

# FMJ



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Energizing community needs

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**ABOUT IFMA** IFMA is the world's largest and most widely recognized international association for facility management professionals, supporting 24,000 members in more than 100 countries. This diverse membership participates in focused component groups equipped to address their unique situations by region (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](http://www.ifma.org).

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### FMJ Extras

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

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IFMA's Coronavirus Resource Center  
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#### 050 Resource

How COVID-19 is Changing Temporary Site Services  
<https://www.constructionexec.com/article/how-covid-19-is-changing-temporary-site-services>

### 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.

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

It is the only industry publication that draws on the collective knowledge of IFMA's highly connected global network of FM thought leaders to bring you insights on current and upcoming facility management trends.

Get your copy — subscribe to receive a full year (six issues) of the best source of information for workplace professionals. Visit [www.ifma.org/publications/fmj-magazine/subscribe](http://www.ifma.org/publications/fmj-magazine/subscribe)

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# Editor's Note Bobby Vasquez

As the COVID-19 pandemic continues to change where and how we live, work and play, it is inspiring to see how quickly and capably facility management professionals have adapted, taking action throughout city and business shut-downs, re-openings and planning for an uncertain future. Employers and employees worldwide have placed our lives and livelihoods in the hands of FMs — in most cases, unknowingly.

FMs may not share the headlines with identifiable first responders, but your frontline role in ensuring built environment safety, functionality and sustainability has kept businesses afloat, workers protected, and customers, patients and other visitors assured that the buildings they're re-entering are healthy and safe.

Even with the responsibilities you're shouldering, you're also taking the time and effort to share information and first-hand experiences with your colleagues. The number of article submissions we received for this edition of the FMJ was phenomenal. Our chapters, councils, communities and corporate partners continue to work tirelessly to impart relevant, useful, business- and life-saving content through various IFMA channels, including Engage, the Coronavirus Resource Center and the FM + COVID-19 webinar series. We can't thank you enough for what you've contributed to the profession's body of knowledge. The lessons learned and shared amid this crisis will be discussed, studied, refined and applied for years to come.

The world is re-opening, which opens FMs to new challenges and opportunities. With disruptions in work and the workplace, FMs will be viewing space, place and experience through a much different lens. To help bring the picture into focus, this issue of FMJ addresses real estate, property management and space occupancy.

Amid the pandemic's ripple effects, FMs must also manage routine tasks – waste management, service contracts, building and outdoor space maintenance, post-occupancy evaluations – many of which have been compounded by new policies and protocols.

FMJ authors tackle other pertinent issues such as how janitorial services, infection prevention, workspace planning, access and technology will change in the newest new normal.

FMs are at the forefront of change. When the world changes again, we can rest assured that FM will lead the way in best practices for user experience, planning and safety. Look beyond the headline and you'll find an FM behind every story.

Cheers,

Bobby

**FMJ EXTRA**  
*Resource*  
IFMA's Coronavirus Resource Center

### Interested in writing for FMJ?

Email [bobby.vasquez@ifma.org](mailto:bobby.vasquez@ifma.org) article ideas to be considered for future issues of FMJ.

## 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

MARKETING  
**Perla Carrizales**  
perla.carrizales@ifma.org

DESIGNER  
**Ellen Peeples Cregan**  
ellen.cregan@ifma.org

## IFMA 2020-21 BOARD OF DIRECTORS

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# From the **Chair**

**PETER  
ANKERSTJERNE**

MBA, COP, FRICS,  
IFMA FELLOW

*Chair,  
Board of Directors*

Regardless of where we are in our careers, there are always more opportunities to learn more within our industry. I have been exposed to real estate and property management more in the past two months than I have in the past 20 years.

There is no doubt there is a strong overlap between CRE, Property Asset Management and FM. In the coming years, we will see an integration between these areas, strongly driven by the way we occupy space and accelerated by the COVID-19 situation.

The way we use space is changing. Previously, we focused on densifying space to drive efficiencies. However, today we must maintain social distancing while we design and redesign our workplaces differently. We are now in a world where we must de-densify the space we use.

Part of that process is returning our workforce in the workplace in a phased approach. In doing so, we must monitor development and maintain control in order to keep our people safe and healthy.

Working from home (WFH) is been a successful, worldwide experiment during the pandemic. Most organizations have realized WFH is here to stay as they are able to maintain (and in some cases increase) employee productivity. The situation has forced a quicker adaptation of the technology for WFH employees.

However, FMs must prepare for how this will affect the workplace set-up and how it will influence the corporate culture, which probably will require some kind of physical presence at least from time-to-time. Also as we embrace WFH, we must better understand how this will influence the FM's scope of work – and possibility add to our responsibilities of the future. Organizations must ensure people are working well from home, that they have what they need to work productively while remaining safe and healthy.

Many organizations will use their newfound learning in the successful WFH practice to decrease their portfolio and change the role of work. Post COVID-19, organizations will probably realize that they don't need the same amount of space they previously used, which will dramatically change the role of the workplace.

FM is ideally positioned for dealing with all the new requirements from COVID-19. In all parts of the response, reentry and reimagination phases FM was quick to respond and close (or limit access to) the workplace. We are now instrumental in re-opening and returning people to the workplace. We will be critical to designing and aligning the workplace to the new reality of work when COVID-19 is over, which is hopefully soon. FM has been front and center, dealing effectively with the situation. If there has ever been a time for shine for FM, this is it!

As we move forward we must continue collaboration with CRE and PAM while focusing more on occupancy planning and space optimization. We will be working more closely in the organization, especially with HR and IT departments to understand the technology requirements, opportunities and how we can bring an improved people-focus to our workplace. This focus must drive employee engagement, experience, productivity and talent retention/attraction for the organization. This is the future of FM and an area where we must excel.

We must realize that people will no longer need to come to the workplace as they did pre-COVID-19. Today, most of the "knowledge work" can be done from anywhere. But we (the organizations) want them to come to the workplace, to help drive engagement, loyalty, culture – to meet guests, leaders, colleagues and have social interactions, water cooler talks, to have fun and to be part of the excitement of being at the office.

This will require a new approach to the workplace experience, the amenities, the design, the services – and thus the requirements for FM real estate, property management and space occupancy have changed forever!

Sincerely,

Peter Ankerstjerne  
Chair, Board of Directors  
IFMA



# From the **President**

## DON GILPIN

*President & COO  
IFMA*

At the time of this writing, the world is planning for a phased approach to returning to the workplace. After three months of a global COVID-19 shelter in place mandate, some countries are further along than others in returning to some semblance of regular life.

Nobody has a crystal ball. Past health crises taught us to quickly implement social distancing, hygiene and sanitation protocols. Existing remote work practices helped us transition our organizations from in-office to at-home work. Those with specialized knowledge of building systems, safety measures and cleaning procedures helped us make sure our checklists covered all vital areas. This is the power of community – sharing information, direction, counsel and support to ensure we all have what we need to do the best job we can.

I am proud of IFMA and the support we have been able to offer the FM community through our COVID-19 Resource Center. This IFMA-generated site is filled with practical, non-biased information from industry leaders, including like-minded trade groups freely sharing their knowledge with us: like ISSA, ASHRAE and ASIS. The Resource Center also includes IFMA's webinar series, the work of countless hours by subject matter experts and IFMA component leaders offering thousands of participants valuable knowledge that they can bring back to their building operations.

Each day I see glimmers of hope that our industry will be returning to a new normalcy in which we

can again engage face-to-face.

I also want to share the pride IFMA's professional staff has in the members we support. While we owe so much to our health care professionals and local safety officers, IFMA staff knows and appreciates that FMs are on the front line, exposed to the dangers of this horrible virus. FMs worldwide have quietly been on post ensuring our buildings are secure, maintained and functional. With so many buildings unoccupied or at reduced capacity, your work is even more behind-the-scenes. But we see it – in your online posts, on your component websites, in content you've shared, and in webinars you've hosted or attended – and we thank you for your dedication to the profession of facility management.

We are looking forward to the day where we can safely gather to network, collaborate and celebrate the FM industry. Until then, we must heed the advice of professionals by practicing social distancing, and maintaining the safest possible workplace environment. Thank you for your perseverance, your leadership and your membership in IFMA. We appreciate you!

Sincerely,

Don Gilpin  
President & COO  
IFMA



**SILENCE** *and*  
**INDIFFERENCE**  
**ARE NOT**  
**ACCEPTABLE**

*“Black Lives Matter is a powerful movement, and IFMA is dedicated to being a part of it. We are thoughtfully working toward continued advancement of our diversity and inclusion efforts to ensure that the actions we take are meaningful and enduring.”*

*– Don Gilpin, IFMA President & COO*

## **IFMA STANDS WITH OUR COMMUNITY IN THE DEMAND FOR FAIR TREATMENT AND EQUALITY FOR ALL**

A message from IFMA’s President and Executive Committee

**A**s an international association representing individuals of every nationality, race, culture, faith, age and gender, IFMA embraces and celebrates the diversity of our membership and the global facility management industry. As a community of colleagues and friends, we support each other in times of adversity. As a family of closely knit individuals, each of us feels deep sorrow, outrage and a desire to offer aid when any one of us is harmed, wronged or threatened.

At IFMA, there is no tolerance for discrimination, harassment, insensitivity, inhumanity or cruelty against any individual or group. From leadership and staff to our chapters, councils and communities, we actively foster a culture that values and respects the worth of every human being, and we are committed to ensuring that everyone who engages with IFMA feels represented, supported, included, heard and cherished.

Recent acts of brutality and injustice against African Americans in the United States have shaken us to our core. We’ve witnessed actions so unconscionable that silence and indifference are not acceptable. Even in this grave time of pandemic, we join in peaceful protest because change is needed to permanently and

finally quash long unaddressed racial inequity.

As we join the world in mourning George Floyd, Ahmaud Arbery, and countless other victims of prejudice, persecution and abuse, we also join other organizations that are taking a stand – not simply asking “what can we say,” but actively exploring “what can we do.” What actions can we take to show our solidarity, demonstrate our desire to make a difference, help our world heal and move forward in the right direction?

As always, your association is here for you. IFMA’s focus is to provide a safe, welcoming, receptive and supportive environment for you to learn, network, and enrich your professional and personal lives.

Our community is built on and sustained by collaboration, knowledge sharing, mutual respect, a commitment to excellence, appreciation and recognition. Facility management professionals are adept at taking care of what’s entrusted to us. From the heart of your association comes a promise – we will continue to stand with our community, our colleagues, our friends and family in the demand for fair treatment and a voice given to all who have a right to be heard.

## Industry News

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](mailto:communications@ifma.org)

# FM Quality Seal developed by IFMA Austria Chapter

Introduced last year, the FM Quality Seal for new and existing buildings recognizes efficient operating processes and increased quality of use and user satisfaction, as well as direct, monetary benefits through optimized life cycle costs and/or operational costs. Developed by IFMA Austria, the insignia is bestowed upon projects that successfully link the life cycle phases of planning, construction and operation and demonstrate collaboration between builders, owners, users and operators.

Projects are evaluated in seven areas – FM-oriented planning; construction and equipment; user experience; operational concept and processes; resources and energy; documentation and digitization; and life cycle view. Those successfully showing target achievement during an audit are awarded an FM Quality Seal in one of three metal-based levels. IFMA Austria awarded its first quality seal at the gold level to the newly built elementary school Leopoldinum, a property of GBG Gebäude - und Baumanagement Graz GmbH, in the city of Graz.

“The purpose of the FM Quality Seal was clear from the start – the experience gained from operations should flow into the process of project development, planning and construction in good time. The FM Quality Seal includes specifications for the process and content for all life cycle phases, especially for the early phases and for the phase of handover to operation,” – Manuel Radauer, President, IFMA Austria Chapter



## Scholarship established to make sustainability education more accessible

IFMA Fellow Eric Teicholz and the IFMA Foundation recently introduced a scholarship for individuals interested in earning IFMA's Sustainability Facility Professional® (SFP®) credential. Open to young FM professionals with a demonstrated financial need, the Eric Teicholz Sustainability Scholarship covers all SFP credential fees.

*“I wanted to establish a legacy to support a future generation of facility managers in their study and mastery of climate science as related to the built environment,”* said Teicholz. *“I look forward to seeing these scholarships create a new generation of facility managers with competencies in this vital and evolving field.”*

IFMA's SFP is an assessment-based certificate program that teaches facility managers to take a comprehensive approach to sustainability. The SFP program leads to a better understanding of climate change and how buildings can be managed to reduce negative environmental impact.

“Additional education is needed for facility managers to meet future global sustainability challenges in the next decades,” said Joe Archie, IFMA Foundation Chair. “Eric is

helping to make this critical education more accessible. He believes that understanding how to reduce the impact of climate change on buildings will become even more important every year that goes by.”

As expanding urbanization is expected to double the world's building stock over the next 30 years, sustainability skills will remain essential for facility managers in the foreseeable future and will increase the leadership potential for those with demonstrated expertise in maximizing efficiencies, streamlining building operations and implementing projects that positively impact the community.

Applications for 2020 are closed; applications for 2021 will open next January. Learn more at [foundation.ifma.org/students/scholarships/eric-teicholz-sustainability-scholarship](http://foundation.ifma.org/students/scholarships/eric-teicholz-sustainability-scholarship).



***Ex-officio chair of IFMA's Strategic Advisory Group, Sustainability Task Force and Sustainability Committee and a member of IFMA's ESUS community, Eric Teicholz has championed sustainable FM practices throughout his career.***

# SURVEY REVEALS WORKERS ARE MORE PRODUCTIVE, LESS DISTRACTED AT HOME

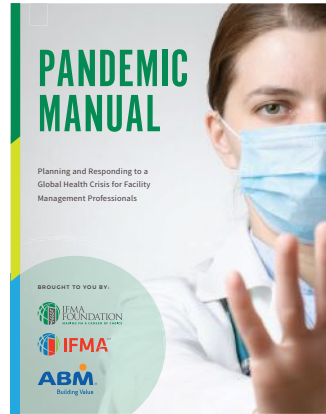
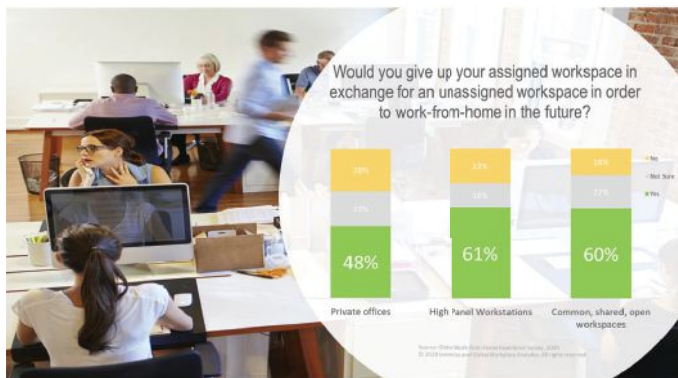
Results from the Workplace Evolutionaries' (WE) Work-From-Home Experience Survey indicate that 77 percent of the global workforce wants to continue working from home when the pandemic is over. Close to 3,000 employees worldwide responded between March 30 and April 24, 2020, making it one of the largest surveys on this topic to date. About a third of survey respondents said they worked from home at least weekly before COVID-19; during the pandemic, that number rose to 89 percent.

"Having had a taste, even under less than ideal conditions, employees are saying they want more. The genie is out of the bottle and it's not going back in," said Global Workplace Analytics President Kate Lister, who partnered with Iometrics vice-president and co-founder Dr. Anita Kamouri to analyze the responses.

Lister and Kamouri agree that the survey findings will lead to profound changes in office space needs, workplace design, and workforce policies and practices. "Based on what we're seeing, if employees get their way, they'll be spending three days a week at the office and two at home," said Kamouri.

Available at [globalworkplaceanalytics.com/whitepapers](http://globalworkplaceanalytics.com/whitepapers), the full report includes detailed demographics (geographic, generational, company size, role in the company) that can help employers improve remote worker productivity and performance and formalize a remote work program. Key findings include:

- » 68 percent said they are very successful working from home.
- » 72 percent said they have the resources they need to be successful at home.
- » 77 percent feel fully productive at home, recouping more than a half-hour from in-office interruptions.
- » The majority of employees would be willing to give up their assigned desk at the office in exchange for the opportunity to work from home some or all of the time.
- » 16 percent don't want to come back to the office at all.



Pandemic Manual provides essential information for business resumption

*"This guide will help building professionals get back on track as companies need to know that you can't just open the doors without proper preparedness." – Dr. Steven B. Goldman, Author*

The IFMA Foundation's "Pandemic Manual: Planning and Responding to a Global Health Crisis for Facility Management Professionals" is a survival guide for companies re-opening their facilities and resuming operations amid the COVID-19 pandemic.

In 2006, the IFMA Foundation published a Pandemic Manual to assist facility professionals in planning for and responding to pandemic influenza threats. Enlisting the expertise of author Dr. Steven B. Goldman, senior lecturer of crisis courses at the Massachusetts Institute of Technology (MIT), the foundation updated the original manual to help FMs specifically address the COVID-19 pandemic.

Sponsored by ABM, IFMA, Planon, Global Workplace Analytics, CEES, the San Fernando Valley Chapter of IFMA, and the Health Care, Hospitality and Public Sector Facilities Councils of IFMA, the more than 100-page manual is free to download at [foundation.ifma.org/news/publications](http://foundation.ifma.org/news/publications) and includes COVID-19 case studies, pandemic response checklists, facility measures for influenza control and mitigation, working from home, getting back to business and next-time preparedness.

The publication link was sent to the past 10 years of MIT Crisis Management students; and the foundation's post on the manual's release was accepted in the Harvard Business Review's LinkedIn group of more than 1.6 million people.

"Within just five days of its release, we were averaging 10 downloads an hour," said IFMA Foundation executive director Diane Levine. "As of the end of May, more than 4,000 people have downloaded the manual – that has to be a record for a foundation publication."

**Industry News**

# 2020 – 2021 IFMA Board of Directors



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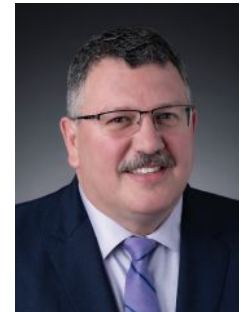
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BY SEAN GALLIMORE

# Infection Prevention: **LEARNING FROM THE COVID-19 FRONTLINE**

The unprecedented COVID-19 pandemic has had dramatic impact on everyday life – on health care systems and businesses, small and large – and on how everyone keeps clean, healthy and safe. Hospitals and health care facilities have been at the epicenter of this crisis. Health care professionals on the frontline and behind the scenes, including cleaning and maintenance workers, are owed deep gratitude for their unrelenting commitment to saving lives. Everyone can learn valuable lessons from how they persevere and prioritize safety and protection.

## INFECTION PREVENTION IS ESSENTIAL

This crisis has raised awareness that infection prevention and control is more vital than ever. As the world has witnessed with COVID-19, viruses, bacteria and other pathogens that cause infections can spread and proliferate quickly, with fatal consequences. Preventing infections at health care facilities has always been a life and death, critical issue. COVID-19 introduced a greater urgency for all types of facilities and businesses to provide safe and healthy working environments for employees and visitors.

## LEARNING FROM HEALTH CARE FACILITIES

FMs across all industries must take the time to assess their current procedures and consider new cleaning and disinfecting protocols to protect workers and maintain safe operations. Whether it is a new virus strain or more common ones, such as influenza, norovirus, pertussis or Methicillin-resistant *Staphylococcus aureus* (MRSA), these pathogens affect millions of people every year, and, as has been witnessed with COVID-19, can quickly spread throughout any facility or work environment. Viruses also have staying power. They are not likely to completely disappear and might not always be seasonal.

Businesses can learn from the successful actions of leading health care facilities to prevent and control infections. Recently, there have been an array of important scientific studies, new technologies and best practices to help health care facilities decrease infections and create clean, safe environments.

## INTEGRATED APPROACH TO INFECTION PREVENTION

Given the prevalence and highly contagious nature of infections, leading health care facilities are investing in new innovations and integrated, company-wide policies to fight this battle. This includes establishing comprehensive cleaning and disinfecting protocols, utilizing proper equipment and products, training all staff and maintaining adequate supplies.

## WORKER PROTECTION

Keeping workers protected and healthy is a priority for all facilities, and in a health-care setting it is essential. Viruses and infections are so pervasive because they can be transmitted through many sources, including hands and skin, equipment and instruments, surfaces and the overall environment. An integrated approach incorporates products and procedures that address all the potential sources of transmission and contamination. Strict handwashing, skin hygiene, gloves, hand-sanitizer solutions and wipes are key for reducing bacteria transmission from the hands of health care professionals. Antiseptic wipes, swabs and wash cloths are used for a patient's skin hygiene and personal hygiene. Effective products should have a wide antimicrobial spectrum, be fast acting and non-toxic, and meet the guidelines set by the Centers for Disease Control and Prevention (CDC), Occupational Safety and Health Administration (OSHA) and other infection control experts.

## BEST CLEANING AND DISINFECTING PRACTICES

Rigorous, established cleaning protocols and procedures must be implemented throughout an organization. This includes using a layered approach that combines traditional hard-surface cleaning with automated, no-touch total room disinfection. Manual cleaning and disinfecting of surfaces (including floors, counters, furniture and medical equipment) is needed daily and after a patient is discharged. Automated total room disinfection is an important second step for an effective infection prevention process. Pathogens can live anywhere and survive for months. An effective approach addresses both high-use, high-touch areas, as well as hard-to-reach spots where germs may linger.

## IMPLEMENTING NEW TECHNOLOGIES

New automated, total room terminal disinfection technologies like ultraviolet (UVC) light, vaporized hydrogen peroxide or mist (VHP or HPM), and self-disinfecting surfaces are revolutionizing the infec-

tion prevention industry. They have been shown to be effective in reducing bacterial contamination and colonization<sup>1,2</sup>. They also have other benefits such as providing consistent, safe decontamination of hard-to-reach areas. A recent study funded by the CDC showed enhanced terminal room disinfection with UVC reduced the relative risk of colonization and infection caused by epidemiologically important pathogens among patients admitted to the same room by a cumulative 30 percent in hospital settings with 93 percent compliance of standard disinfection protocols. (Individual hospital results may vary.)<sup>3</sup>

Although these new technologies including UVC are primarily in use in health care facilities, other industries are evaluating their potential to adapt to their operations and facilities. The data and evidence are compelling and readily available to inform FMs on effective ways to protect the people within their environments, including employees and customers.

## ENGAGING THE ENTIRE ORGANIZATION

Establishing company-wide policies and training all staff on cleaning and disinfecting protocols is essential for effective infection prevention. An organization must have consistent communication and thorough training from top to bottom. Close monitoring and feedback will improve employee motivation, and ultimately, create a safer and healthier workplace.

Organizations should consider a top-to-bottom review of current cleaning processes to evaluate areas and processes that might need improvement. Also, an organization should perform a complete evaluation of products used to ensure they meet infection control guidelines. Close coordination and relationships with the facility's supply chain is also important so that needed supplies and materials are stocked and available for staff. All employees at the facility should have access to certain cleaning products. Facilities should also assess training programs to ensure they are standardized and organized with regular reviews. Expanding communications to inform all employees and partners what types of cleaning and protective measures are put in place is also important for main-

taining a safe environment. Planning for implementing new procedures and protocols will keep FMs in a good place to continue running operations.

## PROMOTING SAFE, HEALTHY ENVIRONMENTS

Improved safety, infection control and overall outcomes are the leading benefits of an integrated approach to infection prevention within a health care setting. The key to a successful integrated approach is creating organized, evidence-based processes that are consistently implemented. For best practices, as reported in the American Journal of Infection Control, health care facilities should establish strict cleaning/disinfection protocols, including both manual and automated cleaning, total room decontamination technology, combined with extensive training and compliance monitoring with feedback to staff.<sup>4</sup> FMs at all types of facilities, beyond health care can learn from this and put into practice. Infection prevention is vitally important to all levels of an organization and across all industries as FMs strive to promote safe, healthy environments.

If one thing has been learned from the COVID-19 crisis, it is that the most critical and valuable ingredient in infection prevention is the human element. All facilities and businesses must support and appreciate their workers, and above all keep them safe and protected in a healthy working environment. **FMI**

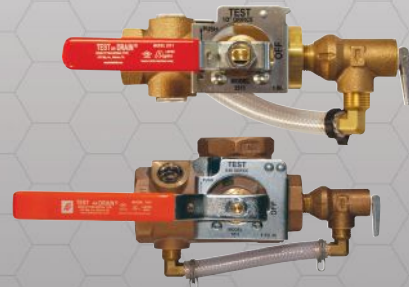


**Sean Gallimore** serves as senior vice president and general manager for PDI Healthcare, where he has overall strategic and financial responsibility for the health care division. Gallimore has extensive expertise in global strategy; solution development; mergers and acquisitions; transformations; developing high-performance teams; and brand, product and portfolio management. Gallimore earned a B.A. in chemistry and an MBA in marketing, both from Rutgers University. He has completed advanced management training courses at The Wharton School of the University of Pennsylvania, Northwestern University, the University of Notre Dame and the University of Chicago.

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# COVID-19: Is there a silver lining for FM?

BY TERENCE HORSMAN

The coronavirus has undoubtedly ravaged everyday life around the world this year. Countries are closing their borders; billions of people are locked inside their homes; and with the world economy in lockdown, many worry about health and financial security. Civil liberties and freedoms — such as visiting friends and hugging a loved one from outside the household — are significantly impaired. There is no doubt that this crisis will leave a lasting scar.

**B**ut often, it is in times of crisis that true progress can be achieved. It took a devastating world war for the nations of Europe to realize that integration, interdependence and cooperation will lead to a synergetic relationship, ensuring economic stability and peace and eventually leading to the creation of the European Union in 1992 through the Maastricht treaty.<sup>1</sup>

## HOW DOES THIS APPLY TO FM?

Before COVID-19, FM was not without its own challenges. FM is a thankless task. People take the built environment and its related services for granted. More often than not, FMs only hear complaints from facility users when something is not working as it should.

FMs are the invisible heroes ensuring a productive, clean and secure working environment for all. Unfortunately, FM is commoditized, leaving many demand organizations struggling to understand its strategic importance.

With tens of thousands of empty offices around the world, many workers who are now forced to work from home will have gained an increased appreciation for working in an office environment — great indoor air quality, daily cleaned desks and trash removal, ergonomic chairs and desktops. These services are not guaranteed for professionals working at home.

One could argue the COVID-19 crisis is an opportunity for FMs to rebrand themselves from a commoditized cost-center to an essential, strategic business function worthy of C-suite influence. Utilizing this momentum will, however, require adaptive strategic planning, with varying challenges for the short-, medium- and long-term.

## SHORT-TERM: PLAN THE PATHWAY TO RECOVERY

With government mandates continuously updated to reflect the latest scientific measurements, many FMs will find themselves faced within a turbulent and rapidly changing external environment. Furthermore, as this landscape evolves and the financial consequences of the lockdown are evaluated, many businesses are forced to rebalance expense patterns, core models and staffing requirements.

With some countries either implementing or planning re-opening procedures, in the short-term, FMs will play a key role in providing guidance to their demand organizations on the re-entry process into their facilities.

ISO 41001 is the international standard for the management system applicable to FM. The process in ISO 41001 is understanding the demand organization's requirements. With these requirements having changed drastically by the COVID-19 crisis, it is essential for FMs to step back from tactical firefighting — and instead approach their demand organizations from a strategic perspective to shape a systematic management strategy. This strategy can, in turn, be related to the external environment of the organization and translated into tactical FM policies.

*“Business leadership as a resource for society:*

*A reservoir of creativity, ingenuity,*

*imagination, invention, problem-solving...*

*This is what you do every day — only now it is:*

*More valuable than ever;*

*more urgent than ever.”*



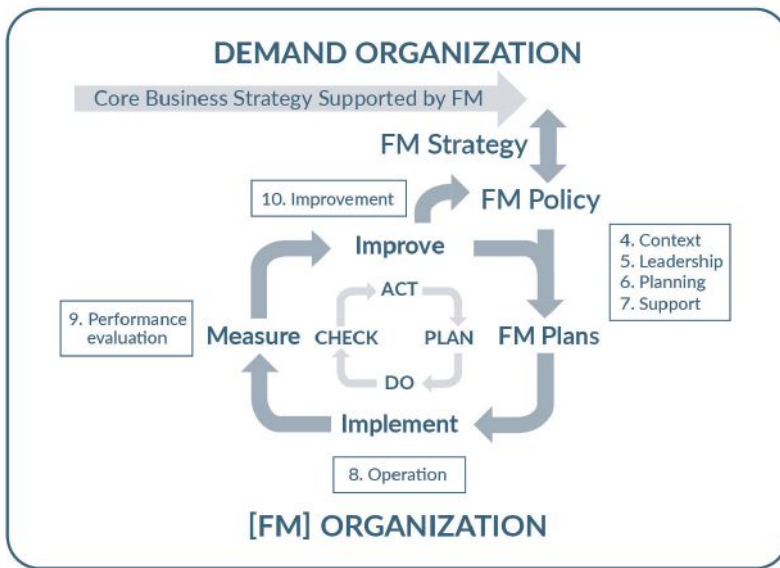


Figure 1 - Process approach methodology for ISO 41001 Facility management — Management systems — Requirement with guidance for use<sup>2</sup>

The “Plan-Do-Check-Act” (PDCA) process approach sits at the center of the model (Figure 1), guiding FMs from plan creation; through to implementation; to monitoring performance and adapting where required. In the short-term of this crisis, ISO 41001 guides facility managers to focus on the planning phase: understanding the requirements from the demand organization and understanding the challenges in the external environment to plan accordingly.

The beauty of the process approach mentioned above is its ability to be implemented in a wide-ranging, global set of FM organizations. One, however, can easily imagine that the challenges posed by the coronavirus vary greatly between organizations. For example, a fast-food franchise in the United Kingdom might be concerned with the implications of social distancing restrictions on guests visiting its restaurant. At the same time, a food delivery business in Germany might have concerns about distributing government-mandated personal protective equipment to its remote workforce.

The questions are vast, and given the unprecedented circumstances, there are few, if any off-the-shelf manuscripts to follow. Therefore, IFMA set up a rapid response team (RRT), comprised of an international group of FM professionals who were consequently faced with the challenge of providing guidance to facility managers working in such a broad scope of circumstances.

In response to this challenge, the team created a strategic matrix of topics for FMs to consider when planning for re-entry and mapped these issues across the PDCA cycle and the foundational dimensions of FM: People, Place and Process.

## MEDIUM-TERM: FM BECOMES THE OTHER FRONT LINE

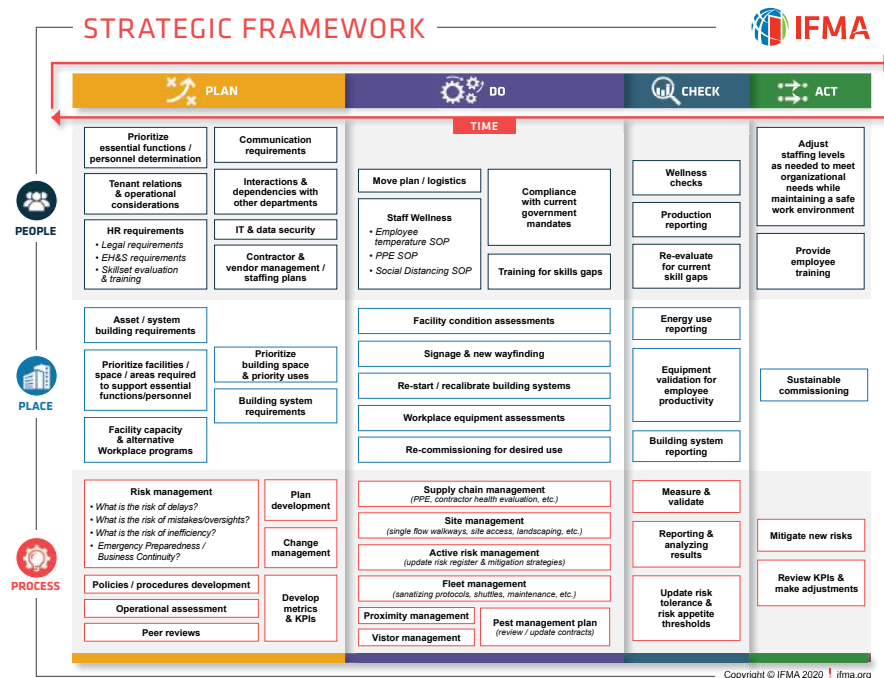
Once plans are established and lockdown measures are released, ISO 41001 guides

FMs to from the Plan to the Do phase. After the medical workers, FMs are ensuring safe places for the workforce, collectively impacting millions of facility users. As essential partners to determining and implementing a safe return to work conditions, FMs have become the “other” front line.

The IFMA RRT framework is intended to be a tool to guide FMs through a structured thought process that considers which are the right questions to ask, identifies the best resources and integrates the re-open plan with the demand organization’s leadership and stakeholder requirements (top management, human resources, IT, health and safety, risk management, etc.).

One key competency that allows FMs to implement their strategy and plans at this stage is leadership. Harvard Business School recently noted in a webinar on Coronavirus Crisis Management for Leaders:

“Business leadership as a resource for society: A reservoir of creativity, ingenuity, imagination, invention, problem-solving... This is what you do every day — only now it is: More valuable than ever; more urgent than ever.”



The framework above is available as a free download with additional information from IFMA’s Knowledge Library. <https://bit.ly/IFMAFramework>

ISO 41001 also sees leadership as one of the key pillars required for an effective FM organization. Some of the aspects the document illustrates on how top management in FM organizations ensure leadership, applicable to the pandemic are:

- ensuring that the FM policy and FM objectives are established and are compatible with the strategic direction of the demand organization;
- ensuring the integration and support of the FM system requirements into the organization's business processes;
- promoting continual improvement in innovation, communications, morale, cross-functional integration, the support of the organization's objectives and responsible management.<sup>3</sup>

Once plans are executed, it is crucial for FMs to move on to the Check phase, prompting questions, such as: Did the plans and strategies work? Is the organization still ensuring building compliance? What are the long-term effects on employee well-being? Are there ways to adapt and improve?

## LONG-TERM: OPPORTUNITY FOR STRATEGIC FM

This crisis is an era-defining event that will leave a lasting impression on society, local communities and organizations. Now more than ever employees will appreciate the services provided by FM, especially if short- and medium-term plans and strategies are successfully implemented. ISO 41001 series guides us to now act: taking actions to continually improve process performance.

Perhaps this is the opportunity to start adding strategic value to your organization by implementing ISO 41001. Stan Mitchell, chair of the ISO TC 267 committee on FM said:

*“Those that implement the standard will already have ‘ensured that their management system manages risk (5.1); planned for the prevention, reduction of undesired effects (6.1); addressed risks and how they can and how these risks can change with time (6.1a); identified who will be responsible (6.2); undertaken internal and external communication associated with the risks (7.4); considered continual improvement opportunities...of controls responding to external events (9.3f).’ Whilst nothing, as we know, is fool-proof, the odds are they will have been better prepared than most!”*

Meanwhile, it can also be argued that the future is uncertain. Organizations are being challenged to rethink their workspace and real-estate policies. Some employees have found that working from home in this digital age works better than working in a busy open-plan office.

FMs have collaborated with IT professionals for years to utilize modern technologies to allow employees to work more flexibly. Adaption of truly flexible working has, thus far, however, been low, with only 9 percent of employers offering fully flexible working to their employees in 2019.<sup>4</sup> The COVID-19 crisis offers an opportunity to change the level of adoption. Twitter CEO, Jack Dorsey, for example, announced that the company would allow its employees to work from home forever.<sup>5</sup>

For many, the office environment offers a collaborative and creative space that allows building users to interact and connect in ways to which online conferencing simply cannot compare. As demand organizations and building users find a new norm for work, the future work week might indeed become more flexible – for example, working two days in the office to collaborate with colleagues, working two days from home to concentrate on a project, and working one day at a favorite coffeehouse for creative inspiration.

As organizations find an equilibrium to the new way of working, it drives FM into a new age filled with innovations in hybrid workspaces, digitally equipped conference

rooms, physical office spaces that promote social interactions and catalyze innovation, all while ensuring employee well-being, productivity and safety. Perhaps in this future, business leaders and building occupants will find a new appreciation for strategic FM.



**Terence Horsman, BBA**

is a Dutch FM professional graduated in International Facility Management at the Hanze University in Groningen, The Netherlands. He works on the intersection of IT and FM, working as Business Improvement Manager at MCFT in the U.K. He serves the British Standards Institute in ISO TC 267 as principle U.K. Technology Expert and is part of IFMA's Rapid Response Team COVID-19.

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A person wearing a full-body white protective suit, black gloves, and blue shoe covers is walking on a polished wooden floor. They are holding a black spray nozzle connected to a white tank. The background shows a modern interior with black metal railings and a glass wall.

# A New State of Cleanliness

BY DANIEL GRAVATT

# Do you remember air travel before Sept. 11, 2001? Security screening at airports was somewhat lax. You could bring friends to the departure gate and pack a baseball bat or up to a gallon of water.

The terrorist attacks on 9/11 changed all that. The Transportation Security Administration was created just weeks after. Screening of airline passengers was greatly intensified, as was the presence of Federal Air Marshals and explosive-detection dogs. Air travel has never been the same, and other areas of society were similarly affected.

The COVID-19 coronavirus pandemic raises the question, will there be permanent changes in the economy and society as a result of this crisis?

For most companies and organizations, janitorial services have occupied a secondary level of importance in budgeting and planning. Was cleaning always considered important? Of course. Was it considered essential? Maybe, depending on your business. Health care facility managers have always considered cleanliness extremely important; their mission and liability are at stake. Office building managers, however, were less concerned. As long as the floor and bathrooms were clean and the trash collected, most FMs were pleased.

Stakes for facility managers and business owners are far greater. The appearance of clean is important, but infection prevention is imperative. At least one state, Pennsylvania, has already mandated regular cleaning and disinfecting of buildings that are 50,000 square feet or more. More states may follow their lead. Representatives for some professional cleaning companies have noted that CEOs are now getting involved in janitorial decisions for their companies. They are asking tough questions and carefully reviewing the resumes of vendors.

Interest in professional cleaning companies has never been higher. Infection prevention has created new opportunities for janitorial service providers, and service contracts will likely look different going forward.

## Expertise

Supply and demand are the driving forces in free market economies. As North America reopens and businesses come back online, the demand for cleaning services will likely increase. Companies that previously did not outsource cleaning may now want professional cleaning, and those that already outsourced cleaning may want more frequent cleaning or additional services such as disinfection.

“In the days before the coronavirus pandemic, few commercial property managers concerned themselves with whether an infectious pathogen was lurking on frequently touched surfaces or anywhere else at their offices,” explained Mark Warner of ISSA, the worldwide association for the cleaning industry. “Cleaning common areas used to be routine, and mostly for appearance. The outbreak of the coronavirus is now forcing fundamental changes in the way people think about common public interactions.”

Increasing attention to cleaning may lead some entrepreneurs to see the pandemic as a business opportunity. The industry is already crowded, with more than 800,000 professional cleaning services in the U.S.<sup>1</sup> New companies jumping into the industry should be aware that today’s customer wants more than a bucket and mop.

“There may be a lot of new people entering the janitorial space, trying to make money,” said Jean-Pierre Dumas, business development consultant for ServiceMaster Clean, which has 65 years in the business. “What most don’t understand is that you cannot disinfect if you don’t properly clean first, and cleaning is a science. There is a lot of misinformation out there.”

“Untrained amateurs can inadvertently spread disease while they think they are cleaning and disinfecting,” added Warner.

Professional cleaning services with years of proven success are in demand these days. Companies simply aren’t willing to risk their

*“What most don’t understand is that you cannot disinfect if you don’t properly clean first, and cleaning is a science. There is a lot of misinformation out there.”*

business with amateurs. Clients want assurance that their vendors know the science of disinfection. The assurance of a clean, safe and healthy environment for both employees and customers is driving the market now.



## Frequency

New janitorial contracts, and discussions about those contracts, may be different in the months and years to come. Process, quality control and subject matter expertise will likely be front and center in negotiations.

“I expect to see a welcomed movement into highly defined scope-of-work documents,” said ISSA’s Warner. “For many companies, this will level the playing field, preventing low bidders from taking contracts based on performing at reduced levels of staffing and performance.”

Why the need for expertise and process quality?

According to the World Health Organization, the COVID-19 virus can survive on surfaces for a few hours up to several days, depending on conditions. Once disinfected, the surface can potentially be re-infected as soon as someone with the virus walks in. Creating an office or retail environment that is considered “safe” requires frequent cleaning and cleaning know-how.

“Customers are looking for solutions and they need expertise, especially around disinfecting,” said Matt Peppin, a strategic account executive for ServiceMaster Clean. “I’ve had conversations with a lot of higher-level executives. They are looking for information and asking intelligent questions.”

Peppin noted that many conversations now begin with questions about Centers



for Disease Control and Prevention (CDC) regulations and infection remediation protocols. Building managers, vice presidents and CEOs want more emphasis on preventing pathogens from contaminating the workplace.

A typical scope of work in the past would include a detailed list of daily and weekly basic services, with emphasis on cleaning restrooms and floors. New agreements will likely have a long list of specific items to disinfect, including high-touch surfaces such as doorknobs, coffee makers, handrails and countertops. “Daily cleaning” may now mean multiple cleanings per day. More clients may want day porters for frequent disinfecting, and some may even prefer to have cleaning technicians work during business hours so customers can see the cleaning take place.

Cleaning is now a priority topic, which raises the level of importance of everyone in the janitorial profession.

## Process

Disinfection and infection prevention are now top of mind with everyone who manages a building. Clients have always wanted cleanliness, now they also want some level of protection.

Disinfection begins with thorough cleaning. Pathogens such as viruses and bacteria thrive in dirty environments, so effective disinfection can’t occur unless surfaces are free of dust, dirt and grime. Regular cleaning,



therefore, should be an important part of any janitorial contract that has a goal of disinfection.

“Clients want to feel safe, but we have to remind them that we minimize risk, but we can’t eliminate it,” said Peppin. “An environment can be re-infected at any time.”

Any cleaning company that has worked in a health care environment knows the proper procedures for cleaning and disinfecting a clinical space: work from high places first, then low; clean the cleanest areas and work toward the dirtiest areas; pay close attention to high-touch areas; and use disposable cloths and mop heads. Cleaning that leads to disinfecting should follow a similar pattern while using EPA-approved cleaning and disinfecting products under strict label directions. Scope of work agreements created with the intent to achieve some level of disinfection should include these steps.

“I hope more clients take an environmental services [health care] approach to cleaning,” said Dumas. “For many clients, it makes economic sense in the long term. What is the impact of people coming to work sick and infecting others? There is reduced productivity, even danger to employees and visitors. While we can’t guarantee complete elimination of all pathogens, we can help to drastically reduce the threat of an infection spreading.”

## Preparedness

It’s safe to say that most companies and organizations were caught off guard by COVID-19. While most people realized a pandemic was a possibility in theory, very few were prepared to deal with it in reality.

“I believe the impact of the 2020 coronavirus outbreak will be that disinfection becomes more of a core service for clients,” said Peppin. “I think some cleaning service providers will be viewed as consultants on infection prevention, providing advice to

facility managers. I also think you may see a pandemic response plan as a part of new service contracts.”

If that is the case, FMs will likely be much more interested in working with established, experienced cleaning companies - those with research and development capabilities, a large network of providers, ongoing training, and adherence to best products and practices.

Confidence in the provider may be a requirement for future janitorial service contracts, and it's up to the vendor to prove their capabilities. Clients may want to personally witness and evaluate the provider's training program. They may quiz applicants on their knowledge of CDC, OSHA and EPA regulations. They will almost certainly seek references. New contracts will likely be more detailed and require a higher level of service by providers with proven track records.

## Perception

Industry surveys have reported that cleaning companies lose up to 55 percent of their customers each year.<sup>2</sup> In the past, janitorial service providers were often seen as disposable, subject to losing a client over a single mistake or to a new low bidder. Will that perception change?

“I believe cleaning in general has become one of the most important things on people's minds,” said Warner, whose organization represents cleaning companies around the world. “People are grasping that ‘professional’ cleaning people, certified custodial technicians, are worth their weight in gold right now.”

Health and safety are now tied directly to cleanliness. They always were linked; the difference is now we have seen the effect of what a virus can do. The objective is to reduce exposure risk with proper personal hygiene, cleaning and disinfection.

The bar is higher for cleaning companies these days and that will likely be the case for years to come. It's a good and healthy change for the janitorial industry and everyone else, too. **FMJ**

<https://www.ibisworld.com/united-states/market-research-reports/janitorial-services-industry/>

<https://www.franchisehelp.com/industry-reports/cleaning-industry-analysis-2020-cost-trends/>



**Daniel Gravatt** is business operations manager for ServiceMaster Clean, which has more than 900 franchised and licensed locations around the world.

He is a Licensed Nursing Home Administrator and a Trainer of the Certified Surgical Cleaning Technician program.



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# Six Tips *for* Return-to-Workplace Planning

BY BUZZ FISHER



Workplace leaders are rethinking what offices look like when it is safe to reopen their spaces following the coronavirus pandemic. Rather than a flood of employees rushing back to the office in full force, returning to the workplace is occurring in shifts and waves.

In the United States, officials introduced a three-phase plan<sup>1</sup> allowing governors to reopen certain businesses after a period of sustained decline of virus cases in their state. The first two phases recommend employers continue to enforce physical distancing, including limiting office space density and closing common areas. The European Union shared similar plans<sup>2</sup> on how it would roll back some of its lockdown restrictions.

As FMs prepare for a return to the workplace, protecting the workforce will require careful planning and, in many cases, reconfiguring office space. Here are six critical elements a return-to-work plan should address.

## 1 Reconfigure space for physical distancing while enabling collaboration

The World Health Organization (WHO) uses the term “physical distancing,” rather than “social distancing” in reference to its guidelines to maintain personal space of six feet or more to prevent the spread of the virus.

WHO infectious disease epidemiologist Maria Van Kerkhove explains that “It’s important to remain physically separate but socially connected.”<sup>3</sup> This terminology has been supported in the FM community by

proponents such as workplace thought leader and author Rex Miller.<sup>4</sup>

As business leaders imagine what a return to work will look like once it is safe to reopen their offices, they face the daunting challenge of implementing physical distancing without losing the connected experiences that define their workplace.<sup>5</sup>

With Gallup research<sup>6</sup> showing 41 percent of employees will continue to work remotely at least part of the time following the coronavirus pandemic, it has become clear that “work” is no longer defined within the confines of four walls and a traditional 9-to-5 day. While this has been a trend for some time, current economic and societal pressures have created a tipping point for companies to recognize that “workplace” is more than simply a physical location — it is an ecosystem of employees connecting and collaborating through purpose-built technology.

It has also become clear that when employees do come into the office, they expect more than a mediocre desk that is not nearly as comfortable as their home office. They want to have spontaneous interactions and collaborate with their colleagues in an environment that protects their most basic need to feel safe. It should be just as easy for employees to do that in person as it is to collaborate online.

FMs and workplace leaders have the

power to create an environment that cultivates those connections, allowing employees to thrive in this new world.

Prior to reopening the workplace, it is important to reevaluate existing floor plans. In many office environments, desks are spaced just a few feet apart or employees sit less than an arm’s length away from each other. Meeting physical distancing guidelines may require doubling the distance between desks or asking employees to occupy every other workstation.

As space planners rethink workplace design, they must also consider conference rooms. Seating in large conference rooms should be spread out to allow for physical distancing. They will also need to limit the number of employees who can gather in each space and can do so by updating room scheduling displays to indicate new capacity maximums. Additionally, they may find they need to recategorize small-capacity conference rooms as single-person workspaces.

FMs should also consider closing common areas, such as employee cafeterias, to limit the number of people who congregate there.

## 2 Plan for returning to work in phases

Global enterprises that have brought back critical on-premise workers are largely doing so in stages. Many are designating groups of employees by job function and team dependencies to bring them back in waves using alternating shifts. For example, they are planning for one group to work in the office on Mondays and Wednesdays, and another on Tuesdays and Thursdays.

As FMs plan scenarios for returning employees to work in phases, they may want to categorize employees by department, by status (full-time versus part-time) or by office location. Those who have a space and move management software in place could also select employees and assign them to several different groups.

In developing a plan for returning to work in phases, consider employees who have obligations that may require them

to continue working at home for a period of time. For instance, if the workplace is reopening but schools or daycares remain closed, employees may need to continue working remotely. They may also need to take paid leave, which is allowed for in the U.S. under the new Families First Coronavirus Response Act.<sup>7</sup>

If the organization has considered moving to a four-day workweek or designating one day per week as a remote workday, this could be a good time to implement this change.

### 3 Plan for communicating with employees

Any return-to-work plan must include a plan for communicating with the workforce. Understanding this is only the first step, putting it into practice involves cultural and behavioral change. Successful agile work strategies are fundamentally about good change management and building a foundation of trust. They also require several key elements, including an activity-based workplace design that allows employees to work where they work best, coupled with policies that provide guidance for where, when and how that work happens.

First, employees will need to know when they are being asked to return to the office. Companies with multiple office locations may not be ready to reopen at the same time.

Depending on the changes the FM team implements, employees may also need assistance in learning how to navigate their new workplace to maintain physical distancing. Employee experience solutions, such as mobile apps and wayfinding displays, can help manage these critical communications.

For instance, FMs can use mobile apps to announce the re-opening of various office locations and the schedule for those offices. Wayfinding displays in the lobby that show floor plans can note the recommended route to manage the flow of traffic. This can include directional markers that indicate which way employees should walk through high-traffic areas, such as



hallways and stairwells, and where they can find restrooms and sanitizing stations. Additionally, employees can submit service requests when paper towels or other supplies are running low.

A strong internal communications plan involves both employers and employees. With an employee experience app, businesses can survey employees about how they are feeling at work and what additional support they may need.

Fundamentally, this means empowering employees by giving them access to the spaces, policies and technologies they need to collaborate with their colleagues, no matter where work is happening. And, as for any desired behavior to succeed, it must be easy for employees to adopt.

### 4 Plan for managing visitors

As offices re-open, FMs must also consider how to stay within recommended occupancy for each space. In many cases, that means only allowing half as many people as before — at least at first — while accounting for visitors.

Visitor management systems can help maintain a digital record of every client, vendor and guest. Pre-registering planned visitors allows the FM team to keep tabs on how many additional people will be in the workplace. If monitoring employee and

visitor temperatures is part of the return-to-work plan, visitor management software can maintain a record of this data.

### 5 Plan for keeping the workplace clean

The coronavirus pandemic demands new standards for workplace cleanliness. For FMs, this means working closely with janitorial teams to develop a plan that will ensure all surface areas are cleaned and sanitized after each use.

With space management software, FMs can use seating assignments and occupancy data to create a demand-based cleaning schedule. With a more flexible, activity-based working environment that allows employees to choose different spaces throughout the day, consider adding occupancy sensors to see which spaces have been used and prioritize cleaning accordingly.

Encourage employees to take an active role in keeping the workplace safe by reminding them to wipe down conference room tables, shared workstations and other common surfaces after each use.

Building airflow has played a massive contributing factor in the spread of COVID-19. Immunologist and biology researcher and University of Massachusetts Dartmouth professor Erin Bromage shared a formula to aid in understanding

**SUCCESSFUL INFECTION = EXPOSURE TO VIRUS x TIME.**

virus circulation and the related risks: successful infection = exposure to virus x time.<sup>8</sup> Bromage highlights a spreading event that occurred in a restaurant in which several patrons in the path of the air conditioning were infected by a single carrier, while those at tables out of the main airflow were not. Of workplaces, she says “being in an enclosed space, sharing the same air for a prolonged period increases your chances of exposure and infection.”

As FM teams re-assign workspaces and change traffic patterns to accommodate physical distancing, it is important to account for air circulation.

## 6 Update workplace policies to protect employee health

Having clear, up-to-date workplace policies will reassure employees and empower them to protect themselves during an uncertain time.

Now is the time to consider updating policies related to remote work, sick leave and visitors, as well as any other policies that may have changed.

If the company plans to continue encouraging remote work, make it clear under what circumstances remote work is appropriate and when employees are expected to come into the office. Employees who feel sick but well enough to work should be permitted to work remotely if possible; however, it may be unclear if they need to notify their supervisor. Employees also need to know how to maintain information security when working from home on personal devices.

With remote working, businesses may want to re-evaluate how they measure employees. Simply monitoring activity levels and outputs is no longer enough. To truly gauge remote workforce productivity, companies should instead shift to measuring outcomes.

## RETURNING TO WORK: A DEFINING MOMENT

When the world returns to the workplace, it will be a defining moment. FMs and other workplace leaders should be thinking about how to adapt office environments to support necessary physical distancing without the unintended consequence of social distancing. That includes returning employees to work in phases and reconfiguring seating arrangements to reduce office density.

FMS must also have the flexibility to ease spatial distancing in the workplace when it is appropriate and immediately re-enact these protocols as necessary. Just as businesses have plans for natural disasters and emergency evacuations, those overseeing building operations should have plans in place to keep employees safe during a pandemic.

Companies that establish and socialize the chain of command and emergency communication channels, know when and how to equip home workers, and can implement a safe return to site will be in a better position to mitigate loss and speed recovery. **FMJ**



**Buzz Fisher** is the vice president of professional services for iOFFICE, a leading provider of next-generation workplace experience and asset management software.

Fisher has 30 years of experience in IT and networking services and has held technical project management roles with IBM and its integrated workplace management software, TRIRIGA. A former electronics technician for naval submarines, he has also worked as an infrastructure utility manager and is certified in disaster recovery.

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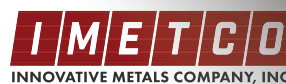


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# EVOLVING REAL ESTATE

## NEW CHALLENGES PRESENT NEW OPPORTUNITIES

BY BILL CONLEY

# As Bob Dylan sang, the times, they are a-changin’

**N**otions of normal are gone and businesses are now looking at a new normal.

The workplace and businesses are always changing and evolving. However, change has never been as dramatic or has escalated so quickly as has been necessitated by COVID-19.

An interesting result of the pandemic has been the requirement that organizations implement plans that may have been on the back burner or to which they were strongly opposed.

## Telecommuting

Government-issued stay-at-home policies have made telecommuting a business necessity. Some companies had already implemented this policy, others were contemplating it and some were dead set against it. Working from home is now a worldwide reality. If businesses want to survive, then enabling employees to be productive outside of the workplace is destined to become common practice.

Telecommuting is more than just taking a laptop home. This might be a quick fix to keeping employees safe while keeping the business functioning, but there is much more to it.

Allowing employees to work remotely, whether temporarily or permanently, can result in higher employee engagement and morale. The opportunity to work from home eliminates the daily stress of com-

muting. It demonstrates that an employer is looking out for their safety and well-being during a major business disruption. Telecommuting provides increased opportunities to improve healthy living habits, and flexibility to care for loved ones.

Looking long-term, telecommuting may seem enticing due to the prospect of lower overhead costs, the promise of increased productivity and the flexibility for employees to work where they are most comfortable. Such an arrangement does present challenges, as well. The potential for miscommunication tops the list, followed by the lack of a close, trusting environment cultivated from regularly meeting face-to-face. Managers and supervisors must be able to implicitly trust that employees are fulfilling their responsibilities without continuous oversight. Despite these challenges, people can work effectively in remote offices, but only if the right culture has been created and companies support employees working off site to effectively collaborate and accomplish their goals.

Telecommuting arrangements are approved by supervisors on a case-by-case basis. Employees must be able to carry out the same duties, assignments and other work obligations at their home office as they do when work on site. An employer may or may not provide telecommuting employees with equipment or office furnishings for their home offices.

Normally, a full-time regular workweek is 40 hours, divided into five days, Monday through Friday. Employees must be avail-

able to their supervisors and coworkers during core work hours. There usually are two core periods each day; 8:30 to 11:30 a.m., and 1:30 to 4 p.m. Employees must be available to attend scheduled meetings and participate in other required office activities from home as needed. Virtual meeting technology alleviates some of the needs to talk and confer in person. However, it is important to schedule time in the office on a periodic basis for sanity checks and social interaction.

Employees are responsible for equipping and maintaining their home offices so they can accomplish their work in an efficient and expeditious manner. Depending on the nature of their jobs, this may require having hardware, software, peripherals, supplies, space (with minimal distractions) and furniture to work.





***FMs should evaluate using this extra space to create more and larger teaming areas or provide more amenities to the workplace.***

## Cause and Effect

Telecommuting may mean the workspace is shrinking. If a segment of a population is working from home, then a facility may experience a surplus of space. Many FMs espouse that brick-and-mortar will always be needed, but this development begs the question as to what size now suits the demand organization's strategic plan.

Part of the onus of making these determinations will fall to the FM. One FM competency entails the understanding of real estate and its impact on business success. It is up to FMs to analyze real estate needs as they are expected to manage it as a physical asset that will support the personnel in a building. They must be able to provide information as it relates to the built environment and its importance to an organization's strategy and operations. They must always focus on the long-term aspect of the real estate portfolio to meet the company's strategic objectives while optimizing the facility's value and space.

To that end, FMs should evaluate using this extra space to create more and larger teaming areas or provide more amenities to the workplace.

Consolidation of multiple facilities could be considered; as would selling existing facilities and moving to smaller buildings. All these would take financial considerations, Facility Condition Indexes, cost comparisons and other analysis.

Another option is leasing space to a tenant. This would alleviate the challenge of superfluous space while creating a cash-flow for the company. Becoming a landlord opens another realm of responsibilities for the FM, but it would not be much different from normal care of occupants in the building.

This direction will take evaluations, as well. FMs should consider what space is available and if it can easily be segregated from their own organization and have easy access for the tenant without interfering with existing employees and visitors.

The FM should know if there will be extra operating costs if space is leased by a tenant and if a tenant improvement allowance is part of the agreement. Will sub-meters need to be added to charge back on utility usage or will a gross lease make more sense where the organization pays all such costs? Also, if tenants will not be permitted to use the organization's internet or phone connections, then the cost to add independent lines to the facility should be factored in.

Knowing the difference between rentable space versus useable space will be important and will help determine the cost to rent the space. Other costs could include making any upgrades, adding furniture if necessary, and conducting reference or background checks.

Hiring a real estate broker to handle the marketing and leasing arrangements would also be a smart move. The overall cost per square footage and/or total monthly rent for the space should be determined, considering the costs to prepare the space, to market it, operate it and pay taxes. Rules should be set, including rent/lease payment dates, late fees, returned check policy and how payments will be accepted.

Once the costs have been defined and what segment of the business world it may attract, it would be worthwhile to find out what a target customer would have to pay at a similar commercial building.

Then, a broker can create a list of possible clients based on what is offered. Many entrepreneurs will be eager for an office where they can meet clients and have access to a conference room. Others will want storage space that is climate-controlled and provides security. Some businesses may want flexible, short-term or month-to-month leases, while others might want more stability. The types of workplace desired will vary inordinately, but there is always something out there that will meet someone's needs and somebody out there who needs what is available.

## In a Lease

If an FM is leasing their facility, a different set of challenges may present themselves. If an organization finds they are leasing space that is now oversized for their needs as a result of telecommuting, an evaluation of next possible steps must be performed. They can renegotiate their lease to accommodate their new needs, look for new space that better suits their operations or sub-let their excess office areas.

In some respects, this shift in workspace needs may create a renter's market. Landlords may be encumbered with unrented space that needs to be occupied. Buildings designed for single users may need to be revamped for multiple tenants. Whatever the reasons, as FMs find the need to renegotiate old leases or find new space, it would be the perfect time to introduce green leases.

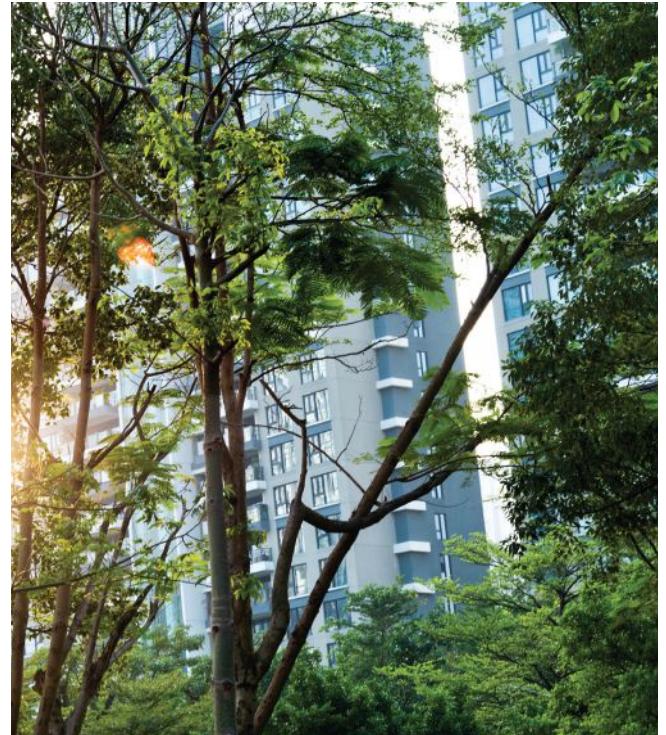
Also known as high-performance or energy-aligned leases, green



leases create beneficial agreements between building owners and tenants by equitably aligning the costs and benefits of energy and water efficiency investments for both parties. It is an arrangement that offers substantial benefits, both quantitative and qualitative, to building owners/landlords and tenants. Green leases improve the environmental performance of the leased space by securing a few critical commitments on the part of both the landlord and the tenant. It also will align financial incentives so that both parties benefit from adopting green measures. The ensuing reduction in utility consumption and possible waste diversion efforts will serve to generate savings.

Frequently, lease negotiations are marked by a flood of tenant requests that put landlords on the defensive and can escalate to a contentious tug of war, especially when it seems the tenant feels they have leverage over the landlord. Successful green leases are designed to provide financial gains for both parties supplying an incentive to enter into sustainable agreements. Such negotiations involving green-lease provisions can strengthen the overall tenant-landlord relationship, and build a solid case for building ownership to view a company with this focus as a preferred tenant and could lead to an improved working relationship with the landlord.

A green lease is good for the environment and everyone in it. It will enhance employee productivity, recruitment and retention, demonstrate vision and leadership within the industry, and create positive civic relations. It could also serve to support corporate sustainability objectives and enhance corporate/brand images for both the landlord and the tenant.



## In (not) the End

Today's circumstances that FMs find themselves in may end up providing some benefits. It will challenge them to find solutions in previously uncharted territory and give rise to untested but viable innovation. It can possibly lead to increased employee productivity through telecommuting programs, save money on business operations and, in the instance of introducing and implementing green leases, help the environment. Inevitably, this could be another example of how FMs can continue to contribute to Triple Bottom Line concepts. It seems a bit ironic how even the direst situations may have their own silver linings. However, good FMs are known for creating positives out of negatives. Now seems the time to prove it again. **FMJ**




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



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# Don't Overlook Adaptive Reuse as a Workplace Strategy:

*How to Plan, the Advantages and a Case Study  
of a Department Store-to-Office Conversion*

BY MARY MOWAD GITEAU

The internet has changed many things and how people shop has perhaps experienced the largest change. Instead of going to brick-and-mortar stores, people can shop from their phones and other devices with the literal click of a button. Retail is not what it used to be and with the changing retail landscape, many buildings and shopping malls have been abandoned or left vacant with no new tenants in need of the space.

Those vacancies can be detrimental to developments and fuel a downhill spiral that can leave once-thriving areas completely desolate. Developers and building owners are thinking differently to put those vacant buildings back into commerce. Enter adaptive reuse. There are many considerations that should be considered when determining if adaptive reuse is right for a specific facility.

## How to Plan

The first step in planning is to assess the facility and its surrounding area.

- Does the size of the facility lend itself towards conversion to a workplace?
- Are there any potential tenants in this area of town who could benefit from occupying this facility?
- Are sufficient amenities located in close proximity?
- How might the conversion of this facility help to revitalize the surrounding area?

Once these questions are answered, the physical planning can begin. In ideal cases, a lease would already be in the works for the space, so the planning could be geared around an actual tenant's space requirements. However, if that is not the case, the planning stage must provide a flexible space that could accommodate a variety of work styles.

In either case, the core and shell renovations are the first to take place, including assessing the current site, roof, building envelope, mechanical and electrical systems, and vertical circulation. Having a contractor on board from the beginning can be a big plus as field verification and discovery takes place. This helps also with cost estimating from an early stage.

Once the core and shell have been designed, the interior of the space becomes the focus. A critical step is gathering programmatic information about how the space will function. This will inform the space planning. The point when the space plan transforms into a schematic design is a good milestone for another round of cost estimating, to keep the project in check. When the design is developed into construction documents, the final round of cost estimating can take place. Because this has been an ongoing process since the project inception, this is more of a check-and-balance step, as the cost typically does not vary tremendously at this point in the project.

## Advantages

Adaptive reuse has many advantages and is one of the most sustainable initiatives one can take.

The adage of reduce, reuse, recycle rings true here. Adaptive reuse can put buildings back into commerce, which can help revitalize an area.

When buildings sit vacant, the surrounding businesses lose customers which, in turn, hurts their businesses. When buildings are put back into commerce, the building's occupants have wants and needs such as food, shopping and entertainment. Businesses that provide those services in close proximity are beneficial to the occupants and are likely to be well utilized. When businesses thrive, entire areas thrive. It's an undeniable ripple effect.

Adaptive reuse can serve as a catalyst of resurrection for a city. Just as the ripple effect of the area around the building was described above, the same can be applied on a larger scale. When a building is revitalized, the immediate area around it becomes revitalized. When an area becomes revitalized, neighboring areas see the example that has been set, and many times become revitalized themselves. This phenomenon can multiply until an entire town or city experiences a full resurrection. But it must start somewhere. Adaptive reuse can create catalysts for change by creative repurposing of buildings.

## Other Types of Adaptive Reuse:

### OPERA COMPANY TO GENERAL STORE TO MIXED USE DEVELOPMENT



**The Baltzell Building in historic downtown Hammond, Louisiana, USA**, was first built in the late 1800s as a two-story wood framed structure that housed the Hammond Opera Company on the second floor. After a fire destroyed much of the building, the top story was removed and the building was reconstructed as a one-story solid brick masonry structure with 15-foot high ceilings. The fourth bay was later destroyed during another fire, except for the brick masonry, and it was never reconstructed.

With the new renovation to the Baltzell Building, the fourth bay was restored to its original character, which included reconstructing the storefront windows, canopy and the brick masonry wall above. The original cast iron columns in the fourth bay were salvaged after the fire and were restored and reinstalled as well. Reconstructing the façade of the fourth bay completes the building's edge along the streetscape.

The Baltzell Building was converted into seven townhomes, two lofts and one commercial space located in the first two storefront bays. The site plan features a central courtyard connecting the front units with the back units. The courtyard space is open to above, where the original roof structure was removed and salvaged to be reused as screening elements in the tenant spaces. The courtyard was made continuous through the building by creating three 8-by-12-foot openings in the brick masonry walls that divide the four bays. The back units are accessible through the courtyard and from an entrance lobby and corridor located at the fourth bay.

Within the courtyard, there are four large planters to allow for trees and vegetation, which can be viewed from all units. All of the back courtyard units also have a 5-foot wide patio in back where a portion of the original roof structure was removed and salvaged.

The renovation of the Baltzell Building is fostering the expansion of Hammond's downtown in the southerly direction. It is a very successful example of adaptive reuse.



## QUONSET HUT TO BOUTIQUE HOTEL



**The Moon at 631 Desire Street** is the renovation of an historic Quonset Hut structure located in New Orleans, Louisiana, USA. A Quonset Hut is a lightweight prefabricated structure of corrugated galvanized steel having a semicircular cross-section. Many were produced during World War II and military surplus was sold to the public. The development of the prototype is considered one of the first pre-engineered metal buildings.

The building originally was used for storage and support space for a small service-related business. In its state prior to rehabilitation, the building was deteriorated on the exterior, but the main “bones” of the structure were intact and serviceable.

After an initial analysis, the architects realized that the building with a structural spacing of 4 feet on center could be treated like a loaf of bread. By removing certain slices, natural light could be acquired and used to enhance the living environment. This identified a central courtyard in which all en suite bedrooms could be located. The access from the alley was removed and left open to the exterior. This allowed a private gate with digital access lock to be installed. The bedrooms surrounded this courtyard and the front apartment can be rented separately or can become the home base for all or a portion of the bedroom units that are being rented.

The exterior was stripped of its original deteriorated skin and a new wood deck and metal skin were installed. The envelope was insulated, and the interior curved ceilings were sheathed with corrugated metal. The street-facing façade was restored and the windows facing the street were designed to emulate the original doors. The courtyard was covered by a canvas awning to create shade and rain protection for the outdoor living area. The building is in operation and is rented on a short-term basis to individuals and groups who are going to New Orleans to enjoy the city and the experience.

These examples of adaptive reuse have proven that investing in the transformation of facilities can revitalize not only the facilities, but the communities around them as well. Adaptive reuse is an incredibly positive thing that can be a catalyst for change in communities around the world. FMJ



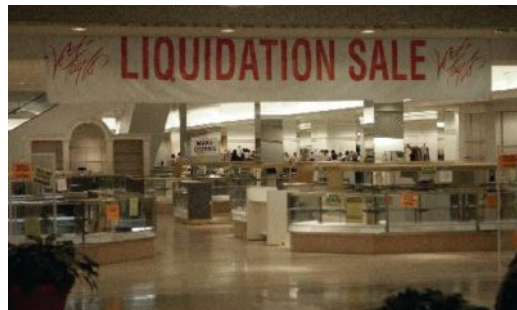
## Case Study

One case study is of a three-story 100,000 square-foot building in the heart of the New Orleans, Louisiana, USA's central business district. The building is situated in a prime location: on a major city street and adjacent to a professional football stadium. The building originally housed Lord & Taylor department store. With the change in retail, the store closed in 2004. After Hurricane Katrina hit in 2005, the building became a make-shift medical clinic for LSU Medical Center, until 2015. In 2016, the building was renovated and converted to Class A office space. This is a great example of adaptive reuse and the process involved to create a successful product.

To understand the complexity of the case study project, one must first understand the statistics of the tenant. This tenant was a health care provider. This space involved 500 people within 11 departments and 26 sub-departments. The move coordination involved 10 phases over four months, eight vendors and no downtime for employees. The employees were relocating from four different facilities around the city.

The design process and method of coordination required for an adaptive reuse build-out and move of this size complexity were intense. The first step was to recognize the building constraints and opportunities. A former department store might have constraints such as minimal exterior windows, minimal points of entry, inefficient mechanical and electrical systems, old equipment and multiple floor thicknesses (i.e., concrete dap outs for stone adjacent to carpeted floors).

Opportunities could include large open spaces, expansive ceiling heights and various options for new layouts. In the case study building, an atrium enclosure,



monumental stair and clerestory windows were added at the center opening to provide natural light throughout the space. The creative use of glass allowed natural light to infiltrate most areas of the space. A new roof was installed, along with restrooms, elevators and energy-efficient mechanical and electrical systems. The subfloor surfaces were also leveled.

The project required coordination between several entities: building owner, real estate company, regulatory agencies, tenant (including design, real estate, and departmental teams), architect, engineers, contractors, furniture and equipment vendors, movers and IT specialists. The process of coordinating with these types of entities on any project thoroughly, yet efficiently, was key. Thorough planning on the front end helped to alleviate issues on the back end. Having a process of meetings, design reviews, approvals and milestone markers was critical, as were communication and documentation. Making sure everyone was aware of the decisions that had been made, and having that in writing, was key to moving the project forward. Having the key decision makers at the table was also critical to moving a complex project along efficiently.

At completion, this case study project proved to be a great success. The former run-down department store turned makeshift medical clinic was transformed into Class A office space. It is a prime example of adaptive reuse at its best. The owner now has a fully occupied building which has been brought back into commerce. The neighboring businesses now have new customers which has helped those businesses to thrive. The tenant now has a large portion of its staff working in the same place which increases efficiency of operations.



**Mary Mowad Guiteau**, IFMA, IIDA, is the Director of Interior Design at Holly & Smith Architects, APAC, with offices in New Orleans and Hammond, Louisiana, USA.

A graduate of Louisiana State University, she has more than 22 years of commercial design experience, working with owners, facility managers, users, developers and real estate companies. She is a member of IFMA Baton Rouge chapter.



# Plaza Maintenance

BY AMANDA L. MILLER & RACHEL C. PALISIN

AFTER



As part of the plaza rehabilitation design process, a plan to make maintenance easier and less time consuming is worth the up-front investment.

Constantly exposed to the elements, plazas will eventually succumb to time and weather, requiring increasingly involved maintenance practices to keep the space safe and orderly. As the demands of upkeep become greater and the plaza appearance grows worn and dated, rehabilitation is the next step to refresh and re-envision the space through modernization and performance improvements.

Together, the design team, building owners and facility managers can place the principles of access, maintainability and lifespan at the forefront of the design process to create an inviting, attractive and resilient plaza space. With thorough evaluation of plaza programming and caretaking practices, the team can develop a design that enhances durability and promotes longevity by addressing sustainability, efficiency and ease of maintenance. The long-term impact of materials, accessibility, structural capacity and water management decisions will result in a plaza that is both aesthetically pleasing at installation and continues to perform with an enduring beauty for many years to come.



Images provided by Hoffmann Architects, Inc.,

BEFORE

## UPGRADE CONSIDERATIONS

In preparation for a plaza rehabilitation project, the design team and FM should evaluate the benefits and drawbacks of the existing plaza. Considering the following initial elements creates an opportunity to plan for improvements, enrich the design and prepare for maintenance over the long term.

### *Historic/Landmark/Zoning Status*

Determine if the plaza contributes to the historic quality of a place or context. Is the space recognized as a landmark by local, state or national jurisdictions? Is the space considered public or private and are there zoning regulations? These conditions require sensitivity in the case of potential restrictions for material selection and reconfiguration.

### *Users and Operating Hours*

Identify the current users of the plaza and activities within the space. Is the plaza open and used year-round? Do the use patterns change with the seasons? Are there daily operating hour restrictions? Is the plaza open to the public or is access limited?

### *Layout*

Interpret the existing arrangement of the plaza based on the identified use and function. Does the current configuration allow for the flow of pedestrian or vehicular traffic? How does the plaza relate to entrances, desire paths and sightlines? Can the plaza accommodate specialized requirements, such as for electrical or audio-visual needs?

### *Landscape*

Assess how the plaza and landscape complement each other. Are there existing landscape elements to preserve, such as mature trees? To what extent is shade and/or sunlight desirable? Is the landscape integral to diverting or filtering surface water? Are plantings drought-tolerant or native to the climate and location?



**BEFORE**



### **Maintenance**

Establish who is responsible for maintenance of the plaza. Does dedicated staff take care of daily, weekly or annual upkeep? How is debris and snow removal handled? Will the landscape require seasonal care and watering?

### **Performance, Access and Longevity**

Based on the initial evaluation, the design should also address the need to be accessible, durable both through install and maintenance, and functional over the long term. Layout and construction decisions start with vetting material selection, assessing system performance and designing for adequate drainage. Furthermore, to the greatest extent possible, and as mandated by regulations, barrier-free access to plaza areas and building entrances must be provided.

### **Material and System Performance**

Plazas are subjected to all types of exposure and must be durable as well as maintainable. From the setting bed and base to the finished surface, the selected materials will address functional needs while also contributing to the aesthetic spatial experience.

Determining the elements of the assembly combines an understanding of existing conditions and anticipated usage. At on-grade plazas, soil composition and susceptibility to frost heave may make foundations extending to the frost line desirable to resist the movement associated with freeze-thaw cycles. Typical plaza construction includes an aggregate base, often topped with concrete or asphalt and finished with a sand, bituminous or mortar setting bed for pavers. Depending on the expected traffic types, the foundation and finish surface must be able to support the anticipated and building code-mandated loads. For plazas or terraces over occupied space, loading is an even more significant structural concern, in addition to integration with the building envelope system.

The finish surface, commonly stone, clay pavers, concrete or asphalt, is both performance-based and aesthetic. The chosen material must be slip- and skid-resistant, based on the anticipated pedestrian and/or vehicular traffic. Furthermore, the coloration and

reflectivity of the paving surface will directly contribute to the heat island effect. Environmental conditions also contribute to material lifespan. Saline environments and products including residue from deicing salts, can cause accelerated degradation of materials, and may result in efflorescence or staining. Snow removal blades or materials spread to provide traction can also chip the paving surface or cause excessive wearing.

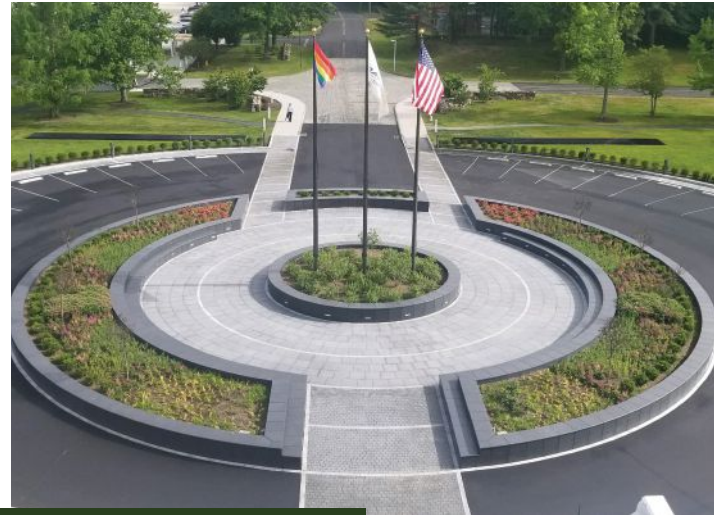
The joint size and system, including provisions for expansion and control joints, accommodates differential movement and finished surface continuity. Routine maintenance may degrade the joints, allowing pavers to easily displace. For example, sand-swept joints, while resilient and easily maintained, are less resistant to aggressive cleaning techniques such as pressure washing. In areas with pedestrian or wheeled traffic, the bonding pattern should be oriented perpendicular to movement where possible, as large joints may result in stuck wheels or heels. Interlocking patterns, such as a herringbone, can also more effectively distribute loads.

In combination, the specific paving material and joint system can create both vibrant and subtle effects. From the consistency of a manufactured paver, to the nuance of variegated and multi-textured brick, to the striking veining of natural stones, the range of scales, sizes and orientation of pavers can create an expansive set of styles to reflect the aesthetic context of the plaza.

### **Accessibility**

Along with material and system selection challenges, the rehabilitation of existing plazas creates an opportunity for greater access, usability and potential for new connections between areas that were previously not accessible. Starting with the Americans with Disabilities Act (ADA) in 1990, the United States Department of Justice regulates and enforces accessibility mandates. These standards are codified in the 2010 ADA Standards for Accessible Design. Model building codes, such as the International Building Code (IBC) and the referenced ICC/ANSI A117.1 Accessible and Usable Buildings and Facilities, are harmonized with the 2010 ADA Standards for Accessible Design and include requirements for the topics discussed in this section.





AFTER

Slip resistance and stable, firm ground surfaces are necessary for safe navigation of walking surfaces. In an exterior environment, surface contaminants, such as oils and water, can reduce the frictional counterforce of a material. Sound walking surfaces also demand that floor surface openings such as gratings be limited to less than a half-inch in width and oriented with the longest edge perpendicular to the direction of travel. Smaller openings, such as a quarter-inch, may be specified for “heel-proof” applications.

Site gradient will also significantly impact the design for access. The grading of plaza walking surfaces should not exceed a slope of 1:20 (5 percent) or a cross slope of 1:48 (2 percent).

In order to improve access across a site or to parking areas or building entrances, regrading is often part of plaza rehabilitation. A combination of stairs, ramps and handrails can be used to address connectivity. Based on evaluation of the existing layout, a similar or equivalent experience should be provided for users of stairs and ramps. If these assemblies are part of the means of an egress system, further study must be given to the occupancy load and associated egress capacity.

Stair, ramp and handrail design requirements are closely detailed by the 2010 ADA Standards and ICC/ANSI A117.1, as well as local building codes. The following are key considerations during the initial design phase:

**Clear space** must be provided at stair and ramp landings as well as doors. In addition to clear space, 60-inch diameter turning spaces are required at directional changes in the ramp or where the user would be required to turn around due to the presence of an obstacle, such as a locked door.

**Stair pitch** is mandated by local building codes; in commercial applications, pitch is typically a maximum of 7:11. More gradual pitches are acceptable but should be carefully considered to address user comfort. A handy rule of thumb recommends the height of two risers plus one tread depth should equal 25 inches.

**Ramp slope** should generally not exceed 1:12, with limited exceptions, and the clear width should not be less than 36 inches between the handrails.

**Handrails** on both sides of stairs and ramps are typically required by code, with minimum and maximum cross-sections for ease of use. If the rise of the stair or ramp exceeds 30 inches from the adjacent grade, guardrails will also need to be provided. Local building codes will specify structural performance and dimensional requirements.

Handrails and guardrails can vary greatly in material and design. Given their essential purpose in mobility assistance and fall protection, durability and maintainability are of utmost importance. A variety of metals, such as aluminum, bronze, stainless steel or carbon steel, are typically specified and can be finished with paint, anodized or allowed to patinate. Similar materials are also used for infill, in mesh, perforated or woven form, as well as glass.

### *Water Management*

Drainage is a significant design concern, as unmanaged water is often the cause of maintenance problems. Water can be categorized as surface water, such as rainfall or runoff from impervious surfaces, and subsurface water, including aquifers or high-water tables. Both must be accounted for in the drainage system and addressed through design, layout and material choices.

Keeping in mind potential water sources, the existing drainage system from inlet, to catch basin, to outlet piping should be assessed. Where there are known drainage issues, video inspection may be beneficial to determine if blockages are present and if hydrojet cleaning should be recommended. Depending on the condition of the system, replacement of elements such as piping may be required.

Permeable or impermeable finish materials, jointing, setting bed and base selections will affect how water flows through or is redirected from the plaza surface. The existing system may need supplementary drains or modifications, including new surface drains, catch basins, dry wells, detention or retention ponds, as well as reconfiguration of the pitch and orientation of the finished surface. As with accessibility, the plaza gradient may require modification. Coordinating the positive flow of water to drains reduces potential areas for ponding water, which can cause staining, maintenance issues and accumulation of ice in the winter months.

All new elements must be connected to the existing storm system and comply with local regulations for stormwater management. Selected drain covers should prevent detritus from entering the system and provide easy access for cleaning and debris removal from collection baskets. Finally, planters, fountains and other unique fixed site features that could impede drainage or may require their own internal drainage must be coordinated with the overall water management design.

### Site Furnishings and Amenities

In addition to the design of the ground plane, plazas often feature elements to enhance usability, interest and foster a variety of experiences. Water features and landscaping can create a cooler microclimate and add ambience. Shade elements, such as trees and awnings, provide protection from the sun during summer months.

Permanent, fixed furniture can be designed or specified from a

variety of manufacturers whose offerings include metal, concrete, wood or plastic products. The selection should weigh aesthetic qualities alongside durability, including resistance to weather and vandalism, as well as available storage on site. Trash disposal should also be accounted for, with discreet receptacles provided according to a waste management plan.

Lighting and provisions for power or audio can allow for greater flexibility in plaza programming and hours of use. Illumination includes general lighting, as well as accent lighting of landscaping and/or pathways. Innovations in exterior lighting include attractive designs to minimize light pollution, improve energy efficiency and upgrade existing fixtures to long-lasting LED units.

All these features and amenities, while providing opportunities to increase the vitality and life of the plaza, require coordination with the overall design performance, particularly when addressing maintenance, accessibility, safety and water management.

## KEY DESIGN CONSIDERATIONS

Design decisions have lasting implications around plaza care and maintenance to sustain function and usability of the rehabilitated plaza.

### Snow and Ice Management

Consider adding a hydronic or electric snow melt system to simplify maintenance in the winter months. Chlorides used in snow removal, snow removal blades or blowers can quickly degrade material surfaces and impact plaza longevity. A plan for snow disposal and/or storage should also be established.

### Landscaping Choices

Capacity for long-term plant care, including pruning, fertilization and supplementation should be part of the plant selection process. Access and equipment required for upkeep, such as grasses that require mowing, will be an ongoing concern. Irrigation systems demand maintenance, including cleaning and potentially, winterization.

### Debris Removal

Plan for ease when performing frequent and routine tasks, from clearing drains to keeping joints free from weeds. This will reduce the time and expense of maintenance activity. For elevated plazas and terraces, fall protection measures may need to be included to permit safe access.

### Maintenance of Fixtures and Finishes

Bulb replacement, repainting, furniture repair and other tasks that keep the plaza well lit and secure are integral to function and appearance. Durable fixtures with long lifespans mean less maintenance. However, maintenance is inevitable; so, selecting fixtures that are designed for easy access and repair will make the process even more seamless.

## REHABILITATION FOR LONG-TERM MAINTENANCE

Plaza upgrades are an opportunity to provide safe and convenient access for people of all ages and ability, enhance amenities and add dimension to an existing space, while simultaneously improving performance and reducing maintenance costs. Time and attention to the selection, design and installation of paving and drainage systems can have a substantial impact on the durability and maintainability of the plaza, which in turn impacts the aesthetic and functional performance of the space and its value as a building amenity. For plazas over occupied space, structural concerns are also central to the design process. With planning that considers immediate needs alongside the long-term demands of the space, a plaza project can create a desirable feature that serves as an asset not only to the building owner and occupants, but to the greater community. **FMJ**



**Rachel C. Palisin, P.E., LEED AP**, is senior engineer with Hoffmann Architects, Inc., an architecture and engineering firm specializing in the rehabilitation of building exteriors.

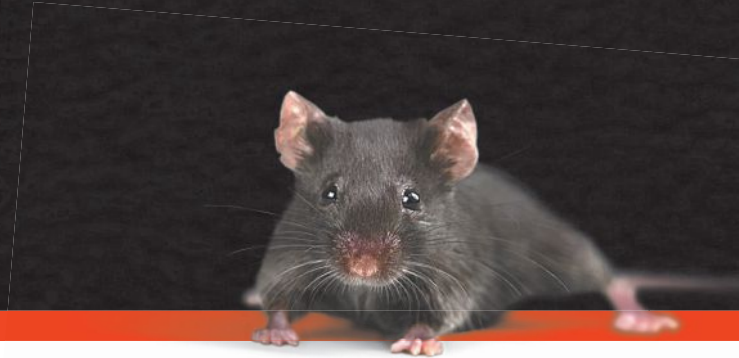
An experienced professional engineer with a master's degree in structural engineering from Washington University in St. Louis, Missouri, USA, she leads a team of technical staff in meeting the structural engineering challenges of plaza and building enclosure projects in the New York metropolitan area.



**Amanda L. Miller, AIA**, is senior staff architect with Hoffmann Architects in New York. After completing a master's degree in design studies at the Harvard University

Graduate School of Design, Miller organized the Harvard Black in Design Conference and was selected for the AIA New York Civic Leadership program. She develops design solutions for plazas that promote accessibility and enhance performance.

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# MY FACILITY



**PATRICK SONVEAUX**

NATO Headquarters  
Brussels, Belgium

Completed in 2016, NATO headquarters in Brussels, Belgium, houses the delegations of its 30 member countries. The organization was formed in 1949 as a collective security agency. Patrick Sonveaux and his team manage the day-to-day operations of the facility, working around different cultures, highly-sensitive security and technology.



*Photos Courtesy of NATO*





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

**SONVEAUX:** I have been working for more than 20 years in FM.

In my first job, I was given the responsibility of facilities projects, yet I had no idea what this area covered. I started at a key moment when new methods of FM were being explored and new IT management tools were emerging. I learned quickly and have not left facility and real estate management since.

While some of my friends may think, what a job – organizing cleaners, movers, maintenance – I realize that FM has become a passion for me over the years.

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

**SONVEAUX:** My day-to-day work is directly impacted by what's happening at NATO. NATO HQ supports the organization of more than 5,000 official meetings, plus meetings that bring together 30 heads of state on site.

We make things work and provide the best service. Being invisible yet always present is what guides us.

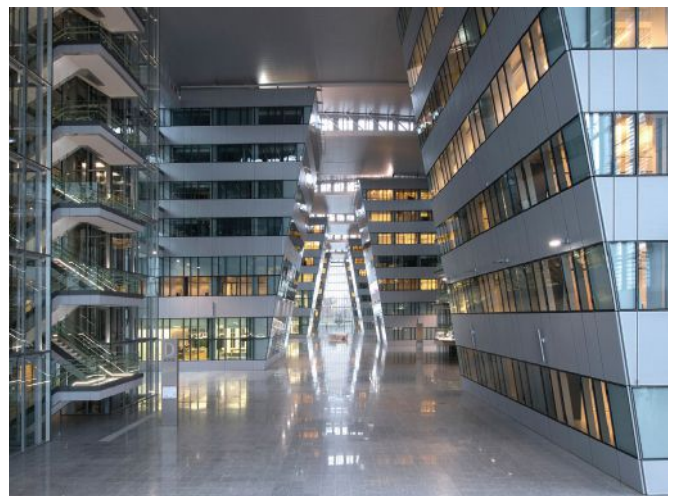
In parallel, we are using our building technologies and 3D modelling (BIM) (more than 100,000 pieces of online building information, known as IOT) to improve the comfort of building occupants and to improve the efficiency of the building. We have an essential role to play in NATO's climate change project.

Annually, we develop corporate initiatives such as installing bee houses, organizing mobility actions (encouraging commuting by bike and kick scooter, for instance) and launching a waste-reduction week to get our occupants more involved in this challenge. It is a good way to get in touch with our occupants and explain what FM is doing to support the building and the user.

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

**SONVEAUX:** One of the major specificities of the site is that it is home to the embassies of the 30 member nations, spread over the various wings of the building. To house its staff and delegations, each nation has its own private space. My teams and I do not have free access, but we're responsible for maintaining these spaces. Everything must be negotiated, planned, announced and authorized, and everyone must be accompanied by a security escort, whether for cleaning, repairs, fitting out, etc. We make agreements with each nation for different levels of various services. Out of the 30 nations, four have chosen to operate independently with their own technical facilities and internal services. We just provide hot/cold water and electricity; everything else is handled by the nation.





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

**SONVEAUX:** The security constraint conditions a lot of things and weighs on the very functioning of the facilities internally. Any person entering the site must either have a security clearance (which takes time to obtain) or be under security escort. These constraints require us to thoroughly coordinate each activity in the building and be creative in-service provision to find alternatives and solutions.

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

**SONVEAUX:** We are really playing the role of enablers, and this has been again demonstrated during the COVID-19 crisis (people behind the scenes, such as cleaners, technicians, caterers are also essential).

It is extremely challenging and is one of the reasons why I believe that FM is exciting.

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

## MARCH 2020:

**Benjamin Aniamma, CFM**  
Kollam, India

**Lane Rose, CFM**  
Davis County Government  
Farmington, Utah

**Philip Buscemi, CFM**  
Commercial Design Group Inc.  
San Francisco, California

**Adam Parsons, CFM**  
South Bend, Indiana  
Richard Anderson, CFM

**American Facilities Group**  
Seattle, Washington

**Matthew Sappington, CFM, FMP, SFP**  
Poly Inc.  
Austin, Texas

**Fasil Tegene, CFM**  
UCSF  
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**Courtney Avila, CFM, FMP**  
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San Francisco, California

**Adam Parsons, CFM**  
South Bend, Indiana

**Richard Anderson, CFM**  
American Facilities Group  
Seattle, Washington

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San Mateo, California

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CTSI  
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**Alisa Davies, FMP**  
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**Lauren Orjala, FMP**  
CBRE  
North Vancouver, BC, Canada

**Betsy Carroll, FMP**  
AAA Carolinas  
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**Taylor Averett, FMP**  
Salt Lake City International Airport  
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**Mashaal Farooqi, FMP**  
Sony Pictures Entertainment  
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**Christopher Jumalon, FMP**  
Donoho  
Washington, District of Columbia

**Sebastian Orlich, FMP**  
BlackRock  
Munich, Germany

**Pramod Kolage, FMP**  
India

**Khalid Aljifry, FMP**  
Saudi Aramco  
Dhahran, Saudi Arabia

**Venkata Satya Hanumanta Rao  
Surumpudi, FMP**  
ServiceNow  
Hyderabad, India

**Micheal Perera, FMP**  
US Technology International Ltd.  
Chennai, India

**Deepak Deenadayalan, FMP**  
UST Global  
Chennai, India

**Daryl Brown, FMP**  
Complete Building Services  
Frederick, Maryland

**Daniel Georg II, FMP**  
Discount Tire  
Grand Prairie, Texas

**Razvan Balica, FMP**  
BGIS  
Richmond Hill, ON, Canada

**Khalid Abdullah Abualola, FMP**  
Saudi Binladin Group - Operation &  
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Jeddah, Saudi Arabia

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**Thamer Alhamdan, FMP**  
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# FIVE WAYS TO STREAMLINE

BY DAN STUDER

# YOUR WASTE SERVICE

# On average, how many pounds of waste does a person throw out each year?

In the United States, the number works out to about 4.5 pounds of waste per day for each person. (Yes, per day.) Of that nearly 268 million tons of trash, only about 94 million tons is recycled or composted. Considering how many hours a week people spend on the job, FMs see the bulk of that waste go through their facilities.

An inefficient waste solution leads to messy, and potentially unsafe, waste buildup inside and outside a facility. Whether it is a retail center, restaurant or warehouse, FMs are responsible for safely and responsibly disposing of all building waste. Knowing how to choose the right solutions can improve safety and cut down on wasted resources (pun intended!). Here are the major actions an FM can take to manage waste streams, identify weaknesses in a current waste disposal system, optimize efficiency to reduce waste and save money for the facility.

## 1. KNOW YOUR OUTPUT

Conduct a waste audit periodically to find out how much waste (and what kind of waste) the facility produces. This goes a long way toward identifying places to reduce and manage waste more responsibly. A waste audit can be an involved, time-consuming process. Hire a waste expert to help or assign the audit to a person or committee within the organization. Clearly outline the expectations for the audit to ensure good results.

To set expectations, make sure the team understands commercial waste audits are conducted in three parts:

- Facility walkthroughs
- Record examinations
- Waste evaluation

Decide who will be responsible for observing and reporting on each phase of the audit. The size and complexity of the facility and organization will play a role in auditing process. Small and simple organizations may be able to conduct a waste audit using only one or two of the methods above.

### Facility walkthroughs

Observe where waste is collected and where garbage or recycling may be piling up due to lack of bins or infrequent collection. Talk to people during the walkthrough and consider conducting a follow-up email survey to find out where occupants think more garbage or recycling bins may be needed. Are trash and recycling bins convenient? Are they serviced enough? Are there areas where trash and recycling bins aren't used at all? Move them to more populated areas.

### Record examinations

Going over garbage and recycling collection records will give historical insight into the organization's waste patterns, including the cost of waste and the amount of waste collected. Typically, these records include raw material invoices and receipts, purchasing logs, disposal records, inventory logs, waste disposal contracts and recycling contracts. Looking at records over five or more years shows pricing and waste volume trends that can help inform the facility's next garbage and recycling contract.

### Waste evaluation

The goal of a waste evaluation is to discover how much waste is produced in a typical day, week or month, depending on how long the FM team wants to observe collection practices. Follow the facility's waste from trash bin to final pickup to find out if the collection process is working efficiently or if it needs to change. Observing the type and volume of waste produced will show whether recycling efforts are effective, and the organization can address ways to improve waste reduction efforts. Observing garbage over a few days or weeks will give the most accurate snapshot of waste production over a specific period of time.

### After the Audit

After all this work, the FM team will have a full picture of the production of waste at the site. A waste audit answers basic questions, including:

- How much waste is produced each month?
- What times of year are heavier or lighter, and why?
- Where is the waste going?
- Is there a more cost-effective pick-up schedule?
- How much is being spent?
- What measures are already in place to curb waste?
- What new measures could be put in place to curb more waste?

Waste audit committees may work on an audit for weeks or even months as they formulate the big picture of a facility's waste production. At the end of the audit, the committee should produce a report to answer these basic questions and make recommendations for streamlining the waste process. Make recommendations specific to each facility for reducing waste and making service schedules more efficient.



## 2. CHOOSE THE RIGHT EQUIPMENT

Waste collection usually starts with proper equipment, including choosing the right type of dumpsters and deciding whether the facility needs specialized equipment like balers, compactors or containers built specifically for hazardous waste or restaurant kitchen use.

Two of the most common machines related to commercial waste, balers and trash compactors, can help facilities reduce the volume of waste being thrown away. Balers compact recyclable materials while compactors compress materials to be recycled and trash intended for the landfill. Both machines can help companies reduce their waste costs by enabling the facility to fit more waste into a dumpster or recycling receptacle, which means fewer waste pickups.

In addition to balers and compactors, there are other types of equipment that may be necessary to manage waste. For example, forklifts can help safely transport large bins of waste across facilities and into dumpsters. Depending on the type of facility, specialized waste-tracking software can make it easier to keep track of garbage through the entire cycle to ensure waste is disposed in the right way. Safety equipment could also be needed, including personal protective equipment to protect workers from exposure to chemicals, airborne toxins or other hazards.

Having the right equipment is vital for keeping a facility safe. When analyzing safety and the waste stream, it will take the knowledge and efforts of safety coordinators, IT professionals and facility maintenance staff working together. These are the team members working with waste disposal and recycling every day, and they will need access to the tools that make their jobs safer and more efficient.

If the organization does not know whether safety or security equipment is needed, the waste audit committee can be tasked with analyzing the requirements and costs associated with safety and security equipment.

Once new equipment is purchased, people at the facility must be properly trained. Some manufacturers will send a trainer or will provide online trainings. Implement processes at the company to ensure that everyone who will be using any specialized equipment is properly trained to use it safely and effectively.

## 3. REVIEW THE LOGISTICS

Does it matter where waste is stored before pickup, and how that waste is maintained once it's outside the facility? Absolutely. If waste is brought to one centralized location, rather than collected at multiple sites, this could affect the cost of collection and the safety of the workplace if the garbage is not properly stored and secured between pickups.

The size of the building, type of waste produced and other factors will all play a role in where the waste goes before it is collected by your waste vendor. There are three things to consider when deciding where to put the trash:

**Aesthetics.** Waste can impact the beauty of the property, which can be a problem if the business is regularly visited by clients or customers who make purchases. Having an overflow of garbage on the sidewalk in front of the building, or in the alley behind the business, creates a negative customer experience. This can turn people away and cost the business money. Even for industrial or warehouse facilities, having garbage everywhere can invite pest infestation and potentially illegal dumping overnight.

**Safety.** Trash can be dangerous. Protect workers and visitors by keeping trash out of walkways, roadways and away from communal areas. Some businesses lock up their trash; others simply put it out of the way where it cannot be a problem for visitors. This is especially true if there are recycling bins overflowing with glass that could break and cause a hazard.

**Functionality.** Keep trash out of roadways and walkways. Waste can easily create logistical problems if it is left to pile up or if bins are not placed where they're most needed. When deciding where to place trash and recycle bins, use knowledge from the audit to understand where people naturally collect waste in the course of the day. Do they eat in common areas? Are there outdoor areas that need bins? Does recycling pile up in the office kitchen by the end of the day? What about recycling bins next to printers? Or cardboard and packing materials in a warehouse? These will streamline the waste disposal process.



## 4. MAINTAIN THE SYSTEM

Once the audit has been conducted, new trash disposal systems have been devised, proper equipment has been purchased and everyone has been trained to use the equipment properly, the organization should start operating like a well-oiled garbage machine. With efficiency comes budget savings, a cleaner environment, and perhaps even a more efficient and less expensive waste solution. However, the systems must be maintained, or they will break down.

Appoint someone to regularly monitor waste disposal and recycling in all capacities discussed so far. This person should conduct a periodic review of waste disposal systems and monitor waste costs to watch for sharp increases, drop-offs or trends. As a team, collect and study data from the audit that can help determine where the most money is being spent on waste.

Periodic waste disposal re-evaluations will ensure the team is taking all possible measures to manage waste at the facility. Establish expectations for staff around waste disposal, so all staff members will know what they are supposed to do to control waste costs and ensure waste is managed efficiently.

## 5. PARTNER WITH A SPECIALIST

Waste costs money. Companies that do not monitor waste production and disposal can find themselves spending hundreds or thousands of extra dollars each month on waste disposal. Conducting a waste audit, forming a waste committee, assigning waste maintenance to one or two people on the team, and using proper waste equipment are the most effective ways to control waste costs.

As part of this whole process, evaluate the current waste and recycling contract. Determine whether the service frequency or the type of equipment can be changed to better suit the facility's waste production and negotiate a new contract. Feel stuck in a long-term contract? Work with the waste vendor to identify ways to reduce costs and work these solutions into the existing contract.

It takes some work to streamline commercial waste, but the result is an efficient and safe system. If it has been a few years since the waste stream has been streamlined, it might be time to put a waste team on the scene. **FMI**


### RESOURCES

**EPA WASTE WISE BEST PRACTICES** | [HTTPS://WWW.EPA.GOV/SMM/BEST-PRACTICES-WASTEWISE-PARTICIPANTS#01](https://www.epa.gov/smm/best-practices-wastewise-participants#01)

**OSHA GUIDE TO HAZARDOUS WASTE** | [HTTPS://WWW.OSHA.GOV/SLTC/HAZARDOUSWASTE/](https://www.osha.gov/sltc/HAZARDOUSWASTE/)



**Dan Studer** started in the waste and recycling industry in 2002. He spent seven years in local and regional operational roles for top-tier waste companies. As a major account executive in both the Chicago and Houston markets, Studer has worked with industrial and commercial clients to right-size waste streams for large facilities and multi-property portfolios across the country. He specializes in creating custom service plans for clients. Studer is the commercial waste division manager at ZTERS Waste Solutions, [www.zters.com/commercial-waste-services](http://www.zters.com/commercial-waste-services).



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# EQUITABLE BUILDING ELECTRIFICATION: Why and How

BY CARMELITA MILLER



# Building electrification is coming.

As the world grapples with climate change and carbon emission reductions, there is increasing recognition that the buildings where the population lives, works and plays represent a major part of the problem — and, therefore, the potential solution. Many localities are already encouraging switching from gas to clean, efficient, electric appliances for heating and cooking, particularly in new construction.

**T**ransitioning from gas appliances and systems to electric options signals a significant change for the entire buildings sector. It is critical that this is launched correctly, because this will affect all communities and all types of facilities, from single-family homes to large apartment and office complexes, factories, hospitals, campuses and more. FMs must understand the ramifications of this transition and can play an important role in helping to guide it in a way that benefits all.

The Greenlining Institute examined the issues around electrification for our recent report, *Equitable Building Electrification: A Framework for Powering Resilient Communities*. In California, the gas used in buildings produces about one quarter of the state's total CO<sub>2</sub> emissions. As a result, more than 50 U.S. localities from Maine to Washington state have either adopted or are considering measures to spur a switch

from gas to electricity. That number continues to grow. According to the Carbon Neutral Cities Alliance, New York City has identified 175,000 buildings as prime candidates to switch to electric heating, and is working with its electric and gas utility, Consolidated Edison, along with the New York State Energy Research and Development Authority and Mitsubishi Electric to make it happen.

Although the U.S. has withdrawn from the Paris Agreement, other governments continue to set ambitious climate and CO<sub>2</sub> reduction goals: For instance, the World Resources Institute reports that 46 countries have already offered specific policies to decarbonize buildings. Meanwhile, the state of California is aiming for an entirely carbon neutral economy and has committed to a completely carbon-free electric grid by 2045, maximizing the climate gains from building electrification.

## CLIMATE AND HEALTH BENEFITS OF ELECTRIFICATION


Successful reduction of carbon and air pollution requires shifting towards clean electricity in businesses and homes — single-family houses and large apartment complexes alike. This shift presents the opportunity to achieve multiple objectives: cleaning the aging electric grid, increasing buildings' energy performance, and creating policies that align carbon reduction solutions with racial equity outcomes to help the most polluted and underinvested communities.

Today's highly efficient electric heating technologies offer a cost-effective way to reduce pollution from the buildings sector. For example, using clean electricity in buildings instead of gas, will reduce California's greenhouse gas emissions by between 31 and 73 percent, depending on the size of the solar array and climate zone.

Combining a cleaner source of electricity with energy efficient heat pump technologies can unlock further cost savings and reduced bills. Electric heat and hot water technologies can save households and commercial facilities in energy costs over the life of the equipment, if installed as part of an overall energy efficiency retrofit and consumers take advantage of policies to access off-peak energy pricing. Over the life of a major facility, this can result in significant cost savings. Forgoing the costs to build, connect, and install gas lines and infrastructure can also reduce the cost of new construction.

Moving away from gas will not only help reduce carbon emissions. It will also eliminate a major source of indoor air pollution.





... more than 50 U.S. localities from Maine to Washington state have either adopted or are considering measures to spur a switch from gas to electricity.

Burning gas releases nitrogen oxides and harmful particulate matter. Prolonged exposure to these combustion byproducts can have serious long-term health impacts, especially for children and the elderly, such as triggering asthma attacks, decreasing overall lung function, and increasing chances of serious respiratory illness. This can be a particular concern for schools, hospitals, assisted living facilities and other facilities where vulnerable individuals may gather.

## ENVIRONMENTAL AND SOCIAL JUSTICE COMMUNITIES

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The transition from gas will impact individuals and communities differently, depending on their situation. Renters, for example, will face different issues — and will tend to have less control — than homeowners or building owners. Clean energy movements of the past, including rooftop solar and energy efficiency, have primarily benefited those on the higher end of the income scale compared to those who face compounding barriers to access. Over time, continued reliance upon market-driven, trickle-down solutions that largely fail to deliver for under resourced communities has frayed trust between policymakers and the communities still waiting for their share of previously promised clean energy benefits.

The Greenlining Institute focuses mainly on what the California Public Utilities Commission calls Environmental and Social Justice Communities (ESJ). The CPUC defines ESJ communities as communities where residents are:

- predominantly people of color or living on low incomes;
- underrepresented in the policy setting or decision-making process;
- subject to disproportionate impact from one or more environmental hazards; and
- likely to experience disparate implementation of environmental regulations and socioeconomic investments.

These communities, typically composed of renters, have been mostly left out of clean energy solutions to date, despite often paying the highest prices proportionally in utility bills, transit and overall health. To ensure that these communities benefit from the transition to building electrification, the design and implementation of electrification policies must be equitably applied.

Residents of ESJ communities face particular concerns in the transition away from gas. While affluent families can switch at their convenience from gas to electricity for heating and cooking — and indeed, some have begun to do so — ESJ communities typically do not have that luxury. Residents of these communities experience multiple and often compounding economic barriers that make electrification nearly impossible if they are expected to go it alone. In California, one-third of households lack enough income to meet their basic costs of living. ESJ household budgets cannot cover the upfront costs of new technology, equipment and upgrades required to electrify a home.

However, ESJ communities will also be the hardest hit if they wind up as the last customers served by the gas distribution system. With a dwindling number of customers to support an aging system, costs for individual customers, be they households or businesses, will increase. These costs will disproportionately fall on those who can least afford the risk of the significantly increased bills needed to support aging infrastructure and stranded assets.

## THE EQUITABLE BUILDING ELECTRIFICATION FRAMEWORK

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Equity begins by recognizing that not all communities have the same social and economic starting point. Immigrant communities of color, low-income communities and others have long suffered systemic exclusion from opportunities such as homeownership, educational attainment, high-road jobs, and the ability to live in a clean and healthy environment.

Below is a five-step framework for various stakeholders. It presents a start-to-finish recipe for how the current goals of building electrification can align with producing healthy homes and safer buildings; creating high quality, local jobs that cannot be outsourced; and establishing stronger connections between everyday people and climate change policies and goals.

## STEP 1: ASSESS COMMUNITY NEEDS.

This should include understanding barriers preventing community members from electrifying their homes, residents' knowledge levels regarding building electrification, and their specific needs, wishes and concerns

## STEP 2: ESTABLISH COMMUNITY-LED DECISION-MAKING.

Rich community input and engagement strengthen the overall program design quality with stronger cultural competence, ensure local buy-in and investment, and deliver tangible local benefits rooted in the lived experiences of everyday people. Partner with community-based organizations to develop a decision-making process that ensures that decisions are based on community needs and priorities.

## STEP 3: DEVELOP METRICS AND A PLAN FOR TRACKING.

Metrics should include both clean energy benefits like greenhouse gas reductions and community benefits such as local hires and residents' ability to pay their energy bills without sacrificing other essential expenses.

## STEP 4: ENSURE FUNDING AND PROGRAM LEVERAGING.

Current low-income energy programs often fail to deliver maximum benefits to all qualifying households due to short and unpredictable funding cycles, poor program design that inadequately reaches qualifying customers, or lack of coordination and integration with complementary programs.

## STEP 5: IMPROVE OUTCOMES.


Using the tracking and metrics plan described above, ensure that there is a continuous feedback loop to improve current and future programs' reach and impact in ESJ communities. Consider adjustments to ensure the program reaches the people it seeks to reach and delivers the intended benefits.

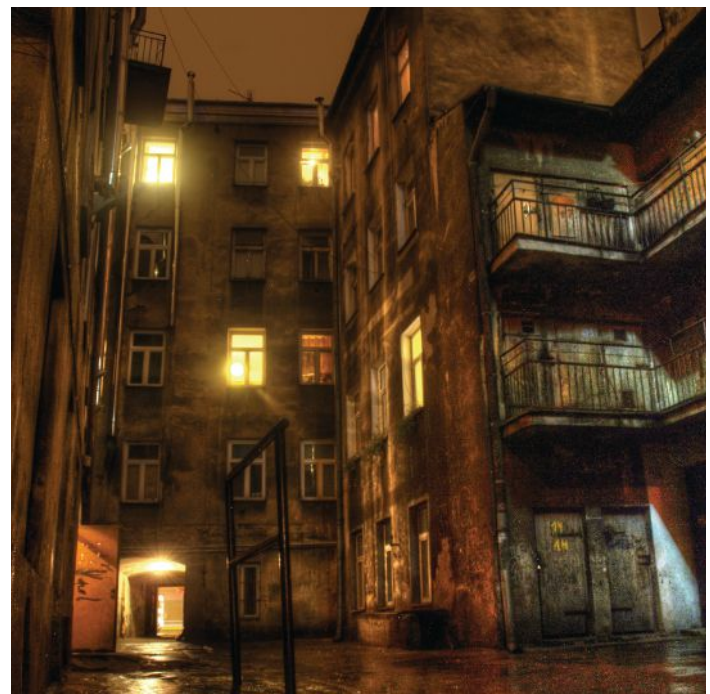
Together governments and the construction and FM industries can usher a just transition to a clean energy economy through building electrification, but this process requires deliberate and inclusive actions. This framework can be used by anyone interested in solving problems with a fresh perspective, removing barriers to participation in the clean energy economy, and bringing communities together around shared goals.

## MOVING FORWARD

The era of fossil fuels is ending, as it must to prevent climate catastrophe. The benefits of this transition can potentially extend far beyond climate to reduced energy costs, improved indoor air quality, and many thousands of new jobs. This shift will eventually encompass every type of building, from single family homes to small and large apartment complexes, commercial facilities, college campuses and more.

But decarbonizing the world's building stock will meet with resistance from gas utilities wanting to preserve market share and implementing building electrification fairly and equitably presents significant challenges. Marginalized communities face risks if policymakers do not take specific steps to ensure that their needs are considered and their voices are heard.

As more communities navigate this transition, the experience and expertise of facilities managers can play an important role in shaping this process and maximizing the benefits of building electrification for all involved. 



**Carmelita Miller** is Energy Equity Legal Counsel at The Greenlining Institute and author of *Equitable Building Electrification: A Framework for Powering Resilient Communities*.



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**HOW  
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WITH TWO**

# **AGGRAVATING**

**BY BRIAN GAGNE & STEVE MORT**

**REALITIES OF  
BUILDING  
MAINTENANCE**



In building construction, nothing is guaranteed except that concrete will crack and skylights will leak. These are two of the worst but preventable issues that can plague an FM. Proper maintenance and product installation can alleviate most major issues and extend the structure's life. Not every solution performs equally, and there are different ways to best protect a facility from the dangers of water infiltration.

## CONCRETE CRACKS

Concrete is the most widely used building material in the world, popular in parking garages, sidewalks, stadiums, skyscrapers and residential construction. Despite its many features and benefits, it is also certain that concrete will crack. If left unprotected, concrete degradation can damage the structural integrity of a building, aggravate tenants and ultimately, drain an owner's budget.

In the case of a parking garage, spalling concrete is not only an eyesore, but it can also damage the cars inside the structure. Extended shutdowns for repairs have high costs, limit the number of paying customers who can use the facility and risk tenant retention. Lastly, a crumbling garage damages the property's curb appeal and overall property value.

Structural engineers, consultants and contractors debate the reasons why concrete cracks, but no one has yet discovered how to prevent it. The best FMs can do is prolong the functional life of concrete with effective maintenance and protection from water infiltration and harsh chemicals.

Whether used in a pedestrian or vehicular application, traffic or deck coatings are the premier solution for a long-term barrier against the elements, defend the concrete from water and chemical ingress and offer myriad other benefits. They provide slip resistance and improve aesthetics, which safeguards occupants. FMs do not want to be liable for an injury or damaged car on their property. Correctly applied traffic coatings can help mitigate that.

Historically speaking, an FM wanting to repair the concrete on a parking garage would need to shut down the facility for one or two weeks to install a traditional urethane coating. This can be a logistical and fiscal nightmare.

Fortunately, rapid-curing polyurethane-methacrylate (PUMA) systems make it possible to avoid these shut-downs. Combined with a flexible urethane sealant, these fluid-applied systems seal cracks and add a protective barrier that can withstand vehicular traffic and prevent damage caused by water infiltration and harsh chemicals.

Each layer of these multi-coat systems cures in less than an hour, allowing the entire application to be completed in as little as four hours. This fast turnaround means that vehicles can return in hours, rather

than weeks, saving significant revenue for the owner. PUMA technology systems also offer superior elongation, meaning they can handle a structure's typical freeze-thaw cycle without cracking.

From a financial standpoint, there is much to gain for the building owner and FM. If a parking garage has 500 parking spots, and each vehicle is an average of US\$30 per day, at full occupancy, that equates to US\$15,000 in daily revenue. To apply a traditional urethane coating would shut down the parking garage for at least seven days, at a minimum cost of US\$105,000 in revenue before material and labor.

If PUMA technology is used, the owner would likely only lose eight hours of service time or less than US\$15,000. Not only is PUMA technology applied faster, it also provides a longer service life, fewer interruptions to the revenue stream and is a longer-lasting product.

Standard urethane systems are typically warranted for five to 10 years, depending on the manufacturer. With the durability and flexibility of PUMA technology coating systems, manufacturers can offer extended warranties on these projects for up to 20 years. This added protection safeguards all the key stakeholders in a parking garage.

## SKYLIGHTS LEAK

A skylight can be a beautiful architectural feature that allows natural light, adds ambiance and connects building occupants to the outside world. This connection can become a nuisance when leaks lead to wet floors, forcing property managers to relocate plants or place buckets underneath to prevent a slip hazard.

Finding the source of a skylight leak and diagnosing the root cause can be a painful ordeal. Aging components, improper installation or incompatible products could all be at fault. If not addressed early, water intrusion can be catastrophic to furniture, fixtures and equipment and pose safety and health concerns.

When water enters a building and contacts organic materials such as drywall, mold and mildew can form, which can have affect occupants' health. If water is getting into the building, so is air. This energy loss can cost significant dollars.

Often, there are frequent attempts to fix the situation prior to calling the local glazier or waterproofing specialist. Owners and FMs may think the issues have been resolved, yet water continues to enter the building, only prolonging a worsening situation.

Chasing leaks is frustrating and leaves FMs wondering if they should opt for a complete skylight replacement. While this may seem like the easiest option, this remediation is expensive, disruptive and not a comprehensive cure.

## A VIABLE SOLUTION

A more practical alternative is a silicone overlay system that completely encapsulates the elements that could cause a skylight to leak. Installation is done from the exterior, saving the FM and occupants a tremendous amount of headache and cost. The silicone overlay reduces the likelihood that tenants need to be relocated, because the restoration is completed with minimal disruption. This solution is significantly less expensive than removing and replacing the existing skylight and it maintains a clean interior sightline.

The silicone extrusions are completely customizable and are sealed with a silicone sealant on each side of the joint, so all the vulnerable points are protected from water and moisture.

Prior to extruding thousands of lineal feet of overlay material for production, 3D printing technology now allows the FMs to visualize a proposed solution. In less than a week, they can get a prototype in hand to review aesthetics and fit prior to making a significant purchase order. It must be noted, however, that the 3D-printed prototype is only to show the fit of the later-extruded silicone overlay product and is not to be used functionally.

Restoring the weather seal of the glazing system can also improve the energy efficiency of the building. This can lead to additional financial savings, which can qualify a building for building performance certifications.

## CONCLUSION

Time certainly takes its toll on building materials, predominantly concrete and window glazing components. Incorporating traffic coatings into the initial construction or restoration phases can increase the longevity of concrete. A PUMA technology system can be an ideal waterproofing solution, especially in vehicular applications, because it adds speed and durability for additional long-term cost savings.

When windows or skylights leak, identifying the source is a challenge. Instead of patching problematic areas or performing a complete system replacement, silicone overlays are often the best solution to encapsulate the entire glazing systems with ease.

If there are additional concerns about a building's lasting integrity, be confident that various options exist in the marketplace to extend the life of structures and mitigate risk. Talk to a manufacturer to identify the solutions best suited for a facility's unique needs. **FMJ**

### MORE READING

<https://blog.tremcosealants.com/5-minute-guide-to-pmma-puma-technologies>

<https://blog.tremcosealants.com/the-glaziers-guide-to-3d-printed-prototypes>



**Brian Gagne, LEED AP** is

*the technical manager, façade*

*restoration for Tremco CPG. He*

*has been with Tremco for eight years, where much of his time is spent making technical recommendations on fenestration systems and building façade connections. Gagne supports consultants, contractors and outside sales on making recommendations for building remediation.*



**Steve Mort** is the national owner

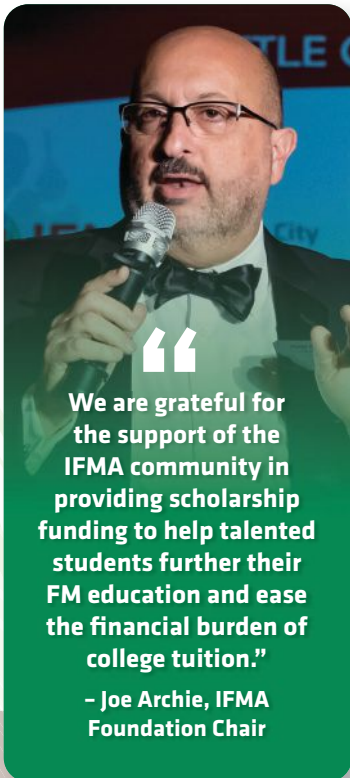
*account manager for Tremco CPG,*

*assisting asset owners and FMs*

*resolve building enclosure issues and develop good preventative maintenance programs. Mort has spent nine years at Tremco in various roles, primarily as a technical expert for building enclosure design. He spent three years living in Australia and working for Tremco as the resident hygrothermal expert in enclosure design as the country implemented significant changes in the code requirements of commercial buildings.*



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## Where does your FM journey start?

Are you seeking a degree program in facility management, but not sure where to look? With the foundation's academic registry, you can search online by geography, degree type, program, concentration or accreditation type. Go to [foundation.ifma.org/students/degree-search](https://foundation.ifma.org/students/degree-search).



## Have you recently graduated?

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## Monthly Update: What's happening at the IFMA Foundation?

Discover how the foundation engages and supports the worldwide FM community. Learn about scholarships, publications, sponsorship opportunities and economic development activities. Sign up to receive our Monthly Update at [app.etapestry.com/onlineforms/IfmaFoundation/Updates.html](https://app.etapestry.com/onlineforms/IfmaFoundation/Updates.html).



# Addressing the **Talent Gap** in FM

BY CARY BAINBRIDGE

The FM industry cannot ignore the fact that more than half of today's facility management practitioners are expected to retire in the next five to 15 years,<sup>1</sup> yet most companies do not have enough bench strength to fill in the gap. Millennials (born 1981 to 1996) and Generation Z (born 1997 to 2012) have not been entering the field to any great extent. Indeed, many have never heard of FM as a career choice. Therefore, the IFMA Foundation's Global Workforce Initiative (GWI) is driving accredited FM programs at universities across the United States, with good progress. As more Gen Z-ers interview for jobs, what else can be done to recruit them?

**H**ow to attract these younger generations into FM was the lingering question throughout IFMA's World Workplace 2019 conference. Other key themes that emerged also centered around the current and future talent gap:

- **Innovation (specifically, IoT-enabled technology)**  
The general feeling among attendees is that FMs may feel out of their depth, yet more of their customers are expecting technological solutions.

- **Climate change**

The industry has long talked about sustainability or being green; however, "climate crisis" and "man-made global warming" were more prominent than ever before in the discussion. This is on point with the changing demographics the workforce at large is experiencing: millennials, who are famously environmentally conscious and now officially represent 34 percent of the U.S. workforce, are becoming the key industry decision makers as baby boomers retire.



Many suggestions were made to rebrand the industry or job title (“facility management is a very unsexy term”) by organizations, including the IFMA Foundation. Perhaps it is not just about filling the talent gap but elevating the FM profession. A more purposeful moniker might help.

The first question to ask is: “Who are these millennials and Gen Z-ers, and what is it they want?” as compared to previous generations. What are their work preferences and consumer habits? What are they passionate about? Would an emphasis on creative workspaces, the innovative use of technology and sustainability pique their interest? Probably.

Millennials want to work for the greater good, to do something big, they tend to trust their peers and user-generated content.<sup>2</sup> For Gen-Z, diversity is a watchword. They constitute more than a quarter of the U.S. population and are the most diverse generation in the nation’s history.<sup>3</sup> Gen-Zers are tech-savvy, view social media as an integral part of life, risk averse, independent, want flexibility and independence in a job, and want to be authentic.<sup>4</sup> Those preferences certainly point to a career in FM, don’t they?

### **What can individual FM companies do to market jobs? As an industry, how is the FM story best told?**

Elizabeth Zamora, a GWI success story, provided some answers. As a college student at Chaffey College in California, USA, Zamora learned of the new FM degree from two of her professors. One told her about it, and another — who had a long career in FM for the Los Angeles County Metropolitan Transportation Authority — shared her experiences so enthusiastically that it “opened up a whole new world for her.” After a meaningful conversation with ABM’s Tony Piucci, the foundation’s first vice chair, her career path went from internship to entry-level FM. Because Zamora is a people-person, she thought she wanted to be out in the field, but she’s also fascinated with numbers and puzzles and loves her job in FM finance.

### **Brand messaging ideas that emerged from interviewing Zamora:**

Emphasize the many different jobs within FM. Are you a people person? There are jobs for you. If you’re a numbers person, there are jobs; and if you’re a strategist or techie, there are jobs for you, too. There are even jobs that combine these skills and preferences.


- Share real FM experiences. Get testimonials (especially video) from FM professionals about their career paths and why they find FM so exciting and satisfying. It is hard for many people to picture themselves in a job. Help them see themselves in FM.
- Describe various career paths in FM, the opportunities here and abroad, the job stability and the benefits, not just the salary.
- Emphasize that FM is about making spaces more comfortable and more sustainable, with greater use of technology that creates efficiencies. Give FM a higher purpose: creating work spaces in which people love to work, helping facilities put less strain on the environment, creating better experiences for occupants and visitors through technology.

- Talk about some of the more dynamic facilities: museums, stadiums, famous skyscrapers, leading universities, manufacturing plants or a manufacturer of COVID-19 test kits.
- Rename facility management to something like “facility enhancement” or “workspace management.”

Marketing and recruiting efforts must result in new talent choosing FM as a career, not just “falling into it” like many current FM professionals have.

But, according to Recruiting.com, “Navigating new generations in the workplace is not an easy task...What’s most important is aligning your hiring strategy to business goals and selecting employees who will reinforce that strategy...The common thread across all five generations in the workplace is people’s desire for open communication, a good fit for their goals and an authentic company to work for.”<sup>5</sup>

To address those issues raised at IFMA’s World Workplace, important business strategies for the FM industry are: 1) being innovative through technology, and 2) being even more proactive about climate change. Hiring millennials and Gen-Zers with the right qualifications and passions aligns with strategies to address those issues.

Each FM company should also take a look at how it’s communicating company values. How is “authenticity” communicated? What do recruits need to hear from individual FM companies that will convince them that the company is one in which employees can meet their career goals and experience personal satisfaction? What are the next steps for IFMA and the FM industry to further address the talent gap and ensure FM clients’ needs are met? It is time to build that bench strength. 

1. IFMA
2. Recruiting.com, “What do Millennials Really Want at Work?” <https://www.recruiting.com/blog/what-do-millennials-really-want-at-work/>
3. Deloitte, “Understanding Generation Z in the Workplace,” Tiffany Mawhinney and Kimberly Betts, <https://www2.deloitte.com/us/en/pages/consumer-business/articles/understanding-generation-z-in-the-workplace.html>
4. “6 Gen Z Traits You Need to Know to Attract, Hire, and Retain Them,” Samantha McLaren, 10/8/19, <https://business.linkedin.com/talent-solutions/blog/hiring-generation-z/2019/how-to-hire-and-retain-generation-z>
5. Recruiting.com, “What do Millennials”



**Cary Bainbridge** serves as chief marketing officer for ABM.

As part of the executive team, she is focused on ensuring tight integration between sales, marketing, communication, operations, brand and culture. She oversees all strategic planning, market and client research, creative services, and outbound and inbound marketing. In her 17 years with ABM, Bainbridge has led both corporate and business-segment marketing and sales operations teams. She was a core driver of the ABM brand transformation and has overseen the brand integrations of more than 20 acquisitions. Prior to ABM, she held marketing leadership roles at The Winter Group of Companies and MCI WorldCom. She has a Bachelor of Arts degree in Communications from Mercer University and serves on the governing body for the Atlanta CMO Executive Summit. Bainbridge is also an active supporter of CHOA Sibley Heart Center.



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**Commissioning and reliability of facilities**  
**Energy management and carbon footprint analysis**  
**FM economics and finance**  
**Information and communication technologies for FM**  
**Legal and environmental issues in FM**

### WHY AND WHEN WAS THE PROGRAM INSTITUTED?

The program started in 1996, following FM's rapid development in the 1980s, from North America and the U.K., and then in Europe, Australia, East Asia and Southeast Asia. The development of FM education and training has been driven primarily by demand at the postgraduate level in Hong Kong.

### WHAT TYPES OF PRACTICAL APPLICATIONS DO YOUR STUDENTS LEARN?

In our program, the students learn not only about the contemporary, effective ways of managing facilities, they are expected to think about needs of facility owners and users and how to make continuous improvement for the facilities they manage. Specific examples of practical applications include performance assessment for building maintenance, benchmarking of facility performance, application of legal principles in FM and building carbon footprint assessment.

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

Our students are employed in companies with a wide range of professional services. Upon finishing the program, our students make further advancement in their careers. Many of them are executives of international property or facility companies, consultancy firms or government departments.





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

Our Building Services Engineering department (one of the four departments in the Faculty of Construction and Environment that offers the MSc FM program), has research in the following areas:

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**Building environmental performance**  
**Building operation and maintenance**  
**Electrical installations and systems in buildings**

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**Fire and safety engineering**  
**HVAC&R system and technology**  
**Indoor environmental quality**  
**Lighting engineering**

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**Environmental and energy issues**  
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## WHAT ARE THE ISSUES FACING THE NEXT GENERATION OF FMS AND HOW WILL THEY BE ADDRESSED?

The next generation of FMs will be concerned about cost control, environmental issues, and more importantly, security and health issues. These issues are covered in our program.

## WHAT ARE THE ACCOLADES OF YOUR ACADEMIC STAFF?

Various awards have been conferred to our academic staff, including teaching excellence, outstanding achievement in academic program development, the IFMA Educator's Award and the Asia Pacific Rim Region Energy Project of the Year.

We are proud that this program is recognized by IFMA, the Hong Kong Institute of Facility Management (HKIFM), and the Royal Institution of Chartered Surveyors (RICS). It is also accredited by the Chartered Institution of Building Services Engineers (CIBSE) as suitable further learning to meet the academic requirements for CEng registration.

## WHAT IS THE NEXT MILESTONE, GIVEN THE LONG HISTORY OF THE PROGRAM?

The Hong Kong government is paying more attention to the development of facility and property management. It has recently legislated the Property Management Services Ordinance and formed an authority to promote the professionalism and quality of the property management industry to make Hong Kong a better place for living. Expectedly, the government will set standards for integrity, competence and professionalism of the industry; encourage a culture of learning; and promote synergy among stakeholders for the continuous development of the FM profession. Our program team will continue to equip students with the necessary knowledge for tackling challenges the FM industry and work with IFMA to create the best FM environment.



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IFMA is a true asset for FMs worldwide. I find value in the networking and plethora of resources that help me find solutions to the FM challenges I face. It's comforting to know that the FM professionals I meet through IFMA are international peers and help me find solutions, improve processes, decrease operational expenses, improve health and safety and overall maximize your facilities' potentials. I find IFMA to be a “must” for any FM out there.

**Carlos Rodriguez**

*Santo Domingo, Dominican Republic  
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# IS NO NEWS REALLY GOOD NEWS?

*The Rewards & Challenges of Post-occupancy Evaluations*

BY CYNTHIA MILOTA



The punch list is complete, the final pay application processed, the change champions returned to their regular jobs and the project team is busy with their next five assignments. The project is completed on time and within budget. No complaints; so, all's good, right?

Maybe not. The current project delivery systems do not integrate or incentivize going back for feedback after a project is complete and the employees have moved in. After all, what would be gained by conducting a Post-occupancy Evaluation (POE)?

Much has been written on the benefits of POEs, the process of assessing workspaces after they have been occupied for some time duration, using rigorous and systematic tools<sup>1</sup>. Yet, according to a 2015 U.S. study, POEs are conducted in less than 5 percent of all projects<sup>2</sup>. POEs are often viewed as time consuming for project teams and the evaluation participants, expensive to conduct, costly for addressing findings and potentially harmful in revealing negative information. Despite perceived challenges, there is much value and opportunity in conducting and integrating POEs into the project delivery service. Ultimately, facility managers can assess the strengths and benefits of these tools for their organizations.

### Benefits of Post-occupancy Evaluations

A proactive method to maximize the connection between employees and their workplace, POEs offer a short-, medium- and long-term<sup>3</sup> payback for feedback, assessments, benchmarking and continuous improvement.

#### SHORT-TERM (1 YEAR) BENEFITS INCLUDE:

- Assessment of employee experience indicators.
- Improved employee attitudes through proactive involvement in the process.
- Refined employee fit and space utilization through fine tuning, training and procedures.
- Tested application of new concepts, processes, protocols.
- Validated decisions — the justification of actions and expenditures.
- Identification of intended use changes<sup>4</sup>.
- Feedback loop for continuous improvement<sup>4</sup>.
- Decisions based on data — leading to cost/time savings.

#### MEDIUM-TERM (3-5 YEARS) BENEFITS INCLUDE:

- Optimize and refine employee experience.
- Adaptation of facility to organizational change and growth over time.
- Translation of feedback into application knowledge for decisioning.
- Accountability for building performance by the owner-occupier and design teams.

- Identification of evolving improvements and operational efficiencies.
- Decisions based on data — leading to cost/time savings.

#### LONG-TERM (10+ YEARS) BENEFITS INCLUDE:

- Integration of employee experience into the fabric of facilities' decision making.
- Improvement of design databases, standards criteria and guidance literature<sup>3</sup>.
- Quantitative measures of employee and building performance.
- Decisions based on data — leading to cost/time savings.

Using POEs over time identifies patterns, providing insight and foresight into workplace issues. Access to long-term workplace data provides robust evidence when presenting to leadership for project approval. In addition, POEs forge ongoing partnerships with employees, building trust. FMs realize the most benefits when POEs are integrated into an overall project delivery strategy.

### POE Myths Busted

While POE is a commonplace term, it often comes with negative connotations. Lack of understanding on the use and benefits lead to incomplete or inaccurate assumptions.

Ardent detractors of POEs might ask their consultant teams, “Why should we pay you to assess work we just hired you to do?” On the contrary, the biggest winners in POE findings are the FM team’s organizations. Actionable insights into employee experience and how the workspace supports the business practice are acquired from a variety of POE types.

MYTH	BUSTED
Too complex	When you measure everything, you measure nothing. Start small. Plan the study to assess project objectives.
Time consuming	Short surveys, observation studies and focus groups can be executed and analyzed within short time frames.
Expensive to conduct	Incorporating POEs into the basic scope of services integrates the costs into the project.
Will set unrealistic expectations with employees	Level set the purpose of the POE with employees before undertaking the study.
Too much risk and liability	A+E Professional Liability Insurance does not consider POEs “a direct factor in underwriting (not getting) that granular in the application... Ultimately, it was determined that the benefits of lessons learned outweigh the risks <sup>5</sup> .”
Findings too complex and expensive to implement	Only assess what you have the power and resources to act on. Many findings can be implemented via operational changes or training.

## Purposes of Post-occupancy Evaluations

POEs are not one size fits all, rather POEs offer multiple options depending on the project objectives, the timing, the reporting audience, the nature of the questions investigated, the data collected, and the time and resources available. POEs generally assess technical environmental issues or functional human-centered perceptions<sup>6</sup>. Vischer<sup>7</sup> outlines four POE purposes:

- **Pre-design programs informs** decision making in the early stages of a project.
- **Strategic space planning** aligns workplace with strategic business goals, improving functionality and reducing costs.
- **Capital asset planning** combines assessment of the physical workplace with interior environmental assessments to diagnose overall building performance.
- **Accumulation of knowledge** applies research to increase the body of knowledge to the organization, thus increasing the body of knowledge to the industry at large.

## Integrating Post-occupancy Evaluations into the Design / Delivery Process

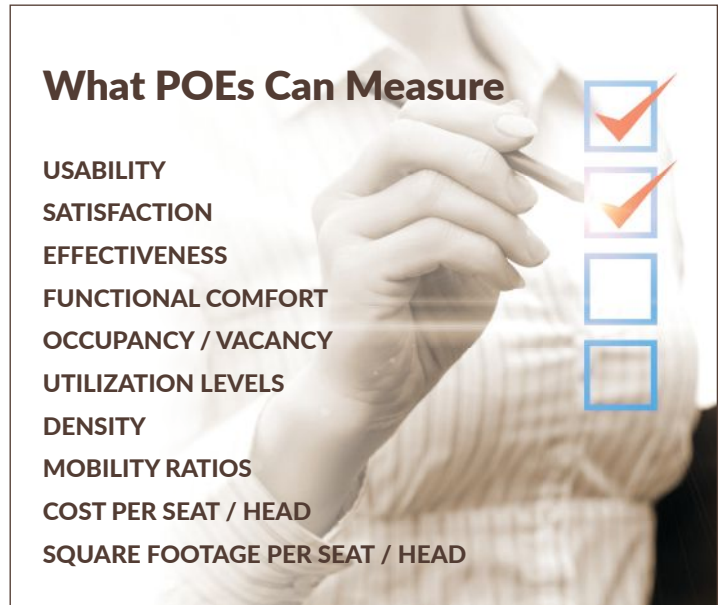
From the architecture and design consultant's perspective, the POE is the end of the project delivery scope. From the FM team's viewpoint, the POE is just the beginning. Adopting the "Facilities Day One" vantage point expands the value and potential uses of POEs. Actionable findings from assessments can be acted on by the FM team in concert with IT, HR, training teams, corporate communications and other organizational resources.

Generally, POEs are considered on a project-by-project basis. But what if there was an organizational commitment to POEs and the expense for this scope of work was built into the annual capital budget? The financial commitment could be minimal to start. Undertaking small projects would demonstrate value and could be relied upon for future validation and foresight in cost avoidance planning. Start by committing a small annual budget for POEs and identify a few manageable projects. Collect and report on the benefits of the POE findings, translating into metrics that make sense for the organization.

Two models for integrating Post-occupancy Evaluations into the project process:

### 1. Include POEs in the contracts and service agreements with the architecture and design consultants.

- Clearly spell out the objectives, scope and expected outcomes.
- Engage the procurement team.
- Allocate a small percentage (say 0.025 percent) of the construction budget for POEs.
- Do not make POEs a part of the contingency budget.
- Assign the POE a different project number from the base project, so the main job can be closed out.



### 2. Develop an internal standard Do It Yourself POE process.

- Establish robust overall project goals, with objectives that can be adjusted by project.
- Build an internal governance group to integrate into existing project delivery processes to enhance POE adoption.
- Integrate reports and recommendations into periodic management updates.

Whether the chosen model includes outside expertise or adopts the in-house approach, the POE process can examine individual projects or can undertake the assessment of a series of projects. Access to POE workplace data can integrate into other internally established reporting mechanisms, including performance score cards and annual employee opinion surveys. Access to POE workplace data also informs decision making on future design and construction projects and corporate real estate capital planning.

## Implementation Tips

Consider these tips to overcome conventional POE obstacles and begin planning how to undertake in your organization:

- Build an integrated cross-functional team to establish multiple points of view.
- Align with leadership and the study participants on the goals and their participation in the POE(s).
- Outline a few carefully selected indicators based on the project objectives<sup>7</sup>.
- Develop simple repeatable, reliable methods for collecting feedback, vetted by an experienced researcher and piloted before implementation.



- Collect actionable data by judiciously integrating multiple data streams.
- Define resources for data collection and analysis, integrating into available resources.
- Identify the consumers of the POE findings and their role in the execution of recommendations<sup>7</sup>.
- Adopt a standardized approach for reporting that can be comparable over time.

Building employee trust and enhancing the employee experience begins by including them in the process via surveys, focus groups or other feedback mechanisms. Starting small, building on repeated efforts and strategically broadcasting successes, POEs can become an integral part of project implementation by systematically including them in each project.

## The Pitch for Post-occupancy Evaluations

POE planning and implementing, of course, requires the support of organizational leadership. The pitch to the executive team should include two points: 1) workplace measures are essential; and 2) people are the businesses' most important asset.

**1. If you can't measure it, you can't manage it<sup>8</sup>.** Access to data provided by POEs enables proactive and predictive decision making. Quantitative and qualitative information informs the allocation of resources. POEs are leading indicators, providing baseline metrics and longitudinal data for strategic forecasting<sup>9</sup>.

**2. People cost 10 times more than space<sup>10</sup>.** The physical workplace is one significant aspect for providing the best employee experience possible. Small increases in employee productivity have the same impact as cutting real estate costs<sup>11</sup>. Employees are demanding seamless consumer technology experiences at work, and the war for talent hinges on this for all generations and demographics<sup>12</sup>. Understanding employee experience is good for business, as organizations with strong employee experience outperform on the S&P 500 Index<sup>13</sup>.

## Go forth: Measure quantitatively and experience qualitatively<sup>3</sup>

POEs are a powerful means for FMs to assess and attain the best workplace for their employees and organizations. Being proactive and getting ahead of issues, closing the loop and building trust with internal stakeholders are immediate payoffs for implementing POEs. Informing subsequent projects, identifying operational improvements and paying the knowledge forward are additional benefits. POEs solve problems and build knowledge, finding causes and predicting effects<sup>14</sup>. Using both quantitative (the what) and qualitative (the why) measures, POEs provide robust, actionable results within time and cost constraints. Plan a POE today because no news is not good news. FMJ

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**Cynthia Milota** is director of Ware Malcomb's Workplace Strategy and Change Management practice. She delivers human-centered, experience-based work environments, partnering with clients to formulate their unique objectives: mindful of wellness, culture, talent strategy and success measures. Milota has presented at academic and professional conferences; held adjunct faculty positions; and served on industry panels, juries and editorial review boards.

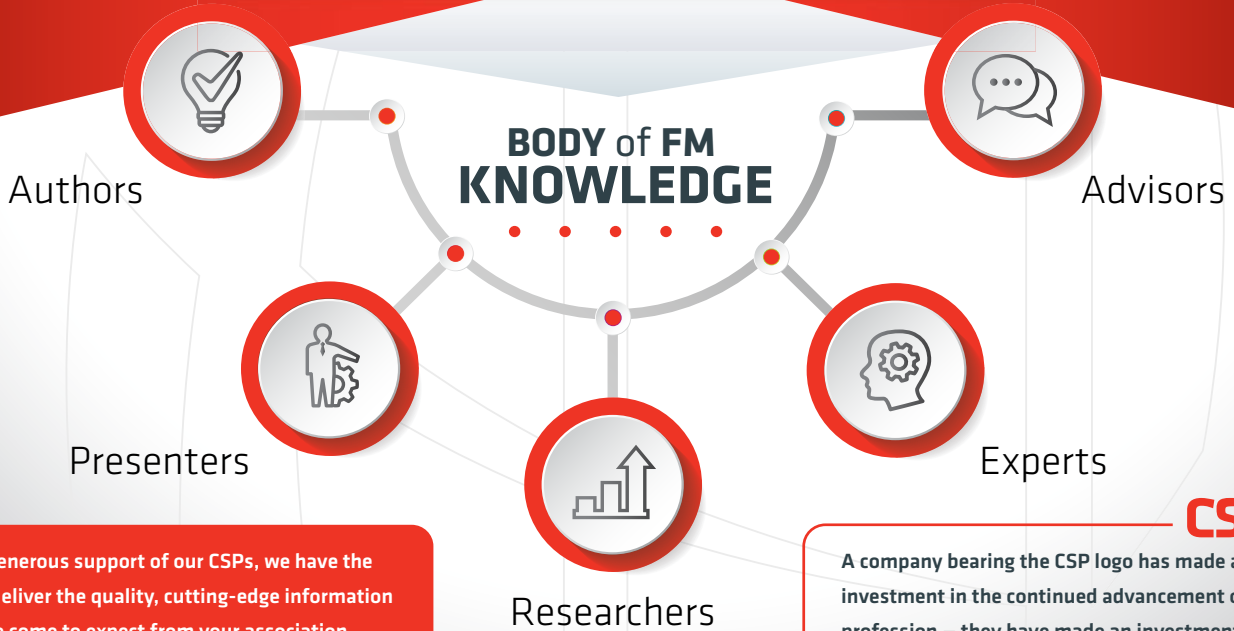
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# OTIS

**FMJ** How has the COVID-19 pandemic changed the way we use elevators and escalators and how is Otis responding to those changes?

**OTIS** Today, facility managers around the world are in various stages of returning to a new normal and rethinking how people and buildings will interact. Many FMs are also focused on ensuring cleanliness, which according to a recent article in *The Wall Street Journal*, is top of mind for tenants and building visitors alike. To that end, both elevators and hygiene are critical to the conversation as FMs, their tenants and the public consider ways to move people through buildings and cities safely.

In working with FMs on a global scale, Otis teams have seen many interesting ideas developed that experts have recommended will help smooth the transition, including:

- Staggered passenger arrival/departure times
- Temperature checkpoints
- Occupancy limits
- Social distancing via floor markers and passenger communications
- Sanitizer stations

Regardless of their approach, FMs around the globe are writing operation manuals to help tenants and passengers move safely throughout buildings.

Whether it is an office building, apartment complex or retail center, Otis can help.

The company, which in normal times moves more than 2 billion people a day, is working with FMs to support building reopenings all around the globe. These efforts position the company to serve as a trusted adviser to the FM team.

### UNDERSTANDING TECHNICALITIES

It can be difficult to keep a handle on the many scientific terms used while planning for tomorrow's buildings. At Otis, this was made apparent when working with customers and listening to their needs for increased hygiene, but hearing similar needs described very differently. To better navigate those conversations, a team of Otis engineers and other experts sought clarity. This group worked to define how some of its products may reduce the risk of transmission of infectious diseases for passengers riding its elevators and escalators.

The information and definitions that this group found proved invaluable. Not only did it help employees differentiate between terms such as "pathogen," "microbe," and "virus" and explain distinctions between COVID-19 and other pandemics such as the SARS outbreak of 2003; but it also helped strengthen companywide perspectives on the products and guidance that FMs needed most.

### ADVANCING TECHNOLOGY FOR TODAY AND TOMORROW

Despite the unprecedented times and steep learning curve of details, Otis continued to innovate solutions for FMs and their tenants. As this work went on, it became clear that there are several main categories in which FMs wanted Otis' support.

Best practices for returning to on-site work

Otis' return to work occupancy guidelines are supplied to help with elevator-and-escalator-specific strategies, and support the formal guidance around social distancing and personal hygiene measures from the government, CDC and health officials.

- 1 Stagger passenger arrival / departure times
- 2 Temperature checkpoints
- 3 Social distancing floor markers
- 4 Limit occupancy
- 5 Sanitizer stations

Those categories are purification products, touchless solutions, passenger communications, which includes promotion of social distancing, and remote monitoring services.

The solution seemed simple as Otis had offerings that fit each category. The plus side? Many of these offerings could be retrofitted.

When looking at touchless elevator technologies, Otis features the eCall™ app, which allows passengers to call elevators directly from their smartphone. Beyond eCall, Otis offers what it calls “Special System Operations,” which allow elevators to be programmed to continuously stop at selected floors. This helps reduce passenger touch points. Its IoT platform, called Otis ONE™, uses elevator data collected via the cloud to offer predictive maintenance services that can enhance equipment uptime and reduce in-person visits from field professionals, thus reducing the amount of necessary building visitors.

In addition to its touchless technologies, Otis also offers elevator and escalator purification products and services for facility managers looking for increased cleanliness. For example, the company has developed and is now offering products such as:

- **Elevator purification fans**

- These can be retrofitted to elevators with fan technology that can effectively inactivate microorganisms and filter dust within the cab.
- The fan integrates an anion generator and ultraviolet lamp to kill germs and inactivate microorganisms.

- **Escalator antimicrobial handrails**

- These are used on escalators and moving walkways to help prevent accelerated bacteria growth and replication.

- They can offer passengers a cleaner experience with handrails that are actively killing germs.

- **Escalator handrail sanitizers**

- This module is designed to remove germs from handrails using powerful UV-C (ultraviolet) light.
- It has a compact, internal-mount design that avoids physical interactions with passengers.

Finally, the Otis Compass® 360 Destination Dispatching System can help limit the number of passengers assigned to each elevator, helping to improve social distancing. Consideration should be given to the overall performance of the elevators as waiting times may increase. Otis can help by performing a traffic analysis study to get a better understanding of the impact to the building.

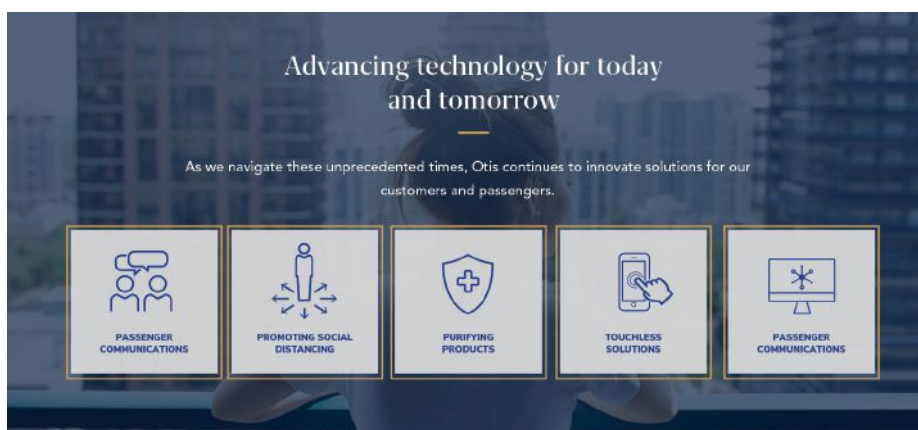
Despite the unprecedented times and steep learning curve of technical terms, Otis continued to innovate solutions for FMs and their tenants.

### COLLABORATING FOR THE FUTURE

Today, there are many different paths that FMs, tenants and the riding public can pursue, yet there is no universal solution applicable to all. Despite this time of uncertainty, one thing remains clear: facility managers, tenants and companies must all come together to emphasize passenger safety.

Otis was founded with a focus on safety and that remains its top priority today. From promoting on-the-job safety by providing the proper personal protective equipment and hygienic guidelines to its field professionals to working with customers in supporting reopening plans, Otis is a dynamic partner in any reopening discussion. The company remains committed to safety and is well positioned for growth.

While the global pandemic has been challenging for everyone, Otis remains strong and resilient — the company has seen a lot in its 167 years and has weathered many storms.



*To stay updated on Otis' COVID-19-related customer support, visit [www.otis.com/corporate/covid-19-response/](http://www.otis.com/corporate/covid-19-response/) or contact your local Otis office to speak with a sales representative.*



# **THE IMPACT** *of* User Experience Enhancement *on* Facilities Value

BY KAREN BALA & SARA ROSS



Generally speaking, FMs are directly responsible for day-to-day user interactions with the built environments they oversee, while real estate directors are charged with delivering on the value those built spaces represent. These distinct roles and viewpoints overlap most notably in the consideration of user experience (UX), the former working to optimize day-to-day end-user interactions while the latter group focuses on the complete portfolio and how the full range of experiences contribute to the calculation of value.

**F**or both, there is an understanding that UX directly impacts the portfolio, and that value is what matters — to shareholders in the corporate context or to trustees in institutional settings like higher education. While calculation formulas may vary, per-square-foot metrics are typically improved when occupants use a space more often or report greater satisfaction when surveyed.

A primary goal for renovations and capital improvements must then be to positively impact the experience of a facility's users. Strategies for determining and prioritizing improvements should be weighted, typically toward the preferences of those who interact with the built space most frequently — usually employees or students — though the experiences of less frequent users may also pertain, especially those whose impression of the organization may be vital.

## THE IMPORTANCE OF ORGANIZATIONAL CULTURE

A review of trade journals, studies and literature reveals that within the last five to 10 years, UX has become an overarching concern for both FM and real estate management in the corporate world. Research into workplace end-user experience by Kwon, Remøy and Van Den Dobbelsteen — published last year in *Property Management* — outlines 10 main factors to increase user satisfaction in office renovation, each associated in some way with satisfaction and comfort: thermal comfort, air quality, lighting, noise, user control, privacy, concentration, communication, social contact and spatial comfort. In their findings, the authors then categorized these influential factors into three levels of comfort, the highest priority being physical, followed by functional and psychological, in that order.

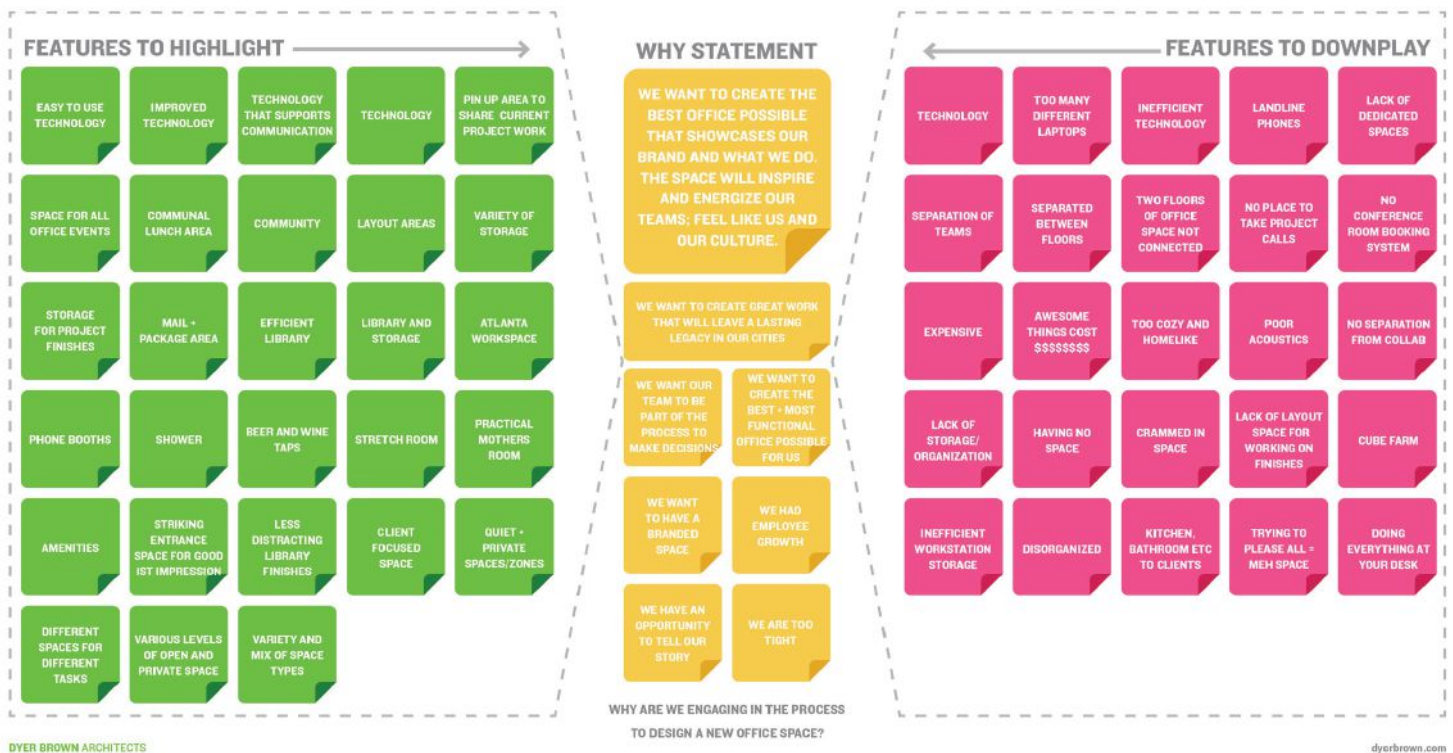
The research is enormously helpful in organizing one's thinking

regarding improvement strategy, but it is intended specifically to provide guidance for balancing energy-efficiency improvements with user satisfaction. In the end, each organization has its own unique culture and workflow, and its own priorities. While FMs strive to optimize operational cost and sustainability, not every corporation may be prioritizing energy efficiency when addressing its real estate and building assets.

Some FMs may consider strategic realignment across their portfolio to be the foremost concern, identifying ways to make more efficient use of floor area, improve workflow and organization, and plan to meet future changes or expansion requirements. Others, especially in the light of the COVID-19 crisis, focus on aspects of resiliency or on reducing the scale of the overall workplace footprint as certain kinds of work are performed remotely more often.

To avoid the pitfalls of buzzwords, conflicting trends and one-size-fits-all solutions, organizations should engage in a thorough visioning process that involves as many employees and other stakeholders as possible. Typically led by experienced professionals (e.g., design firms or workplace strategy consultants), visioning may include workshops or surveys, or a combination of these and other methods of collecting data and input. The goal is to develop a clear picture of the organizational culture — the user culture — to shape decision making for improvement priorities.

Other company cultures will also value well-being, productivity and comfort, but some may find that wages, benefits, flexibility, environmental sustainability or other examples are prized more highly by users. At institutional organizations, users such as students may have other priorities like accessibility or social responsibility. In all cases, visioning creates a path for responsive renovations that will positively impact UX.



## THE COMPLETE UX

Corporations competing for talented recruits while retaining valued employees tend to emphasize UX to the point that their view expands well beyond the workplace boundaries, thinking of it like a three-act play. In this rough analogy, Act One is the commute, followed by the arrival and lobby, and finally the office work environment itself.

To include the commute as part of UX may seem peculiar in this context, but there are several ways in which the facility can (and perhaps should) affect the user’s commute and other off-property hours depending on the company culture. One example is the employer-provided van or bus that transports persons from a transit station or parking garage to and from the facility entrance. This service can be very meaningful for the user, providing space to mentally prepare in those last few minutes before the working day starts, without worrying about whether you have your umbrella. In this sense, transportation may be experienced by the user as a temporary haven. This contribution to health and well-being — before the employee (or student) even reaches the front door — can have a measurable impact on productivity, as well as on the user’s perception of the organization.

Alternatively, consider the example of a Fortune 500 company prioritizing flexibility. One such company, a global professional services firm, recently completed a major new regional hub at an office campus in Texas. Investment in proprietary mobile apps and cloud-based technologies provides employees at home or on the move with the ability to reserve workstation space and meeting rooms for chunks of time, eliminating the need to make such arrangements while tethered to a computer. Importantly, a constant feedback loop function integrated into the app allows the FM and consultants to make recommendations regarding improvements based on data directly related to user experience. Technology upgrades of this kind are also achievable for smaller firms.

## ARRIVAL AND THE LOBBY

Many organizations will invest in making a strong positive impression on visiting benefactors and clients, whether it actually views them as “users” in this context. The entrance area and lobby represent significant opportunities in this regard. Aspects of organizational culture revealed during visioning can be translated by experienced design teams appropriately and cost-effectively into a tailored arrival experience, positively impacting both the daily user and the high-value visitor.

For the employee, student or other regular user, the lobby sets the tone for the day. Executive leadership can work with the FM team, architects and designers to craft an experience that conveys the organization’s mission and core principles in ways that can inspire the user, with choices of materials, environmental graphics, original artwork (perhaps user-created) and brand-inspired elements. Depending on space and infrastructure, the lobby can also provide services and amenities — varied seating, food service, Wi-Fi connectivity, device charging stations and so forth — creating a socially and commercially activated space that has its own life. The lobby becomes its own experience and a way to reinforce among regular users a sense of shared purpose and mission.

Recognizing that few users will spend much time in the lobby, the goal is to find ways to engage the stakeholders and offer a glimpse into the organization’s identity — to let the user in, to feel like they are a contributor, as part of the experience rather than just an observer.

Renovation and improvement projects for the lobby should emerge from the results of the visioning process, to be translated into cost-effective, impactful design choices that are unique to the organization’s mission and culture. For the workplace described earlier, the choice was made to create an impressive sky lobby: visitors and employees take elevators up from the entrance to reception, which is adjacent to a combined cafeteria and event space filled with natural daylight — offering visitors an instant glimpse





of the corporate culture and connecting employees immediately upon arrival to a familiar, welcoming space.

Now consider a very different lobby renovation scenario on an institutional campus. New students looking for assistance from the orientation office previously had to make their way from the entrance through a lengthy series of hallways, past a conference room, to reach their destination. Architects worked with the university FM team to swap the locations of the office and conference room, while updating both and refreshing with finishes inspired by the university branding. This had the effect of improving the UX of staffers and the students they serve, by connecting them visually and immediately upon entering. At the same time, users of the updated conference room now enjoy added privacy and upgrades to audiovisual technology for their meetings.

## WORK AND STUDY ENVIRONMENTS

The third act of the UX play impacts the regular user the most, because it includes the locations where they spend the most time. Depending on the organization, these will be offices, meeting rooms, study rooms, and associated spaces and amenities. Time spent in available spaces will vary, so UX surveys and studies can be helpful to determine priorities for renovations, especially when combined with building management system data, if available.

There have been extraordinary circumstances in the world, since the earliest responses to the COVID-19 pandemic. While it is too early to say whether social distancing is now a permanent cultural fixture, the fact remains that the adjustment has taught each organization just how resilient their workflow or pedagogy is when subject to physical separation and home isolation. In one company, a recent employee survey revealed that two of every five employees believe that their productivity was unchanged — and another one in every three reported that productivity had increased — while working from home.

User surveys will likely reveal a wide range of feelings, preferences and outcomes, but it may be that working and studying from home is here to stay, at least in combination with more familiar modes. Again, engaging with a broad spectrum of stakeholders in a visioning process is recommended, because one organizational culture will view the future differently from others. Once clear

goals and priorities are established, the task remains as before: create improvements that enhance UX, which in turn should boost the value of assets.

The organization's leadership may decide to restructure its office plan, introduce or enhance amenities, upgrade existing infrastructure, realign to create new synergies or introduce brand-inspired elements to reinforce the culture. They may elect to engage in a pilot program for one facility and consider the results before applying the program to other assets in the portfolio — a highly successful strategy for a range of improvement types, when carefully coordinated with experienced design consultants.

Ultimately, the FM team and their collaborators should be focused on delivering value to the organization, and to do so they must fully understand the user base. Satisfied users will always be reflected, visibly and measurably, in the portfolio value. **FMJ**

**Karen Bala, AIA, LEED AP**, is director of design for Dyer Brown. Since earning her master's of architecture from the University of Florida, she has developed a diverse portfolio of commercial and residential projects. Taking cues from nature, Bala derives her



design concepts from biology and natural systems to create leading-edge workplaces that are comfortable, dynamic and productive for her clients and their employees.

**Sara Ross, LEED AP**, is an associate principal and director of corporate services for Dyer Brown. With broad experience working with Fortune 100 companies and more than 20 years of experience in commercial interior design and project management, Ross is driven by a passion for building and maintaining client relationships, and for providing environments where employees are proud to come to work every day. A graduate of Syracuse University, Ross worked for commercial interior architecture firms in Seattle, Los Angeles and Boston prior to joining Dyer Brown.





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# THE HISTORIC IMPACT



# OF CRISIS



# ON WORKSPACE

BY JASON MCCANN

## MODERN HISTORY IS FULL OF MILESTONES THAT HAVE DRASTICALLY CHANGED CULTURES AROUND THE WORLD. MANY GENERATIONS ARE DEFINED BY MAJOR EVENTS SUCH AS WORLD WARS, NATURAL DISASTERS AND PANDEMICS — AND THE COMPLEX SOCIAL AND ECONOMIC IMPACT THESE EVENTS LEAVE BEHIND.

In short, times of crisis leave a distinct mark often discussed through the lens of widespread social change, and the ripple effect extends in every direction — including the workplace.

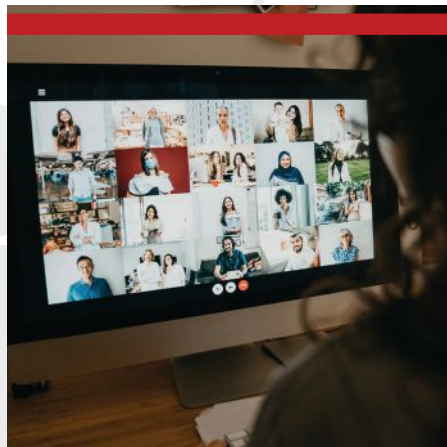
In the 1940s, a new wartime economy opened production plants and manufacturing industries, and workers were needed. Some governments encouraged women to take roles in a broad range of industries to support the manufacturing and production of ammunitions and military supplies. The iconic Rosie the Riveter became a symbol of women's contribution to the war effort, and women began signing up for jobs such as lumber workers, steel workers and even military service — a marked shift from previous roles as office secretaries, seamstresses and department store clerks.

Such broad entry of women into the workforce positively impacted workspaces, and after the war, society gradually became slightly more accepting of married women and mothers working outside the home. In the coming decades, women sought to break barriers and challenged widespread cultural beliefs about the acceptable roles of men and women, and the landscape of the workplace continued to change.

In the late 1960s there was the introduction of mass-produced cubicles in the office environment, a departure from previous open area bullpens that allowed managers and supervisors to observe employees. Offering a sense of defined personal space for employees — and acting as a sound barrier for the chatter of typewriters — cubicles were somewhere in between the open environment and the coveted personal corner offices of executives. Cubicles in the workspace became the norm in many offices around the world.

### The Effect of Recent Crises

The impact of crisis on the workplace continues through the decades and into more recent history. The terrorist attacks of Sept. 11, 2001, changed the governance of the United States and European nations' security protocols, ushering a new era of uncertainty while dramatically increasing safety with heightened security measures.



### A Global Pandemic

As COVID-19 spreads throughout the world, it has become clear that modern life will be forever changed. For the first time in recent history, large-scale mandatory shelter-in-place and social distancing regulations have been issued by world leaders. The global economy has been gravely impacted and border closures have resulted in massive supply chain shock, affecting access to medication, medical supplies and countless consumer goods that were previously readily available.

Businesses were forced to quickly implement remote work for employees wherever possible. In a short time, office buildings emptied out and people set up workstations at kitchen tables or around

the house. People with home offices settled in, while others got creative with their setup. Seemingly overnight, remote work became the norm around the world. As society continues to adapt to COVID-19 and its impact on global workplaces and businesses, there are many unknowns.

### Healthier Workspaces & Employee Well-being

Employees are an organization's biggest asset. They build up an organization, alongside founders and executive teams, and serve as a crucial driving force in building culture and provide the foundation for a stable business. As such, the new normal will call for healthy workspaces and healthy employees — and together they will become paramount to the overall health of an organization. In the short term, hand-sanitizing stations should be increased and positioned near coffee areas, on-site gyms, cafes and throughout other common areas. Door handles will give way to touchless digital entry points. Technology will likely continue to evolve as the demand for safe solutions grows. Companies may choose to discourage collision points that previously signaled a connected culture in favor of ample space. Access to natural light and the ability to take walks outside the office will be important.

There will also be a clear and long-term effort to prioritize healthy workspaces. Many businesses may opt to offer employees more opportunities for remote work than previously allowed. Teams and departments may take turns working from home through the week. This remote work trend was previously limited to only about 3.6 percent of the U.S. workforce. However, now most employers and their employees have proven working from home doesn't negatively impact productivity, collaboration or revenue. When it comes to health, more employers will recognize the importance of the mental and physical well-being of their employees. Companies will increasingly add health benefits such as complimentary workout sessions, meditation classes, gym memberships, and confidential counseling and assistance programs to keep employees performing their best.



### Work Spacing, Access & Security

One of the biggest changes in the post-COVID-19 era of revitalizing workplaces and public areas will be work spacing – in other words, execution of social distancing guidelines.

Handshakes and hugs will become less prevalent, replaced by elbow bumps and aerial high fives. Hiring additional cleaning staff will be prioritized. Arrow markings on office floors to guide foot traffic will be standard. Air flow will be considered in detail by employers. In Asia, the region that previously experienced the peak of the SARS epidemic, wearing masks and taking temperatures at businesses and public spaces is already part of the culture and viewed as an important preventative tool to fight the spread of illness. Now that trend is set to catch on in the U.S. and Europe. Wearing masks will be the norm, and temperature checks will be frequent.

While the medical community is racing to develop a coronavirus vaccine, businesses are determining how to safely return employees to the office. Maintaining a six-foot distance is a good standard for organizations as they space out their employees. Global design firm Gensler states 70 percent of businesses have some sort of open floor plan. Thus, most businesses will be impacted, but there are strategies that can be implemented now that will help reopen workspaces.

Companies can start with simple strategic changes to accommodate safe distancing. It will be important to incorporate appropriate distancing in open environments. When balancing the need for individual

space with an open concept, businesses can certainly get creative. A first step is increasing space between desks, and even reevaluating which direction employee workstations face. Safe distancing can be quickly achieved with clear acrylic panels to divide workstations and by adding privacy panels and even side task desks.

Next, companies can consider converting large conference rooms, training areas or even on-site gyms into additional workspaces to maintain the optimal safe distance for employees. Repurposing existing space can help businesses quickly adjust. Another strategy to create separation is to bring plants into the workspace by way of individual planters and large-scale living walls. Greenery and plants add a desirable design aesthetic to the workspace and can function as natural barriers. Often, plants are an inexpensive choice.

In addition, business continuity plans must consider a 360-degree-view of a building's security and accessibility. More than ever, businesses must take steps to prepare to maintain operations, communication and productivity in case of an outbreak or a major emergency.

**... MOST EMPLOYERS AND THEIR EMPLOYEES HAVE PROVEN WORKING FROM HOME DOESN'T NEGATIVELY IMPACT PRODUCTIVITY, COLLABORATION OR REVENUE.**

### Maintaining a Cohesive Culture

What sets a brand apart is its unique cultural identity. That cultural identity shapes a brand and enables the company and its employees to collectively thrive together.

COVID-19 has presented companies all over the world with the challenge of retaining their unique cultural DNA and keep their employees connected. As such, maintaining a company's authentic culture will be a challenge that brands will face as they

recover in a post-pandemic world. Companies can tackle this challenge by keeping their employees closely involved and engaged as they make changes to adjust to a new normal. Employees are a brand's true ambassadors and listening to them in this critical time will only help add to the authenticity and richness of a brand's culture.

### Taking the Long View

Humanity has encountered countless crises and will face future challenges. Yet, it's possible not only make it through the COVID-19 pandemic, but to come out the other side safer and stronger. Despite unspeakable devastation and loss of life worldwide, hope is possible. How will society be changed by this time in history? Perhaps people will place higher value time at the dinner table with children and family and special moments spent together. Perhaps people will continue to stay connected through virtual tools like Zoom and FaceTime. Only time will tell.

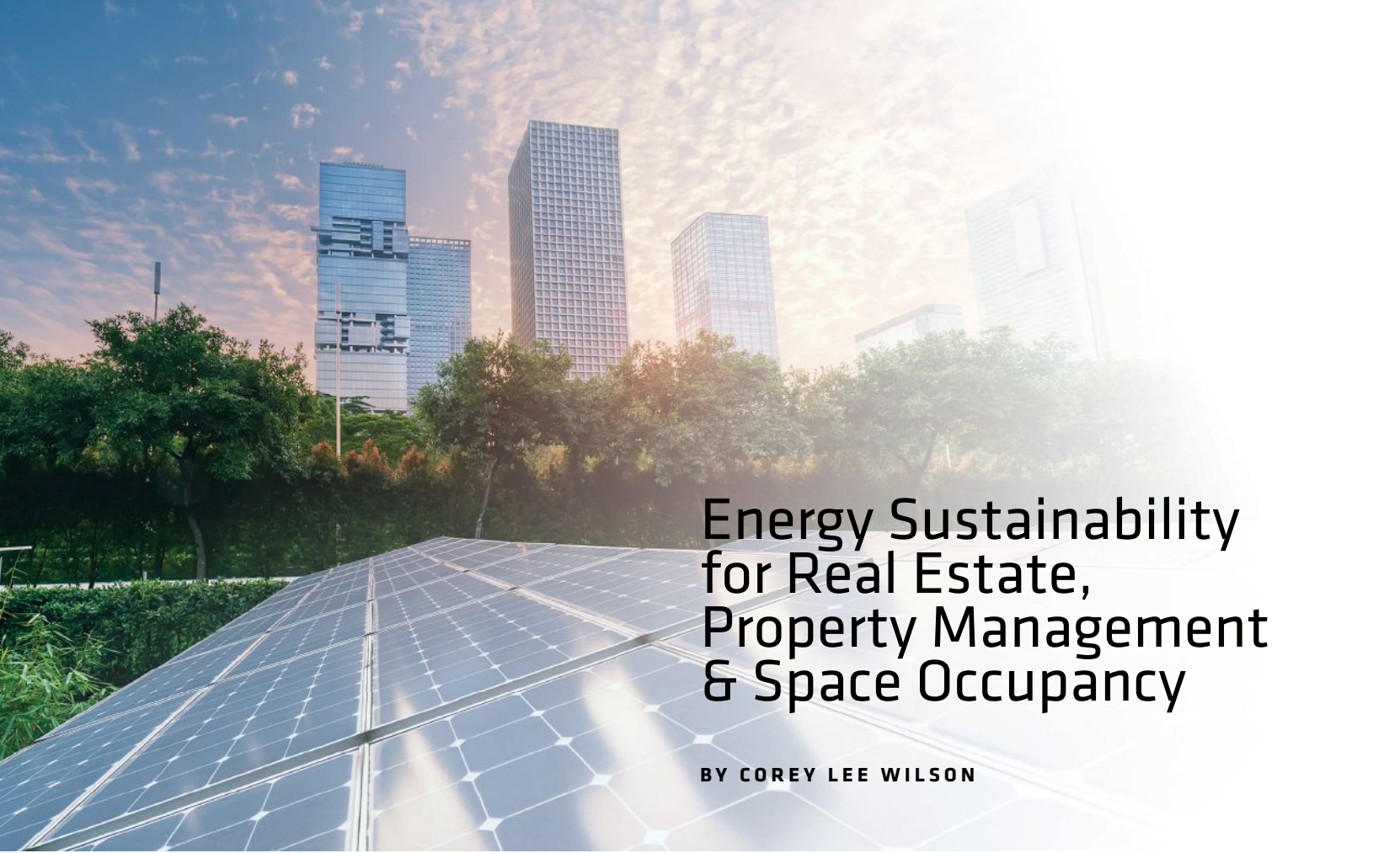
Workspaces will change dramatically in the near term, and companies will continue to innovate and improve. Keep experimenting and keep an open mind when it comes to workspace challenges. The key to innovation is the ability to try new things and to learn from successes and failures. Lead with empathy and focus on engaging with employees to create a meaningful and long-lasting healthy workspace. FMJ

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**Jason McCann**, CEO and founder of Vari, has more than 20 years of experience building and running successful companies. Today, McCann oversees all aspects of Vari from design, to sales, to customer service and distribution. He earned both his bachelor's degree and MBA from the University of Houston.



# Energy Sustainability for Real Estate, Property Management & Space Occupancy

BY COREY LEE WILSON

High or inefficient energy usage can negatively affect the value of the FM portfolio. In California it is now mandatory per AB 758 – Comprehensive Energy Efficiency in Existing Buildings Law to provide a building’s energy usage data prior to its sale, transfer and upgrade. The benefits of energy efficiency don’t stop at the meter – they extend to the bottom line. Improved energy performance can boost the net operating income (NOI) and increase a property’s asset value. ENERGY STAR® calculates that a 10 percent decrease in energy use could lead to a 1.5 percent increase in NOI with even more impressive figures as the energy savings grow.

**T**he only way to find out, with a variety of options, is to perform energy surveys, inspections, audits and/or commissioning. Some buildings may require a simple survey, some more defined site inspections, others an in-depth energy audit, and still others a retrocommissioning or recommissioning of their highest energy consuming equipment or system.

## CONDUCTING ENERGY ASSESSMENTS

ENERGY STAR partners found that conducting plant assessments is vital to a strong energy management program. Without them, it is difficult to continuously improve energy efficiency and demonstrate savings.

Energy assessments can be conducted by internal staff, external energy service professionals or a combination of both.

Regardless of the type of assessment, the team should represent varied expertise, including process engineers, maintenance ex-

perts, systems managers and energy specialists. If these resources are not available, energy consultants and independent contractors can assist.

Plant assessments vary in their focus and depth of involvement based on the program needs and resources available to energy managers. Most organizations can perform surveys and inspections with their own staff, while most will rely on energy consultants and independent contractors to perform the audits and commissioning.

## ENERGY AUDITS USING ASHRAE LEVELS 1, 2 & 3

An energy audit is the key to a systematic approach to decision making in the area of energy management. The primary function of an energy audit is to identify all of the energy streams in a facility in order to balance total energy input with energy use. The four main objectives of an energy audit are:

- To establish an energy consumption baseline.
- To quantify energy usage according to its discrete functions.
- To benchmark with similar facilities under similar weather conditions.
- To identify existing energy cost reduction opportunities.

Before beginning an energy audit for a building or portfolio of buildings, perform a preliminary energy use analysis. This analysis requires access to energy and natural gas consumption and cost data for the last 24-36 months. This analysis compares the Energy Usage Index (EUI) of each building with the national average and identifies both high and low energy performers. Once the analysis is completed, a recommendation is made as to which buildings should be audited first and the type of audits to perform.

Energy audits vary in depth, depending on the potential at a specific site for energy and cost reductions and the project parameters set by the client. As per ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers) standards, there are three types of audits.

**ASHRAE Level 1 — Walk-through Analysis/ Preliminary Audit** — The Level 1 audit alternatively is called a simple audit, screening audit or walk-through audit and is the most basic.

**ASHRAE Level 2 — Energy Survey and Analysis** — A Level 2 audit includes the preliminary ASHRAE Level 1 analysis, but also includes more detailed energy calculations and financial analysis of proposed energy efficiency measures.

**ASHRAE Level 3 — Detailed Analysis of Capital Intensive Modifications** — This level of engineering analysis focuses on the potential capital-intensive projects identified in the Level 2 analysis and involves more detailed field data gathering as well as a more rigorous engineering analysis.

Completing an energy audit provides an organization with customized energy conservation measures and may also indicate energy consuming equipment is not operating at peak performance. If that's the case, retrocommissioning of the existing equipment in question is required.



### RETROCOMMISSIONING & RECOMMISSIONING

Specifically, retrocommissioning is a form of commissioning. Commissioning is the process of ensuring that systems (lighting, HVACR, etc.) are designed, installed, functionally tested and capable of being operated and maintained according to the most energy-efficient operating criteria.

**Retrocommissioning** is the same systematic process applied to existing buildings that have never been commissioned to ensure that their systems can be operated and maintained according to the most energy-efficient operating criteria. For buildings that have already been commissioned or retrocommissioned, the practices of recommissioning or ongoing commissioning should be applied.

**Recommissioning** is the term for applying the commissioning process to a building that has been commissioned previously, either during construction or as an existing building. It is normally done every three to five years to maintain top levels of building performance and/or after other stages of the upgrade process to identify new opportunities for improvement. The

LEED EB+OM building certification requires recommissioning every five years as part of the LEED building recertification process.

In **Ongoing Commissioning**, monitoring equipment is left in place to allow for ongoing diagnostics. Ongoing commissioning is effective when building staff have the time and budget to gather and analyze the data and implement the solutions from the analysis.

Building owners, FMs, staff and tenants all stand to gain from the retrocommissioning process. It can lower building operating costs by reducing demand, energy consumption and time spent by management or staff responding to complaints. It can also increase equipment life and improve tenant satisfaction by increasing the comfort and safety of occupants.

Energy researchers statistically analyzed more than 224 new and existing buildings that had been commissioned, totaling more than 30 million square feet of floor space (73 percent existing buildings and 27 percent new construction). The results revealed the most common problem areas and showed achievement of both energy and non-energy benefits. Analysis of commissioning projects for existing buildings showed a median commissioning cost of US\$0.27 per square foot energy savings of 15 percent, and a simple payback period of 0.7 years.

### TAILORING THE BUSINESS CASE TO AN ORGANIZATION'S ENERGY SAVING GOALS

To build the strongest business case for energy savings and efficiency, FMs should not only leverage the appropriate financial metrics to assess project impacts, but also present the proposal at the right time and in the context of other planned expenditures. Preparing a draft for the CFO's review ahead of time, cementing an ally to save energy costs and showing how this will improve your organization's financial bottom line as well as the triple-bottom line are all wise moves.

With an energy audit and benchmarking report in place, an FM will be equipped



with the essential reports and statistics to make their point. Data, reports and energy efficiency are directly tied to lower utility bills and, consequently, lower overall operating expenses.

There are also a host of non-energy benefits to efficiency. A recent study by the U.S. Department of Energy (DOE) found high-performing buildings are able to demand higher rental rates. They also attract better quality tenants with superior creditworthiness and maintain increased occupancy rates. Although it may be challenging to quantify, efficient buildings increase tenant comfort, improve occupant health and allow an owner to market the property as sustainable. The resulting increase in overall rental income, in combination with lower operating expenses, means higher NOI.

This translates to increased asset value and a competitive advantage in commercial real estate markets. Energy efficiency offers an opportunity for owners and FMs to invest in repositioning their building and reduce the associated risk of their investment. Appraisers are increasingly adept at including the value of energy efficiency in their property valuations. This improves an owner's access to favorable financing and underwriting. Finally, strong energy performance is a reflection of excellent facility management and can be a key differentiator for a building or an entire firm in competitive markets.

Some financial metrics are more effective than others in evaluating the true costs and benefits of an energy-efficient building. It is imperative that efficiency champions communicate efficiency performance metrics in terms that will resonate with tenants and ownership. At the most basic level, this requires translating energy savings from simple kWh or KW to monetary benefits, such as increased rental rates and decreased operating expenses in dollars per square foot.

## INVESTMENT ANALYSIS AND FINANCING OPTIONS IF NEEDED

To implement the action plan, consider taking the following steps:

- **Create a Communications Plan** — Develop targeted information for key audiences about your energy management program.
- **Raise Awareness** — Build support at all levels of the organization for energy management initiatives and goals.
- **Gain Support From Upper Management** — In most companies, it is necessary to gain the support of upper management to move forward with any significant project.

## CREATE A COMMUNICATIONS PLAN

Good communication does not just happen; it requires careful planning and implementation. To communicate strategically, FMs must identify key audiences, determine the information that they need and adapt the messages appropriately for each one. The ENERGY STAR website offers a variety of communication resources, such as posters and templates that an organization can customize to spread the word to employees, customers and stakeholders.


## RAISE AWARENESS IN THE ORGANIZATION

Everyone has a role in energy management. Effective programs make employees, managers and other key stakeholders aware of energy performance goals and initiatives, as well as their responsibility in carrying out the program.

Communication strategies and materials for raising awareness of energy use, goals and impacts should be tailored to the needs of the intended audience.

## GAIN SUPPORT FROM UPPER MANAGEMENT

The most important point of the energy savings plan is to demonstrate how its goals help upper management reach their bottom line.

- **Survey Those Involved** — When attempting to initiate a new project, gather information from those involved. Build the case by showing the necessity of a new proposal. Without this evidence, senior management is not likely to see the need for a proposed change.
- **Show the Budget** — If there will be a suggestion to implement change at work or put a new process in place, show how it will be funded. Senior managers are more likely to support an idea that already has financing in place.
- **Give Them a Choice** — An FM will be more likely to gain upper management support if they feel they had a hand in a decision. If there is a change to be made, come up with more than one solution. More options are better than none.
- **Fit Into Their Goals** — Upper management has its own set of goals and objectives to meet throughout the year. Show how these goals help achieve the bottom line to gain support for an idea. 



**Corey Lee Wilson** is a California native and founded the IFMA

Inland Empire Chapter in 2013

and was its past president from 2013-19.

He is the president of CLW Enterprises,

and project manager for MicroNOC Inc.

He holds a BS in Economics from California

State Polytechnic University Pomona, is an

IFMA FMP, LEED AP O+M Specialty, CMAA

CCM, and a member of the USGBC-LA

Chapter. He is an Energy Savings Consulting

that facilitates cost-effective and efficient

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# Extended

Exclusive online section featuring expanded FM coverage.

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# Ask the Experts

In each issue of FMJ, IFMA's Facility Management Consultants Council shares some commonly asked FM-related questions accompanied by advice from top FM consultants. The questions and answers presented in this section align with IFMA's core competencies following the themes outlined for the given edition of the magazine. While the following answers are intended to be helpful, these responses should not be deemed complete and are limited in context by the space allocated. Please contact the individual consultants directly for further explanation of the opinions expressed. The theme of this edition of FMJ is **Real Estate and Space Occupancy.**

---

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."

**FMCC members welcome challenges.  
Send your question to Ask The Experts.**

**James Delgado, CFM**  
[ask-the-expert@fmcc-ifma.org](mailto:ask-the-expert@fmcc-ifma.org)

Please cc  
**FMCC Admin Terry Cocherl**  
[admin-fmcc@fmcc-ifma.org](mailto:admin-fmcc@fmcc-ifma.org)

You manage Corporate Headquarters, a multi-story complex of about 125,000 square feet owned by your employer. One third of the complex is leased – to a variety of tenants. Management decides to consolidate operations into 31,250 sf on the third floor. This will open 10,000 sf for lease.

The COO recognizes that planning will evolve with much detail but asks that you speak to the Executive Committee the following week, briefing them about what will be involved and when the project could be completed. You will have 10 minutes total, including questions and discussion.

FMCC members were asked to respond with only key words or phrases and to touch on the following: **project, overall communications, space renovation, vendors, moves, lease plans, closing out, and reviewing.**

**A** Before you go in, ask the COO for 15 minutes. Whether you get it or not, use the time as a preview of coming attractions and not guessing at the credits at the end. During this time, select words and images that build credibility in your planning process and execution skills. The minutes will go by quickly. If you can get your COO to give you a clue on the tendencies of the executive committee, you can make the summary and presentation more meaningful and more likely to receive approval.

Make sure that you're aware how the project aligns with the demand organization strategy. Know what is being asked of you and why, whether it be cost savings, flexibility, future proofing, etc. Outline how communications will occur both horizontally and vertically. Get with your contractors to get an idea of costs and timing.

Keep in mind what needs to be done and who will be affected. Understand the critical demand organization's operations activities to make best use of available temporary spaces, schedule moves, work-from-home, and IT and security projects.

Following project approval, find out which of the current tenants will leave or remain. Assess the market for the space and lease types. For the tenants who will stay, assess their parking/transportation, security and utility needs, as well as the sustainability for the lease holders. This also includes what happens during buildout, so know the needs of the contractors, real estate and legal teams, especially if leases will change.

Your role as FM is to ensure success, then continuously improving on results. Consider the long-term impact of people working from home due to the COVID-19 pandemic. This may impact the space you need in the future.

[Click here for a detailed sorting of responses.](#)

*Thanks to all who spoke about aspects of this scenario. Special thanks to James Delgado, CFM, CIPS, Managing Broker at Facility Solutions Inc. in St. Louis, Missouri, U.S., to Dr. Doug Aldrich, CFM, IFMA Fellow in the U.S., and to Mike Liddle, CFM, of Business & Facilities LLP in Berkshire, England for full range detail and commentary.*

## Member Spotlight

### CORY SMITH



San Diego, California, USA  
Facilities Manager  
Years in FM: 20+

#### What kind of facility do you manage?

I manage a 50,000 square foot game development studio.

#### How did you get into FM?

I took a job as an apartment groundskeeper while still in high school. I learned a lot as I took on other roles and found the value in my knowledge. I ended up working my way up the building/facilities ladder. The next thing I know, it has been more than 20 years.

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

I think learning to manage staff, work with various personalities and how people communicate is the most valuable asset I have gained over my career. I find it invaluable to any position I have held.

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

We are the ones that people come to to fix a problem when they cannot fix it themselves. Try not to take on their stress or negativity while working through an issue or finding a solution. Most importantly, always make sure to breathe.

The best advice I received made me a 100 percent better painter: "Don't worry about it. It's nothing you can't fix! Just come back tomorrow and paint it again."

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

I have never been happier with the people I work with, ownership, title and position. I look forward to many more years working on as many forward-thinking projects possible.

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

I am hoping to use this membership as a tool for emerging facilities-specific technology. I also hope to get a wider social network and collaborative appreciation for what we all do as FMs.

#### Tell us a fun fact about yourself.

My girlfriend and I left a 30-year life and social circle in Seattle, Washington, USA, in 2011. I now find myself a married father of two with almost 10 years of living in beautiful Southern California.

### MELVIN WYLIE



Waldorf, Maryland, USA  
Director - Facilities Operations, Soft Services  
Years in FM: 20+

#### What kind of facility do you manage?

I manage Class A+ buildings in Washington, D.C., USA.

#### How did you get into FM?

During my Air Force career, I was a civil engineer and part of a mobility unit. We did search and clear, built bridges, runway repair, hard back tents with electricity, HVAC and running water. We also worked on special projects such as building renovations. I was part of the team that helped maintain the HVAC system when the presidential hangar was being built on Andrews Air Force Base. After leaving the Air Force I decided to stay within my field while continuing to expand my career within FM.

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

My biggest challenge was taking on a failing account with more than 35 percent deficiencies, not meeting KPIs and budget. Over the period of one year I've placed the program on track with less than 3 percent deficiencies, met KPI guidelines and controlled budget. I did this through a great support system, aligning and modernizing programs and equipment, proper staffing levels to meet net cleanable square footage, training, updating outdated SOPs, raising the level of the management team, project hours accountability, inventory control, proper vendor management and strong communication.

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

My advice would be, "Good things happen when you walk." Early in my career I learned this from a great FM - general manager. You cannot run your operation sitting behind your desk. Although desk time is needed, you need to get out and walk. Take time to interact with your team, physically look at your program and see how it's running. If you're a contractor now is a good time to interact with your client, drop by their office and say hello. A lot of great things happen by being visible in your operation.

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

I would love to gain more knowledge and networking opportunities with other professionals. These are changing and challenging times in FM. Being able to adapt and surround yourself with strong, positive, change-focused leaders/mentors is key in a successful career.

#### Tell us a fun fact about yourself.

I love to draw and paint.

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



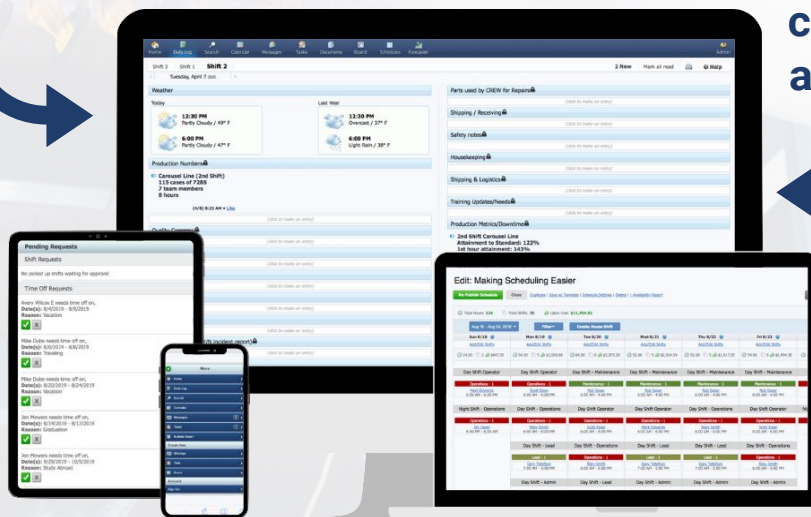
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## Member Spotlight

### RICK MELTON



Tulsa, Oklahoma, USA  
Assistant Director of Facilities Operations  
Years in FM: 24

#### What kind of facility do you manage?

I manage an educational facility that trains students for success in the workplace. We have school-aged and adult students, and business and industry professionals training for companies in the area. Our system has more than 80 programs. During my career, I was the FM at a local college and before that I worked at a convention center that hosted concerts, meetings, hockey, college basketball, the circus, rodeo, and a variety of other events.

#### How did you get into FM?

Before working as an FM, I oversaw the City of Tulsa's park maintenance, which included buildings and pavilions. Before that, I worked in technical trades in many maintenance organizations. During this time, I was also pursuing my education in business administration. I was involved in IFMA early in my career and attended IFMA's World Workplace in 2001. Other organizations had an impact on my career, but the idea of becoming an FM stuck in my head. I saw a future being born for me.

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

Teaching people what an FM can accomplish for companies has been a big challenge. I have been involved in construction, remodels, space planning, repairs and preventive maintenance of equipment and buildings, event planning, commissioning, project management, designing buildings, capital planning, budgeting, inventory systems and sports programs. You develop your team to make your company successful wherever you are.

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

We are only a piece of the puzzle. Each company has a mission and goals that require facilities to be proactive and be a team player. Frequently look outside your box, meaning do not have tunnel vision and only look at what you are doing, but look at other groups outside your organization. Our world is ever changing, and you and your staff must always be trained with the most technical equipment, people skills and advanced systems. Be friendly and build good teams. Recognize your staff and your leadership in helping you.

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

I love challenges. Our organization was awarded the silver award from the Sustainable Tulsa scorecard program. This year we want to achieve the gold and or the Bellmon Award, which recognizes extraordinary Oklahoma individuals, agencies, organizations, tribes, communities and companies that have shown leadership in sustainability and are improving the livability of our communities. In years past, for every company I worked for, I tried to help us achieve top-level awards for the facilities department and the company. I am excited about our future.

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

Our successful endeavor is not rebuilding the wheel, but building relationships with your peers; and IFMA has people that have been successful in many different fields of FM. I love to visit with people focused like me and share ideas and information, tour facilities, and take my staff for this type of training and letting them meet some of their peers.

#### Tell us a fun fact about yourself.

When I was 19 years old, I worked with the U.S. National Park Service in Glacier National Park in Montana. I met people that used to work for the railroad when they owned the land. Some of these old buildings really are amazing. FMs who get a chance to visit this national park would enjoy it.

## WANT TO SHARE YOUR MEMBER OR COMPONENT NEWS?

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

**We look forward to featuring your component in an upcoming issue!**

# BUILDING TECHNOLOGIES IN THE POST-CORONAVIRUS ENVIRONMENT:

*5 facility action items  
to implement now*

BY JOSEPH BOCCHIARO, III, PH.D.

# *“The new electronic independence recreates the world in the image of a global village.”*

— Marshall McLuhan, *Understanding Media: The Extensions of Man*

There is broad agreement that the post-COVID-19 era will create a new normal. However, much of the upcoming anxiety likely will be centered around trust — how does one go back into buildings to work and interact in-person after becoming accustomed to telecommunications-enabled social distancing during these stay-at-home times? Anticipating that anxiety, it is time to ask two important questions:

- **What will it take to give people the confidence to be in buildings with other people again?**
- **What can be done to make buildings intelligently cooperate with humans in new ways designed to facilitate and maintain healthy interactions?**

Technologists have answers for these conundrums using existing intelligent building technology (IBT) developed over the last decade. While to date, IBT has focused primarily on building energy efficiency and maintenance, recent applications have pivoted toward humanistic purposes, leveraging occupancy data to support physiological and psychological goals.

These five “big ideas” take IBT and the related technologies of sensors and beacons that define the Internet of Things (IoT) to practical applications with human elements and goals to improve and safeguard lives.

## **1. ENABLE REMOTE CONNECTIONS**

Accommodating a hybrid of people inside buildings with those working from home or elsewhere is the most immediate concern. Many institutions are already prepared for this scenario, as videoconference rooms and distance-learning classrooms have proliferated over the last decade or so. The rapid shift to working and learning at home has forced many organizations to evaluate the readiness and efficacy of their current facilities, with an eye toward the next steps in upgrades and expanded use.

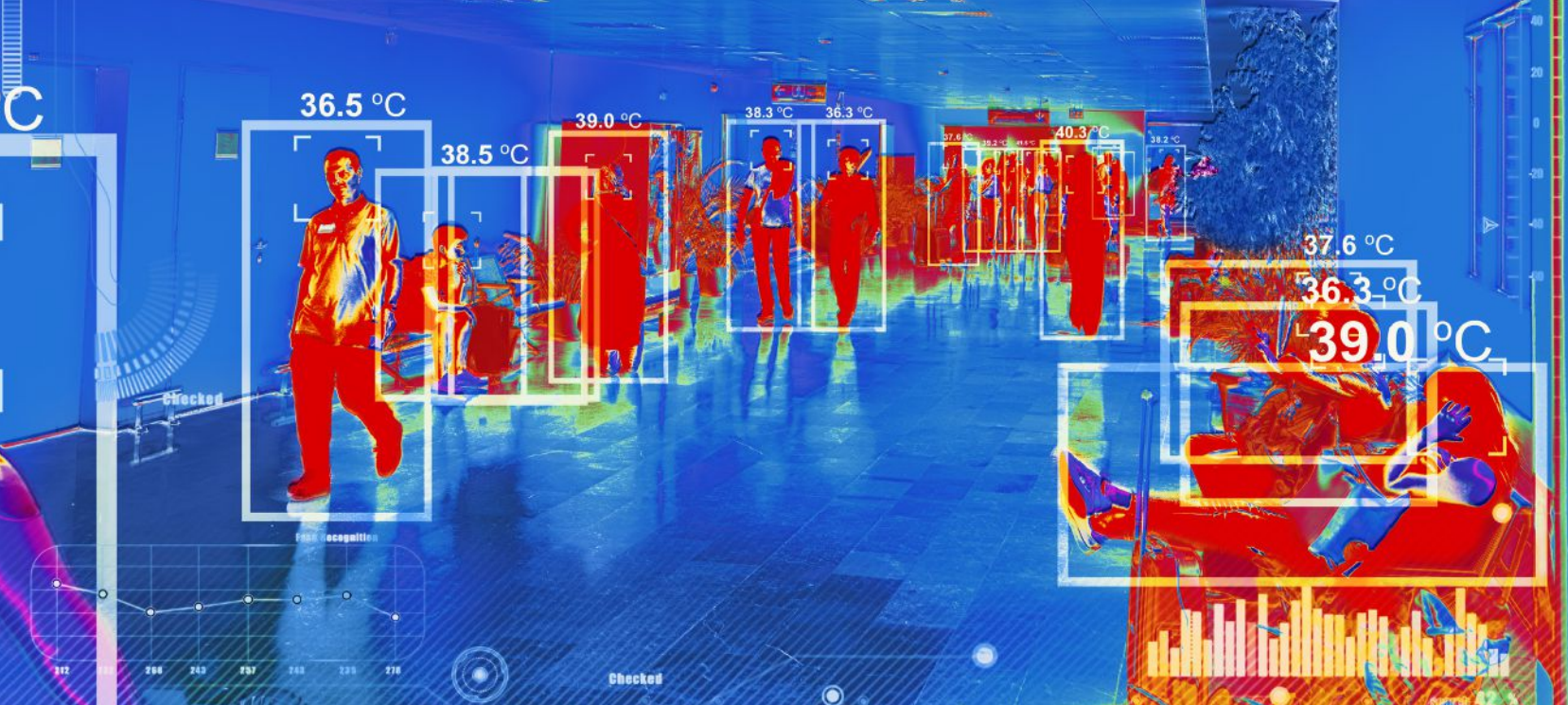
Building owners should take stock of their existing assets and consider how additional spaces may be adapted with these telecommunications features. Special considerations must be made to include remote workers “in the field” and not in their homes. New tools such as augmented reality glasses may be very useful in these circumstances, providing both a view of the field to office workers along with communications with field workers.

## **2. DESIGN FOR SMART SYSTEMS**

Post-pandemic, the exposure to other people’s airborne fluids and residual aerosols is the greatest concern. Social and physical distancing with facemask barriers is the obvious and practical way to mitigate the direct transmission of fluids between people. Current experience and anecdotes show that this can be difficult for a variety of reasons: social norms, accidents or blatant disregard for the risks. The masks must come off at some point, though, and physical distancing will become more important again.

Building owners can implement effective occupant exposure tracking for a variety of purposes using Bluetooth and Wi-Fi beacons and smartphones in buildings. For example, devices can alert people using





vibration to warn when proximity is too close, or when an appropriate set-point gathering number such as 10 people or more is identified. This type of IoT technology is already being used to monitor social distancing.<sup>1</sup> Further, when someone is positively identified for coronavirus or other contagious ailments, immediate alerts may be sent to anyone who has been in proximity to the infected person so that they may seek testing.

### 3. BUILD HEALTHY INFRASTRUCTURE

Air quality monitoring schema may be leveraged to mitigate airborne threats. For example, the LEED™ (Leadership in Energy and Environmental Design) program — known primarily for building energy efficiency criteria — offers useful and required guidelines designated as indoor air quality (IAQ.) Applying these guidelines as a baseline to include viruses and bacteria that fall under the particulate matter (PM) categories — beyond the traditional CO<sub>2</sub>, CO and volatile organic compounds (VOC) — could prove effective. Designing for smaller “zones” or “micro zones” in HVAC systems can help to build occupant confidence in their air quality; and in extreme or executive spaces, can be localized to include individual zones.

A variety of sensors are available to integrate for monitoring compliance. Other, more human-oriented guidelines from *Well*<sup>2</sup> and *Fitwel*<sup>3</sup> also address some of

these same issues. Features already present in building automation systems (BAS) equipment that monitors air filter conditions can be used to send this data to occupant-facing dashboards. Displaying this data in digital signage in lobbies and other circulation paths gives occupants the peace-of-mind that their building’s IAQ is as healthy as can be. Standards-based guidelines for such HVAC system best practices are provided by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE).<sup>4</sup>

Expect to see a flurry of development of new IoT devices. These may be IoT-enabled versions of existing devices, such as with thermostats, fire extinguisher charge indicators and water purifier filter status reminders. New devices could include hand sanitizer and antibiotic soap dispensers with fluid level alerts, breathing masks and other PPE dispensers, localized air purifiers or virus test stations.

Although no one can predict which of these devices will be desired in any particular building, facilities can be designed to accept them and connect them to the IBT systems. There will likely be higher interest in restrooms, where the most extreme precautions should be taken to ensure occupant confidence. New building-related smartphone apps could include information such as when the restrooms were last cleaned, which stalls are ready, occupancy status, etc. A transition from group to individual restrooms may also be in the space planning future.

### 4. CREATE APP-BASED CONNECTIONS

Beyond air-quality issues, testing for infection and/or antibodies will be important as people are permitted (or not permitted) to enter buildings. One of the early indicators of coronavirus infection is heightened body temperature. IoT devices such as smartwatches and fitness bands that are already worn by millions of people are tracking their owners’ temperature on an ongoing basis. One company<sup>5</sup> is using crowdsourced body temperature tracking to alert public health officials to potential concentrations of infected people.<sup>6</sup> This same technology may be used on a building-wide basis for similar purposes. Other companies offer equipment that may check body temperature and other vitals, such as blood pressure, heart rate and blood oxygen level.

Yet another promising IoT solution pioneered at Carnegie-Mellon University uses voice recognition to identify voice signatures that are characteristic of people with COVID-19. This is based on crowdsourced input that could become more accurate through time. Occupant voices within buildings could be monitored for such signatures by deploying microphones throughout the building, as with gunshot detection systems or via dedicated test stations.

It is possible to create smartphone apps that are specific to a building, campus or enterprise. These apps would be the likely

interface between the building occupants and the IoT devices being implemented. The usefulness and accuracy of the data would be dependent on occupants' permission to participate, and as with any such app, there would need to be a level of confidence in the cybersecurity of the system. There are already examples of such apps in retail, museum and higher education venues, among others. Additionally, public signage could satisfy some of the communications needs with people not participating in the app program.

Attention to the real-time potential of infection that can be spread among building occupants may also be communicated by building-wide emergency announcement messages. Building owners may consider updating their announcement systems to comply with NFPA 72: National Fire Alarm and Signaling Code.

This would apply particularly to buildings without these emergency announcement capabilities. New connectivity between IBT systems and the announcement systems could help expedite getting the message to occupants.

IoT devices have long been useful in automating various business transactions, and it is time for building professionals to consider incorporating them in a more dedicated manner in the built environment. For example, smartphone apps may be used to order from grab-and-go cafes with trusted virus protection schema to minimize human interaction. Likewise, dedicated rideshare pickup/drop-off locations may be built for the same purpose. These ideas will become even more important in the transition to deploying more autonomous vehicles.

Additional building-wide preparations may include relatively recent innovations. For example, occupants will certainly have heightened awareness of what they touch or who and how many people they are encountering. This could include doorknobs and strikes, elevator buttons, intercoms and other common interfaces. Some people may choose to be alone in elevators and wish to have indicators that elevator cabs are empty.

Many of these ideas may be implemented with voice-activated, touch-free devices. Entrances to facilities will be the most important, and security systems may be similarly enhanced. Entrances will be particu-

larly important to prevent entry to possibly infected people and may be equipped with disease detection systems. These may be automated with temperature, blood sampling or other appropriate technologies, or with new types of personnel stations manned by testing professionals.



## 5. MANAGING CHANGE & CONFIRM FOR CONFIDENCE

A successful approach to incorporating these technology implementation ideas in buildings begins with empowering a new role: the Intelligent Building Technology Project Manager to oversee the project's efforts. Both the ANSI-TIA 4994 *Standard for Sustainable Information Communications Technology* and the ANSI/BICSI 007-2017: *Information Communication Technology Design and Implementation Practices for Intelligent Buildings and Premises* provide guidelines for coordination and project phase implementation. These two building-systems standards equip practitioners to deliver design packages that include interconnectivity drawings and specifications. As with any guidelines, especially those involving technology interactions, training and encouragement/enforcement is needed for the mitigations to work properly.

Complimenting existing building commissioning agency (CxA) processes, new occupant commissioning (CxO) plans could be created to ensure that all permanent and temporary occupants become willing partners in ensuring everyone's health. As building owners learned through years of experience with the LEED™ program, a lack of occupant buy-in can lead to abandonment or gaming of the system, resulting in reduced advantages of the investment.

## NEXT STEPS TOWARD A NEW NORMAL

When implementing any new technology, some unforeseen consequences and interactions should be carefully considered. In the case of these five steps there may be a tendency to infantilize people, paying less attention to what is happening around them as they become dependent on the technology. This is no different than some other areas of peoples' lives, particularly in transportation, where more and more automation is being incorporated into automobiles. These five ideas are intended to create safer and less stressful environments.

Once again, McLuhan's observations predicted the future: "The Age of Anxiety is, in great part, the result of trying to do today's job with yesterday's tools and yesterday's concepts." Proactively planning for returning to buildings now will make the transition to the post-coronavirus era smoother, less anxious and more successful.

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**Dr. Joseph Bocchiaro** brings a wealth of audiovisual thought leadership, consultant and integrator experience to higher education, corporate, financial, judicial, publishing, training and conference centers. With degrees in Educational Technology, Media Studies, Electro-Optical Engineering, and Cinematography he is dedicated to the improvement of audiovisual industry professionalism and its increasingly vital role in the Architectural, Engineering and Consulting (AEC) industry. An accomplished writer and presenter, Bocchiaro has published over 100 technical articles in professional journals and has presented across 16 countries at more than 50 audiovisual and information technology conferences.



# Designing Office Space for Employee Satisfaction and Productivity

BY STEVE KIMBALL

A happy employee is a productive employee. One recent study<sup>1</sup> found that happy employees are up to 20 percent more productive than unhappy employees. When it comes to salespeople, happiness has an even greater impact, raising sales by 37 percent. How can a company impact an employee's happiness? It is not overly complicated. Since employees spend more of their waking hours at the office than they do at home, a comfortable, healthy and motivating workspace is a critical step to inspiring happiness.



**T**rends in workplace design are always changing. New research continues to emerge about the best ways to facilitate productivity and collaboration, improve employee satisfaction and reduce stress. Everything about your workspace — the color of your office, the use of greenery, the openness of the space — can have a direct impact on your workers’ satisfaction and productivity. While open offices may continue to dominate many workplace designs, this year’s Staples Workplace Survey<sup>2</sup> finds that an open layout is not always the best solution to meet all employees’ needs. Instead, workplaces need to tap into the full design toolkit to build flexible, inspiring spaces that minimize distractions and enable employee choice when it comes to the environments that energize them.

When thinking about a new office space, engage an architect early in the process to help translate the company’s wants and employees’ needs into the most effective space. The best design is rarely a full open office approach. Instead, it is typically a hybrid that introduces activity-based working areas to meet the spectrum of needs. A highly touted Harvard Study supports this concept, “Our studies show that the most successful work environments provide a range of spaces — an ecosystem — that allows people to choose where and how they get their jobs done.”<sup>3</sup>

### Open Office

In the U.S., open office design plans are used in about 70 percent of offices, according to IFMA. Open office layouts can save companies up to 50 percent per employee on office space costs<sup>4</sup>, so the financial rationale often drives design in that direction. There are benefits and challenges of an open office design to identify the reasons and the extent to incorporate it.

Open offices offer a variety of benefits including:

- **Increased collaboration** — open plan environments encourage employees to work together more.
- **Creative thinking and innovation** — easy input from others without having to schedule a meeting can lead to better ideas.
- **Lower build and fit-out cost** — the amount of space needed and the costs of constructing a space with an open office design can be as much as 50 percent lower.
- **Energy savings** — open plans reduce heating, cooling and electricity expenses thanks to improved flow of air and light.
- **Reduced office equipment expenses** — enable easier sharing of printers, copiers and other office supplies.
- **Easier layout changes** — can accommodate increases in head count, or rearrangements of groups due to changes in company structure.

Along with the benefits come some challenges:

- **Noise and distractions** — make focus more difficult and can lead to a decrease in productivity, especially for work that requires concentration or privacy.
- **Lack of privacy** — computer screens are easily visible and sensitive telephone conversations can be overheard. Depending on worker background, they may respond negatively to an open environment perceiving they are being watched.
- **Implied lower status** — when all employees don’t have the same workspace scenario, any difference can be interpreted as a ranking in perceived value to the company.

## Open offices are a mixed bag for workers

78%

of employees in a “mostly open” office space say it feels welcoming

HOWEVER,

52%

also say it creates distractions

40%

say their space is too open



## 2019 Staples Workplace Survey

Addressing noise in the open plan is a key area to address to ensure success, regardless of how open or closed the overall office design may be. When noise distractions are reduced, 75 percent of employees are more productive, 57 percent have increased motivation and 49 percent are happier at work overall.<sup>5</sup> An acoustically balanced environment is as easy as A-B-C:

## ABSORB, BLOCK, COVER.<sup>6</sup>

**1. ABSORB.** Minimize noise by absorbing sound. High ceilings create reverberant acoustics that blur voices in the distance to allow clear face-to-face conversations. However, conversations more than a few feet away can be problematic. An acoustical ceiling can absorb up to 50 percent of sound, so explore using hanging baffles, suspended ceiling tiles or sprayed acoustic foam. Consider soft carpets to dampen noise, especially foot-fall sounds. Wrapping walls with acoustical panels, incorporating curved walls and reducing the number of parallel walls will reduce reverberation of sound. Explore furnishings such as free-standing interior elements, surfaces, fabric and draperies to attenuate sound without compromising design.

**2. BLOCK.** Blocking helps manage noise via sound avoidance. While many initially think of blocking as a physical solution, it is often more effective to establish office protocols, which encourage etiquette and a positive culture to maintain comfortable sound levels. Initial, proper workspace planning and strategy are also valuable. For example, avoid noise disturbances by placing front-facing teams that spend large time periods on the phone away from those with focused work. Also, it is beneficial to divide staff into smaller groups of employees. Instead of putting all 100 employees in the same open space, consider two to three smaller groups separated by meeting rooms. Another critical factor to address in office layout is loud and constant noise generators. Isolating copiers, shredders and other disruptive noise generators will help minimize noise disruptions.

**3. COVER.** Cover is how you mask noise with sound-generation equipment. Background sounds prevent small noises from producing out-of-proportion disturbances. Pink noise, which is smoother and more calming across all frequencies is preferred over white noise. Investment in high-quality headsets with directional microphones is well worth the cost for individual workstations.

Noise mitigation design should include the following key considerations:

- ✓ Functional and activity-based space planning
- ✓ Workstation layout as sound barriers
- ✓ Interior materials selections and application
- ✓ Sound-absorbing materials for ceilings, floors and walls
- ✓ Electronic sound masking — Privacy index
- ✓ Isolation of noise-generating equipment, devices and systems
- ✓ HVAC system design (duct routing, silencers, materials, geometry, vibration isolation)

## Activity-based Working (ABW)

While open office design has become a standard, many companies are now reaping the benefits of incorporating activity-based

working areas. Office design trends in some regions and industries (especially in the tech industry) are moving toward ABW environments, which provide a combination of open office design spaces with other task-oriented, private spaces. When an ABW office design is combined with a non-assigned seating model (also known as “agile” or “flexible” working), many of the problems associated with open plan spaces are eliminated.

For example, someone who needs to make confidential phone calls can choose a private “phone booth.” Likewise, an employee from a branch office location (or a guest) can use a “hotel” workspace. Team brainstorming sessions can take place in a comfortable lounge or whiteboard room that encourages creative thinking. Meanwhile, someone auditing financials or reviewing legal documents can choose a small, quiet space for thinking and concentration.

## Designing the Right Environment

So how does a company go about designing the right environment for their workers and their bottom line? The planning process starts with a thorough inventory to help you understand how your current space is being utilized. The planning team will gather data about each building, floor, conference room and desk, and track who is using what.

Workplace management technology systems like Serraview<sup>7</sup> have recently become available and help by implementing space utilization tracking technology, such as sensors and network tracking, to determine exactly when and how often spaces are used. That data can help determine the right mix of spaces and ratio of people to desks.

The only right answer when evaluating open space, doored or activity-based working plans is the one that is the best suited to your company and your employees’ needs. Investing in a relationship with an experienced architect can ensure success, regardless of which type of office design you choose; it will be money well spent that keeps your employees happy and productive.

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**Steve Kimball** is a principal at emersion DESIGN and leads the science and technology practice. emersion DESIGN, located in Cincinnati, Ohio, USA, is a collaborative architecture, interior design, planning, structural engineering and sustainable design firm driven by a passion for exceptional designs that advance clients and society.



# Lifting the Curtain on Fire Safety

BY NIGEL WARD



Over the last two years focus has centered more on fire protection in large buildings, meaning facility management professionals are increasingly expected to oversee fire safety regimes.

While a fire curtain is rightly regarded as a product the owners and occupiers of a building hope they will never see, its role in the broad fire safety provision of a building remains paramount.

### The role of a fire curtain

A fire curtain is, in simple terms, a highly robust piece of fire-resistant material that remains discretely suspended from a ceiling, lobby or doorway, until it is lowered when the smoke or fire alarm within a building is triggered. At that point, the curtain becomes a barrier between the fire and the escape routes that building occupants are expected to use during an evacuation. In that respect, it is crucial for the compartmentation or prevention of flames spreading, either laterally or vertically, and putting people's lives at an increased risk.

One of the main benefits of fire curtains as part of a building's safety regime is that they can be, and generally are, located in several areas throughout a building. A fire curtain can be used to replace a non-load bearing wall and fire rated glazing, for example, which in turn allows open

plan building designs to meet the relevant regulations. Similarly, elevators and lobbies can be protected by vertical curtains, which prevent the spread of smoke and flames through the shaft.

### Fire curtains in action

As vital as a fire curtain can be in separating occupied spaces and evacuation areas from the blaze itself, the fact that it provides a physical barrier can, naturally, have certain drawbacks which must be considered from the outset.

One such limitation is that once the curtain has been deployed, occupants of a building and first responders can no longer see into the area in which the fire has broken out. When it comes to assessing whether people may be trapped in the area of highest risk, this can be a challenge.

Similarly, there may be times when first responders would benefit from seeing the extent and type of fire they are fighting. Having a fire curtain in place makes this difficult without breaching the curtain or temporarily elevating it from the

floor. Despite these limitations, a building equipped with fire curtains is much safer than one without.

However, a see-through fire curtain nullifies the challenges posed by an opaque product by allowing building occupants and first responders to see through the curtain after it has been deployed — potentially saving precious time during a building evacuation.

A fire curtain with a vision panel is perfect for elevator openings and lobbies, as well as doorways and corridors along escape routes — and can be retrofitted to existing fire curtain installations.

### Ongoing maintenance

It is important to follow global dedicated standards for the specification, installation and maintenance of fire curtains. Unfortunately, many are still unaware of standards, which leaves FMs who are tasked with overseeing the safe operation of their building at risk of being left out of their depth should a fire break out.

Published by the National Fire Protec-



tion Association, NFPA 80 is the standard used by designers and contractors for Fire Doors and Other Opening Protectives. The standard regulates the installation and ongoing maintenance of a fire curtain. The British Standard BS 8524 was first released in 2013 and comprises two parts: Part 1 for the specification of the fire curtain, and Part 2 for its installation and ongoing maintenance. In an ideal world, much greater awareness of these standards would ensure only the highest quality of products are installed and that a suitable maintenance regime is in place.

Both NFPA 80 and BS 8524 make the importance of ongoing maintenance very clear; however, as a product category which is the epitome of "out of sight, out of mind," most FMs hope that they will never see a fire curtain in action. Unfortunately, that mindset becomes flawed as soon as they realize that it contradicts best practice.

Planned inspections, testing and maintenance should be carried out annually to ensure that barrier assemblies are operating and performing effectively. BS 8524 requires they are carried out by a "competent person who is able to check and confirm that barrier assemblies are operating and performing effectively, when

required" and that all such tests are accurately logged.

According to NFPA 80, these inspections must be performed by a qualified building owner or property manager. "Qualified person" is defined in NFPA 80 as "a person, who, by possession of a recognized degree, certificate, professional standing or skill, and who, by knowledge, training and experience, has demonstrated the ability to deal with the subject matter, the work or the project." It is also this person's responsibility to retain records for review.

So, what exactly do these maintenance requirements entail? NFPA 80 details the requirements for all aspects, from installation and testing through to "modification of opening protectives." As part of their regular risk assessments, building occupiers should ensure fire curtains are within required specifications. Other checks include any obstructions that might prevent the fire curtain from deploying.

BS 8524 states that building occupiers should check for obstructions that might prevent the fire curtain from deploying. They should also remember that changes to building layout or to the activities within it could impact on the installed fire safety systems. For instance, if a wall has been moved or removed, then the location of

the curtain, and the protection it offers, may be affected.

The curtain should be operated no less than once a month, and weekly on escape routes. If it forms part of a smoke control system protecting a means of escape, the barrier assembly

should be operated in conjunction with the smoke control system every three months at minimum.

General recommendations are that tests are undertaken at the same time each week so that all staff are familiar with the system's operation. BS 8524 advises that all maintenance staff should be fully trained by the manufacturer. No less than once a month, the building occupier should test self-closing devices and automatic release mechanisms via a test switch. They should also check that the sensory detection equipment and self-test facility is functioning correctly.

A fire curtain might be unseen and unspoken by many, but with the potential to play such a pivotal role in any building's fire safety regime, it is vital that facility managers invest in premium, fully compliant products, and support them with the ongoing maintenance needed to guarantee reliability should the worst happen.



**Nigel Ward** is Managing Director of BLE Smoke and Fire Curtains based in the United Kingdom

with responsibility for all the company's manufacturing and sales operations. He has wide experience across the construction sector and, in his five years at BLE, has particularly focused on developing the company's reputation and commercial position in the United States market.



# 5 KEY PRIORITIES FOR MANAGING AND OPTIMIZING A REAL ESTATE PORTFOLIO

BY PRABHU RAMACHANDRAN

The contemporary commercial real estate industry (CRE) is a highly complex ecosystem of stakeholders, technologies and assets, which must address a wide range of desirable outcomes to an increasingly exacting standard. Not only is this a highly competitive market, which demands innovative strategies to maximize profitability, it is also under the purview of ever more stringent regulations — especially, but not only, sustainability standards. Throw in the reassessment forced on today’s world due to the COVID-19 pandemic, and it is obvious why the CRE industry is more proactively looking for solutions that enhance resilience and future-readiness.

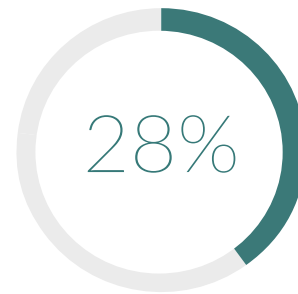
Fortunately, emerging digital technologies are making it possible for building owners and facility managers to centralize control and exercise targeted real-time management like never before, and decision makers in the industry are enthusiastically adopting this new tech-empowered model. In the ‘Global Corporate Survey 2019: Smart Building Technology Budgets, Priorities & Preferences’, 31 percent of respondents expect their FM software budget to increase by at least 5 percent. Of those surveyed, 28 percent identified occupant experiences as their foremost objective, 26 percent said their primary focus was minimizing business risk, and 16 percent were prioritizing reduced operating costs.

While, superficially, these areas of focus may seem disparate, they are not mutually exclusive. The only business model that can feasibly navigate the challenges CRE businesses are likely to face in the post COVID-19 future is one that concurrently addresses all these concerns. By broad consensus, the industry is backing centralized digital command and control, in conjunction with strategic clarity as well as a mutually complementary ecosystem of workforces, physical assets and business processes, as the next step in its evolution.

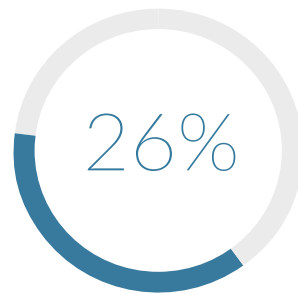
## A NEXT-GEN APPROACH TO FM

What strategic imperatives does this new tech-enabled model address, and how will it deliver qualitatively better results than the models it replaces? A report titled *2020 State of CRE Operations 3.0* asked industry leaders from multiple global markets about their reasons for adopting a data-driven and digital technology enabled approach. The report found that CRE businesses anticipate at least 20 percent savings, by combining predictive analysis with automated resolution. Seventy-seven percent of the CRE developers queried identified creating “experiential spaces with impressive uptime of facilities” as the strategy driving their budget allocations. Perhaps the starkest metric in the report was that data-driven operations in CRE reduced the time taken to identify and resolve issues to one-third of the current duration.

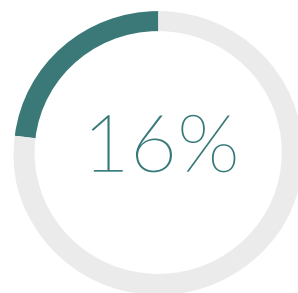
Global Corporate Survey 2019:  
Smart Building Technology Budgets, Priorities & Preferences



foremost objective : occupant experiences



primary focus : minimize business risk



priority : reduce operating costs

The consistent big-picture takeaways that emerge across the cited reports show a CRE business banking on technology to pursue the strategic aggregation of process and asset efficiencies into portfolio-wide optimization. Given the new normal likely to come into being in the post-COVID-19 world, these trends will only be further reinforced. The conjunction of strategies and solutions, which building portfolio owners and FMs must address to extract maximal value from their operations, include:

- **PORTFOLIO-SCALE INTEGRATION:** Optimizing a CRE business model is all about aggregated efficiencies. Real-time BAS integration, using centralized software platforms that monitor processes and automation while enabling data-driven control, are the key to unlocking unprecedented value. Gaining granular transparency into, and real-time control over, their complex operations will help CRE businesses be far better prepared to respond to the limitations that are likely to become the norm in the post-pandemic economy.
- **HARNESSING EXISTING AUTOMATION DATA:** Modern buildings are embedded with an array of automation, which has traditionally operated in silos, isolated from each other due to vendor specific protocols. Such a model made any attempt at system scale optimization a pipedream. IoT makes it possible to collate data from all these assets and processes using centralized platforms, which can then dispense actionable insights using AI and Machine Learning derived insights, in real time. The resulting data-driven decision making was already a compelling argument in favor but given the consistency in outcomes a post-pandemic world will prefer, this operational model may emerge as the default industry standard.
- **INSIGHT-EMPOWERED WORKFORCES:** Despite the highly mechanized and automated nature of modern CRE portfolios, one of the most mission critical aspects of any such operation is its workforces. Easy and mobile access to real-time insights is one of the most empowering capabilities these teams can have, particularly when trying to operate in the smaller teams that social distancing guideline mandate, while continuing to generate the most optimal possible outcomes.
- **PREDICTIVE AND RESPONSIVE OPERATIONS THAT ENHANCE CUSTOMER EXPERIENCES:** One of the most crucial advantages unlocked by emerging digital models that leverage cognitive technologies and real-time data collation is the ability to identify anomalies, monitor processes and anticipate possible sources of disruption. Comparing real-time metrics to historical data and customer preferences allows a CRE business to tweak its operations to customize outcomes to occupant preferences. These tech-enabled capabilities are a significant advantage for early adopters during the ongoing pandemic, allowing them to allocate resources sequentially to achieve optimal results.

- **UNPRECEDENTED SUSTAINABILITY THROUGH GRANULAR AND TARGETED PROCESS OPTIMIZATION:** Climate change has focused the world's attention on lowering an organization's carbon footprint. With buildings exceeding transportation in the carbon emissions stakes, attention has turned to ensuring that these assets can be made sustainable — so they are part of the solution, not the problem. From the increasingly stringent regulatory standards set around the world, to enlightened tenants who favor greener alternatives, the CRE industry has a lot of reasons to adopt more sustainable operations. Portfolio scale and real-time transparency into all assets and processes is the ultimate enabler of more sustainable building portfolios, based on which a CRE business can achieve its best possible resource and energy utilization profile.

## THE EVOLUTION FROM SAVING ON OPERATING COSTS, TO PROACTIVELY ADDING VALUE

The new model of data-driven and digital technology enabled facilities O&M essentially poses the question, “what does optimal mean to you?”. In a true departure from the past, efficiency in operations is no longer about passive cohesion between various functional aspects of the business, with maximum output derived from each individual element. A new generation of cognitive technology and software-based solutions has dramatically broadened the scope of what is possible when it comes to optimizing CRE business models.

This tech-enabled model had already promised to deliver ideal outcomes for the entire spectrum of stakeholders involved — from building owners and FM teams, to tenants. Given the exacting new standards that facilities will need to adhere to in the post-COVID-19 world, the need for integrated and data-driven CRE operations may just have graduated from an optimal business model to one that is also the most resilient to unprecedented and unforeseeable disruptions.

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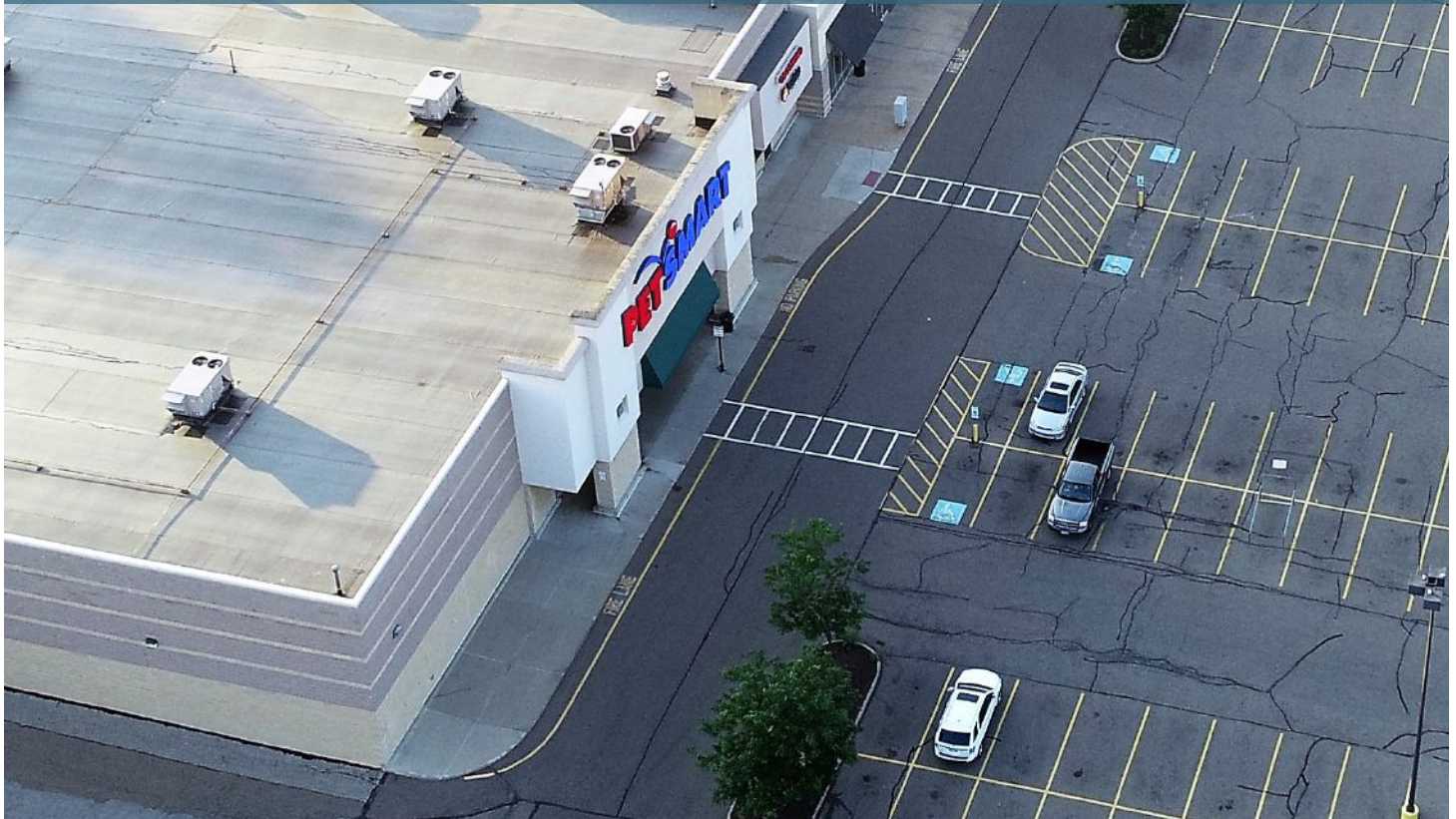


**Prabhu Ramachandran** is the founder and CEO of Facilio Inc., an enterprise-wide platform for facilities O&M across real estate portfolios, with operations in the USA, Middle East and India. His career spans more than 18 years of product, business and customer experience focused on enterprise-scale software for IoT-based connected services, sustainable building solutions and telecom network management.



# Commercial Roofing Replacement

BY SCOTT MCGHEE







**R**eplacing the roofing of a commercial building can be overwhelming. There are so many factors to decide such as budget, materials and manufacturer, and service provider. The FM also must ensure the construction will have minimal impact on the building and its tenants, and any businesses in the building can safely operate during the project. There may be an optimal time of year to replace the roofing based on either weather conditions and geography or the type of building. A shopping center may want to avoid construction during the holiday season, whereas that may be the perfect time for a college or university. Before embarking on a roof replacement, an FM must understand the process, expectations, necessary decisions, safety concerns, and roles and responsibilities of everyone involved in the project.

### The assessment & recommendation

The first step is to confirm a roof replacement is necessary and the existing roof is not salvageable. This can be accomplished with a thorough inspection and assessment by a commercial roofing professional who is trained to identify problems that may not be apparent through a basic visual inspection. Using various technologies such as infrared imaging, leaks, cracks, gaps and other underlying issues can be readily identified and assessed. While there are a few areas, such as the decking, that cannot be fully inspected without removing the insulation and membrane, an experienced professional can gather enough information to make an accurate determination as to whether the entire roof or any part of the roof can be salvaged and repaired.

Assuming the roof is not salvageable, the next step is to determine if the roof needs to be replaced or recovered. A complete replacement involves removing the old roof and installing a new roof. An overlay is when the new roof is installed over the existing roof thereby saving the facility owners the cost of removing the old roof. There are several factors that go into this decision based on the results of the inspection including the age and stability of the original roof, the condition of the existing materials, the amount of wetness and adherence to building codes. In addition, manufacturer warranties may differ for recovered versus replacement roofs, so it is very important FMs understand their liabilities. Following the inspection, the roofing professional should provide the FM with their complete assessment and recommendation including images, results of any infrared scans, core samples

if any were taken and data that support the recommendation.

At this point, the roofing service provider will develop a specific, detailed plan and budget based on the job, labor and scope of work. In addition to the obvious factors such as square footage, type of roof system and cost of materials, the pricing will also reflect details such as how many projections are on the roof, the size and requirements of the HVAC system on the roof, and any other factors unique to that particular roof.

### The players

As the process begins it is important to understand all the people who will be involved and their respective roles. The roofing service provider team consists of:

#### **DIRECTOR OF FIELD OPERATIONS:**

- Oversees the entire job, ensuring the work performed meets the customer's requirements and what was agreed upon in the scope of work.
- Ultimately responsible for the quality of the overall job.
- Makes periodic visits to the site to perform an overall check.
- Checks in with FM and available to handle any situations.

#### **SUPERINTENDENT:**

- Reports to the director of field operations and is responsible for the day-to-day management of the job.
- Makes daily visits to the site to ensure work is moving according to schedule and that materials and labor are coordinated so there are no delays.

- Oversees the delivery of materials and supplies and reviews status regularly with the foreman.
- Maintains regular contact with the FM.

**FOREMAN:**

- Responsible for the on-site crew and directs all work.
- At the job site full-time to give crew direction, resolve any issues and ensure job is moving forward according to plan.

**SAFETY DIRECTOR:**

- Establishes an initial safety plan before construction begins to ensure the safety of workers, people and businesses in the building and the surrounding area.
- Makes periodic visits to the site to ensure all safety requirements are being met, all safety protocols are being followed and there are no potentially unsafe situations.

**SAFETY COORDINATOR:**

- Reports to the safety director.

- A member of the crew who has been given the added responsibility of inspecting and constantly monitoring the job site for any potential issues.
- Before any work begins in the morning or after lunch breaks, the safety coordinator conducts a complete inspection of the site before any work commences.

**SALES REPRESENTATIVE:**

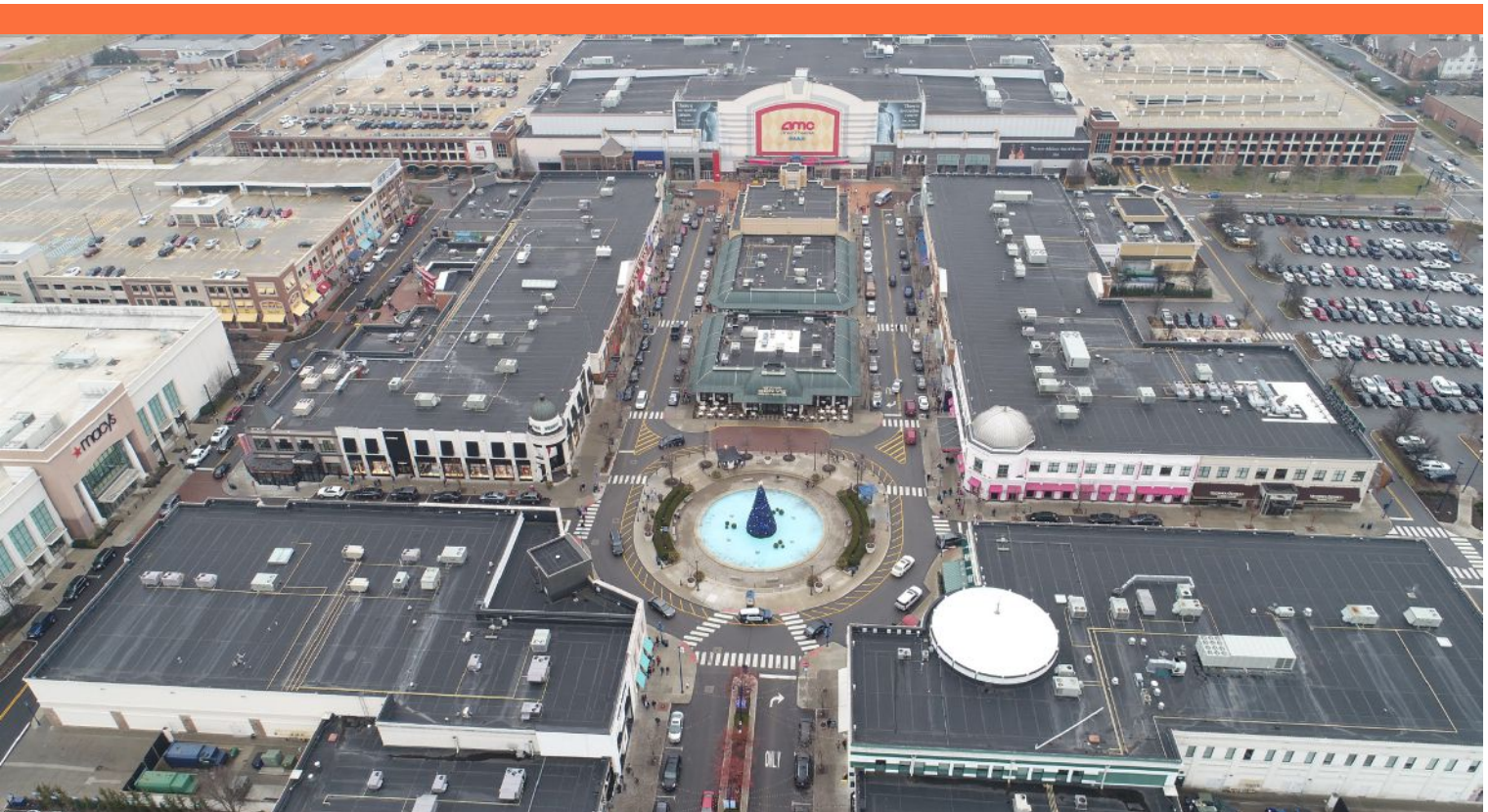
- Based in the service provider's office, the sales representative is responsible for providing the customer with updates, images and answering any questions the customer may have.

**MANUFACTURER REPRESENTATIVE:**

- Works for the manufacturer of the roofing system being installed.
- Provides guidelines to service provider for proper installation; may make visits to job site during construction to ensure proper handling of materials.
- After the job is complete, makes a final inspection, approves installation and issues warranty.

**The process**

After a contract has been signed, the process begins with a pre-construction meeting with the FM and other relevant staff, which can include security, maintenance, operations and oftentimes building management or owners. For the service provider, the meeting is usually attended by the director of field operations, the superintendent assigned to the job, the foreman and the safety director. During this meeting, a plan is devised to minimize any disruption within the building and maintain the safety of all involved. Decisions are made about where the dumpsters and trash chutes will be located, will there be any need for the crew to be inside the building and if so how will that be coordinated, what safety equipment needs to be set up to allow easy and safe access to building tenants, where machinery and equipment will be located, the hours when work will be performed, permits that must be obtained, the estimated timetable for completion and any other specifics with regard to the building and its operation. There may be some very specific situations that need to be handled, such as making



sure any odors from the work being done do not permeate the building's ventilation system. Or possibly there is an area of the roof where noise may be disruptive to whatever is going on inside. All of these considerations are discussed and solutions are developed to address the customer's needs.

Once construction has begun, the FM should receive regular, detailed progress reports and pictures. As much as service providers try to avoid any surprises along the way, if an unanticipated situation arises, the FM should be immediately notified, and a meeting set to discuss how it will be handled. During construction, the service provider should maintain the worksite, dispose all waste materials daily, secure all equipment at the end of each day and do everything possible to minimize the impact on the building and its occupants.

Service providers should also establish and secure travel areas on the roof during the project. These are areas and pathways where the crew will be primarily walking and working. Ensuring these areas are secured and maintained will reduce the chance of damage to the roof and potential safety issues.

Most experienced service providers will also synchronize their removal of the old roof with the installation of the new roof. They should not remove more roof than they can replace during the same day. This avoids having an exposed deck, which can cause damage and create vulnerabilities in the event of rain, wind or other weather. When the crew leaves at the end of each day, there should be no exposed insulation or deck.

Once the roof is complete, the service provider's team — consisting of the director of field operations, superintendent, foreman and quality control manager — will do a final inspection. Once they are satisfied that the job has been completed properly, the manufacturer's representative will come to the site for a final inspection to assess whether their roofing system has been properly installed. Upon successful completion of the manufacturer's inspection, a warranty will be issued for the roof and the job will be complete.

Finally, the crew will complete cleanup and remove all equipment, dumpsters, chutes and anything else on the job site that needs to be taken away.

## The FM's role

Depending on the FM's familiarity with roofing, the resources they have available and the amount of time and interest they have, they can be either minimally or integrally involved in the process. During the pre-construction phase, it is critical for the FM to work with the service provider to determine a plan that enables construction to proceed while minimizing any disruption in the building and addressing safety. The service provider is reliant on the FM to provide information and insight about the building and its daily operation.

Once construction has started, and assuming the service provider is competent, the FM can be more of a monitor. The FM should review progress reports, pay attention to and report any disruptions occurring within the building, and maintain regular contact with the job superintendent.

If so inclined, the FM can also have the foreman take them on the roof to see firsthand the work that is being done. In many cases, FMs have extensive knowledge about roofing and making a visual inspection can help assure them the job is properly done. If an FM does not have much experience with roofing, they can still make a visual inspection to get an overall sense of how the job is progressing. They can look for telltale signs that their service provider is doing a good job. For example, if the work looks neat, and areas around projections and HVAC units are precisely cut, more than likely attention is being paid to details. It is important to inspect the perimeter of the roof. The field of the roof is relatively simple to install; however, quality of the work around the perimeter and securements around the roof are generally what separates the good providers from the excellent providers.

There are many parts of the roof that will not be viewable after the work is done, making it important to make regular visits before those portions are covered up. Fasteners, securements and wood nailers are just a few things that cannot be checked once covered.

## Maintenance plan

While it may be tempting to not immediately address a maintenance plan for a new roof, it is critical to put a plan in place as soon as possible. The maintenance plan will help get the maximum service life out of the roof, and in many cases to keep the manufacturer's warranty in effect. The maintenance plan should be discussed with the service provider.

Preventative maintenance helps the FM team keep the roof healthy and avoid future budget surprises. The goal is to stop problems before they start, therefore avoiding costly repairs. To maintain the structural integrity of the roof, a walkover assessment is recommended twice a year, specifically during spring and fall, to protect the structure from harsh conditions.

While replacing commercial roofing can seem overwhelming, having a familiarity with the process, understanding expectations maintaining good communication, taking the necessary safety precautions and having a solid plan will help mitigate problems, minimize impact on building operations and enable the successful completion of a roof that, when properly taken care of, will have a long, trouble-free life.



**Scott McGhee** is director of field operations for Legacy Roofing Services. McGhee has more than 40 years of experience in the roofing industry and has worked with a wide variety of roofing situations, systems and materials. He has also overseen roofing and exterior restoration for historic buildings.

## Vendor Profiles

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

### ASSET MANAGEMENT

#### EthoSource

Ethosource believes that your vision of an ideal work environment is attainable, no matter your budget. Their approach is to fully understand your space's potential and creatively collaborate with the entire team to make your vision become a reality. Using a blend of quality product solutions and turnkey services, Ethosource's experienced staff have the capabilities to handle projects from initial concept to installation. Their unique approach allows them to help you create a workplace that is not only beautiful and affordable, but also functions as a strategic tool for your success.

<http://fmj.ethosource.com>

#### SpaceIQ

SpaceIQ is the modern IWMS platform powered by AI and machine learning to maximize space utilization, increase productivity, and optimize real estate forecasting.

[www.spaceiq.com/demo](http://www.spaceiq.com/demo)

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### BUILDING COMPONENTS

#### IMETCO

IMETCO is a leading manufacturer of premier metal products for the building envelope, delivering performance-inspired systems tailored to every project. IMETCO offers a full range of high-performance metal roofing, wall, and deck systems and accessories that provide a virtually limitless realm of aesthetic possibilities.

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### FM CONSULTANTS/SERVICES/PROVIDERS

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Camcode's bar code and QR code labels efficiently link information to your database with 100% accuracy. The image resides beneath the surface for superior durability against abrasion, sunlight, corrosion, extreme temperatures, and cleaning agents making our labels ideal for harsh environments. Contact Lou Peebles directly at [lpeeples@camcode.com](mailto:lpeeples@camcode.com) or 313-506-0481 for more information and samples.

[www.camcode.com](http://www.camcode.com) | +1-800-627-3917

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**FM SOFTWARE****ShiftNote**

Staff scheduling software and manager log book for facilities and manufacturers. Write shift notes, track important stats, calculations, inventory, equipment, etc., build staff schedules in minutes, and utilize task management to increase productivity each shift and streamline communication.

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**FIRE PROTECTION SYSTEMS****AGF Manufacturing, Inc.**

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**PEST CONTROL****Xcluder® Rodent and Pest Defense**

Xcluder® is the global leader & innovator in pest exclusion, offering a full line of commercial & residential pest control solutions, including patented Xcluder fill fabric, rodent-proof door sweeps, and rodent-proof garage door and dock leveler seals. Xcluder is trusted by pest professionals worldwide and is proven effective by the USDA/APHIS, providing effectiveness unmatched in the industry. Made in America, Xcluder contains no harmful chemicals and is safe to use around people, pets & food.

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Sika Sarnafil I supplies high-quality thermoplastic roofing and waterproofing systems for commercial buildings. Includes energy-saving reflective roofs, vegetated green roofs and solar-ready roofing.

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**The Garland Company**

The Garland Company, Inc. is one of the worldwide leaders of quality, high-performance roofing and building envelope solutions for the commercial, industrial and institutional markets. For over 100 years, Garland has continually developed unique product and service offerings that have raised the bar of performance while exceeding the individual needs of customers throughout the world. The Garland Company Inc., headquartered in Cleveland, Ohio, is an ISO 9001:2008 certified company.

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