The American Institute of Architects

Reopening America:
Strategies for Safer Offices

Overview

According to the U.S. Bureau of Labor and Statistics, more than 90 million workers spent time in an employer-maintained workplace during 2018.[1] As states lift stay-at-home orders, businesses are contemplating how best to return employees to idle offices, stores, restaurants, schools, warehouses, and manufacturing facilities.

While each type of facility brings unique challenges for safely reopening, this document provides businesses with design and operational strategies for reducing the risk of COVID-19 transmission in offices.

Background

For many, the workplace is a community, a place where people from multiple backgrounds come together day after day. It is a place of familiarity and, in certain spaces, congregation. In light of the COVID-19 pandemic and new rules regarding physical distancing, the very features of the workplace that were once a comfort, might now be perceived a hazard. Three areas in particular must be considered: entrances and other circulation spaces, restrooms, and spaces where people intentionally congregate, such as the break room and conference room. Adapting these three areas for COVID-19 is complicated by recent trends in offices.

In an effort to lower overhead costs, office areas have been designed to increase density through the use of smaller and more ergonomic workstations. In the US, the average square foot per employee has dropped from 211 square feet in 2009 to 194 square feet in 2017.[2] The decreased space between workspaces presents issues for physical distancing.

Additionally, employees require varying time in the office, with some staff in the office daily, others working remotely, and some a combination of the two. Employees who occasionally drop into the office may not have a dedicated workspace. The concept of "hoteling" has been created for these staff in which small workstations, often a section of a counter, are set aside for such visits to the office. The strategy has been extended as an open office concept, giving each employee the ability to choose a workstation location for an hour or even a full day. Hoteling and open office concepts present challenges for physical distancing and increased likelihood of contaminated surfaces.

Offices have also dedicated more square footage for collaboration and meeting spaces. A defining design challenge of this era is how to support these interactions while maintaining required physical distances and avoiding the need to touch shared surfaces, such as conference room keyboards and AV remote controls.

Considerations for reopening offices

Businesses should consider the following prior to developing a plan to reopen their offices:

- Determine whether state and local health agencies have authorized businesses to reopen workplaces. Consider the limitations that may exist based on phased reopening regulations and guidelines and the impacts of future phases for staff and functions.

- Evaluate the condition of the building and its systems. Buildings that were idle or not maintained during closure may need to operate on a limited schedule and may require re-commissioning to ensure safe re-occupancy.

- Assess the workplace to determine the maximum occupancy levels given constraints imposed by physical distancing guidelines. Take density and function into account to optimize space use under limited occupancy.

- Consider dividing staff returning to the office on a part-time basis into shifts.

- Routinely clean spaces to account for the higher risk that comes with more frequent sharing of spaces.

Hazards and strategies in offices

Step-by-step Risk Management Plan for Buildings

When reopening offices, businesses can utilize a seven-step Risk Management Plan for Buildings to assess hazards, apply architectural or engineering strategies (controls), and reduce risk.

Entrance and circulation spaces

Office entrances, lobby spaces, elevators, and circulation areas present similar hazards. Entrances and lobby spaces include storage (e.g., coats, umbrellas, packages, personal items) and facilitate activities such as security checks, receiving temporary credentials, and screening of packages and personal items. These spaces are also used as waiting and meeting areas; areas to pay for services or receive information (e.g., parking, concierge); for delivery of mail and packages; and, more recently, for sanitizing and receiving and disposing of PPE. Circulation spaces are also transactional, facilitating travel from point A to point B and can be low risk spaces so long as individuals are not congregating. They may also include elevators which offer a convenient alternative to the stairs, particularly for those with disabilities. They may have full HVAC, heat and ventilation only, or only ventilation.

Hazards in building entrances and lobbies include both person-to-person and surface transmission of the virus.

- Queuing can be an impediment to physical distancing as individuals seek to reach their destination as quickly as possible and likely interact with others in line

- Long queues may double back, placing those in line in face-to-face proximity

- Queuing individuals may seek support from potentially contaminated nearby walls or rails when wait times lengthen

- Seating may inadvertently encourage lingering conversation or create contaminated surfaces

- Waste receptacles, door levers, lighting and elevator controls may also be touched and contaminated.

- Higher-quality finishes may be made of materials that harbor virus-laden droplets longer

- Physical distancing may be problematic in elevators; however, the typical elevator trip is much shorter than 15 minutes, the CDC's identified time period for higher-risk exposure

Strategies that can reduce risk, and may or may not be appropriate or desirable in a given space in these areas include:

Transportation access

- Designate separate locations for drop-off and pick-up for personal vehicles, ride sharing services, company vehicles, and public transportation. Promote cycling or walking to minimize commute interactions with others

- Limit interaction between those exiting transport and those getting on

- Increase distances between designated pick-up locations

- Ask those who are waiting to remain in their cars; they can be called into the building via a mobile application or other means

Queuing

- Place markers on walking surfaces to identify the Center for Disease Control and Prevention's distancing requirements

- Design a queue that reduces interaction between individuals, those traveling in the opposite direction, and with surfaces that could harbor the virus

- Reduce queuing by using electronics to scan and identify people (and their badges) for purposes of security, time clocks, and symptom checking

Screening at entry

- Install touch-free turnstiles using swipe or wireless cards

- Consider using infrared fever screening systems (IFSS) for non-touch body temperature detection

- Consider use of germ irradiation that employs far-UVC (ultraviolet) light

- Use IoT technology or RFIDs for touchless secured access

- Consider providing a quarantine zone/isolation area for affected individuals.

- Mandate use of PPE and sanitizing/handwashing for everyone who enters the building

Vestibules and lobbies

- Limit the number of people in the vestibule and/or as a venue for waiting

- Add ventilation in vestibules

- Close off the vestibule if other entrances and exits are available

- Eliminate lobby pay stations in favor of touchless pay at the garage exit

- If touch pay stations are required, provide disinfectant for an attendant to disinfect touch pay stations after each use

- Provide areas for disinfecting wheelchairs and provide assistance with cleaning

- Install a sneeze-guard with easy-to-clean materials at security and the information counter

- For visitors who need a badge, install a kiosk where they can enter their information to receive one or implement an online system for distributing badges; alternatively, replace the system with a voice-activated badge machine.

- Eliminate coat closets and other storage areas

Entries and waiting areas

- Consider eliminating seating

- Eliminate reasons for people to touch surfaces by removing collateral material, magazines, newspapers, and coffee dispensers

- Reduce the number of individuals in any one space by offering multiple activity spaces

- Use separate lobbies and corridors for those entering and exiting

- Use signage to advise, as well as attendants to enforce, physical distancing and queue lines

- Require people to wear masks

- Provide handwashing and sanitizing stations

- Install touch-free systems and equipment

- Provide regular cleaning and sanitizing

Elevators

- Allow a limited number of people in the elevator at one time

- Program elevators to pick up on only one floor and go to only one floor at a time

- Allow elevators to automatically open on every floor

- Stagger arrival, departure, appointment, or meeting times to reduce density

- Change controls to voice- or mobile phone–activated

- Have a lobby attendant program elevators for desired stop(s)

Restrooms

Numerous studies have shown the risk of contamination from public-use restrooms. In a workplace, with employees using the facilities multiple times a day, familiarity and habit may lead to a lack of vigilance. In some pre-pandemic workplaces, the restroom may have been a place for a moment's break, a quick conversation with a colleague in passing, or a place to change clothes after a workout. Restrooms remain a space to touch up appearance, take medications, change diapers, use commodes and urinals, and wash hands.

Hazards in restrooms include challenges to physical distancing while waiting in line as well as when entering and exiting the space. Further, surface transmission may occur from contact with contaminated surfaces and/or personal trash. Fecal-oral, aerosolization, and surface transmission have the potential to occur within the proximity of toilets.

Strategies that can reduce risk in restrooms include the following.

- Install touchless operators for toilet flushing, toilet lid closure, faucets, soap dispensers, and paper towel dispensers

- Place signs indicating that toilet lids (if present) should be closed before flushing

- Replace or modify stalls and partitions so that they extend to the floor

- Substitute touchless paper towel dispensers for hand dryers

- Eliminate doors where possible by providing a long entry that eliminate sightlines

- Provide automatic door openers, hands-free door hardware or proximity sensors

- Restrict access to fixtures to provide minimum six-foot spacing

- Limit the number of people allowed in the restroom at one time

- Replace multi-fixture restrooms with several unisex restrooms

- Restrict the number of on-site personnel to limit the number of people using restroom facilities

- Provide barriers/floor markings to ensure physical distancing when queuing

- Consider directing occupants to utilize restrooms in distributed locations throughout the building to limit the number of personnel in one area

- Commission the HVAC system. Increase the rate of exhaust to provide more air changes. Filter exhaust to ensure air is cleaned before cycling back through the HVAC system, or provide 100% exhaust and outside air makeup.

- Place signs asking employees and visitors to wash their hands before and after using the restroom

- Provide hands-free trash receptacles

Restroom

The numbered strategies below reference the AIA Re-occupancy Assessment Tool framework.
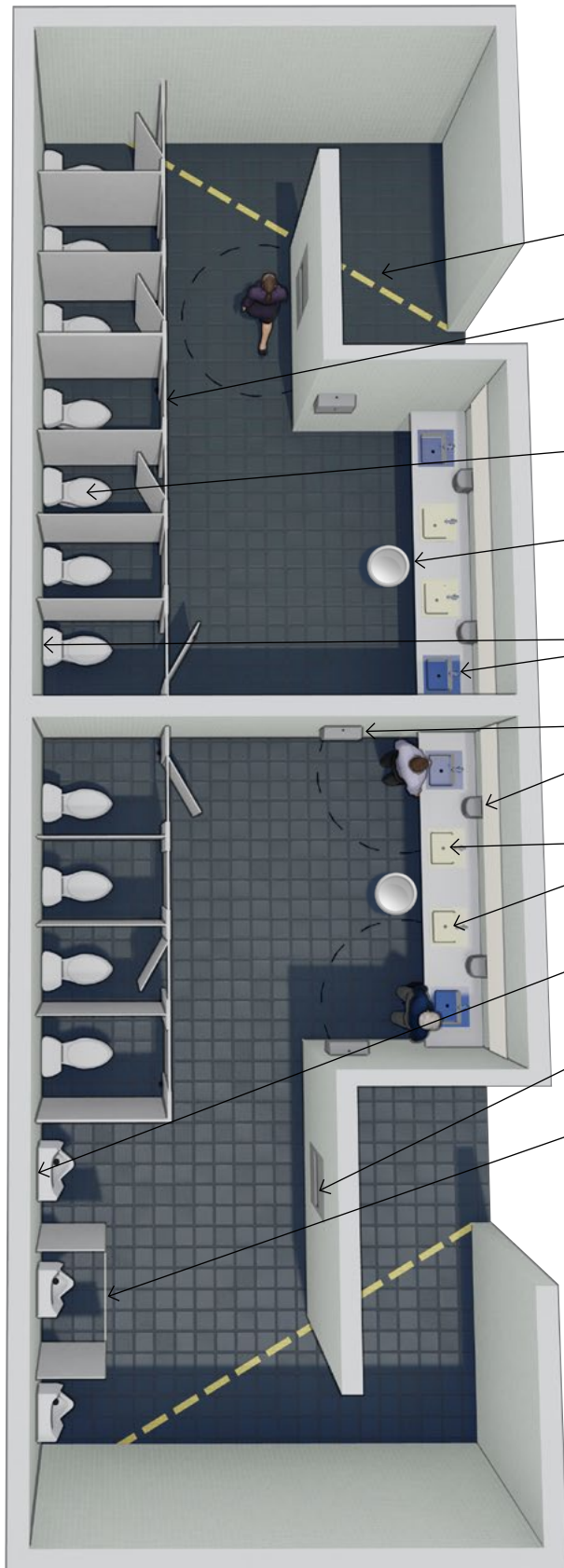
3.3.4 If possible, configure restroom entry to have no door (dashed line indicates sight line)

3.2.3 or **3.9.2** Lock every other restroom stall door to restrict access and ensure minimum six foot fixture spacing or replace or modify height of restroom stall enclosures

3.4.8 and **3.5.6** Install toilet lids and signs directing that lids must be closed before flushing

3.2.4 Additional touchless trash can to accommodate increased waste and enforce physical distancing between sinks

3.5.3 Replace flush valves and faucets with touchless devices

3.9.5 and **4.2.10** Provide touchless hand soap and paper towel dispensers, and remove or disconnect and restrict access to hand air dryers

3.2.3 Restrict access to lavatories as makes sense to ensure minimum six foot fixture spacing

3.5.3 Replace flush valves and faucets with touchless devices

3.9.4 Retrofit existing or install new touchless trash receptacles

3.2.3 Restrict access to every other urinal to ensure minimum six foot fixture spacing

General HVAC notes:

3.6.3 Monitor relative humidity, temperature and CO_2 levels regularly to identify and resolve issues quickly

3.6.4 Increase ventilation rates and air changes

3.6.9 Align HVAC filter selection, cleaning schedule and replacement cycles with ASHRAE recommendations

3.6.10 Clean HVAC intakes daily

3.6.15 Consider temporary bypass of energy recovery systems

3.6.6 Commission restroom for negative air pressure

Collaboration and dwell spaces

Collaboration and dwell spaces take the form of breakrooms, meeting rooms, open offices and similar spaces where occupants may spend an extended period of time. These spaces bring people together in-person or remotely for project work, meetings, workshops, events, meals and refreshments or activities that may define an organization's culture. The basic principles of physical distancing are challenging for these uses. It is essential to consider how to carefully apply architectural, engineering, and administrative strategies.

Hazards in collaboration and dwell spaces include both person-to-person and surface transmission of the virus.

- Inadequate physical distancing while queuing to access common amenities such as coffee makers, refrigerators, water dispensers, microwaves and sinks.

- Proximity of chairs and tables that could impede physical distancing.

- Contact with shared surfaces and equipment such as a break room refrigerator and microwave, conference room technology devices, and office copiers or printers.

- Use of a refrigerator with surfaces contaminated by virus droplets.

Reduce the risk of surface transmission by doing the following:

- Install touchless entry, where feasible, or keep doors open if acoustic, fire, or hygienic considerations permit.

- Replace shared equipment, such as phones, with required personal headsets or clean daily.

- Add Bluetooth credit only, hands-free, and/or easy to clean vending machines.

- Sanitize equipment that produces ice and/or bins that store ice using approved sterilizer by the EPA specifically for use and prevention of SARS-CoV2 (cause of COVID-19).

Achieve physical distancing and virtual collaborations by doing the following:

- Space seating to maintain physical distancing appropriate for the activity.

- Provide video capabilities to share white board activity to facilitate meetings larger than seating allows.

- Install acoustic treatment to help individuals hear each other better while wearing masks.

- Refrain from serving food and beverages during meetings. Encourage employees to take breaks and eat lunch outside, if appropriate.

- Prioritize the use of meeting rooms that have access to operable windows, if possible.

- Hold meetings in a nearby park or outdoor patio when weather permits.

In addition to the strategies noted, an extensive framework of strategies for re-occupying offices is available in AIA's Re-occupancy Assessment Tool.

Open office

The numbered strategies below reference the AIA Re-occupancy Assessment Tool framework.

General HVAC notes:

3.6.3 Monitor relative humidity, temperature and CO_2 levels regularly to identify and resolve issues quickly

3.6.4 Increase ventilation rates and air changes

3.6.9 Align HVAC filter selection, cleaning schedule and replacement cycles with ASHRAE recommendations

3.6.10 Clean HVAC intakes daily

3.6.15 Consider temporary bypass of energy recovery systems

3.2.1 Reduce, change or re-arrange to provide more spacing, for example:

» Typical informal meeting table + chairs were replaced by chairs with attached tablets

» This area originally fit 12 workstations, now reduced to 9

3.2.1 Stagger workstations where possible and rotate to face the same direction

3.8.4 Provide an extra monitor for video ability without decreasing screen workspace

3.9.1 Install physical barriers such as clear plastic partitions

Break room

The numbered strategies below reference the AIA Re–occupancy Assessment Tool framework.

3.8.3 Dishwasher to sanitize reusable utensils and cookware

3.5.4 and **3.9.5** Touchless hand soap and paper towel dispensers. Consider touchless faucet

3.9.4 Touchless trash and recycling cans

4.3.7 Limit the use of common equipment such as refrigerator, coffee maker, etc.

4.3.8 Disinfect refrigerator and microwave handles, microwave controls, and faucet at least 3 times per day

4.3.7 Cover and separate silverware and dishes or provide compostable disposable silverware

4.3.5 Provide disinfecting wipes

4.3.8 Provide single-serving coffee maker, disinfect touch areas at least 3 times per day

3.4.6 Post conspicuous signage about risk mitigation strategies and policies, including that congregating is discouraged

3.5.5 Water cooler with touchless function (not shown)

General HVAC notes:

3.6.3 Monitor relative humidity, temperature, and CO_2 levels regularly to identify and resolve issues quickly

3.6.4 Increase ventilation rates and air changes

3.6.9 Align HVAC filter selection, cleaning schedule, and replacement cycles with ASHRAE recommendations

3.6.10 Clean HVAC intakes daily

3.6.15 Consider temporary bypass of energy recovery systems

Considerations when selecting mitigation strategies

After weeks of working remotely, some employees may feel isolated by their remote schedule. By our very nature, humans are social animals. Isolation can lead to poor performance as well as a breakdown of critical relationships with coworkers, which often define the culture of a company. Returning to spaces where employees can safely have in-person communications will have psychological benefits for staff.

In contrast, some employees will have a heightened sense of anxiety and fear when returning to office spaces. Clearly communicating the architectural, engineering, administrative, and PPE strategies employed to reduce the risk of COVID-19 transmission as well as educating and communicating with employees about how they are expected to behave in the office will be critical to promoting well-being and allowing staff to choose whether to occupy offices.

As such, employers should consider a variety of communications designed to engage all workers in safe and responsible behavior whether they are in the office full time or intermittently. Communications may include notification of and education about hazard controls and new directional signage. After a period of time, new protocols will ideally become integrated into day-to-day work activities, especially for regular occupants. Visitors (e.g., clients, customers, vendors, food service deliveries) who are not familiar with protocols will likely need continued regular communication. Before implementing protocols, it is important to consider that temporary strategies may be challenging to change later. Businesses that implement protocols that frequently change can create confusion and lack of adherence among employees.

Additionally, technology will have a critical role in ensuring employee safety with the reopening of offices. Each business should consider how expanding use of existing and new technologies, such as touch-free systems, task automation, conferencing and collaboration software, and electronic communications, can play a critical role in short- and long-term business continuity within the limitations of this pandemic. Businesses should also work with data security specialists to develop comprehensive security protocols and monitoring to combat cyberthreats.

Conclusion

Design has a critical role to play in reopening office spaces that are safer and healthier and support the well-being of employees. While this report primarily provides information on short-term mitigation strategies for offices during the pandemic, it is likely that many strategies adopted for the short term will eventually become long term.

Businesses should approach re-occupancy during the pandemic as a collaborative effort with a multidisciplinary team of experts, including architects, engineers, public health experts, facility managers and other needed professionals to create a holistic approach to re-occupying offices that mitigates risk of COVID-19 transmission, support the well-being of staff, and meet organizational goals. Investing wisely when making these initial modifications could help businesses deal with other potential business disruptions down the road, whether another pandemic or other shocks and stresses.

References

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