most significant long-term investments. With so much on the line, even the most minor improvements to property maintenance, space utilization, and facility performance can drive higher financial savings and a significant return on investment, all of which your organizational leaders can get on board with.

What’s the biggest challenge facing FMs and how is Cartegraph helping?

The most significant challenge facing FMs is preparing for and responding to post-COVID budget constraints and occupancy changes. Universally, the way we fund and occupy spaces has fundamentally changed, and FMs must reimagine their spaces and reevaluate their investments.

Right now, FMs are asking a lot of questions. ‘How do we get back on site safely?’ ‘Could we make hoteling work?’ ‘Should we sell this building?’ With no silver-bullet solution, successful FM teams will turn to their data to uncover the answers. That’s where Cartegraph’s comprehensive facility operations software comes into play.

By helping to collect and analyze facility maintenance, space management, safety and security, and property portfolio data in a single platform, Cartegraph provides FMs with a real-time, 360-degree picture of their operations. With critical data in one place, teams use Cartegraph to answer complex questions on how they’re performing and run scenarios to see how acquisitions, dispositions, or consolidations will impact costs, revenue, and capacity. FMs are even using Cartegraph’s space planning and management tools to adjust seating plans floor-by-floor and reduce the time it takes to plan and execute moves on a tactical level.



140
global chapters



Gain field-tested strategies for heightening facility performance

110
countries with IFMA presence

EXPAND
your network



IFMA is the world’s largest and most widely recognized association for FM professionals.

IFMA.ORG

CSP

IFMA™
CORPORATE
SUSTAINING
PARTNER

IFMA's **Corporate Sustaining Partners (CSPs)** are dedicated facility management industry supporters. These best-in-class organizations make a substantial investment in the facility management community as trusted advisers, topic experts and change leaders. They are committed to the success of the professionals they support.

CSP
PLATINUM

IFMA™
CORPORATE
SUSTAINING
PARTNER

CSP
GOLD

IFMA™
CORPORATE
SUSTAINING
PARTNER

CSP
SILVER

IFMA™
CORPORATE
SUSTAINING
PARTNER

Trustworthy

Reliable

Authors

Advisors

Presenters

Experts

Credible

Researchers

Expert

With the generous support of CSPs, IFMA has the means to deliver the quality, cutting-edge information.

PLATINUM

GOLD

**Office
DEPOT**

OTIS

**Schneider
Electric**

**C&W
SERVICES**

IBM

**Kimberly-Clark
PROFESSIONAL**

PLANON
AIM FOR THE OPTIMUM

SILVER

ABM
Building Value

AL-HAJRY OVERSEAS
الهجري لما وراء البحار

amentum
Experience | Passion | Purpose

aramark

ARC

Armstrong
CEILINGS

biamp.

Cartègraph

Cloudbooking

CORT

**DAVIES
OFFICE**

EDF
renewables

EMCOR
Facilities Services

EXCEL
THE 10 THINGS IN THE 100

FM:Systems

FreeAxez

Idea

office

**KASTLE
SYSTEMS**

LogiSon
ALGEBRAIC NETWORKS

Mohawk Group

pig
New Pig

Pivot Energy

**REPUBLIC
SERVICES**
We'll handle it from here.

rzero

SCLogic

sodexo

Space IQ

Staples

Tarkett

TORK
Think ahead.


UFM

vari

Wispr
by Gensler

Interested in becoming an IFMA partner? Contact us to learn more: +1-281-974-5681 |

ACOUSTICAL/SOUND MASKING

Biamp Systems | www.biamp.com 
Lencore Sound Masking & Acoustics | www.lencore.com
LogiSon Acoustic Network | www.logison.com

BUILDING MAINTENANCE/REPAIR/RESTORATION

Otis Elevator | www.otis.com

CARPET/FLOORING/TEXTILES

MasterCorp | www.mastercorp.com
milliCare Floor & Textile Care | www.millicare.com

CEILINGS/CEILING CARE

Armstrong World Industries | www.armstrong.com

DISASTER RECOVERY/EMERGENCY RESPONSE

BELFOR USA Group Inc. | www.belforusa.com

EDUCATION

Capitol Technology University | www.captechu.edu

ELECTRICAL/WIRE MANAGEMENT

FreeAxez LLC | www.freeaxe.com
Schneider Electric | www.schneider-electric.com

ENERGY SOLUTIONS/MANAGEMENT

EDF Renewables NA | www.edf-re.com
Pivot Energy | www.pivotenergy.net
Schneider Electric | www.schneider-electric.com

FLOORING INSTALLATION/MAINTENANCE

Corporate Care | www.corporatecare.com 
Forbo Flooring | www.forbo.com
milliCare Floor & Textile Care | www.millicare.com/
Mohawk Group | www.mohawkgroup.com
Tarkett | www.tarkettna.com


FM CONSULTANTS/SERVICES/PROVIDERS

ABM | www.abm.com
Al-Hajry Overseas Co. LTD. | www.alhajry-overseas.com.sa
Al Shirawi Facilities Management | www.alshirawifm.com
Amentum | www.amentum.com
ARAMARK | www.aramarkfacilities.com
Canadian Base Operators | www.canadianbaseoperators.com
C&W Services | www.cwservices.com
EMCO Qatar | www.emcoqatar.com
EMCOR Facilities Services | www.emcorfacilities.com
FEA | FEApc.com
Linc Facility Services. Doha. Qatar | www.abm.com
New PIG Corporation | www.newpig.com
Office Depot | www.business.officedepot.com
Qillaq Innovations | www.qillaq.ca
QNBM | www.qnbnm.qa
Renaissance Services SAOG | www.renaissanceservices.com
SRACO Company | www.sracom.sa
Sodexo | www.sodexousa.com
Staples | www.staples.com

FM HARDWARE

Idea | www.idea.com

FM SOFTWARE

Cloudbooking | www.cloudbooking.com
Cartegraph | www.cartegraph.com
FM:Systems Inc. | www.fmsystems.com
IBM | www.ibm.com/us-en/
iOFFICE | www.iofficecorp.com 
Planon | www.planonsoftware.com
SpaceIQ | www.spaceiq.com
Trimble | www.trimble.com

FURNITURE

CORT | www.cort.com
Davies Office Inc. | www.daviesoffice.com
Kimball International | www.kimballoffice.com
Vari | www.varidesk.com
Versteel | www.versteel.com

INTEGRATED FACILITIES MANAGEMENT

Amentum | www.amentum.com
United Facilities Management | www.ufm.com.kw

JANITORIAL SERVICES/CLEANING PRODUCTS

Excel Dryer | www.exceldryer.com
rzero | www.rzero.com
Tork, an Essity Brand | <https://www.torkglobal.com>

LANDSCAPE/MAINTENANCE/PLANTS/SERVICES/SUPPLIES

Ambius | www.ifma.ambius.com

RESTROOM PRODUCTS

Kimberly-Clark Professional* | www.IFMAandChess.com

SECURITY

Kastle Systems | www.security.kastle.com
Securitas Security Services USA | www.securitasinc.com

TECHNOLOGY SOFTWARE TOOLS

ARC Technology Solutions | www.e-arc.com
SCLogic | www.SCLogic.com

WASTE MANAGEMENT

Republic Services | www.republicservices.com





**Advance your career,
maximize efficiencies &
streamline operations
to boost your triple
bottom line with**

IFMA's SFP®

**Individuals pursue the SFP®
to enhance performance in their
current roles and build a strong
career path for the future:**

 **INCREASED EARNING POTENTIAL**

The average five-year return on investment of IFMA credentials is 15:1.*

 **GAIN EXPERTISE**

Attain the ability to assess, strategically plan and lead

 **IMPROVED WORK PERFORMANCE**

Maximize efficiencies and streamline operations to boost your triple bottom line: people, planet, and profit

*According to the IFMA sponsored research report, "Evaluating the Value: International Facility Management Association (IFMA) Facility Management Credentials"

**Gain knowledge & skills today that you can use
to implement facility-wide change tomorrow
with IFMA's Sustainability Facility Professional.®**



Learn more at ifma.org/professional-development



LOTS *of* CARE

ASSESSING PARKING LOT REPAIR NEEDS

BY BOB LESTER

Regardless of industry, location or background, 2020 was universally an atypical year for facility managers. From shifting safety protocols to rethinking what operational procedures look like to navigating continual changes in respective facility locations, it can be hard to get a gauge on where to go from here.

This year will be a sort of hybrid year, during which FMs will assess deficits and try to predict what the end of this year will look like as normal activity resumes. As FMs work through operational budgets and planning for the year, there is much less money to go around.

In addition to budgetary concerns, understanding how to assess annual parking lot needs will look different this year, too, as the wear and tear on lots varied so much across various businesses and industries. For example, some parking lots may have been mostly or completely vacant in lieu of their typical daily traffic, so repair needs may not be as extensive.

Other facilities' repair needs may be more extensive than usual if traffic volume was higher after becoming a COVID-19 testing site or vaccination site. Alternatively, many commercial office buildings have been empty while multi-family residential parking lots may have been occupied more, and idle cars leaking fluids not being driven can also be hard on parking lot.

Regardless of where a parking lot lays on the spectrum, there are a few areas FMs can focus on to assess specific parking lot needs for the rest of 2021.

Define priorities and budgetary limitations

The first place to start when considering parking lot maintenance needs is to think about what needs look like in a typical year. In many cases, the need for parking lot maintenance will not be much different this year than it would be any other year. However, a facility's situation may be different and the budget limited, so that may affect the approach to parking lot maintenance.

Here are a few helpful questions to ask:

- What is the impact of the condition of the parking lot on business? For example, if the parking lot was not maintained in 2020, and maintenance is deferred, might that hinder ability to fill vacancies created by the pandemic?
- What types of repairs does the parking lot require? Has the FM team walked the parking lot and made a list of any areas of concern? It can be helpful to have a satellite image of the area before walking the lot so that areas of concern can be marked in advance.
- What contractors have been used in the past and what was the experience like? If the experience was less than ideal, now is the time to start researching other contractors. Ask other FMs who they recommend and be sure to read online reviews.



- How urgent is the need for repairs? If there are issues that create potential safety hazards, it is important to immediately address them. It may be that contractors will be extra busy because so much maintenance work was deferred in 2020, so scheduling maintenance early is a good approach.
- Of the repairs that are not urgent, which ones are important and necessary, and which ones could be deferred? Beware of the hazard of deferring maintenance that may lead to additional costs later.
- When will funding be available and how much? If this is unclear, it is important to talk about it with management and get an understanding of what the limitations will be. This could make a big difference in prioritizing projects.

Discuss what traffic looked like throughout 2020

Once an FM has found a contractor they trust, probing the contractor for more specific recommendations is appropriate. Share with the contractor what traffic looks like in a typical year compared to what it was like in 2020.

Using some major cities as a benchmark, there were drops in traffic as high as 40 percent in 2020 compared to previous years. Furthermore, parking lots that served certain industries, such as technology, finance and marketing, likely endured less wear and tear in 2020, which means fewer repairs may be needed in 2021. However, hospitals, testing sites and vaccination clinics likely experienced substantial increases in vehicle traffic in 2020 and will only see this trend increase into 2021.

If the lot was used for COVID-19 testing and/or vaccine distribution, another factor FMs should consider is the machinery that sat on the lot for this functionality to be possible. If heavy equipment sat in the lot for a while, it is worth pointing out to the contractor, so they can assess areas that may have been stressed.

In addition to discussing past traffic patterns, it is also worth sharing a prediction with the contractor for what traffic will look like in 2021 to decide if lighter, more essential maintenance can be done this year. If traffic will remain lower, then slating some of the heavier and more preventative maintenance before it gets cold late this year, or even waiting until 2022 to tackle more expensive repairs.

Understand what weather does to a parking lot

Weather is a factor that affects the need for parking lot maintenance. For parking lots in locations where the temperature fluctuates sharply throughout the year, pavement will typically need a little more tender love and care.

This type of weather pattern is the hardest on pavement because it is constantly expanding and shrinking with each warm day and freezing night. The repeated freezing and thawing cycle causes more cracks, defects and potholes than if the temperatures had dropped and consistently stayed below freezing.

Seemingly minor cracks and potholes caused by fluctuating temperatures can quickly grow and cause unsafe conditions for both pedestrians and vehicles and cause costly repairs later in the year.

It is always important to consider these factors when compiling annual facility operational budgets and thinking through how much to reserve for parking lot and walkway maintenance.

Know when to engage a paving contractor

When trying to conserve operating budgets, FMs might improvise and cut corners when it comes to repairs in parking lots. In some cases, FMs can step in and take monitoring into their own hands, but it is important to know what not to do in terms of trying to repair parking lot issues. For example, trying to repair minor defects to prevent larger potholes by filling small holes with gravel or stone is not good practice. The gravel and stone can quickly loosen and spread the existing hole, making for a much larger and more expensive problem in months to come. Always consult a paving expert when it comes to repairs.

Alternatively, it is okay to cover any parking lot deficits with a cone or a steel plate to protect patron safety in the interim of having repairs done. The best way to ensure that parking lots remain intact is to ensure they are cleared as often as possible. Whether that means not resting heavy equipment on lots or clearing them of ice and snow in a timely manner, this is the best preventative measure.

Outdoor walkways and parking lots must often be maintained to a certain level to adhere to respective city code, and a quick post-winter revamp can help prevent warnings or fines later in the year. FMs should stay in touch with local governments to understand regulations and ensure outdoor space managed is up to par. If additional infrastructure needs to be created to adhere to code, consult a professional to ensure the proper action is taken.

Choosing and working with the contractor

Choosing the right contractor is more important in uncertain with limited budgets. Here are some mistakes to avoid when choosing and working with parking lot maintenance contractors:

- Getting quotes from too many contractors.
- Choosing a contractor based solely on price.
- Having contractors look at the property to bid the work without meeting with them.
- Not reviewing the parking lot needs prior to meeting with contractors.
- Not being open and honest upfront about what the budget looks like.

Find a trusted parking lot maintenance contractor and be upfront with them about what the 2021 priorities, budget limitations and how the decision-making process will work. An experienced asphalt and concrete contractor can help operators think through what the priorities are, which maintenance work should be done this year, as well as what can be put off. If the contractor seems to be trying to upsell services, find another contractor to consult with. It is critical to find a contractor that is straightforward and is putting the facility's best interest first.

Also, beware of the potential hazard contractors who say their team can save money on repairs. When shopping around long enough, there is always the ability to find someone who will do the work cheaper. However, all too often, contractors will quote low prices, but can cost FM more money or frustration, because the low-cost contractor used sub-par quality materials, or their workmanship was poor and did not portray the image they wanted for their property.



Finding a trusted contractor will save time and money and help operators make the most of maintenance dollars.

There are plenty of ways to get creative when trying to conserve budgets for 2021 parking lot repairs. FMs must ask the right questions and understand what repairs should be prioritized based on weather and traffic patterns.

FMs should know that the partners they engage in for maintenance have experienced similar struggles and will be willing to help strategize their maintenance. **FMI**

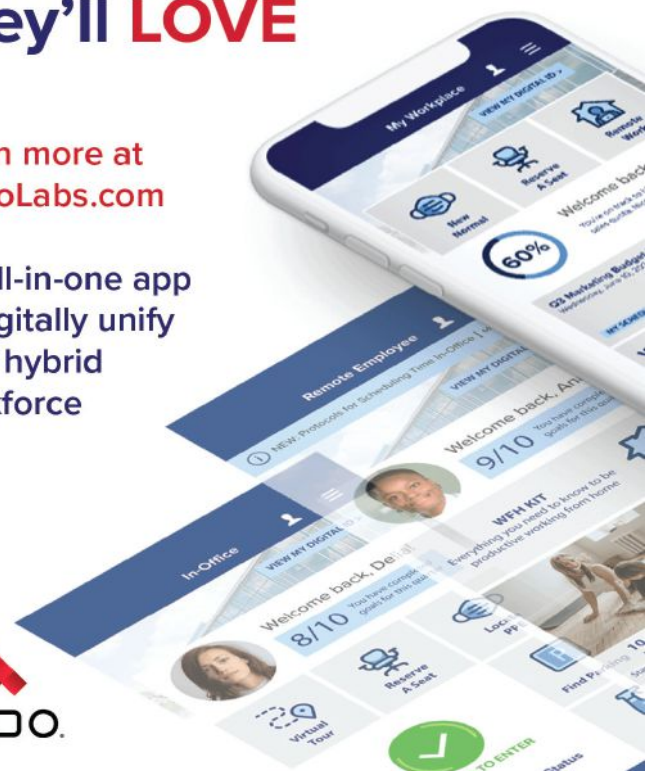


Bob Lester is president and CEO of Dura-Seal, a sealcoating, asphalt and concrete services company. He has worked in the paving industry for more than 20 years, leading two buyouts, an acquisition and the sale of an equipment manufacturing company at Dura-Seal. Prior to joining the company, Lester studied business finance at Otterbein University.

Empower employees with a workplace app they'll LOVE

Learn more at ModoLabs.com

An all-in-one app to digitally unify your hybrid workforce





IF YOU BUILD IT, WILL THEY COME? ON-SITE ELECTRIC VEHICLE CHARGING

BY ALISON ALVAREZ

AS ELECTRIC VEHICLE (EV) OWNERSHIP GROWS, CHARGING INFRASTRUCTURE WILL NEED TO KEEP PACE. ACCORDING TO MCKINSEY & COMPANY, ON-SITE COMMERCIAL CHARGING WILL NEED TO BECOME A STANDARD BUILDING FEATURE IN THE NEXT 10 YEARS TO MEET CONSUMER DEMAND. THAT MEANS FACILITY MANAGERS LOOKING TO REAP THE BENEFITS OF THE TRANSPORTATION REVOLUTION SHOULD PREPARE TO PARTICIPATE NOW.

Businesses should look to electric vehicle (EV) charging as a benefit that opens possibilities and enhances tenant and customer experience. Organizations that have installed EV charging equipment on their properties report increased brand awareness, meeting sustainability goals, more visits by profitable clientele, attracting top talent and the chance to generate higher revenue.

Major retailers in the U.S., U.K. and Canada have led the way for EV charging, and are well known among EV drivers as destinations with plugs. Some gas station and convenience brands offer EV charging, too. It makes sense; fuel is their business.

But a company does not need a national footprint with millions of customers to enjoy the advantages. Medical practices, banks, art galleries, restaurants and other small business types can benefit from EV charging, too — especially if they operate fleets.

Pharmaceutical delivery services, house cleaning companies, apartment complex maintenance or management crews, dry cleaning businesses and restaurant delivery services could benefit from on-site charging for employees or fleets. Reduced vehicle maintenance costs, lower emissions and dwindling fuel costs help fleet operators save money over the long term.

These perks have gradually trickled in for charging station hosts over the past several years as EV ownership has grown, but they are expected to soon flow freely. While challenges must be solved before mass EV adoption can take place, evidence from early adopters proves the benefits are plenty.

EARLY EV CHARGING HOSTS SHARE POSITIVE RESULTS

Powering Brand Values

When a California-based brewery installed its first charging station in 2009, hardly anyone used it, but it became known as one of the only places to charge up in the area. Now the company hosts several charging stations for public and staff use. Moreover, charging station apps have literally put the brewery on the map, showing drivers where stations are and where they can tour a great brewery while they wait.

Enticing an Innovative Workforce

Employees of organizations with EV charging appreciate the amenity and report using workplace plugs every day to charge up. Social networking platform LinkedIn corroborates that claim. Since it installed EV charging in 2012, LinkedIn states it has prevented 3,000 tons of carbon emissions by employees driving electric vehicles instead of combustion engine cars. That matters to the people who work there.

Some companies understand their younger, eco-minded workforce wants to work for an organization that shares its values. With EV charging, they can fulfill their employees' desires and make their lifestyles possible. Even for job-seekers who do not yet drive an EV but hope to someday, EV charging acts as a great recruitment tool.

Attracting Profitable Customers and Connecting Cities

A hotel with EV charging in Patterson, California, USA, attracts profitable clientele, fills a gap in charging infrastructure between higher-population areas, and is establishing itself as a leader in sustainability. Moreover, because the hotel charges a fee to charge, it is generating new revenue.

IS EV CHARGING RIGHT FOR MY FACILITY?

Analysis show EV charging brings benefits to all kinds of businesses, specifically:

- municipal governments wanting to cut tailpipe emissions,
- universities catering to environmentally minded students,
- medical centers eager to prove their leading-edge status,
- parking authorities interested in generating revenue in lots and garages,
- and apartment complexes where numerous residents charge overnight.

The U.S. Department of Energy found that people are six times more likely to drive an electric vehicle when they know they will have access to charging. That means facilities with EV charging spur adoption. Down the road, communities could see better air quality, reduced CO₂ emissions and, hopefully, reductions in childhood asthma and lung disease.

It takes time and planning for businesses to implement the changes required to accommodate electric vehicles. Depending on the type of outlets a business installs, fully charging one vehicle could take 20 minutes (Level 3 DC fast charger), two to three hours (Level 2), or as much as eight to 10 hours (Level 1, standard wall outlet). Plug type depends on the models and number of vehicles that will need to charge at a particular facility.

Destinations where customers pop in for groceries may require fast chargers. Corporations offering charging for employees may do fine with Level 2. Meanwhile, businesses with fleets that will be parked overnight should plan longer-term, considering factors like overall energy usage at their facilities as well as when vehicles will need to charge.

Equipment vendors and utility providers offer comprehensive guidance for charging hosts, and it is best to seek their advice before installing.

IS THE EV BOOM REALLY COMING?

The transformational shift toward electric mobility is already here. Consumers, governments and industry have made great strides over the past year in expanding EV ownership and infrastructure around the world. While the pandemic slowed vehicle sales overall, buyers showed increased EV interest.

In the U.S., 345,000 EVs were sold in 2020, according to CleanTechnica, which is about 100,000 more than were sold the year before. China, which has led the EV transition for years, saw nearly 1.3M EVs sold in 2020, according to InsideEVs.com. Europe showed nearly 1.4M EV sales, according to EVvolumes.com, representing a 137 percent spike in ownership above 2019. Analysts expect sales to jump further in 2021 — possibly by as much as 70 percent. That could largely depend on availability of public charging.

Nearly 30,000 public charging stations existed around the U.S. at the end of 2020, up from 21,000 in 2019. Statista reported that, across Europe, EV drivers had access to nearly 286,000 public charging stations in 2020, and that China now hosts more than 516,000 public charging stations.

Time will tell if public charging can keep pace with EV sales in the coming years. Factors driving those sales include:

- government prioritization,
- availability of new electric models,
- strategic partnerships,
- and consumer demand.

GOVERNMENT PRIORITIZATION

The U.S. has placed electric vehicles at the forefront of plans to move toward a zero carbon future. By funneling investments into new domestic manufacturing, technology, battery production and charging infrastructure, the U.S. government is poised to solve the chicken-and-egg problem that has long plagued EVs. Through introducing lower emissions standards for U.S. automakers, the government intends to shift buyer demand away from combustion-powered cars and toward EV.

The European Union and China have proved that measure works. Both implemented more stringent CO₂ emissions standards in recent years and, today, enjoy higher EV sales. So, nations like the U.S., Canada, Japan and Germany are extending tax credits

and cash rebates for the purchase of EVs and for the installation of charging equipment. Some are also taxing the sale of combustion-powered cars.

According to Electrek, when the U.K. eliminated a tax on the sale of company cars last April, EV leases skyrocketed by 91 percent. Wallbox stated that, of Norway, where electric vehicle sales surpassed 50 percent market share in 2020, “The accumulation of... EV tax breaks, plus the hefty 25 percent tax on fossil-fuel cars, means that EV models in Norway are often more affordable than fossil-fuel cars, even without the EV subsidies that are available in other countries.” Wherever EV drivers buy, need for public charging will surely climb.

INDUSTRY MINDSET SHIFT

In response to the shifting EV landscape, automakers promise to offer more electric models in the coming decade. Honda announced two-thirds of its vehicles will be electric by 2030. Toyota is aiming for sales of its hybrid-electric cars to hit 50 percent globally by then. Even auto giant and long-time fossil fuel proponent General Motors recently announced it will produce 30 electric models by 2025.

Meanwhile, package delivery companies have successfully put electric vehicles on the roads. Local bus routes in India, Scotland and around the U.S. have gone electric, too. Even the U.S. Postal Service could be converting its mail trucks to battery power.

Thanks to electric fleet vehicle manufacturers that supply battery powered buses, vans and trucks, companies that operate fleets can now meet the challenges of the transportation shift.

The used vehicle market for EVs is also, at last, making ownership more affordable for average consumers. While analysts at EV-Adoption.com said mass adoption is still speculative, cost will continue to be a major factor for drivers. Tax incentives that extend to used EVs could further spur adoption.

However, most EV models show rapid depreciation, according to CleanTechnica. While lower values may sting EV owners looking to trade in older models, they open a viable pathway to ownership for those who cannot afford luxury prices. As Edmunds explains, the cost of a used 2018 BMW i3 is around US\$20,000, while buying the electric sedan new costs about US\$45,000. That makes buying a particular used model comparable to — if not more affordable than — a new combustion-engine car.

STRATEGIC PARTNERSHIPS

Electric utilities want to support widespread electric vehicle adoption. Obviously, they see it as a revenue-generating endeavor, but they also know EVs are the future. They want to be integral players in the EV industry ecosystem.

They understand that, to achieve mass adoption, they must support commercial facilities with help in trenching for new lines and replacing transmission systems to allow for charging stations. Utilities also know they must partner with charging equipment manufacturers, government regulators and community groups to expand infrastructure access — not just to affluent communities, but to low-income, rural and urban ones too.

To achieve that, some utilities are leveraging artificial intelligence to conduct research into EV adoption in their regions. Predictive data and location analytics shows them which residential customers are most likely to buy EV next, and which commercial

businesses are most interested in offering charging. They can track the pace and direction of infrastructure expansion and understand who is leading the adoption curve. This helps them strategize to build effective partnerships with entities looking to take EV charging seriously.

CONSUMER THIRST

Early EV adopters express satisfaction with their silent-running vehicles. Positive reviews signal to the masses that buying EV is safe, cost-effective and a good environmental choice.

Now, mainstream buyers look forward to the slate of new electric models that automakers have promised. According to a December 2020 Consumer Reports survey, “71 percent of U.S. drivers say they would consider buying one at some point in the future, with nearly a third indicating interest in an EV for their next vehicle purchase.”

Because of COVID-19, many commuters have avoided public transit, but that has driven demand for private modes of transit, “The e-bike market in 2020,” according to Forbes, “[was] already up by 23 percent year on year, and on the current trajectory, there will be 10 million e-bikes sold per year as early as 2024.” More public charging infrastructure, whether for scooters, bikes or cars, will doubtless be required to meet this growing thirst.

ENHANCING THE TENANT EXPERIENCE

For FMs wondering whether EV drivers will actually use charging equipment if it is made available, the answer is a resounding yes. Given what is known about the massive transportation shift already under way, organizations dipping into EV charging will become key players in spurring mass adoption and, thus, reap the benefits. EV charging attracts great customers and high-caliber employees. It gives tenant businesses an edge above the competition and demonstrates brand values. It could generate new revenue, and it signals to surrounding communities that innovation and environmental health truly matter. FMJ



Alison Alvarez is CEO and cofounder of BlastPoint, a customer intelligence software company based in Pittsburgh, Pennsylvania, USA. She is an expert in the fields of geospatial data analysis and computer science, and has built technology tools for the utility, automotive, retail, media and banking industries. Alvarez is an NSF Research Fellow, a Jack Kent Cooke Fellow, and a Swartz Entrepreneurial Fellow, and she served as an advisor to Y-Combinator’s Valor Water. An author and renowned public speaker, Alvarez holds a master of science degree from the Language Technologies Institute at Carnegie Mellon University’s School of Computer Science and a Master of Business Administration from CMU’s Tepper School of Business.

IFMA's World Workplace®
October 26-28, 2021
Kissimmee, Florida, USA

IFMA's Facility Fusion
April 26-28, 2022
Austin, Texas

IFMA Global Canada
June 16-17, 2021
Virtual Event

World Workplace Europe®
March 23-24, 2022

IFMA Global India
November 25-26, 2021
Mumbai, India

IFMA's World Workplace Asia-Pacific
Fall 2021
Hybrid Event

— IFMA's GLOBAL EVENTS —

Advertiser Index



Companies in **bold** are IFMA Corporate Sustaining Partners

LET'S CONNECT!



BUILDING CONSTRUCTION/DESIGN

Bradley Corporation bradleycorp.com @Bradleycorp linkedin.com/company/bradley-corporation/	57
Gordian gordian.com @GordianCompany linkedin.com/company/the-gordian-group	69

BUSINESS SERVICES

4SITE by CORT, A Berkshire Hathaway Company 4sitebycort.com	3
--	---

ELECTRICAL/WIRE MANAGEMENT

Kevco Electrical kevcoelectrical.com	45
Miller Electric Company mecojax.com @meco_jax linkedin.com/company/miller-electric-company	31

EMPLOYEE AND WORKPLACE TECHNOLOGY

Modo Labs modolabs.com @modolabs linkedin.com/company/modo-labs-inc-	93
--	----

FM CONSULTANTS/SERVICES/PROVIDERS

U.S. Department of State, Bureau of Overseas Buildings Operations careers.state.gov/OBO @state_obo linkedin.com/showcase/usdos-obo	25
--	----

FM SOFTWARE

AkitaBox home.akitabox.com @AkitaBox linkedin.com/company/AkitaBox	53
Planon planonsoftware.com @planonsoftware linkedin.com/company/planon	41

HEALTH/SAFETY

GOJO Industries - Makers of PURELL gojo.com @purell linkedin.com/showcase/purell-brand/	35
---	----

HVAC/INDOOR ENVIRONMENTAL QUALITY SOLUTIONS

Surplus Group surplusgroup.com linkedin.com/company/surplus-group	49
--	----

JANITORIAL SERVICES/CLEANING PRODUCTS

UG2 ug2.com @UG2IFS linkedin.com/company/ug2	17
--	----

REAL ESTATE SOFTWARE

ManhattanONE realestate.trimble.com @TrimbleREWS linkedin.com/company/trimble-real-estate-6-workplace-solutions	85
--	----

PLANNING TO ADVERTISE IN FMJ IN 2021?

FMJ, IFMA's official magazine, is written by and for professionals who develop and maintain productive workplaces. It is the only industry publication that draws on the industry thought leaders to deliver insights on current and upcoming facility management trends.



MARK YOUR CALENDARS FOR FUTURE ISSUES AND AD CLOSE DATES:

July/Aug 2021	May 14	Technology
Sept/Oct 2021	July 16	Your FM Career
Nov/Dec 2021	Sept. 17	Sustainability
Jan/Feb 2022	Nov. 12	Superior Interiors

Contact the IFMA Expo and Advertising Team at expoadv@ifma.org to schedule a consultation so we can build a custom package to fit your specific business objectives.

COMPANIES NUMERIC-L



Diana Maldonado
281-974-5674
Diana.Maldonado@ifma.org

COMPANIES M-Z



Cameron Niblock
281-974-5679
Cameron.Niblock@ifma.org



IFMA is the largest global community of facility professionals.

CONNECT TO FMs

WITH IFMA ADVERTISING OPPORTUNITIES



OVER 3 MILLION HITS PER MONTH

- > IFMA.ORG
- > FM BUYER'S GUIDE
- > IFMA INSIDER & E-NEWSLETTERS
- > EXPOS & EVENTS
- > FMJ

FMJ READERS PURCHASE OVER US\$526 BILLION IN PRODUCTS AND SERVICES ANNUALLY

ADVERTISE WITH IFMA AND HELP SUPPORT THE FACILITIES PROFESSIONALS REDEFINING THE FUTURE OF FM!

Contact the IFMA Expo and Advertising team at expoadv@ifma.org or +1-713-623-4362



Ready to sit for your CFM[®] exam?

Practice applying your FM knowledge
and critical thinking skills with
IFMA's Virtual CFM[®] exam prep

IFMA's Virtual Certified Facility Manager
exam prep provides an overview of the 11
competencies of the facility management
body of knowledge.

- Enhance your knowledge in FM areas you may not encounter in your current position
- Review core competency areas
- Stay on track to meet your CFM[®] goal
- Review the overall methodology of the CFM[®] exam
- Practice applying FM knowledge and critical thinking skills with sample exam questions

IFMA[™]

CFM[®]

Certified Facility
Manager[®]

**IFMA's CFM[®] - Earn the most respected
credential in facility management.**

Learn more at ifma.org/professional-development

Extended

Exclusive online section featuring expanded FM coverage.

102 Member Spotlight

104 Ask the Experts

107 The Experience Factor

Asking the right questions
Allison English

109 Real Time Tech

Building trust with mobile access
Mark Robiton

112 Designing to be Better

CRE's safe, sustainable & smart future
Dan Brown & Bill Moten

115 HR + FM = Teamwork

Enhancing safety and compliance
Jenna Dobrovolny

118 Resilient Design is Good Design

Adaptable strategies throughout the workplace
Jen Singson

123 Planning to Improve

Raising Your Facility's IAQ
Deborah Hetrick

126 Building Blocks

Knowing your building's history
Kim Kilory & Jeff Ziske

132 Instant Access

Keeping information safe & searchable
Jack Rubinger

135 Standard Success

Using comparisons to build KPIs
Dr. Shanmugam Mohan & Dr. S. Kumar

137 Vendor Profiles

Member Spotlight

DAN CHILDS



Altoona, Iowa, USA
Division Facilities Manager
Years in FM: 1

How did you get into FM?

I was in retail for almost 15 years. I started my official FM journey less than a year ago with the same employer. While working in operations, I had an interest in the facility itself: how it worked, the design, and all the moving pieces. Being in customer service, you can have an impact with both the store teams and the customer experience through properly working and efficient products.

What kind of facility do you manage?

I manage 150 locations ranging up to 6,000 sq. ft with retail, food and fuel.

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

It has been learning the trade. Thankfully, I have great mentors that are willing to take the time to educate me on the how and why around the equipment and the facility in general. Spending time in the field with the various technicians, learning how they do their work, and why they do it, gives me greater insight into how we can improve the process.

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

Listen, learn and ask questions. Find a great mentor to work with, ask plenty of questions and take plenty of notes. Networking and digital engagement have also been vital to my success.

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

I love my job and am excited to see what the future holds. Being in operations, leading teams, and now expanding my horizon within the FM world, it has opened doors. The most rewarding part for me is working with great people in an organization that truly puts people first.

www.linkedin.com/in/dan-childs-08b17747

MARK DAVIES



Muskat, Oman
Project Manager Facilities Consultant
Years in FM: 15+

What kind of facility do you manage?

I previously managed large mixed-use developments, and various properties with five-star hotels in Saudi Arabia and a multi-use tower in Cambodia with a five-star hotel. I am now consulting in various properties, dealing mainly with COVID-19 procedures.

How did you get into FM?

I was in construction and was always the person dealing with clients, helping with tricky situations and customer care. I went to Saudi Arabia and was asked to run the FM and engineering of the property. I did that for eight years.

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

My best advice would be to be flexible in your understanding, there are more ways to do anything. Encourage the team work even at a higher level and ensure they are organized and accept the challenges. In FM, you must become person who uses their calm voice to calm situations, while speaking your mind with authority. Also, respect your staff regardless of their level. They will face so many challenges.

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

I would like to be the leading front of large mixed-use properties. I would also like to set a precedent for my staff and make a difference and making it count. I would also like a large team on an iconic property.

What do you hope to gain from your IFMA membership?

As a consultant and in the industry for many years, it is only right that I would be affiliated with IFMA and to keep up to date with the latest trends.

Tell us a fun fact about yourself.

I love golf and had my second hole-in-one five days after my 50th birthday.

[linkedin.com/in/mark-davies-b9b0286](https://www.linkedin.com/in/mark-davies-b9b0286)

MATTHIEU DANNOOT



Toronto, Ontario, Canada
Operations Director
Years in FM: 10+

What kind of facility do you manage?

I manage a portfolio of contracts in the entertainment, government and industrial facilities.

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

COVID-19 has made us rethink the way we operate. Flexibility and partnerships are key as everyone adapts to a new reality.

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

Stay close to the field. FM is about people and deliver by people. Be at the sites as much as you can and stay close to the people you manage.

Tell us a fun fact about yourself.

I am French man who grew up in Chile, married a Chilean wife we have three children in three different countries: France, England and Canada.

DANIELLE PAQUETTE



Holland Landing, Ontario, Canada
Facilities Manager
Years in FM: 13

What kind of facility do you manage?

I manage an office building and wound care clinics. Sometimes I feel like I manage people more than the buildings!

How did you get into FM?

I ended up in FM when I came back to work after having my son working reception and my boss was the Facilities Director. It was a temporary position and 2 months after I started the Facilities Assistant retired. I applied and no one else did (apparently my boss intimidated people and then saw all the work the Facilities Assistant took on) so I got the job. I moved from there to Supervisor then Manager then to Interim Director and then they reclassified the job to manager so I went back to Manager doing the same job as I did as Interim Director. I have a special interest in ergonomics and working on improvement solutions.

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

My biggest challenge is getting male contractors to take me seriously. I find some will either talk down to me or direct their questions and comments to my male staff who are far less qualified. I've learned to politely stand my ground by speaking facts and perhaps shooting them a look because I'm not good at hiding my expression when I can't believe someone just said something that was either ridiculous or incredibly ignorant!

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

The advice I would give to someone starting in FM is to be careful what things you give in to because you're thinking you're only doing it for one person. You really need to think if you are setting a precedent or not. The other thing I would recommend is to take in all you can. I get most of my knowledge on furniture from staying with the installers and asking questions and watching. If you're lucky, some will even take the time to show you a few tricks of the trade. The best advice I've received is to take a breath before responding, especially if it's something you're having a negative reaction to and to read emails you are sending out to large groups out loud or have someone else take a look.

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

I would like to develop more of my skills to perhaps put me in a consultation position. I've recently started to co-facilitate some FM modules and would like to take on more of a role in instructing as well.

What do you hope to gain from your IFMA membership?

More knowledge and a networking team. I'm also very interested in reading articles published because I wouldn't mind writing an article from a woman's perspective of FM.

LinkedIn: [linkedin.com/in/daniellepaquette](https://www.linkedin.com/in/daniellepaquette)

CHRIS KAELIN, CVP



Louisville, Kentucky, USA
Sr. Director of Operations
Years in FM: 10

What kind of facility do you manage?

I manage public assembly and live entertainment venues.

How did you get into FM?

I love working in the public assembly business. I believe strongly in the cultural, economic and quality of life impact that arenas, stadiums, convention centers, performing arts centers and concert halls provide our communities. FM is an exciting, challenging and incredibly fulfilling career. I love working for some of the most iconic venues in town that hold a special place in the hearts of our guests.

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

The COVID-19 pandemic and its impact on our business has been devastating. It has by far been the most challenging and heartbreaking experience on venues of public assembly. Additionally, in the summer of 2018 our flagship venue suffered significant damage due to a fire. Those two experiences have taught me the importance of remaining calm in the face of a crisis and knowing that as a leader your best efforts are beyond good enough.

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

My advice would be to always take great pride in your work. Whatever you are, be a good one. This is a challenging profession and your commitment to excellence will inspire others on the team to bring their best efforts to the table each day. The best advice I've received is to know when to delegate. Delegating an advanced assignment or a project to another team member will not only help you in consensus building but will also allow others to grow their skill set.

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

Personal ambition has never really been an ultimate driver for me. My employer and this industry have been good to me. I'm beyond grateful. Public assembly venue management is my passion, and I'm just excited to see where it will take me from here.

What do you hope to gain from your IFMA membership?

I have already learned of the decades of experience that are represented in my local IFMA chapter. I'm looking forward to learning from industry experts and seeing how I can contribute to the many productive conversations ahead.

LinkedIn: [linkedin.com/in/christopher-kaelin-cvp-872733b6/](https://www.linkedin.com/in/christopher-kaelin-cvp-872733b6/)

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.

CONTRIBUTED BY



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

Are your capital projects painful, or are you implementing a lean design and construction process to improve results?

Facility managers are all too familiar with projects that are delivered over budget and late. This project pain impacts all areas of FM – more funds spent on projects does not add more value but results in less funding available to invest elsewhere including talent, material or capital. Late projects have a significant impact on operations and financial planning.

These project pain points tarnish all involved notwithstanding the ensuing adversarial blame-game.

This is not new or restricted to any one geographic location. Project pain has plagued planning, design and construction projects for decades.

Projects are complex – by the very number of elements and activities that need to come together in a defined time frame delivered by a whole lot of strangers.

Trudy Blight began her career as an interior design consultant, which included project delivery within a facility management organization. She was the asset manager with a large portfolio in Western Canada and the Arctic for the Canadian government. She leads a team within architectural and engineering services at the medical campus as part of the physical plant at the University of Manitoba.

What can be done differently to achieve better results? How do owners move from pain to gain?

A For the last 20 years, lean principles and methods have been applied within the building industry. Lean is an outcome of the total quality management (TQM) and Toyota Production System which dates back to the 1930s. The fundamentals of Lean Project Delivery are:

1. Generation of Value
2. Focus on Process & Flow
3. Removal of Waste
4. Optimizing the Whole
5. Continuous Improvement, all within the principle of respect for people (more collaboration — less adversity)

These fundamentals apply to the whole project delivery team. Value generation begins with meeting the customers' requirements. Supporting these fundamentals, lean projects use several methods, tools and systems-thinking to deliver better value for all involved.

Many case studies have been written and continue to document improved results.

This is great news for owners. Lean is no longer a bleeding edge approach with inherent risk of the unknown, but is a leading edge better practice. Lean as a quality process is also being embraced by organizations and companies internally to improve over-all productivity performance, customer value and the bottom line.

Kathleen Lausman is a principal at ShiftzLean and building industry professional with a background in architecture and business. She is a former deputy minister for the Nunavut (Canada) government and former co-chair and forming member of LCI-C.



THE EXPERIENCE FACTOR

Asking the right questions for the best return to work experience

BY ALLISON ENGLISH

Proactive employers will have already begun planning their workplace of the future. The office that people return to will be different than the one they left in March 2020. Hundreds of anecdotes and studies recorded over the past year suggest that most organizations will adopt a blended (or “hybrid”) work model that retains some element of home working on a permanent basis.

This shift requires a deep understanding of employees’ experience at home, what they have missed about the office, and how their expectations have changed in recent months. Organizations which choose to make workplace decisions in the dark risk alienating staff and dismantling trust in a stressful and uncertain time. For some, mis-managing this moment could even turn into a talent retention disaster, as employees look for new job opportunities in a world where the traditional bulwarks have come down.

Leesman’s research into the home working experience — having collected more than 160,000 individual survey responses to date* — revealed that 83 percent of em-

ployees feel productive in their home environment. In contrast, just 64 percent of the more than 800,000 respondents to Leesman’s office-based survey reported their office environment enables them to work productively. The data suggests that home workers’ have a more positive view of their work environment because the home provides better support than the office across core work activities, including individual focused work (desk-based), planned meetings, telephone conversations and even collaborating on focused work.

These findings back a general feeling among businesses that most employees have worked effectively from home over the past year, but a closer inspection of the data reveals factors that could have some long-term ramifications for both organizations and their employees. A third of employees have reported that the home does not support their ability to learn from others, while 44 percent do not agree that their home environment supports informal social interaction. Meanwhile, three in 10 dispersed employees have admitted to feeling disconnected from their organization.

The data gets even more interesting across a subset of more than 22,000 respondents who reported on both their office and home working experience at the same time. The data from this group uncovered four key variables that have the greatest impact on the critical outcomes discussed above. Organizations that are planning their future workplace strategies must consider these variables if they want

to provide employees with the infrastructure, tools and experiences they need to be their best.

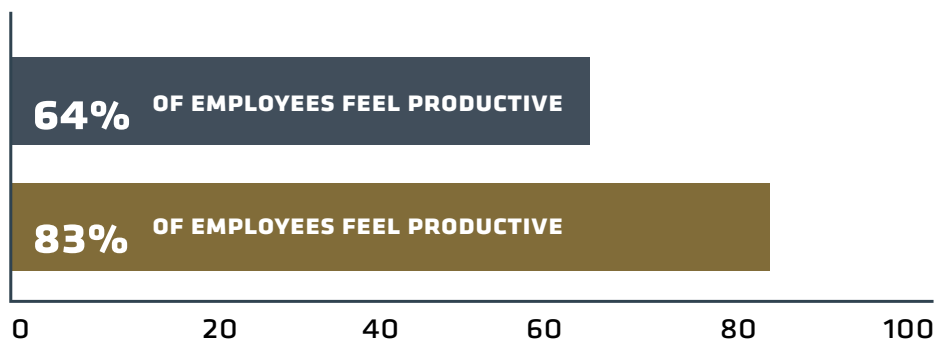
Home working settings: Know what the home offers (and doesn’t)

Leesman asked employees what type of setting they have available to use when working from home. Respondents chose from one of three options: a dedicated work room or office, a dedicated work area (which is not enclosed), or a non-work specific home location (such as a dining table). The settings are likely to offer different degrees of acoustic privacy and ergonomic quality.

The findings revealed that the work settings available to employees at home are a key predictor of their home working experience. Employees who use dedicated offices reported the best home working experience. In contrast, those working in areas not intended for work reported the worst experience.

This underlines how crucial it is for organizations to understand what employees have available to them should they continue to need to work from home in the future. It is worth noting that the experience gap between employees working in dedicated work rooms and dedicated work areas respectively is smaller compared to non-work specific settings. This shows that having a dedicated work area — even if it is not enclosed — is still likely to provide a better home working experience than a kitchen table or a couch.

However, looking only at employees’ experience based on their home work settings paints an incomplete picture of their working life. To make decisions for the future, organizations must understand how all of this compares to their office experience. For those who work from a dedicated office at home, the home provides a better experience than the office. In contrast, those who worked in non-work specific areas at home had a better experience in the office overall.



Deciding where to work is more complex than a home-vs-office tug of war.

Activity complexity: How an employee's role dictates their workplace needs

What employees do — specifically, the variety of work activities that make up their roles — is a key predictor of their workplace experience, whether at home or in the office. Role complexity is measured as the number of work activities employees select as important out of the 21 listed in the survey. These range from individual focused work at a desk and informal meetings to creative thinking and telephone and video conversations. The results revealed that employees in low-complexity roles — respondents who deemed only one-to-five different types of activities important — had the best home working experience, while those working in high-complexity roles (16-21 activities) reported the worst experience.

This pattern is not specific to home working, however. When exploring the office experience, employees in low-complexity roles reported a higher average experience score than those in high-complexity roles. In fact, as the activity complexity increases, the gaps between home and office become smaller, which demonstrates that supporting employees with high complexity profiles can be just as challenging across both locations. The more variety in an employee's activity profile, the more challenging it is for their work environment to support those different needs.

However, averages do not tell the full story. While employees with complex roles tend to have a poorer experience than those with less complex roles, it is possible for one, or several, work environments to deliver an outstanding experience for all or most employees. To achieve an optimum experience, it is crucial to understand employees' activity patterns, which activities are important, and how well they are supported.

Activity profile: How individual and collaborative work may demand different settings

The work activities an employee does as part of their role, both individual and collaborative, and how well supported

they are to do these, impact on important organizational outcomes such as productivity and social cohesion, but remote working has dramatically changed how environments support these different types of activities. To explore these dynamics in more detail, Leesman calculated a ratio based on what proportion of the activities each employee selected as important were individual or collaborative. Based on this ratio, employees were clustered in five activity profiles on a grading scale: highly individual, individual, balanced, collaborative and highly collaborative. The team then compared employees' experience in the workplace and at home to understand which score was higher. The distribution revealed that the office provided a better experience in 55 percent of cases for employees who have a highly collaborative profile. In contrast, the home provided a better experience for employees with highly individual profiles in 61 percent of cases.


However, deciding where to work is more complex than a home-vs-office tug of war. Among those with highly collaborative profiles, 45 percent had a better experience at home, while 38 percent of the employees with highly individual profiles had their needs met better in the office, highlighting that what works best for most does not necessarily work for all.

Assets and liabilities: Know what your office offers (and doesn't)

To fully understand the dynamics of a blended work environment, organizations must examine how the office and home compare. Each location comes with specific assets and liabilities, but these can vary greatly between different offices and even on a department level within the same office.

Nonetheless, the quality of the workplace could be the magnet that pulls employees into the office more regularly. Some of the surveyed organizations included questions on how many days per week employees would prefer to work from home once COVID-19 restrictions are removed. In a case study of three different workplaces belonging to the same organization, the study revealed that employees' answers varied according to how good their overall experience was in their workplaces. In outstanding workplaces, more than 90 percent of employees wanted to work at home for just one day per week or less. In the suboptimal workplace, the opposite was true, with 72 percent of employees declaring they want to work from home for most of the working week.

What next?

The pandemic has fast-forwarded the remote working evolution from years into a matter of months, shifting the mindset of many who declared pre-pandemic that their roles, as well as those of their team members, could not be done remotely. But with the success of the vaccination program in the U.S., organizations must turn the attention to rethinking the post-pandemic employee experience. Leaders and their facility management teams must figure out how their colleagues' experiences, expectations and attitudes have changed since March of last year. The starting point is to ask employees the right questions and collect the data required to make these decisions. 

**The statistics included in this article were captured from 145,000 Leesman Home survey responses.*



Allison English is deputy CEO of Leesman, the world's largest independent assessor of employee workplace experience.

With extensive professional experience in process improvement, systems implementation and client engagement, English has helped drive innovation and strategic client collaboration across Leesman's broad and diverse client base.

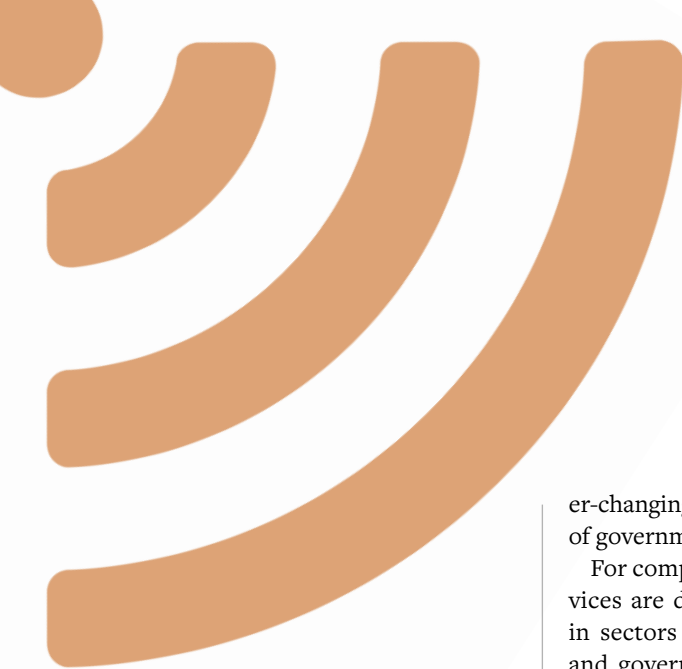


Real-time Tech

Building trust with mobile access

BY MARK ROBINTON

As the world enters a new era of workplace safety one year after the declaration of the pandemic, organizations must be prepared and be able to pivot quickly. Widely adopted access control, authentication, Internet of Things and other trusted identity offerings have long been the cornerstones for protecting people, places and things. Now they also provide the foundation for safely and confidently reopening and sustaining operations at workplaces during this pandemic.



One example is using real-time location services in facility management and utilization applications. The technology is used to automate physical-distancing and contact-tracing policies in compliance with public health mandates. This ensures that only trusted people can enter facilities, and that the facilities themselves can likewise be trusted.

START WITH A STRATEGY AND PLAYBOOK

As organizations began returning their employees to the workplace, the first step was to develop a strategy and comprehensive playbook, as well as processes for communicating to employees in a time of rapid change. These elements serve as a single point of truth that helped guide the safety and security of employees while ensuring operations continued to run smoothly. Developed with input from multiple sources within an organization, these playbooks provide clear recommendations and reassurance for site leaders and all employees, and support for customers in an ever-changing environment as new information emerged and public health guidelines evolved.

Providing a single source of truth is particularly important, based on and aggregating information obtained directly from site leaders about their regional situations. These site readiness teams establish minimum requirements for all sites to include daily reporting. Also important is ongoing communication with each site lead to ensure everyone is keeping abreast of ev-

er-changing restrictions and modifications of government COVID-19 orders.

For companies whose products and services are deemed essential to customers in sectors such as health, medical, food and government, it is critical that manufacturing and fulfillment sites continue to operate, while acknowledging that health and safety is at the forefront of employees' minds. Organizations must anticipate very real emotions and valid concerns. It is important to frame the next normal by defining and providing reassurance about the new behaviors that will now occur in a familiar place. Comprehensive COVID-19 playbooks provide this reassuring clarity, while offering individual sites the autonomy to adjust according to specific needs in four core areas: protection, cleaning, messaging and physical distancing. Of these, physical distancing is particularly important.

THE PHYSICAL DISTANCING FOUNDATION

Organizations are focusing on site-specific distancing guidance related to face-to-face meetings and the time and spacing constraints if people had to meet this way, as well as greeting practices, dining habits, and managing mail and package deliveries. These guidelines cover activities related to meeting rooms, personal offices and workstations. Site leaders should concentrate on how they can configure assembly stations and other density-management challenges. Ongoing focus areas include ensuring compliance in cube arrangements, traffic flow pattern design and management, and the use of plexiglass and other barriers to ensure separation.

With these separation guidelines in place, organizations can now automate the process of compliance. There are two key components:

- **Dynamic Workplace Safety** — Cloud-based visitor management, remote employee and visitor badge issuance, and fully touchless access solutions reduce person-to-person contact. Rule-based physical distancing management provides immediate insights and alerts to keep employees compliant with safety and sanitation requirements.
- **Automated Rapid Response and Compliance** — Automated visitor compliance, contact tracing, physical distancing and hygiene behavior removes the manual and potentially laborious burden of tracking and adhering to new health and safety procedures.

Real-time location services technology is a key piece of the solution, and not new to FM. Organizations are already using this technology to know when employees and visitors enter or exit their buildings and easily understand occupancy at the building, floor or room level. They are also used to set up virtual security zones and automated alerts or alarms for violations and locate building occupants in the event of an emergency. They have been used across diverse physical environments, from the manufacturing floor to cubicles, lunchrooms and lobbies.

Now they are enabling automated physical distancing during the pandemic. To deploy them, each employee is given a Bluetooth Low Energy (BLE) fob using peer-to-peer capabilities. The fob beeps, providing auditory behavioral feedback when it enters the recommended six-foot physical-distancing range and remains for a specified time. This data is simultaneously sent to the cloud and the location information can be used for automated contact tracing when needed.

For stand-alone contact tracing, organizations can use a BLE beacon in the form of a badge holder that is easily added to existing ID cards. In either case, there is a full digital trail of an employee's whereabouts and historical interactions while at



work. The beacons can be issued not only for employees but also for visitors and contractors. Employers define distancing policies and alert parameters for mitigating an infection outbreak per public health guidelines, and zones can be created with geofences around high-traffic areas (breakrooms, hallways, lobbies) to minimize large congregations of people.

The solution also plays a key role when someone tests positive for COVID-19. With a click of a button, detailed reporting enables contact tracing using historical data on movement and interactions. Safety protocols are triggered based on reporting that includes a chronological list of all the times two people were in the same zone or had a distance incident. The facility can assess the risk of each employee's exposure and minimize disruption as it rapidly responds to cases and activates isolation procedures as needed.

The same process applies to other environments, such as college campuses where students, faculty and staff returned in the Fall of 2020.

ENSURING SAFE CAMPUSES

One university provided an example of how contact tracing became a key pillar in resuming operations and ensuring continuity should isolated parts of its community become infected. The university installed wireless network access points (APs) throughout its campuses. Next, Bluetooth gateways were deployed that used this Wi-Fi network to listen for signals from the BLE beacons. Each person who came onto campus was required to carry a beacon inside a badge holder on a lanyard. Everyone also completed a daily symptom survey.

As they are carried around the university's campuses, the beacons generate roughly 300,000 lines of location data per day. This information is sent to the cloud and stored in a database for real-time and historical analysis. By querying this database, the university can triangulate the location information from multiple APs to

determine the relative location of everyone on campus, much like how GPS is used with cars and phones.

If an infected individual is identified, university administrators can quickly learn where the person traveled, identify those who were in contact with the person for at least 10 minutes, and notify these people so they can be isolated and monitored. The university has also used this same location information to monitor a real-time count of the number of individuals on either campus at any point in time to ensure that they are following state and local occupancy level guidelines. The university can use the solution to implement social-distancing policies. Other policy compliance challenges they automate through their real-time location-based monitoring and analytics capabilities include hand hygiene and related regulations that have been introduced as part of the world's next normal of pandemic measures.

OTHER OPTIONS AND CONSIDERATIONS

Location service technologies can be coupled with physical security solutions such as access control and video surveillance, adding a layer of protection for organizations striving to provide a safe, effective and resilient workplace. The integrated solutions boost security while improving emergency planning, helping to meet public health and other regulatory or policy compliance, and optimizing and refining resource allocation.

These solutions also must strike a balance between individual health, safety and personal privacy. In the case of the university's deployment, all collected data is destroyed after the 14-day period associated with the typical viral infection period. During those 14 days, the data can only be accessed by senior IT department staff and used only for contact-tracing purposes. Also, the beacons only transmit a device Media Access Control (MAC) address that

contains no personal information whatsoever. This data would be useless to anyone else except the IT department and only after translation within the database.

Today's mobile and real-time location services technologies are increasingly valuable in a variety of work environments, but at no time have they been more integral to safety and security than during the global health crisis. They are already in broad use by Fortune 500 companies for managing building occupancy, optimizing office and facility space, asset tracking and monitoring the health of equipment. Now they also provide the foundation for safely and confidently sustaining operations at universities and other work environments during this pandemic. They can quickly scale and adapt to the dynamic requirements of a wide variety of hospitals, manufacturing facilities and enterprise organizations, and deliver real-time time monitoring and analytics capabilities that help ensure compliance with numerous safety requirements and regulations that have been introduced as part of the next normal. FMJ



Mark Robinton is the technology innovation manager for HID Global®. He is responsible for incubating new technologies and solutions including the use of NFC.



Designing to be Better

CRE's safe, sustainable & smart future

BY DAN BROWN & BILL MOTEN

As building owners and developers grapple with the pandemic's economic impact, waiting for them on the other side is the uncertainty of how many businesses will return once it is safe and what will they expect from their workspace when they do return? Aligning building performance goals, planning tactics, and determining measurable operational improvements are critical initiatives to prepare for the workforce's eventual return. As the industry prepares, owners gain new insights and make better-informed technology investment decisions for the years ahead.

A smart building design should be outcome-based and used to set the property's goals and measurement criteria. Understanding the desired outcomes creates a roadmap to success, for both new and existing buildings. Organizations determine their outcomes and roadmap by creating a digital strategy across their property portfolio. In most instances, the roadmap prioritizes smart building initiatives, even narrowing down thousands of possible outcomes and experiences to a shortlist of 100. For multiple buildings or campus plans, outcomes may look very different depending on how the building is used, its type of occupants, and even location. For the coming years, outcomes appear to lean toward occupant safety. However, figuring out how to operate in the post pandemic world has also renewed sustainability commitments across many industries, driving the need to look at current portfolios and new construction.

Creating a digital strategy shared with all stakeholders also drives the prioritization of infrastructure requirements. For example, a professional, smart building design will treat network connectivity as it were a utility. Traditional building design typically added network and connectivity late in the planning process. It is now best practice for newer smart buildings to have the network planned in the beginning alongside the other utilities to ensure optimal wireless performance and future-readiness. After all, in today's digital economy, much like electricity or water, if a building lacks robust connectivity, it will also lack tenants, shoppers, visitors, students, researchers, patients and anyone else who could enter the doors.

The advantage of technology-advanced buildings is also becoming well documented and better understood. The European Commission report on Macroeconomic and Other Benefits of Energy Efficiency found that adding smart building technology can increase property values. Their findings showed that intelligent buildings commanded an estimated 11.8% percent more in lease value and 5-35 percent higher sales value, based on a literature review. Additionally, a study from the MIT Center for Real Estate demonstrated that building owners averaged 37 percent higher rent for smart buildings than non-smart buildings.

The pandemic has presented challenging market conditions, without question. It has also helped accelerate the creation and adoption of new smart technologies that prioritized occupant health and safety. However, most building stakeholders quickly find that a new technology solution only addresses the symptom and does not solve more significant operational challenges. Strategies for smarter buildings must be holistic and depend heavily on the integrations among various systems and subsystems. New Internet of Things platforms help diminish the siloed approach when elevators, lighting, HVAC controls are all planned, operated and monitored independently. To collect and analyze building data for real-time intelligence requires more of an orchestra approach where the systems work in a concert. Suffice to say, they all need to be in tune with one another to ensure all the data can be extracted and analyzed correctly.

Brilliantly planned systems integration also enables building owners and operators to share on-demand, vital information with occupants. Evaluating just one use case — such as floor occupancy — provides a glimpse into what data is needed and where the data needs to be dispersed visually — in real-time — or looking at industries such as healthcare for critical medical equipment asset tracking. No longer should one system stand on its own. A carefully designed systems integration plan will drive the creation of modern, lasting technology infrastructure and provide forward-thinking requirements for vendors wanting to be the latest plug-and-play solution.

In most industries, standards, benchmarking, and programs help leaders gauge and market their success and provide criteria for designers and engineers. In 2020, the Telecommunications Industry Association (TIA) partnered with U.L. to launch SPIRE™, the first comprehensive and objective smart building assessment and rating program. TIA's Smart Building Working Group of more than 60 companies assembled to define the technology-neutral criteria framework for measuring and rating building intelligence. The criteria are based on six distinct categories: connectivity, sustainability, power and energy, cybersecurity, life and property safety,

and health and well-being. The intent is to give owners and investors a holistic view of their building (or plans) and identifies areas and actions for improvement. Once a building receives its verified rating, it gives the owner the opportunity for their asset to stand out in the marketplace.

SPIRE and other programs such as the BICSI Intelligent Buildings Standard provide the industry with much-needed technology requirements and complement other standards such as LEED, BREEAM, and WELL.

As building systems become better integrated, owners and FMs can produce the analytics and visualized reporting they need to enhance their overall operations and investment strategies through improved digital intelligence. As artificial intelligence and machine learning applications emerge, building operations can be better automated, and predictive maintenance measures will produce substantial short- and long-term savings opportunities. With the new smart building programs, data analytics will show continued improvement to meet and exceed ratings.

Digital intelligence also enables the measurement of improved occupant experience and building operations, leading to higher occupancy rates and revenue. To that end, government entities are exploring how to facilitate smart advancements for buildings

connectivity
sustainability
power & energy
cybersecurity
LIFE & PROPERTY
SAFETY
health & well-being

and cities. The COVID-19 Relief Package passed by the U.S. Congress in January 2021 includes several provisions about smart buildings and cities. Ultimately, smart buildings improve sustainability, wellness, and many other aspects of society. As such, governmental bodies are keen on seeing them advance quickly as smarter buildings ultimately align with their goals to reduce stress on grids, lower greenhouse emissions, and ensure citizens' health and safety. With the growing demand to implement sustainability initiatives, integrated, accurate data

is imperative for reporting back to governing bodies.

No longer do building owners and FMs need to guess at smart building strategies, standards and implementation models. Smart building best practices now include creating a digital strategy based on desired building performance and occupant experiences. Leadership is defining measurable outcomes from the start, and industry and government programs are published and embraced. These best practices and programs also create future-proof technology requirements for owners and developers to evaluate building systems and their integration capabilities. When a smart building turns on, and the integrated technology systems are entirely in use, the available data will create more engaging and immersive possibilities than one can imagine. **FMJ**



Bill Moten is the Smart Buildings Practice Leader at Leading Edge Design Group (LEDG) and is a respected authority on smart buildings, Internet of Things, and wireless solutions.

Moten earned his Bachelor of Science degree in electrical engineering from Southern Methodist University and a Master of Business Administration degree from the University of Dallas. A veteran of the Communications Technology industry, Moten has been developing emerging technology and analytics solutions for more than 25 years utilizing wireless, wired, and optical networks, including IoT, property tech, DAS, Wi-Fi, LoRa, and building safety. He is a frequent presenter at national industry conferences, published in international industry magazines and author of smart buildings and technology industry blogs.



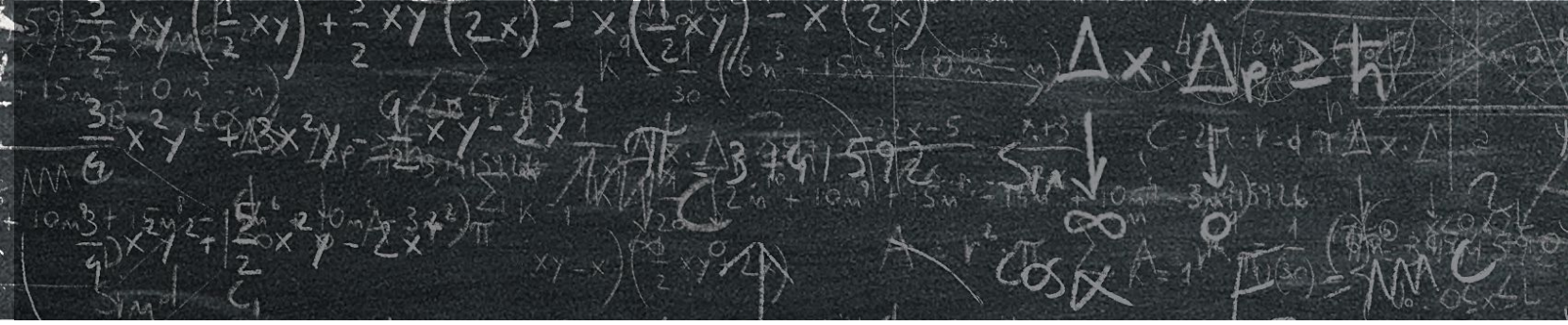
Dan Brown is the director of marketing and communications for TIA. He is responsible for public relations and digital marketing strategy, including content, websites, social media

accounts, email marketing, and advertising. Before joining TIA, Dan was a corporate marketing and communications manager at Hughes, an EchoStar Company. Dan received a Bachelor of Arts degree in communications from the University of Central Florida in 2008.

HR + FM = Teamwork

Enhancing safety and compliance

BY JENNA DOBROVOLNY



Maintaining safe and healthy conditions is mission-critical for facility managers, not only to avoid costly shutdowns that disrupt the supply chain but to safeguard the wellness of essential workers. After a year of utilizing contingency plans to address constant changes in regulations, organizations are finding gaps within crucial processes that are unintentionally leaving them exposed to various risks. Moving forward, organizations must take the necessary precautions to protect workers from health risks while solidifying many short-term COVID-19 business contingency tactics as part of their ongoing business model.

Even after the announcement of several COVID-19 vaccines, an ongoing focus on employee safety is vital to retaining and recruiting workers alike. By ensuring strong policies are in place to address workplace safety, organizations will improve wellness policies and ease employee concerns. To continue to address the challenges presented by the virus and future-proof facilities, organizations must optimize their usage of workforce management tools to improve processes and procedures.

Following a turbulent year, the use of workforce management tools allows business leaders to contain costs without increasing their workload holistically. Ultimately, allowing them to focus on other timely growth strategies, address new and historical risks, and maintain compliance through automation for enhanced facility risk management strategies. FMs, HR and business leaders can define risks in terms of the human aspect, determine the extent of the risk, and prioritize it.

Recently this has included ways to address standard procedures involving physical interactions, such as employees clocking in and out at the beginning and end of their shifts. Still a commonplace practice in many facilities, this poses a problem when the proximity of workers within high

traffic spots can compromise an entire workforce's safety. Even with additional risk and safety measures in place, there is still the possibility of COVID-19 and other contagious viruses spreading within the area by asymptomatic workers. Using workforce management solutions can enhance the cohesiveness between facility managers and HR professionals.

Reduce Outbreaks

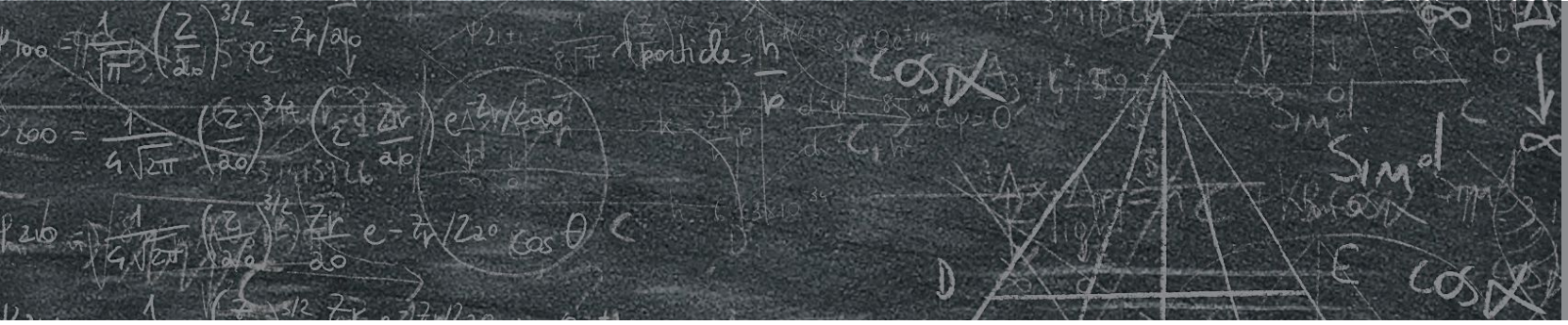
Biometric readers provide innovative solutions for highly secure environments; however, their use is limited when a job requires a mask or other personal protective equipment. Aligning with the Centers for Disease Control and Prevention guidelines, many businesses have instituted touchless clock-in practices, where feasible. Using alternative clock-in processes that are still touchless and new hardware designed to scan employee temperatures produces safer working environments. Effectively reducing the spread of viruses among employees, progressive workforce management solutions provide a safeguard against potential wellness threats before a virus enters the worksite, providing peace of mind and enabling facilities to welcome more people within a space safely.

For the near future, workforce management tools need features such as:

- Accurate, multi-point temperature readings without needing to remove masks
- Real-time approval or rejection of employees' temperature before entering a facility
- Elimination of human error with temperature taking and reporting, including touch-free clock functionality
- Recognizing and accurately identifying employees even while wearing masks
- Eliminate contact with shared devices in high-traffic areas

Additionally, being aware of how employees move through the workspace is vital in reducing the potential for an outbreak. Utilizing Bluetooth beacon badge technology, which already allows employees to clock in and out safely, helps FMs maintain social distancing, all while handling large amounts of employee data needed by HR professionals. This reduces organizations having to trust that employees will not gather during shift changes and breaks and improve the ability to perform contact tracing if needed, without having to use additional personnel.

For example, industrial services within areas experiencing an outbreak understand it is mission-critical for them to keep their employees safe and operations running to reduce supply chain disruptions. If there are 500 employees at every shift change, and to minimize gatherings, the organization decided to use a manual time system. While this may meet the objective of enhancing safety for clocking in and out, it does not assist with enforcing social distancing. The effort needed to manage and correct timecards would result in the need to hire additional employees to handle these new processes – costing tens of thousands of dollars in losses. This does not include the costs needed to monitor security cameras and spot checks



to ensure employees wear masks and follow social distancing guidelines.

By integrating the use of wearable Bluetooth devices (i.e., within employee badges to assist with touchless clock in and out), HR and FM teams can track employee movements within the facility. This allows managers to be notified when social distancing protocols are not being followed, while having an overview of ways to improve facility layout and shifts based on data. Distance monitoring using wearable technology can streamline contract tracing efforts (if an employee does test positive), taking the guesswork out of which areas could be contaminated and require cleaning and whom the employee may have interacted with. This ensures exposed personnel are contacted in a timely manner, and sanitation protocols are adequately performed.

Improve Scheduling

A system that meets the needs above provides valuable insight to enhance scheduling tactics, enabling organizations to hire additional employees to sustain future growth without violating social distancing protocols. After a year of embracing flexibility in scheduling shifts to adhere to occupancy and distancing regulations, this is still easier said than done for some organizations.

Without a clear-cut strategy for scheduling shifts, facilities will fail to meet the organization's needs and adhere to union rules and jeopardize lives. For example, an employee scheduled to work at a specific job that they are not qualified for risks their safety as well as that of others around that position.

Aside from ensuring the right people are in the right roles, an effective shift-scheduling strategy involves incorporating staggered shifts, ample break times and extended work hours. With a customizable dashboard, organizations can institute rules-based scheduling to achieve this

seamlessly using an automated tool. The scheduling solution automatically considers required certifications and skills, then schedules qualified employees who meet those requirements. Furthermore, this automation makes it easier to comply with staffing and safety rules and regulations that apply to specific industries and organizations.

A rules-based scheduling tool limits overtime and fills gaps due to illness or absence. Overall, this technology helps organizations avoid over or under-scheduling to improve costs, minimize turnover and boost productivity.

Enhance Communication

The majority of an organization's miscommunication occurs due to language, transparency and psychological barriers. Seventy percent of business mistakes are the result of poor communication. As the circumstances around the pandemic continue to evolve, it is essential for workers, FMs and HR leaders to know what is happening, when it is occurring, and how it affects operations to reduce potential production delays. Therefore, leaders must ensure they are communicating effectively across the entire organization.

By optimizing communications efforts through a single platform, FM and HR can efficiently reach employees across an organization, enabling both focus on other tasks to drive growth within the organization.

Verify Compliance as Regulation Evolves

The process of verifying compliance with labor rules, regulations, and health laws can require more than a thousand actions each month. The sheer volume of these necessary tasks can overwhelm personnel while putting operations at risk of incur-

ring substantial fines and non-compliance penalties. With the use of automated tools, facilities can reduce the chances of human error while accelerating their compliance processes. For example, solutions can scan data and policies for compliance with all applicable safety regulations to reduce the risk of fines, penalties and reputational harm that comes with non-compliance.

This also includes training, as the pandemic has increased the need for timely instruction in health and safety standards and best practices. At the same time, it has altered how organizations can provide training for workers. As large in-person groups are challenging to conduct safely, organizations are leveraging learning management software to continue educating workers to ensure they remain in compliance with the required annual (and any new) training. With these customizable learning management systems, employees have access to standard courses to meet the needs of a wide range of industries and their specific roles.

Moving into this next phase of normalcy, HR and FM teams must continue leveraging implemented business contingency tactics. A robust workforce management solution can centralize crucial insight across an organization allowing FM and HR to work efficiently together. By taking a coordinated approach, organizations can enhance facility risk management by maintaining compliance through workforce management tools to safeguard employees against wellness threats and optimize operations by meeting staffing needs. FMJ



Jenna Dobrovolny is a group product manager with Ascentis. She has worked in technology for more than 10 years in marketing, sales engineering, and product capacities and specializes in hardware and software compliance technologies for workers.



Resilient Design is Good Design

Adaptable Strategies throughout the Workplace

BY JEN SINGSON



Facility managers are tasked with the challenge of anticipating the unexpected, providing office spaces that function not only in a reactionary mode, such as during a pandemic, but also proactively and intentionally for the various unpredictable needs of the future.

The COVID-19 pandemic has been a disruptor for how the business world views office space, provoking designers to envision their approach towards workplace planning. While the U.S. Centers for Disease Control recommended six-foot social distance protocol may temporarily apply, this guideline is not a vetted approach to effective long-term planning.

For most office-based industries, access and frequency of working in the physical office space dropped drastically during the pandemic, further demonstrating how the distance precaution is not the new basis for workplace design. Even while the number of remote workers has temporarily increased from 17 percent in 2019 to 44 percent in 2020, the workplace as a physical support is here to stay as a vital tool to provide an inclusive setting that meets a wide variety of people's needs for connection, feeling a sense of belonging, fostering culture, supporting collaboration and spurring innovation.

Heavily used shared building spaces, such as lobbies, restrooms and amenities, need to be flexible on a day-to-day basis. These high touch zones require the adaptability to accommodate forthcoming changes over the months and years ahead, whatever they may be.

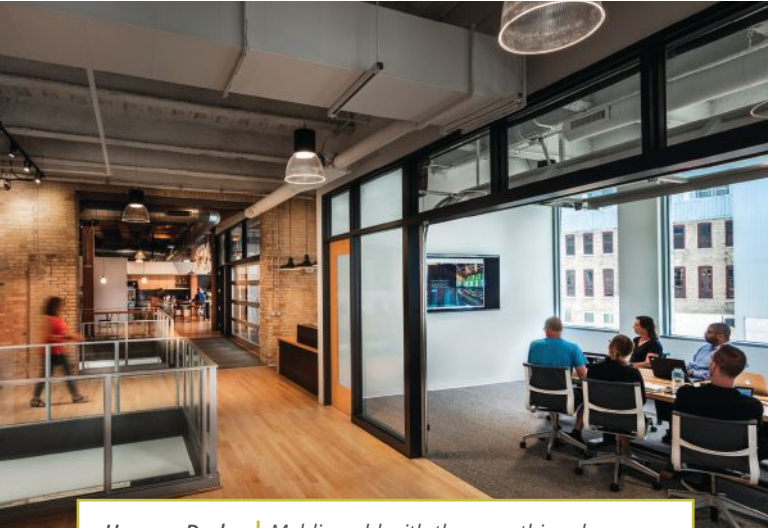
The Importance of Place for Social Connection

Social connection plays a large role in employee happiness levels. According to the Harvard Business Review, "close work friendships boost employee satisfaction by 50 percent" and the University of Oxford study sites that, "people are more productive when happy." When employees are happy, productivity, and as a result the bottom line, is increased, so everyone wins. Workers have repeatedly stated they miss organic, fluid face-to-face social interactions that occur from passing by one another or stopping by a coworker's desk in between scheduled meetings. It will be important to provide work environments where people want to be together and can do so in a safe and secure manner. To attract workers back into the office, the workplace will need to be repositioned as a desirable destination for employees. Before that can happen, it must appeal to the employee's desire for safety and well-being.

Reassurance That Work Will Be Physically and Emotionally Safe

Over the past decade, the discussion of office design has pivoted to heavily emphasize employee well-being. On the building side this may entail companies and building owners following industry best practices as well as the regard for the employees' mental health as they return to the office. Even prepandemic, research revealed a heightened importance on creating a physically and emotionally safe environment for office employees. In 2015, Google studied its em-

employees to determine what makes a good team. Researchers found that psychological safety was the most important quality that determined a team's success. Thus, there will be a heightened emphasis on office design that has resilience and fortitude for the future.



Hanson Dodge | Melding old with the new, this urban expansion showcases the historic roots of this downtown advertising agency, supporting their brand and attracting talent while providing modern and scalable amenities, like this conference room with garage door opening to allow fresh air and energy into the space.

Resilient Design is Simply Good Design

Resilient design is flexible and adaptable, inclusive and durable. Good design withstands time and meets a company's evolving and larger picture needs well into the future. No matter what the buzzword of the moment is, essentially resilient design embraces a people-centered mindset, welcoming an organization's many individual differences. Resilient design incorporates tools that offer people ease of mobility and choice. This concept can be layered with three basic, interrelated facets of a work environment — people, place and technology — to help business leaders integrate their policies, infrastructure and tools to create spaces that inspire employees to perform their best work.

Adaptable Program and Infrastructure

When approaching design for shared high-use areas, it is important to start with the infrastructure of a space. With a focus on accepted use protocols while maintaining cleanliness throughout, FMs can plan appropriate strategies that align policies, program and company culture. As the point of entry, vestibules and reception areas should play an active role as filters for the office. Smart building technologies such as facial scanners within the entry vestibule can be integrated into the interior architectural detailing. In the lobby, a digital check-in procedure could be used to minimize contact points. Part of a building's technology strategy could include digital display monitors for wayfinding and communication. This flexible signage allows employees and visitors real-time visibility to an organization's procedures and policies.

Adaptable programming integrates various scales of room sizes that serve multiple purposes. Large rooms can be divided with screens or mobile partitions to allow training, conference, and fitness classrooms, or subdivided for war room-style project spaces. Smaller rooms can flex for various functions ranging from wellness or mother's rooms, sensory rooms, prayer rooms, two-three-person huddle enclaves or individual focus rooms. Thoughtfully dispersing these spaces throughout a floor plate increases usability for unanticipated needs. One example of this flexibility is a small command/security room near a building entry that can be used as a screening room to assess various risk factors prior to visitors entering the office. This same space can serve an alternate purpose as a meeting space for new recruits.



Rockwell Automation | This urban renovation celebrated the rich history of Rockwell Automation while bringing modern and multi-use/multi-purpose conference rooms near the lobby.

Additional examples of adaptable design within the building are floor plans that include thoughtfully located walls that provide enclosures to serve various purposes; private offices that can flex as shared meeting rooms or hoteling spaces; and communicating stairs that promote walking versus elevator use. In mid- and high-rise construction, a long-term solution may be using concierge style elevator call technology, such as a mobile app or facial recognition to allow for a touch-less elevator experience.

A well-integrated infrastructure also includes a properly designed HVAC system with ventilation and air filtration that supports healthy air quality. Relevant components that allow ease of adaptability include an exposed or easily accessed distribution network of ducts, underfloor air distribution systems and flexible ductwork. Spaces with access to daylight allow natural transmission of airflow and lighting, providing a passive solution that aids in increasing general workplace environmental efficiency. These types of solutions outfit a workplace with resilience through longevity and durability.



Rockwell Automation | Initially intended to function as a Customer Experience Center to showcase products to visiting clients, during the design the concept evolved to also providing touch-down spaces for employees to provide choice throughout their workday. The resulting design is a mix of smaller focus / introvert rooms, flexible divider screens and open collaboration space to meet a variety of needs and preferences.

The Importance of Mobility

A key factor to consider in the broader scheme of office space planning is the programmatic degree of flexibility needed for each area. At an optimized level of efficiency, an adaptable space allows end user reconfigurability — this means furniture and communication technology tools can be easily moved, without special tools or layers of administrative permission. Not having to hire professional installation specialists during office hours spares employees invaluable downtime, while saving the company the cost of labor to perform the moves. On a smaller scale, mobile communication tools such as digital display monitors and whiteboards position offices to be nimble and anticipate changing needs throughout a space. These mobile tools can also be beneficial from a financial standpoint, since a single mobile monitor moving from one space to another could, in theory, replace the need for several fixed or wall-mounted monitors.

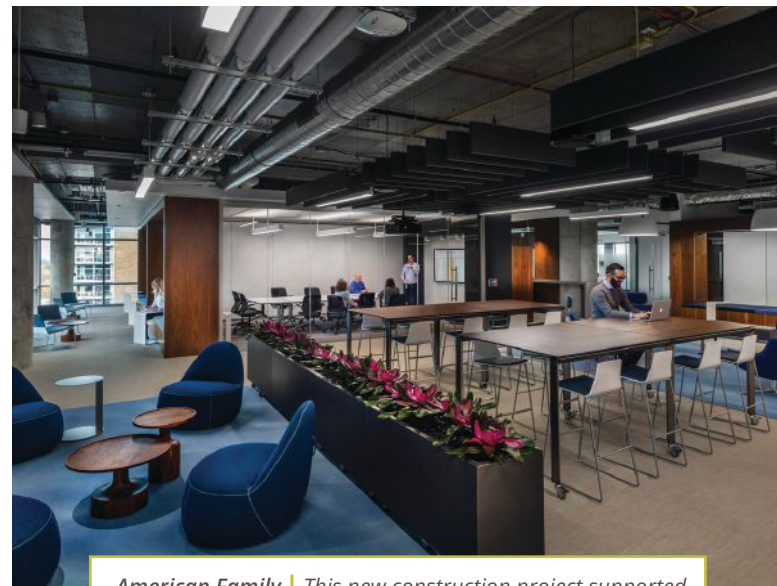
Choice of Work Setting is Key for Flexible Design

Having a distinct zone dedicated to flexibility in the workplace introduces another variable that business and team leaders can explore: the adoption of a free address strategy. This sounds contrary to the current hyper-focus on cleanliness and mitigating infectious disease spread. But, when appropriate cleaning protocols are implemented, these shared work areas offer a cleaner workspace than typical one-to-one assigned workstations, as shown in the WeWork Cleaning suggestions. If companies apply a shift in mindset, free address work zones can prevent workers from hoarding “stuff” because of the nature of frequent shifts in location. To aid in storing personal belongings beyond daily

needs, lockable storage units, such as wardrobe style lockers or mobile pedestals, can easily be designed into office plans. This offers people a sense of connection to a “home base” office while still allowing them to move around and choose their work setting and location throughout the day. At the same time, the remote workforce permeating many sectors today should be considered. Company leaders can leverage technology in the built environment to keep their distributed workers feeling connected, whether virtually or in person, to support remote collaboration and enhance employee engagement.

Inclusive Workplace Design and Policy

At its core, a resilient and inclusive workplace brings the human experience central to the focus of design. As businesses and workloads ebb and flow, an inclusive space will remain functional and supportive for all workers, regardless of the fluctuating mix of employees. Endorsing universal design principles entails designing space, details and policies that include people with diverse abilities. Restrooms are one place equity can be addressed. In 1987, a California state senator introduced legislation to guarantee the state’s women more toilets; since then, other governments have joined the cause of “potty parity.” A solution to bathroom equity concerns is introducing all gender restrooms, something that has already surfaced in some North American markets and commonly accepted in many European and Asian countries for decades. A multi-user, all-gender restroom layout provides flexibility by offering the ability to partition off between stalls depending on current occupancy and mix of gender. This version not only accommodates the variance in distribution of some headcounts, like manufacturing settings where historically men’s restroom quantity needs outnumber women’s, but also enhances attitudes of equity for transgender and non-binary individuals.



American Family | This new construction project supported by large concrete beams spread throughout allowed for open programming, but also many different elements to support employee socialization and innovation throughout the day.

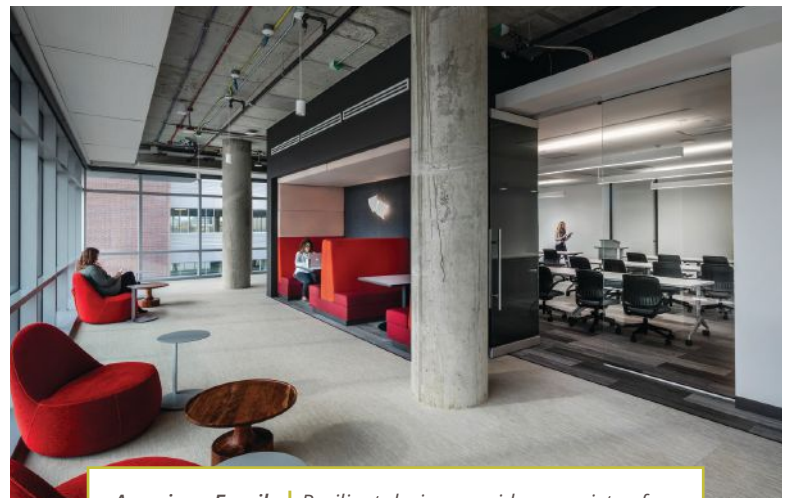


Red Robin | By providing a variety of different sized enclaves throughout this dynamic space, the client supported employee preferences; booth like seating off the main corridor supports spontaneous employee collaboration throughout the day.

Facilities and companies need to design for diversity and equity not just in ethnicity and age, but to consider many facets of inclusivity within the larger picture of workplace design: neurodiverse personalities, hearing or visually impaired individuals, virtual or remote workers, and employees with disabilities, to name a few. By conscientiously focusing on inclusivity in design and not just ‘checking a box’ or isolating specific areas, designers can truly incorporate universal design considerations that avoid alienating users, responding to individual differences and a variety of abilities throughout a facility.

Anticipate the Unexpected

How do FMs focus on resilient design for a successful, meaningful workplace experience? Business leaders must work with a cross-sectional team of personnel from human resources, information technology and operations to ensure their attention is people-centered. Bringing workers back in person to connect and thrive requires a conscious effort to curate an environment of choice through a variety of flexible work settings that can evolve over time. Many of the types of jobs and roles needed in the future have not been forecasted and do not even exist today, so anticipating and planning for the unexpected may become the theme of the future. Time will truly tell when designing for what is next, but the ability and willingness to proactively incorporate flexibility into workspaces can be the key to good (and resilient) design for an adaptable future. **FMJ**



American Family | Resilient design provides a variety of room types for work and future flexibility; from public areas, to casual settings like booths off walkways to closed rooms for focused discussions.



Jen Singson AIA, IIDA, NCARB is a design architect specializing in workplace interiors and believes in the transformative power of place; with an understanding of the impact space has on employee well-being and the influence a workspace has on the user's mind and body. She places importance on researching and identifying foundational concepts before starting design to make a lasting and resilient solution that harmoniously integrates interiors, furniture, and finishes. Singson is actively involved with IIDA Wisconsin's DEI committee and has her Bachelor of Architecture from the University of Illinois at Chicago. This article was also supported by Jill Schutts, a Project Specialist: Architecture and Interior Design in EUA's workplace studio.

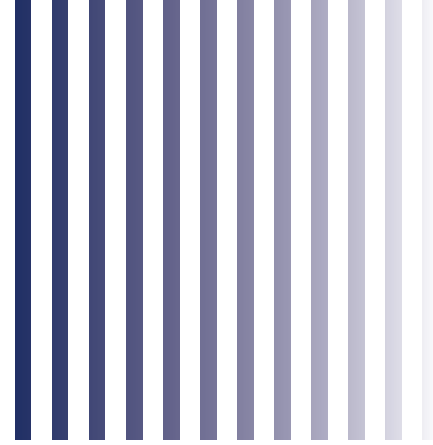
1. Department, Published by Statista Research, and Jan 22. "Remote Work Frequency before/after COVID-19 2020." Statista, January 22, 2021. [statista.com/statistics/1122987/change-in-remote-work-trends-after-covid-in-usa/](https://www.statista.com/statistics/1122987/change-in-remote-work-trends-after-covid-in-usa/)
2. Camille Preston, PhD. "Council Post: Promoting Employee Happiness Benefits Everyone." Forbes. Forbes Magazine, Dec 13, 2017. [forbes.com/sites/forbescoachescouncil/2017/12/13/promoting-employee-happiness-benefits-everyone/?sh=44436976581a](https://www.forbes.com/sites/forbescoachescouncil/2017/12/13/promoting-employee-happiness-benefits-everyone/?sh=44436976581a).
3. University of Oxford. "Happy Workers Are 13% More Productive." Phys.org. Oct 25, 2019. [phys.org/news/2019-10-happy-workers-productive.html](https://www.phys.org/news/2019-10-happy-workers-productive.html).
4. Stieg, Cory. "'Psychological Safety' at Work Improves Productivity—Here Are 4 Ways to Get It, According to a Harvard Expert." CNBC. CNBC, Oct 5, 2020. [cnbc.com/2020/10/05/why-psychological-safety-is-important-at-work-and-how-to-create-it.html](https://www.cnbc.com/2020/10/05/why-psychological-safety-is-important-at-work-and-how-to-create-it.html)
5. Hogarty, Steve. "The Best Way to Clean Your Office Desk during the Coronavirus." Ideas, Oct 9, 2020. [wework.com/ideas/worklife/the-best-way-to-clean-your-office-desk-during-coronavirus](https://www.wework.com/ideas/worklife/the-best-way-to-clean-your-office-desk-during-coronavirus).
6. universaldesign.ie/What-is-Universal-Design/The-7-Principles/
7. Pinsker, Joe. "The Long Lines for Women's Bathrooms Could Be Eliminated. Why Haven't They Been?" The Atlantic. Atlantic Media Company, Jan 23, 2019. [theatlantic.com/family/archive/2019/01/women-men-bathroom-lines-wait/580993/](https://www.theatlantic.com/family/archive/2019/01/women-men-bathroom-lines-wait/580993/)



Planning to Improve

RAISING YOUR FACILITY'S IAQ

BY DEBORAH HETRICK



Improving indoor air quality has shifted from a consideration to an imperative. Research suggests COVID-19 droplets may remain in the air and could be a primary source of transmission, so the conversation has expanded to IAQ. This is yet another massive adjustment that facility management teams must factor in to ensure they are creating safe, healthy environments as more people return to their workplaces throughout the year.

IAQ raises a new set of issues related to the inherent complexities, costs and data gaps associated with air quality management. It's clear that FM, engineering teams and project management teams must collaborate and use data as a common source of truth to establish a strategic approach tailored to their buildings and industry.

For improving IAQ, four points frequently emerge.

1. Indoor air quality is complex to measure and manage.

HVAC is one of the most complex systems for FM because it goes deep into the system itself, but also factors in the age of the building, ability to bring in 100 percent outdoor air, air return rates, climate, humidity and other factors.

What had been a focus on climate control has escalated into a deep understanding of whether the air management system is resilient enough to help reduce airborne pollutants, including pathogens like COVID-19. Playing an ugly game of catchup, is a fair characterization for many organizations.

So where does a team start?

The best steps are for the FM director, engineering teams, project management teams and building owners to understand and document the specifications and is-

suues of their HVAC system from air exchange rates to filters and maintenance before exploring options and technologies to improve IAQ. A collaboration between these teams is crucial because it creates a common source of truth to attack the problem quickly and in unison.

2. A factual baseline is the best starting point.

IAQ lacks clear, comprehensive standards. The complexity of the issue leaves most teams with a gap in data to define the potential problems and then devise solutions.

This brings up important questions like:

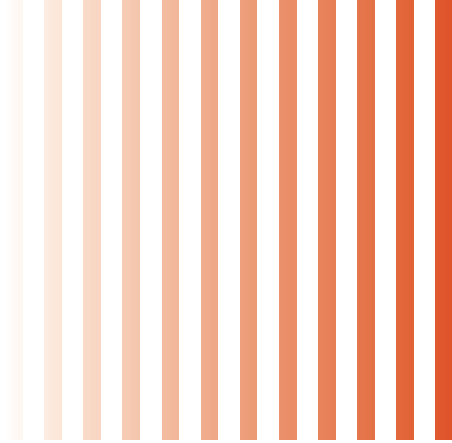
- We need to improve air quality to what level?
- What's most important for my building?
- What are the dependencies and impact on the overall system if I start making improvements?

Having metrics on key IAQ indicators such as temperature, carbon dioxide concentrations, air-exchange rates and indoor humidity levels establish a factual baseline to evaluate the wellness of your facility and its unique conditions.

Building a baseline and using risk assessment tools deliver hard data to help executives assess and identify IAQ challenges

to make informed decisions, prioritize documentation, identify best next steps and provide fact-based evidence for their stakeholders and executive teams. FMs can then identify, prioritize and solve IAQ issues across their facility:

- **Categorize facility risk exposure.** The facility's overall risk level is identified as low, medium, high or very high.
- **Identify highest priorities.** The facility's specific risk level defines the most important and effective strategies to take.
- **Develop targeted solutions based on risk level for maintenance, lighting and HVAC systems.** A report of fact-based recommendations forms a comprehensive, short- and long-term strategy for reopening and operating more safely. Collaboration and communication are crucial. FM and engineering teams get invaluable information from each other. The dialogue from answering these questions is as valuable as the answers. There is often push and pull between engineering and business directors as they discuss the issues, needs and priorities. The benefit of the risk assessment is that teams get new information and critical detail on what is known and unknown about their building's IAQ and systems.



3. Identify problems first, solutions next.

“Is the solution retrofitting our HVAC System?” “HEPA filters?” “Do we need to add new technology?” “What about UV lighting?”

When COVID-19 was identified as a new threat, it was easy to assume that new technology was required. The IAQ marketplace became flooded with solutions. It is important to use risk assessment data diagnostically to identify the true problems and priorities before determining the mix of solutions and technology.

- **Ultra-violet (UV)-C light is one of the most recognized technologies.** Applied in different ways, UV-C can inactivate harmful microorganisms, but requires specialized training and installation and strict attention to safety features, application procedures and controls. Improperly deployed, it can damage outer surfaces of skin and eyes.
- **Upper room UV-C** has the longest track record. It uses special fixtures to irradiate air at seven feet or higher for safe indoor use. It has been successfully used to control the spread of airborne pathogens in hospitals, prisons and government buildings.
- **Fixed-air handling unit UV-C** directs a light fixture on HVAC drain pans and cooling coils where pathogens may flourish. Having a higher dose through 360-degree application is needed if wanting to impact circulating air.
- **Installed UV lighting** is the latest innovation. Far-UV, 222-nanometer light, is safer for the skin and eyes. There are also innovative lighting fixtures that combine traditional downlighting with germicidal UVC up-lighting. Both options require knowledge of room contents and occupancy patterns to effectively inactivate viruses. Like other

UV-C options, operational safeguards must be deployed.

- **Bipolar ionization** relies on electrically charged oxygen ions to inactivate pathogens. When injected into indoor forced air via the HVAC system, ions group fine particles into filterable clusters to break down harmful volatile organic compounds (VOCs) and inactivate microorganisms. They are effective on a broad range of airborne contaminants and unpleasant odors. Large industrial facilities and buildings in areas with poor outdoor air quality have been among the primary users, with applications increasing during this pandemic.
- **MERV 13 and HEPA filters** are designed to remove more particulates than the MERV 6 or 8 filters that are designed and installed for typical commercial HVAC systems. Higher rated MERV and HEPA filters require greater air pressure. Some HVAC systems lack the capacity to accommodate higher pressure loads. A thorough design review is advised before making changes, along with system testing, balancing and understanding airflow patterns. This is an area where facilities and engineering decision makers must align.

Again, use risk data to define the best solutions to improve IAQ.

4. Develop a strategy for IAQ priorities, timeline, plans and budget

In meeting with FM and operations executives along with seeing data in aggregate, there is no one-size-fits-all solution to improve IAQ. There are too many variables. Understanding this is important, because it helps frame a strategic approach customized for the organization’s buildings, priorities, timelines and budgets.

There are operational complexities in improving air quality

For some facilities, solutions can be straightforward and fast to implement. For older facilities with dated systems, the solution may require a comprehensive, strategic plan, prioritized steps for retrofitting equipment and financial strategies for capital expenditures or securing capital to fund the project over time.

For most facilities, the solution falls somewhere in between with a mix of steps that can be taken immediately along with longer range plans.

Know the facts and transparency for higher occupancy

At some point in 2021, building occupancy will start to progressively expand. As people return, they will have a heightened state of caution about the health of their building. Keeping people safe is a top priority along with balancing operational and financial factors.

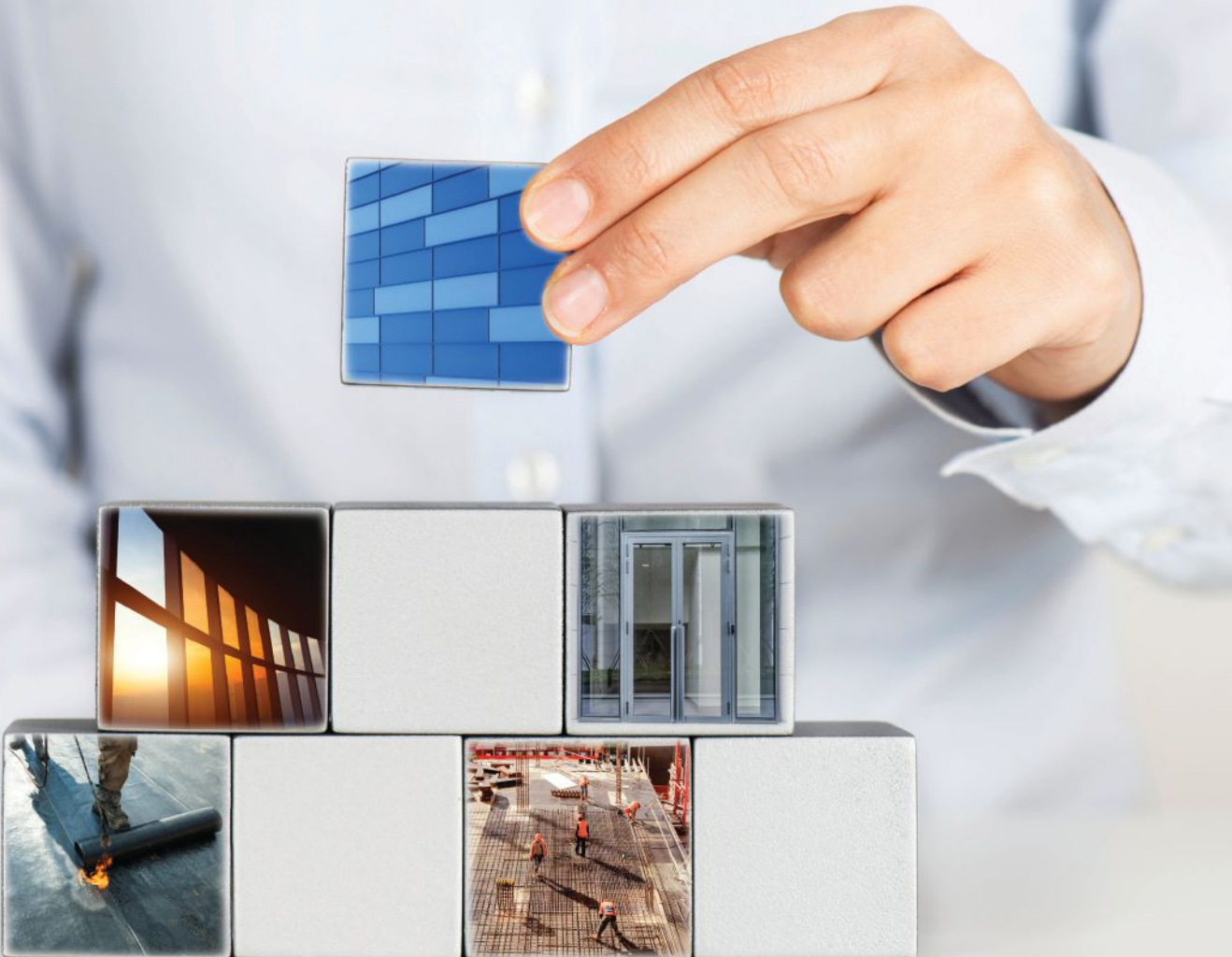
IAQ is an issue FM teams must fully understand to ensure buildings are more resilient. Teams are using the early months of 2021 to get information to refine or formulate IAQ strategies and set resource and budget priorities to help ensure overall building health. COVID-19 is not the last of pandemics and now is the time to build the resiliency of their buildings. FMJ



Deborah Hetrick is senior vice president for ABM. She has worked in the facility services industry for more than 25 years, encouraging innovation, collaboration and empowerment of facility professionals’ voice.

The Building Blocks of Enclosure Evaluation

BY KIMBERLY KILROY
& JEFFREY ZISKE



Building owners and facility managers have a responsibility to maintain their facilities in a safe and operational condition. A major component of any building is the building enclosure, which is the physical separator between the exterior and interior environment (roofs, wall, window, doors, and waterproofing). Maintaining the building enclosure requires a systematic evaluation to assess the condition of each building component and to determine the required repairs and system replacements, both now and in the future, to maintain each system. Proper maintenance and prompt repairs can reduce the potential for future leaks or deficiencies and can extend the service life of the building. Whether the intent is to address a known existing concern or to perform an assessment to identify the condition of the various enclosure systems to project future work and funding needs, the following approach can provide a framework for the evaluation procedures and potential test methods to consider. Additionally, published industry standards, (such as the American Society for Testing and Materials (ASTM)) evaluation, practice, and test methods, should be consulted for various steps in the process.



Historic photographs available from the City of Boston, Massachusetts, USA archives can be compared to the current building configuration to identify changes.

Research a building's history before determining its future

The foundation of any evaluation is to identify what information is already available.

EXISTING DOCUMENTATION

- **Historical data** | Gather information for registered historical buildings from national parks department, local historic societies, or local libraries and town records. Photographs or Google Earth aerial views from different time periods could identify previous alterations or additions.

- **Existing design or as-built documents** | The owner or FM team may possess hard-copy or digital drawings, specifications, product submittals, warranties, etc. from the original building construction, previous repairs, or building additions.
- **Previous evaluation reports** | The owner or FM may have existing reports from consultants previously asked to review and assess a particular system or issue.
- **Applicable codes and industry standards** | The approximate age of the building and a review of the code requirements, industry standards, and local construction practices at the time of construction can provide insight into the system configurations and construction methods likely to have been used.



Drones can provide high resolution views of roofs and other hard-to-reach areas.

EXISTING SERVICE HISTORY

- **Leak Audit** | FM teams can identify active leak locations and the conditions under which they occur. Whether a leak occurs during every precipitation event, or only during wind-driven precipitation events, certain seasons, particular wind directions, etc. can provide insight into the potential source(s). Leaks may be linked to a roof system, wall system, groundwater/subgrade waterproofing system, window system, transitions between systems, or even an HVAC system issue depending on the conditions during which it occurs.
- **Previous Repair Records** | Reviewing records and communicating with facilities personnel can identify areas that have undergone similar repairs multiple times. These repairs could be addressing symptoms instead of the source. Also, if repairs were recently performed, recurrent defects may not yet be readily visible.

Perform a Visual Field Evaluation

Performing a visual field evaluation is one of the most important elements of an enclosure evaluation as it identifies the building's current condition and the potential deficiencies that are or could compromise the building enclosure. The areas to be evaluated should be carefully selected to obtain a broad, yet thorough, understanding of the existing conditions. It is also important to understand the intent of the evaluation. Is it to identify a specific isolated leak? Understand the enclosure's overall condition? Note deficiencies to be repaired? Determine the maintenance necessary to preserve the enclosure's safety, thermal efficiency, and function? Each of these will merit different evaluation methods and focal points.

ACCESS METHODS

The following access methods can be utilized to reach difficult areas during the field evaluation:

Ground-level observation (via high-powered binoculars) is a useful, low-cost option to spot potential problematic areas. High-powered binoculars and vantage points such as adjacent buildings help improve field of view and data collection. Downsides include no hands-on evaluation and potentially a limited ability to view the entire building.

Small Unmanned Aerial System (sUAS) vehicles (drones) are gaining popularity because they can quickly and cost-effectively provide views of buildings using high-definition video and photography. They can access difficult areas including steep-sloped roofs, towers, or steeples. Recent technological advancements include infrared scanning, 3D modeling, and time-lapse recordings. Drones do have some restrictions and must be operated by certified drone pilots at approved locations and heights.

Aerial lifts/scissor lifts/crane basket access allow hands-on evaluation and can relocate quickly and conform to irregular building geometry. Lifts often require permits and additional coordination which can be costly. Lift access is typically combined with ground observation. Crane baskets can access higher elevations but are limited to where they can be used.

Swing staging offers a suitable platform for observations, test cuts, and testing. It is more appropriate for straight vertical drops. Roof access is required to set up and move the swing staging. Structural analysis of the roof framing may be required to confirm the building can support the swing staging setup.

Rope access/rappelling is a method similar to mountain climbing that allows the evaluator to safely access structures by descending and ascending via suspended ropes. It is a relatively inexpensive, useful method to perform evaluation and limited testing. Training and certifications are required.

Defect Identification and Documentation

Proper defect identification can expose the factors contributing to deterioration, determine necessary repairs, and select the correct repair material. When reviewing building defects, it is important to consider all the underlying contributing factors, which may not be immediately apparent. For example, correlating the previously performed interior leak audit with the documented exterior defects can assist in determining the cause of various problems and prioritizing repairs.



Infrared Thermography shows temperature differences, which can indicate moisture, air leakage, and thermal bridges within the building enclosure.

Perform Focused Testing

The visual field evaluation can identify areas requiring additional testing. Testing may verify a hypothesis about sources of moisture infiltration, air infiltration or other causes of damage. Test cuts may be necessary to identify the existing configurations (roofing materials, wall type, etc.), attachments (how a window is anchored to the building framing), or transitions (window flashings, roof-to-wall transitions, etc.). The system, condition, or specific concern will dictate which of the following test method(s) should be selected.

NON-DESTRUCTIVE TESTING

The following test methods can be performed without sampling or damaging the building enclosure:

- **Infrared thermography (IR survey)** detects the infrared energy emitted from an object to identify its temperature. Temperature differences can indicate potential moisture, air leakage, thermal bridging or other concerns. (ASTM C1153)

- **Electric field vector mapping** uses electric potential gradients, a voltmeter and electrical probes to detect roof membrane punctures and moisture intrusion. (ASTM D7877)
- **Capacitance moisture survey** uses an alternating electric current, a transmitting electrode and a receiving electrode to identify moisture within a roof system based on the increased impedance reading. (ASTM D7954)
- **Concrete sounding** can identify potential suspect areas (voids, delamination, etc.) within concrete based on differences in sound using chain drag, hammer contact, rotary percussion, etc. (ASTM D4580)
- **Ground penetrating radar** uses high-frequency electromagnetic waves to inspect materials including brick, masonry and concrete structures. It can be used to locate reinforcing steel within concrete and to map subgrade geologic conditions. (ASTM D6432)
- **Rilem tube testing** can determine the porosity and potential for moisture penetration by affixing a cylinder or tube to the face of the masonry element and monitoring the volume of water absorbed over a known time.
- **Air leakage testing** can identify where air flow is infiltrating the enclosure using fans, tracer gases, etc. (ASTM E3158, ASTM E741, and ASTM E779)
- **Crack gauge monitoring** affixes a gauge to the face of an existing crack to monitor expansion over time. Knowing whether a crack is stagnant or expanding can determine appropriate repair selection.
- **Hygrothermal modeling** uses software to model the heat and moisture movement through a proposed or existing wall system to help determine placement of a vapor retarder or air barrier. (ASTM E3054)

DESTRUCTIVE TESTING

In some instances, it may be advantageous to perform investigative testing that includes temporarily dismantling portions of existing systems to expose underlying attachments, substrates, and conditions to gain additional insight into the given system. The primary destructive test methods are as follows:

- **Leak testing**, though sometimes considered non-destructive, has been included in this section since interior finishes may be damaged. The intent is to apply moisture to isolated areas in a methodical way at the time of installation or to recreate reported leaks. (ASTM E1105)
- **Water spray testing** employs a spray rack to expose a large area of a window or curtain wall system to moisture.
- **Hose spray test** applies moisture with a hand-held nozzle, and can focus on isolated areas such as cracks, open joints, or transitions between systems. It can also simulate wind-driven rain.

- **Flood testing** fills an enclosed area with water to identify potential leaks.



Hose spray testing can be used to identify water infiltration sources.

- **Test cuts** can provide insight into the existing layers, securement methods, and material conditions. For instance, a rusted steel lintel within a masonry wall may not be visible, but once uncovered, could explain step cracked masonry since steel expands during rusting, applying stress to surrounding masonry. Simply replacing the damaged masonry without uncovering and addressing the source (the rusting steel lintel) could leave new repairs susceptible to similar damage.
- **Test cores** from concrete or masonry elements can provide insight into the depth of a unit and its homogeneity.
- **Material samples** taken from various materials during test cuts can be tested in a laboratory to ascertain additional information.



Test cuts can provide insight into the existing layers, securement methods, and material conditions.

LABORATORY TESTING

These tests are performed on samples taken during destructive testing and relocated to a controlled laboratory environment.

- **Gravimetric analysis** determines the moisture content of a material through weighing, oven drying, and reweighing. (ASTM C138)
- **Water Absorption** measures the porosity and water absorption potential of a material. (ASTM C121)
- **Petrographic analysis** uses x-ray diffraction, differential thermal analysis, infrared spectroscopy, scanning electron microscopy, chemical reactions, etc. to separate, examine and identify material components of a sample. It can determine the type and approximate strength of a mortar sample. (ASTM C1324) It can identify minerals and constituents that may make a stone element susceptible to color change or accelerated weathering when exposed to adverse conditions, such as de-icing salts. (ASTM C1721) It can also identify air entrapment, aggregates, mix design and strength of concrete. (ASTM C856)
- **Flexure testing** determines a material's strength and elasticity through incremental load testing in particular configurations. (ASTM C78 and ASTM C120)
- **Compressive strength testing** establishes a material's compressive strength through incremental load testing in particular configurations. (ASTM C170)
- **Abrasion resistance testing** ascertains a material's potential abrasion resistance. Stone's abrasion when subjected to foot traffic is determined by measuring material loss from exposure to a power-driven grinding lap. (ASTM C241) Mortar's abrasion resistance is established by rotating-cutter methods. Concrete's abrasion resistance is determined by sandblasting or rotating-cutter test methods. (ASTM C944 and ASTM C418)
- **Hazardous material testing** of suspect materials sampled in accordance with Environmental Protection Agency (EPA) test methods and local jurisdiction requirements can identify the presence of known hazardous materials such as asbestos, lead, or polychlorinated biphenyls (PCBs). Identifying these materials allows for appropriate encapsulation or abatement procedures since uncovering hazardous materials during construction can negatively affect project schedules and budgets.

Perform an Engineering Analysis of the Building Enclosure

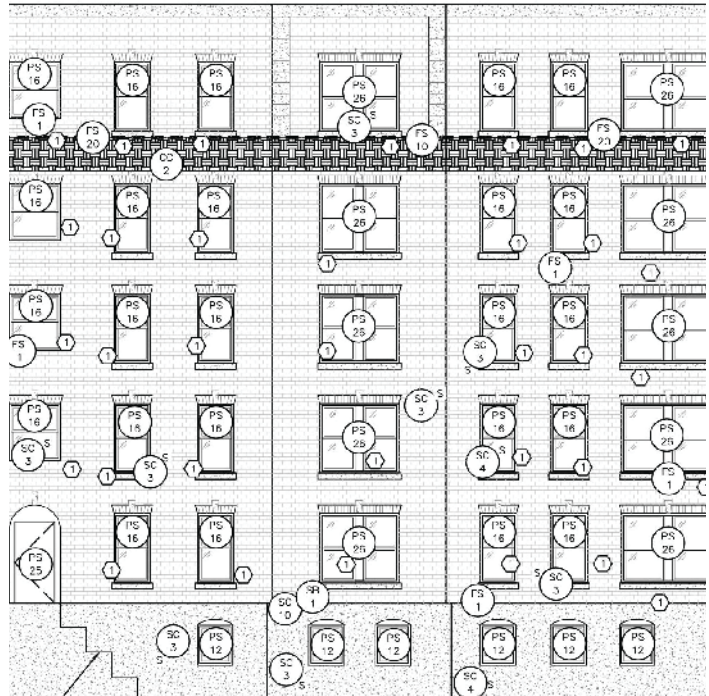
Using information obtained from researching the building's history, performing a visual field evaluation, documenting defects, and testing, the evaluator can perform an engineering analysis on the building enclosure. The building enclosure engineering analysis typically includes the following criteria:

- Assessment of documented in-place conditions and deficiencies
- Analysis of test results
- Structural analysis
- Thermal analysis
- Drainage analysis
- Vapor drive analysis
- Material fire resistance requirement analysis

Once these criteria have been reviewed, the design document development can begin.

Develop Design Documents

The design documents will indicate the location(s) and scope(s) of work to be performed, the performance requirements to be met, and the materials to be used. It is important that the repairs not only treat the symptoms, but also address underlying causes to reduce the potential for future recurrence.




Elevations drawings can be annotated to indicate the locations(s) and scope(s) of work to be performed.

The design should consider the effect of the work on the building operation, structure and surroundings. The lead time or installation timeframe for a material may be a determining factor to limit the impact to building occupants. Product selection should consider performance requirements, code requirements, compat-

ibility with surrounding materials, remaining service life of the building, construction schedule, maintenance requirements, aesthetics and cost. Historic buildings may have strict limitations on the materials that can be used.

Cost estimates for the work outlined in the design documents can provide owners and FMs with an understanding of the potential construction cost of the proposed work. Often, due to budget limitations, not all a building's problems can be rectified in a single project. Knowing the cause and origin of the problems, the extent of moisture infiltration, and the critical areas of the facility can assist in prioritizing and phasing repairs to maintain the project budget.

Allocating the necessary time and expense to perform a thorough assessment that employs each building block of the enclosure evaluation can save the owner money by providing focused, quality repairs that extend the service life of the building enclosure. 



Kimberly A. Kilroy, P.E., CDT is a project manager in Gale Associates, Inc.'s Building Enclosure Design and Consulting Group. She conducts roof, wall, and window evaluations, analysis and design, including development of technical specifications, drawings and details for competitive bidding and construction. Additionally, Kilroy performs construction administration services, including submittal review, construction meetings moderation, and intermittent on-site review.



Jeffrey M. Ziske, P.E., CDT is a senior staff engineer in Gale Associates, Inc.'s Building Enclosure Design and Consulting Group. Ziske's responsibilities include performing evaluations of existing building enclosures (roofs, walls, windows, and below-grade waterproofing); designing renovations; preparing project documents for bid and construction, including technical specifications, drawings, and details; and providing construction administration services for public and private clients.

Instant Access

KEEPING INFORMATION SAFE AND SEARCHABLE

BY JACK RUBINGER



Facility management teams are responsible for maintaining, inspecting and fine-tuning a variety of equipment and facility systems, including air handlers, generators, furnaces, elevators and other equipment for safe operation.

Remembering the sizes of different belts, filters and other applicable parts is part of the job, so FM teams rely on O&Ms (also known as equipment manuals) for these kinds of details.

Manuals are an invaluable tool for defining the requirements and procedures for the effective operation and maintenance of equipment, based on manufacturer's recommendations and warranties.

It is also a critical resource for FM technicians, as it contains wiring details, warranty info, troubleshooting tips, info about replacing and inspecting components like filters, the make and model of parts, when bearings should be lubricated and much more.

When working on an HVAC system, if the air flow and proper temperature is compromised in any way, that could mean major trouble for FMs responsible for health and safety. Buildings might be shut down while expensive repairs are made which inconvenience building occupants.

Further, if these "issues" are introduced into sensitive areas (like an operating room), the problems and fallout are compounded.

It is irresponsible to adjust HVAC systems of multi-story buildings without first consulting the manuals.

Unfortunately, manuals are likely buried somewhere in the basement of a building which is at the other end of the campus.

Technicians are forced to rummage through numerous books, folders and boxes until they can find the correct manual.

Meanwhile, social distancing directives are limiting the number of occupants in the plan room. When the manual is located, a page might be missing or illegible due to age and fading.

building a museum which stores decades of documentation.

Located on the company campus, the museum gives tours, does on-line exhibits, has an extensive gallery and sells items such as oscilloscope manuals, TV waveform monitor instructions and various product catalogs from the 1950s to the 1990s.

History is preserved for future generations of technicians. For today's technician, however, they need information while they are on rooftops or basements and time is of the essence when repairing aging or fragile equipment.

Relying on one resource for institutional knowledge is just not fair to newcomers, which is why one source of truth is mission critical for FM teams.

"I am a firm believer that everyone on the team should have the same access to the same current information from day one. That along with shadowing the tenured folks is invaluable training," said facility expert David Trask.

At one company, the FM team was responsible for unique and old equipment that was no longer manufactured. When the equipment service technicians started to retire, team members started filming them doing the monthly, quarterly and annual maintenance.

While filming, the technicians talked about where to get parts, and the quirks of the machines. They created a shared and easily searchable library so the newer team members could learn. Even taking this additional step, the challenge

I am a firm believer that everyone on the team should have the same access to the same current information from day one. That along with shadowing the tenured folks is invaluable training.

— David Trask, Facility expert

Asking long-time employees for help with equipment has been the standard procedure to deal with equipment questions. Unfortunately, many baby boomers are retiring or on furlough.

How will that institutional information be transferred to the next mechanic or technician responsible for the job? FM knowledge is as much technical as it is physical or industrial. There is always something new to learn about traditional facility equipment as well as server/network skills in some cases.

Veteran employees of one of the electronics companies in the U.S. Pacific Northwest have taken the notion of reverence and respect for equipment documentation and instruction to another level by



Often times the newest staff member receives quick, basic training on and then is assigned to the night shift. That basic training does not help at 2 a.m. when the pipe bursts and they cannot find the shutoff valve.

arose of whose computer information stored on and what is their username/password to log in.

While some maintenance, operations, types of equipment and general day-to-day activities can be very similar at facilities, each building, facility type, physical location, building codes and annual inspection requirements vary depending on location.

Retirement/Training

As baby boomers continue to retire or are furloughed, the need for cross-training becomes even more dramatic.

The requirements for FMs with technical skills have never been greater. Equipment is getting ever more sophisticated while the labor pool is becoming shallower by the month.

One technician said, "I cannot tell you how many times I have heard that former retired employees have to either change their phone number or they end up signing back on part-time because they receive so many calls after they leave."

A lot of knowledge such as annual elevator inspections, building fire inspections, life safety, fire extinguisher and boiler inspections can be cross trained to FM staff by using checklists for tracking, implementing and recording the successful completion of tasks.

In some cases, senior FMs assume greater levels of responsibility and longer hours as a result of early retirements and a less experienced workforce.

Often times the newest staff member receives quick, basic training on and then is assigned to the night shift. That basic

training does not help at 2 a.m. when the pipe bursts and they cannot find the shutoff valve. With advances in technology like machine learning and artificial intelligence, it is now possible to extract intelligence from building information like manuals and make that information instantly available on mobile devices, which everyone uses.

It just does not make sense in 2021 to rely on plan room visits, paper documents, digitized data or our memories to keep facility equipment up and running.

When everyone on the team has the same access to the same current information from day one, then everyone benefits.



Jack Rubinger has more than 20 years of B2B writing, public relations and marketing experience. Rubinger earned a Bachelor of Arts in journalism from Binghamton University in New York. He is a frequent contributor to global FM, construction, healthcare and industrial safety publications and blogs.



Standard Success Using comparisons to build KPIs

BY DR. S. MOHAN & DR. S. KUMAR

Globalization has led to new operation management strategies. Small operators are expanding their local operations management into global markets.

However, to be successful, companies within the same brand located in other countries must align their strategies. The parent company usually entrusts local decisions to its locations within the market. Therefore, benchmarking is a necessary evil within operation management as it forms good strategic vision.

Global benchmarking compares the performance of a company with competitor companies at global level, and it is necessary to develop standardization across a company's business model. Internal and external benchmarking is necessary while analyzing staffs performance as a team and individuals at each location. External benchmarking measures competitor company's performances at all levels. For smaller companies, knowing best practices that influence growth can help expand reputation and operations to grow into a multinational national company (MNC). Thus, peer benchmarking leads to guide to collect exact data for comparison.

In general, the benchmarking operation management must have the following principles:

- Seminal features of the company,
- Research & planning,
- Data collection,
- Scrutiny,
- Development, and
- Assimilation/incorporation

The benchmark analyzing team must concentrate their research at the competitor companies at the grass root level, because the company's success depends on actual strategy execution. Benchmarking also helps to the property or facility manager give special attention to his or her clients and tenants. Their success is often tied to vacancy rates, payment and the satisfaction of tenants. Therefore, it is important for the FM to implement tracking, coordination, and computing services to enhance services for occupants and tenants. Customer-oriented FM includes detailed service such as maintenance schedules and service activities with performance targets for tenant satisfaction.

FMs must also analyze competitor's strengths and weaknesses to retain tenants and best practices. This also helps measure completion of service calls and planned preventive maintenance projects within a stipulated time. It also aids for precise data collection, generating reports through implementing key performance indicators (KPI) for client satisfaction. Regular feedback assessment by sharing files through mobile tools, maintains cordial relationships with tenants. Their feedback helps FMs measure their KPIs as well.

Interactions with the tenants either in-person or their representative also grows customer satisfaction. This relationship develops a stronger understanding of occupant expectations and provide satisfactory solutions.

Proper data management can minimize occupant expenses and build a more accurate budget by extending equipment life.

FMs understand the costs for their facility — which spans routine maintenance and equipment to expensive, emergency proj-

ects. The fixed costs can be tabulated properly, but there are many hurdles for planning unanticipated costs, hence the FM must use historical data. It helps if the FM can break down spending into annual, quarterly and monthly costs as, it identifies costs that go unnoticed.

Having an accurate view of day-to-day operations through proper data management can help build a comprehensive budget.

Still, FMs must budget with safeguards in place for miscellaneous and unforeseen expenses. When budget, operations and data management are in sync, the FM team is ready for anything and occupants tend to be satisfied.

Using maintenance management software can help reach those goals and allows them to correct their course. FMs have instant access to real-time status. Staying on track helps make for successful days and winning years.

Having a help desk for tenants can immediately inform the FM team of any problem when it is identified. It also builds a chain-of-command from the right person to address the issue to the higher-level staff needed to address a complicated, insoluble concern. This helps the FM team find the reason behind issues and take immediate action, all while tracking daily goals.

Usually, the software's dashboard at software shows an overview of the problem (whether it was a small task or a sudden emergency), who addressed it and its result.

The FM establishes a proper course of action in advance to handle emergencies and the best possible team member who can respond. They also envision all possible scenarios in the event of an emergency. The more prepared an FM team is, the better they can respond. Some of this preparation can be outsourced to loosen time and resources so that the FM team can address daily issues.

FMs must plan for execution of day-to-day tasks with their on-site team. Having benchmarks leads to accurate project and budget planning, cost-effective maintenance and customer satisfaction. **FMJ**



Dr. S. Mohan, M.A, M.L, PhD (Hon) is employed at Oman Shaprooji's Facility Management Division (hard service) in the sultanate of Oman. He has 12 years of experience in property and healthcare FM. He is also a reviewer for various magazines. Mohan was awarded a lifetime achievement award in 2020 for engineering, science and medicine.



Dr. S. Kumar M.Sc., MBA, MPhil, PhD (Hon), is an assistant professor at Devanga Arts College, Aruppukottai in India and has 33 years' experience in teaching, Research and counseling. As a research author, certified nutritionist and trained therapist (ART) his experience also includes property management.

Vendor Profiles


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

BUILDING CONSTRUCTION/DESIGN



Bradley Corporation

For 100 years Bradley has created the most advanced, coordinated commercial washrooms and comprehensive emergency safety solutions that make public environments hygienic and safe. Bradley is the industry's leading source for touchless handwashing technologies, washroom accessories, partitions, solid plastic lockers, emergency safety fixtures and electric tankless heaters. Headquartered in Menomonee Falls, Wis., Bradley serves commercial, institutional and industrial building markets worldwide.

 bradleycorp.com
 [@Bradleycorp](https://twitter.com/Bradleycorp)
 [linkedin.com/company/bradley-corporation/](https://www.linkedin.com/company/bradley-corporation/)

GORDIAN®

Gordian

Gordian provides innovative products and services to organizations pursuing efficient and effective procurement and information solutions that deliver rapid deployment and long-term cost savings. Gordian is the pioneer of Job Order Contracting and a number of related construction-procurement systems. Gordian employs the most respected construction cost estimators and engineers in the world to its team of construction data experts who build the RSMeans database. Sightlines, a Gordian company, is changing the conversation in facilities management. Our industry-leading solutions provide tools for facilities planning, reporting, benchmarking and analysis.

 gordian.com
 [@GordianCompany](https://twitter.com/GordianCompany)
 [linkedin.com/company/the-gordian-group](https://www.linkedin.com/company/the-gordian-group)

Vendor Profiles

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

ELECTRICAL/WIRE MANAGEMENT



Kevco Electrical

Kevco Electrical Construction, Inc. operates with integrity, attention to detail and hard work. Our motto is "We come to work". This family owned and operated company has always held the value of our customers above all else. Our goals are to complete all projects on time and without any customer complaints. We provide responsive service and address all needs of our customers and contractors immediately.

 kevcoelectrical.com

ELECTRICAL/WIRE MANAGEMENT, cont.



Miller Electric Company

Through our dedicated team of professionals, and partnering with the industry's leading engineers, manufacturers, and distributors, Miller Electric Company will provide you with innovative solutions and quality service so that you can stay focused on your core business. Whether you are planning a new build, modernizing your existing facility, maintaining your infrastructure, or looking to improve your energy efficiency, Miller Electric Company will give you the power to succeed.

 mecojax.com
 [@meco_jax](https://twitter.com/meco_jax)
 linkedin.com/company/miller-electric-company

EMPLOYEE AND WORKPLACE TECHNOLOGY



Modo Labs

Modo is the only low-code app building platform specifically designed for the hybrid workplace. Trusted by global Fortune 1000 brands and over 300 universities, the Modo platform powers unified app experiences that go beyond engaging to driving behavior and elevating each user to succeed. Modo's Workplace solution provides the agility for customers to quickly build, deploy, evolve, and scale tailored and branded experiences that keep everyone secure and connected.

 modolabs.com
 [@modolabs](https://twitter.com/modolabs)
 linkedin.com/company/modo-labs-inc-

FM CONSULTANTS/SERVICES/PROVIDERS



**U.S. Department of State,
Bureau of Overseas
Buildings Operations**

The U. S. Department of State's Bureau of Overseas Buildings Operations (OBO), is recruiting Facility Managers and Construction Engineers to join its team of Foreign Service Specialists who plan, construct and maintain all U.S government real property located overseas under the control of the U.S. Department of State. Foreign Service employees enjoy international travel, free housing and utilities when assigned overseas and other excellent benefits.

- careers.state.gov/OBO
- [@state_obo](https://twitter.com/state_obo)
- linkedin.com/showcase/usdos-obo

FM SOFTWARE



**AkitaBox
AkitaBox**

AkitaBox is a one-stop shop for data collection, location-based asset mapping, preventive maintenance scheduling and work order management. With an à la carte service offering, AkitaBox works with you to identify the best solutions to meet your individual facility's needs. With custom-tailored training and support, their team of success managers will guide you through the entire process from start to finish in as little as 90 days. Learn how you can simplify your facility management at AkitaBox.com.

- home.akitabox.com
- [@AkitaBox](https://twitter.com/AkitaBox)
- linkedin.com/company/AkitaBox

FM SOFTWARE, cont.



Planon

As the leading global supplier of Integrated Workplace Management System (IWMS), Planon helps organizations streamline business processes for buildings, people, and workplaces. Planon's innovative software assists with every phase of your real estate lifecycle, from signing the contract and maintaining assets of all types, to optimizing space usage and meeting corporate sustainability objectives.

- planonsoftware.com
- [@planonsoftware](https://twitter.com/planonsoftware)
- linkedin.com/company/planon

HEALTH/SAFETY



**GOJO Industries —
Makers of PURELL**

GOJO Industries, Inc. (www.gojo.com) is the inventor of PURELL® Advanced Instant Hand Sanitizer and the leading global producer and marketer of skin health and hygiene solutions for away-from-home settings. The broad GOJO product portfolio includes hand cleaning, handwashing, hand sanitizing and skin care formulas under the GOJO®, PURELL® and PROVON® brand names. GOJO formulations use the latest advances in the science of skin care and sustainability. GOJO is known for state-of-the-art dispensing technology, engineered with attention to design, sustainability and functionality.

- gojo.com
- [@purell](https://twitter.com/purell)
- linkedin.com/showcase/purell-brand/

Vendor Profiles

HVAC/INDOOR ENVIRONMENTAL QUALITY SOLUTIONS



Surplus Group

Surplus Group has one of the largest inventories of air-cooled and water-cooled chillers and cooling towers in North America. The Surplus Group inventory contains a comprehensive selection of equipment types, sizes, and brands in every major category of cooling and heating equipment. Surplus Group purchases new and surplus industrial equipment throughout North America and sells to customers worldwide. To learn more, visit <https://surplusgroup.com>.

 surplusgroup.com
 linkedin.com/company/surplus-group

JANITORIAL SERVICES/CLEANING PRODUCTS



The New Standard
of Facility Services

UG2

UG2 is committed to delivering the highest standard of facility services and solutions in the commercial, corporate, education, retail, public venue, healthcare, life science and industrial markets. Our vision is to set the new standard of excellence – and create the next generation of leadership in the facility services industry. UG2 is privately held and headquartered in Boston, MA. We also have offices in Chicago, Washington, D.C., New York City, and Palo Alto.

 ug2.com
 [@UG2IFS](https://twitter.com/UG2IFS)
 linkedin.com/company/ug2

REAL ESTATE SOFTWARE



Trimble ManhattanONE

Measuring occupancy and live space utilization data, enhancing employee engagement, maintenance cost management, streamlining work orders, FASB/GASB lease compliance... What challenges do you face in your organization? Meet Trimble to explore their Manhattan & CenterStone software that you can use to optimize operational & strategic real estate management. Solutions include lease and portfolio management, workplace and space management, facility maintenance, asset management, financials, meeting room panels, and sustainability management. Available in their secure ISO 27001 Cloud (Amazon Web Services) with flexible IoT & 3rd party system APIs, powerful reporting, mobile apps, workflow automation, and NEW intuitive user interfaces.

 realestate.trimble.com
 [@TrimbleREWS](https://twitter.com/TrimbleREWS)
 linkedin.com/company/trimble-real-estate-&-workplace-solutions



Ready to sit for your CFM[®] exam?

Practice applying your FM knowledge
and critical thinking skills with
IFMA's Virtual CFM[®] exam prep

IFMA's Virtual Certified Facility Manager exam prep provides an overview of the 11 competencies of the facility management body of knowledge.

- Enhance your knowledge in FM areas you may not encounter in your current position
- Review core competency areas
- Stay on track to meet your CFM[®] goal
- Review the overall methodology of the CFM[®] exam
- Practice applying FM knowledge and critical thinking skills with sample exam questions

IFMA[™]

CFM[®]

Certified Facility
Manager[®]

**IFMA's CFM[®] - Earn the most respected
credential in facility management.**

Learn more at ifma.org/professional-development