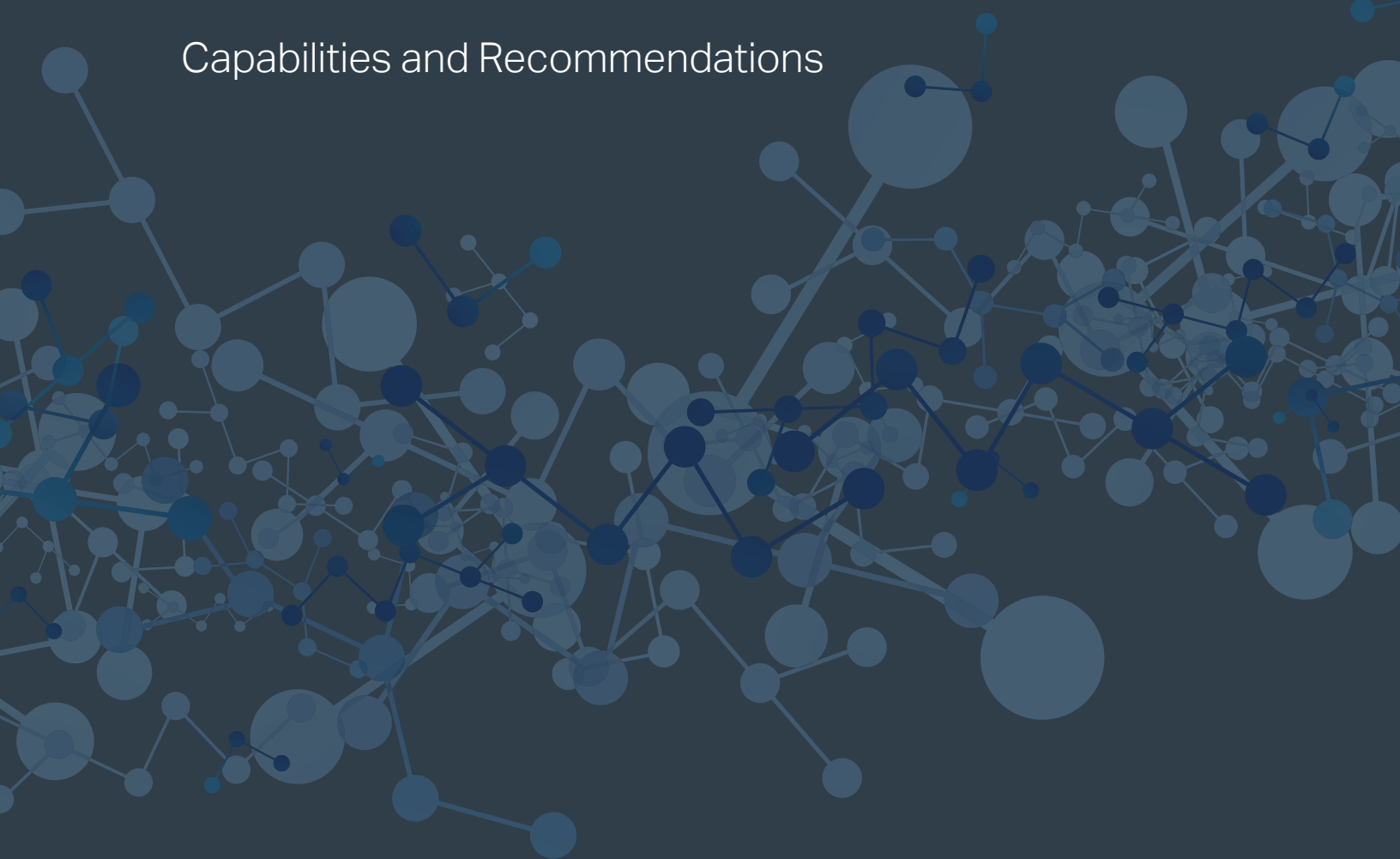




RETURN TO SERVICE


# RE-OCCUPYING OUR WORK ENVIRONMENTS

Capabilities and Recommendations





Focus Room



Non-reservation  
All services level  
3-4 persons

2002

EAT MORE PIZZA

ur Best

Do Your Best

YOU GOT THIS!

EVER

Take it easy



# A NEW NORMAL

## HOW DO WE DEFINE AND ADDRESS NEW CHALLENGES?

With new information on the novel coronavirus emerging each day, the sheer scale of its environmental, systemic, behavioral and spatial impacts on our buildings and places is immense. Through methodical and collective action, we can emerge from this crisis stronger than ever with a new set of values and goals and a renewed emphasis on safety, wellbeing, performance, and operation. In order to return people to the workplace, there are immediate steps required to create a safer work environment based on what we know now about the spread of Coronavirus and based on CDC and WHO guidelines.

The global COVID-19 pandemic has forced our society to accept a new normal, adopt new workstyles and modify our behaviors in record time, which will no doubt continue to impact how we work as we return to the office. Every organization must now renew their focus on creating environments which are safe and healthy, both physically and mentally, as well as inspiring places to work. At AECOM, we take a holistic view focusing on place, process, people and performance when developing strategies organizations can implement today, tomorrow and in the future to ensure the transition back to work in our offices and homes is as seamless as possible.

### LEAD AND MANAGE THROUGH CHANGE

Your leadership has been successful in navigating dramatic, short-term change, but emerging stronger from this crisis will require equally organized and decisive long-term management. New organizational structures will be required to align, prioritize and implement integrated business change with the return to work.

# RETURN TO WORK ENVIRONMENT PRIORITY CHECKLIST

## GOVERNANCE & MANAGEMENT

- ✓ Immediately establish a return-to-work organizing team with clear decision-making protocols, with all stakeholders, HR/IT/RE/Mgmt/Mktg
- ✓ Create a prioritization strategy for determining the most beneficial, lowest risk return pathway
- ✓ Understand and coordinate policy with latest government/ regulatory guidelines for reopening and ongoing safety, especially if local jurisdictions are in conflict with State or National recommendations
- ✓ Real estate team coordination of leases across office locations to determine building owner/manager opening schedules, protocols and disinfection strategies for vertical transportation, common areas, parking, etc.
- ✓ Prepare, legally assess and publish company-wide health, safety and density operational protocols (including re-closing if necessary)
- ✓ Establish data sources and key performance indicators that enable the monitoring of the phase by phase return with business objectives
- ✓ Create a transparent communications cascade pathway that delegates implementation to your individual business units
- ✓ Create and communicate company policy for travel and meetings (external and internal)

## WORK ENVIRONMENT(S)

### ✓ **TAILORED DISINFECTION PLANNING AND VERIFIED DEPLOYMENT**

- Change priority thinking to disinfection not cleaning
- Enhanced disinfection contracts – multiple times a day, with periodic decontamination cycles through the air handling systems.
- Antimicrobial products available to individuals (not shared materials)
- Decontamination spots

### ✓ **PLAN FOR PHASED RE-OCCUPANCY AND NEW WORK PATTERN**

- Phased return plan (immediate, near term, remote)
- Establish entry sequence: staggered arrival times, adequate spacing, temperature checks
- Staggered work teams (alternate weeks, etc.)
- Spatial distancing and social distancing plan
- Plan for work area reconfiguration
- Plan for common areas: Conference rooms, cafeteria/ food areas, reception, copy/mail rooms
- Limit or suspend desk sharing with clearly identified and communicated cleaning/disinfection protocols for transition between teams/individuals
- Review/install touchless technology for lighting, restrooms, AV, doors



- Review office equipment and create plan for limiting “high touch” equipment (AV, copy, food service, etc.)
- Create isolation areas should someone become ill a work, preferably close to an exit

### ✓ **PLAN AND COMMUNICATE BEHAVIOR CHANGE MANAGEMENT**

- Communicate on-site protocols to build confidence and remain safe: work continuity, cleanliness, social distancing, vertical transport, parking, etc.
- Communicate protocols and availability of Personal Protective Equipment (PPE)
- Develop a system of personnel monitoring
- Communicate company strategy for new work schedules and remote working (including IT deployment and upgrades)
- Engage a committee of “Reoccupancy Ambassadors” or “Return to Work Readiness” team to serve as liaisons to the organizational leadership and act as leadership and act as the voice of the occupants

### ✓ **REVIEW AND ADDRESS BUILDING SYSTEMS**

- Deploy sensors to detect occupant density and air quality, and make results visible to occupants.
- Revise elevator queuing algorithms to minimize wait times and stop at fewer floors.
- Audit existing HVAC systems and rebalance to maximize outdoor air intake, to increase the supply of fresh air to occupied spaces, particularly when common systems service multiple tenant spaces.
- Upgrade existing filters and where possible install new UV-C filters to each supply air stream to eradicate viruses or pathogens from the air stream

- Install wall- or ceiling-mounted air purification units at occupied spaces such as conference rooms, collaboration areas and workstation clusters to provide increased air change rates and enhance contaminant removal.
- Reseal waste-water pipes and reroute (where possible) to reduce the risk of pathogen transfer, consider separation from other systems

### ✓ **DEVELOP FUTURE OF WORK SCENARIOS FOR ONGOING OPERATION**

- Understand behaviors learned from pandemic remote working and how that will affect future working and subsequently the future use of Real Estate
- Review operational data and conduct employee surveys to assess efficacy and potential of continued remote working
- Develop strategies for space use and capital planning to retrofit existing spaces as practical
- Develop kit of parts or modify existing space guidelines for relocation to new spaces
- Develop an extensive checklist for potential new space, including base building attributes that will define the new type of space to be occupied as leases begin to expire.
- Work with furniture system and product vendors and manufacturers on new and/or enhancements to accommodate social distancing and safety guidelines





## RE-OCCUPANCY STRATEGIES

### HOW CAN WE RESUME OPERATIONS SAFELY, EFFICIENTLY AND PRODUCTIVELY?

Leveraging the combined expertise of our corporate workplace, strategy, design and industrial hygiene teams, AECOM has identified three fundamental ways in which the novel coronavirus will impact our offices:

- Initial re-occupancy and immediate operational strategies
- Reboot, retrofit and long-term operational modifications to existing workplaces
- New workplace design standards

### BALANCING PUBLIC PERCEPTION AND RISK.

As we consider what “re-entry” looks like, public perception will necessitate a robust re-occupancy strategy to mitigate any risk of dormant pathogens remaining in buildings and threatening returning occupants.

Through the deployment of a comprehensive disinfection protocol that follows the Centers for Disease Control and Prevention and World Health Organization requirements, a combination of disinfection techniques including the likely widescale deployment of biocides in all spaces will be used to achieve confidence in the eradication of the virus.

### PREPARING FOR DAY 1 AND BEYOND: DISINFECTION REQUIREMENTS.

What is needed today may change tomorrow. As our understanding of the modes of transition and the virus itself continues to grow, we anticipate that the recommended disinfection protocols and associated biocides will also evolve. This, along with the specific use case of the building, will likely require tailored solutions for each facility.

This is particularly true in the corporate workplace market as there are some specific nuances will need to be accounted for in the deployment of an effective disinfection and re-occupancy plan. These nuances include:

- Common systems servicing multiple tenant spaces
- Waste pipes and air ducts are often in close proximity within cores
- The increased use of non-addressable seating and dense open-plan work environments

### IT'S NOT A ONE-TIME EVENT: CONSISTENCY IS KEY.

In addition to the initial disinfection, there is also a need to develop a “deep clean” methodology that will be deployed on an ongoing basis as part of the building’s operational support function. Likely involving increased frequency and additional cleaning agents, it is therefore recommended that additional training be provided to cleaning crews, and that an ongoing auditing process be deployed to ensure proper execution.

To assist in the development of this re-occupancy effort, our workplace strategists and industrial hygienists have worked together to create a flexible and scalable approach which considers underlying operational needs. Working with your operations team and local cleaning contractor, our specialists can support the creation of a tailored, ongoing disinfection plan for your facility that includes both the technical requirements and any oversight support required to provide confidence in its effective deployment.







## WORKPLACE ADJUSTMENTS

### INFORMED ARRIVAL WITH CONFIDENCE

#### MANAGING DENSITY

- **Structured Flexibility**
- **Short-Term Assigned Seating**

#### VERTICAL TRANSPORTATION

#### LONG-TERM STRATEGIES

**Arrive with Confidence:** We can learn from aviation and adopt a “boarding process” for initial entry to the facility. This would extend the arrival process, but would increase individual safety by allowing for better monitoring and detection prior to entry. Through the use of thermal imaging, visual screening techniques and staggered entry more common to airports and ports of entry, high-risk individuals can be identified prior to entry and thus reduce the concern of those within the workplace environment.

**Behavior and Cultural Norms:** Some of the most fundamental cultural norms have shifted overnight. Given this new world in which we live, they will continue to evolve along with our understanding of coronavirus. Wearing masks became socially acceptable overnight, just as shaking hands in greeting became socially unacceptable. It is reasonable to expect we will continue to shift even the most basic of our ingrained behaviors in an effort to protect ourselves and those around us.

**Managing Density:** Social distancing has been a critical part of the coronavirus response and will continue to be a key part of any successful reintegration into the workplace. While this is a relatively simple strategy to deploy within less dense environments, embracing social distancing within today’s workplaces requires a more holistic approach. Leveraging generative design thinking, our teams can quickly explore different scenarios to identify the right density strategy for your workforce. A key part of this analysis is exploring the impact of expanding the distance between each seating. While six feet has become the benchmark, our industrial hygienists and bio-containment specialists recommend that we monitor guidelines and standards based on the latest science. Flexibility will be key in order to accommodate evolving data.

**Structured Flexibility:** The integration of a social distancing strategy inherently reduces the total capacity of the space, de-activating a number of the existing workstations. While this may not be seen as an issue in the new normal for many organizations due to the likely continued engagement of remote workers, most organizations will acknowledge that there are certain activities which require direct face time. This can be accommodated through the deployment of a more structured flexibility, through which teams identify specific days that they will be on site. For example, over the course of a month, Team A might work on site during Weeks 1 and 3, while Team B would work on site during Weeks 2 and 4.









**Short-Term Assigned Seating:** Recent workplace strategy has advocated for unassigned seating as a key strategy to rightsizing the overall space requirements to support the modern worker. The challenge with this approach in a post-COVID-19 world is that if left uncontrolled, it introduces uncontrolled interaction and potentially increases viral risk in the workplace.

Combining structured flexibility with daily assigned seating allows you to overlay multiple socially distanced configurations within the same space, allowing the multiple teams to co-occupy the workplace and achieve optimal density occupancy.

**Vertical Transportation:** Vertical transportation within commercial office buildings will quickly become a focus point for potential virus transfer. To alleviate this concern it is recommended that occupancy within elevators be limited, and that lower floor occupants be encouraged to take the stairs.

## RETHINKING THE TRADITIONAL WORK ENVIRONMENT.

As a society, we will emerge from this crisis with new opinions, experiences and priorities. The capital planning process itself will need to adjust to reflect this new set of values. Now that the world has realized one truly can “work anywhere”, the purpose of our offices will once again shift. Design strategies once reserved for healthcare or lab environments will become commonplace.

## REMOTE WORKING

Once thought only plausible for some types of organizations, certain industries and specific cultures, coronavirus has forced the world’s largest remote working pilot. While it must be acknowledged that some organizations/businesses are struggling (video production, manufacturing), this global experiment has forced even the biggest detractors into realizing its plausibility, efficiency and effectiveness. It is important to assess existing technology and how it has performed during shelter-in-place orders (IT and employee surveys) and respond with appropriate technology adjustments to hardware, software and deployment.



## **RETURN TO WORK ENVIRONMENT: SHORT-TERM STRATEGIES**

- Develop a means of assessing the critical onsite employees
- Understand perception and expectations of population
- Prepare and communicate cleaning procedures, products and visibility for peace of mind

### **Identify protocols and availability of PPE gear**

- Masks and other gear
- Develop a system of personnel monitoring
- Develop a means of phasing re-entry
- Adopt a "boarding process" for initial building entry, vertical transportation and other issues
- Prepare robust change management programs that include communications and messaging strategies

## **REMOTE WORKING: SHORT-TERM STRATEGIES**

- Adopt a multiple shift work environment, enable more users to rotate through the building while still maintaining social distance
- Designate in-office days for specific teams
- Deploy enhanced filtration systems that combine both physical and UV-C filtration at centralized HVAC systems
- Utilize local ceiling-mounted air purification systems in conference rooms and open air to boost air changes, and provide localized UV-C filtration
- Separate plumbing and HVAC risers to reduce risk of pathogen transmission.

## **SPACE/DISTANCE**

Human beings are inherently social creatures. In the past few decades, as technology has advanced to the point where most knowledge works can "work anywhere," the purpose of our offices has shifted. Offices now serve as places to gather, social, incubate ideas, build culture and drive innovation through collaboration. Given the density of many urban centers and the realities of getting to, from, in and out of our buildings, accommodating social distancing for an entire employee population within our current real estate footprint is both implausible and impractical. It will be critical to evaluate work environments within the following criteria:

- The "localization" and/or "hub model" - teams of 30 or 40
- Decentralization/distributed model
- Lower floor occupancy (the result of distancing and queueing challenges inherent with vertical transportation)
- Smaller groups, easier to contain
- Enabling technology – holograms and other innovations to enable connectivity
- Link to automation and tech

## **CLEANING AND MAINTENANCE PROTOCOLS**

It will no longer be enough that cleaning crews and custodial staff do a high-level sweep over the office, empty garbage cans, and wipe down common surfaces two or three times a week. Real estate and facility leaders will need to invest in far more comprehensive cleaning and sanitization services. It is clear that occupants will need to see a demonstrable effort from employers to ensure the health and safety of their workforce prior to returning, at a minimum. As our understanding of this virus advances, so too will our understanding of liability, governing authorities and requirements around operational maintenance. It is highly likely that compliance programs will be required.

# FUTURE AWARE

## SOLUTIONS THAT ADDRESS TODAY AND PREPARE FOR THE FUTURE.

### IT'S NOT ONE-AND-DONE

In recognition of the fact that this is unlikely to be a one-and-done initiative, it is critical to look beyond the initial disinfection or adaptive reuse of the existing workplace configuration. There will likely be future waves and retrofit strategies required to provide a longer-term approach to maintaining occupant confidence.

We recommend that the initial re-occupancy effort focus on getting employees safely and confidently back to the work environment, with next steps to include a Future of Work plan to define the ongoing response.

#### RETROFIT STRATEGY: OWNER-OCCUPIED AND LEASE OCCUPANCY

Beyond the initial re-occupancy efforts, there is likely a need to implement facility design and operational measures to reduce the ongoing risk. Acknowledging that broad understanding of the virus and mitigation of spread continues to evolve, there are a number of general retrofit strategies which we believe to be worth exploring within the majority of commercial workplace environments. The following recommendations apply to both owner-occupied buildings and lease space; however, for lease space, these recommendations must be coordinated with building management and ownership.

#### RECALIBRATE THE BUILDING SYSTEMS

##### **Deploy Smart Technology**

- Leverage recent IoT, wireless and 5G technology developments to deploy additional sensors and dynamic displays to monitor, control and communicate on occupant density, air quality and current reservations.

- Leverage proven queue monitoring technology to provide insight on queue lengths at elevators to help manage congestion in the building cores.

##### **Recommission and enhance existing HVAC systems**

- Audit the existing HVAC systems, identify any cross-contamination risks that could be quickly remedied.
- Rebalance and modify existing HVAC control strategies to maximize the amount of outdoor air that is provided throughout the building. It is acknowledged that this is likely to be at odds with the building's original design strategy and sustainability goals, and as such may also require additional enthalpy recovery strategies.
- Replace and upgrade the existing filters within the central air handlers, and augment with the installation of new UV-C filters within each supply air stream to eradicate any virus or other pathogens from the air. Depending upon the size of the building, and the operational cost recovery model, the UV-C filters may be deployed either at the air handler or at the primary supply duct to each floor.
- Deploy additional, local ceiling- or wall-mounted air purification units in each conference room, collaborative work areas and above each workspace cluster to provide increased air change rates and enhance the removal of contaminants from the air within those local environments.

##### **Anti-microbial surfaces**

- Explore opportunities to deploy anti-microbial coatings to existing surfaces.
- Proactively replace materials and equipment in high-touch areas with anti-microbial options.





### ***Minimize incoming contaminants***

- Beyond the immediate changes in entrance protocols described above, other measures could be considered to further mitigate the potential risk of incoming contaminants. This could include the appropriate deployment of UV-C disinfection.
- Similarly, all deliveries should be subject to decontamination prior to entering the workspace.

### ***Reduce cross-contamination risk***

- Assess routing of waste pipes and reseal to reduce risk of pathogen transfer to adjacent air streams when routed through the same spaces.

## **RECALIBRATE THE BUILDING OPERATIONS**

Having implemented adjustments to the building systems, it is also essential that the building's operations and maintenance practices are also expanded in response to the new normal.

### ***Develop integrated decontamination and cleaning protocols.***

- To further reduce risk of a virus taking hold within a facility, deploy a more rigorous daily cleaning routine and periodic decontamination cycles through the air handling systems.

- New chemicals and techniques will likely be required, which will in turn necessitate additional training and ongoing monitoring practices that will need to be integrated into the building operations. The ongoing monitoring and auditing of this clearing process is critical to maintaining occupant confidence.

## **RECALIBRATING SOCIAL NORMS: #INITTOGETHER**

Beyond the physical building, a critical component of a facility's re-occupancy and continued operation in the new normal is its engagement and empowerment of the user. Given the new world in which we live, some of our most fundamental cultural norms are likely to shift.

### ***Back to basics***

- The need for effective washing and drying of hands has been highlighted throughout the pandemic.
- This pandemic has forced the world's largest remote working pilot, and even the biggest naysayers are acknowledging the viability of productive telework. Coming into the office slightly ill will no longer be viewed as a sign of dedication to one's work, but rather a selfish act which may compromise the health and safety of others.
- As organizations realize the viability of telework, they will need to assess and address a more sustainable approach to telework.

- It previously would have been unthinkable for corporations to take an individual's temperature, or apply other seemingly invasive tactics to gauge health prior to entry.
- Develop guest- and client-only areas with enhanced cleaning protocols to keep the highest percentage of workers safe.

The above changes will require development of robust change management strategies with strong communication plans to reset the collective expectations of the employee population.

**Strategic alignment: The new normal means rethinking space needs and leases, building ownership and new construction.**

By continuing to assess implementable strategies against the existing capital plan and evolving workplace strategy, informed decisions can be made around future workplace requirements during lease renewal negotiations. This can minimize the unplanned outlay necessary to provide a safe working environment and provide confidence to the workforce.

## NEW CONSTRUCTION: DESIGNING HEALTHY BUILDINGS

Over the last decade, sustainability has gone from an expensive overlay to being crucial to the design of most new buildings. We know the benefits of well-buildings on occupants and the savings we achieve through high-performing buildings.

The recent pandemic has raised public awareness to airborne contaminants and as a result we are discussing solutions for high-occupancy venues such as arenas, stadia, convention centers and entertainment parks.

As highlighted above, our understanding of the coronavirus continues to grow and design strategies will evolve. There are, however, some initial strategies that should be considered in the design of new commercial workspace:

**Reset traditional building systems thinking:**

- **Maximize the Outside Air**
  - In a similar way to the once-through ventilation strategies used in laboratories and critical medical facilities, maximizing the outside air provided to the occupied zone mitigates the compounding effect that air recirculation can have on virus spread. While local environmental conditions will determine the impact this may have on the overall building energy consumption, this should be seen as a fundamental

recalibration of the baseline from which energy conservation and onsite generation strategies are based rather than an option to be gamed. In some parts of the country, like California, where economizers are already required, this becomes more of an operational cost discussion, where in other geographies this would be a significant change in design strategy.

- In taller buildings, enhancing outside air beyond minimum levels would have a significant impact on central cores and would likely lead to an increase in distributed air handling units and greater outside air intake. This strategy was employed at the Gherkin skyscraper in London.
- **Introduce or Retrofit Hardware for Touchless Technology**
  - Doors, motion sensors for light fixtures, restroom fixtures, and other devices should be touchless.
- **Displacement Ventilation**
  - Deployment of an underfloor displacement ventilation system within the office floorplate provides fresh, outside air directly to the occupied zone, and as acknowledged by ASHRAE, induces air particulates to follow the thermal gradients and be drawn away from the occupants and their neighbors.
  - Traditional thinking when responding to airborne contaminants in a laboratory environment involves the deployment of a laminar flow ventilation solution. While this may work in low-activity spaces, it is acknowledged that people movement within laboratories significantly impacts the effectiveness of the solution. While foot traffic is known to disrupt containment boundaries, it can usually be mitigated through other standard operating procedures or barrier doors.
  - Transitioning this approach from the lab to the workplace would not only be extremely difficult to implement within the existing infrastructure, but the inherent level of movement is likely to exacerbate the issues seen in laboratories. When examining alternative ways to reduce mixing and expedite removal of airborne contaminants, an "up-and-away" displacement approach may be more viable and provide similar benefits. It would take advantage of natural buoyancy and be less affected by people movement.



- **Enhanced Filtration**

- Deploy advanced filtration that combines both physical filtration media and UV-C filtration within the building's centralized HVAC systems.
- To further enhance the air filtration, distribute local ceiling mounted air purification systems within both open workspaces and collaboration spaces. The integration of additional air changes, and local UV-C filtration, can further reduce the propagation of airborne viruses.

- **Increased Separation**

- Initial research suggests that there is a risk of pathogen transmission from the waste piping system to air streams when routed in the same risers. It is therefore recommended that every effort be made to separate plumbing and HVAC risers, to reduce this risk.

- **Maximize Building Smart Technology**

- Workplace technology can be utilized to monitor, control, inform and generally empower occupants. In response to the new normal, it is anticipated that smart workplaces will become commonplace, with occupants wanting to not only know if a conference room is open, but who was there last and what the current air quality metrics are.

- **Vertical Transportation**

- As noted above, vertical transportation within buildings is one area that inherently leads to high occupant density. Strategies that are likely to be explored within the new normal include use of smart technologies, reduction in maximum occupancy driven by air quality rather than weight, deployment of anti-microbial surfaces and integration of UV-C air purification in elevator cabs.

- **Anti-Microbial Materials**

- Deploy anti-microbial surfaces and materials throughout the building as a standard basis of design.

## RESET TRADITIONAL WORKPLACE STRATEGY

As a society, we will emerge from this crisis with new opinions, experiences and priorities. The capital planning process itself will need to adjust to reflect this new set of values. Now that the world has realized one truly can "work anywhere" the purpose of our offices will once again shift. Design strategies once reserved for healthcare or lab environments will become commonplace.

## CONCLUSIONS

These approaches can be leveraged to bring employees back to their physical work environments. Simultaneously, we are working with clients to gather and evaluate data to address the Future of Work and strategies to operate successfully within a "new normal." The successful re-occupancy and continued operation of our work environments is going to require a collaborative approach between multi-disciplinary designers, corporate real estate teams, operators and the occupants themselves.

While understanding of the novel coronavirus and its impacts on everyday life and business continue to evolve, our designers, workplace strategists, engineers and environmental hygienists can develop integrated near- and long-term plans for operation.





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Focus



