A REALISTIC ACTION PLAN FOR AN EFFECTIVE POST-PANDEMIC WORKPLACE
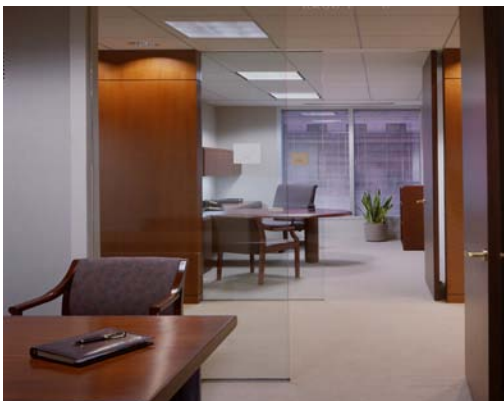
Architecture and interior design publications are full of articles attempting to suggest what the post-CV workplace will look like. But the articles address the most basic low-hanging fruit, and most miss the fact that most workplace environments were dysfunctional before the CV pandemic.

The real significant issues are:

1. What exactly will the CV workplace look like that will effectively allow for quality work by staff and adequately protect employees from airborne contaminants?

2. Exactly how much and what kind of space will the enterprise require?

Given that virtually every business has discovered that re-mote work can be effective for many employees and many tasks, it's tempting to imagine that an enterprise can shed half or more of its space and simply spread people out to meet essential needs.

But it is not that simple. Most office work entails cognitive work, analytical work and collaboration. Zoom has some effectiveness but is reliant on the various participants' camera angles, distances from the camera, lighting and background to be effective. And the Zoom content natural-ly conceals or at least masks most of the body language of the participants. But for small group exchanges, Zoom can be effective and even allow the sharing of drawings and visuals, as well as enabling the recording of the exchange.

Admitting the Workplace is Broken:

In her 11-2-20 Time magazine article "Work in Progress," Alana Samuels observes, "Office work was broken long before the pandemic. Technology had seamlessly con-nected workers to one another, but it's brought with it an endless stream of distractions." Samuels noted that the av-eraged worker checks email every six minutes and spends too much time in meetings of dubious value. Samuels noted that "time they spent at their computers has become a proxy for how hard they are working" since office pro-ductivity is so hard to monitor.

Most offices were sorely lacking in environmental effec-tiveness long before the CV forced quarantine working.

Every significant research initiative in the last 30 years has concluded that open plan office environments fail to meet the essential needs of workers. Most every organiza-tion has been overcome with a zealous desire to reduce
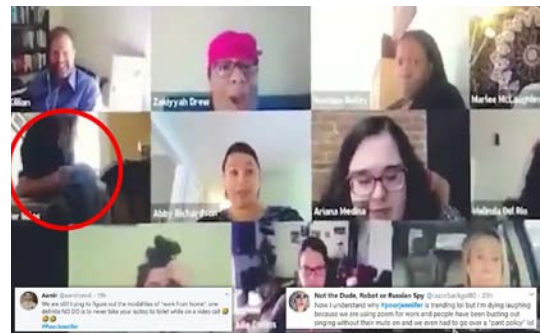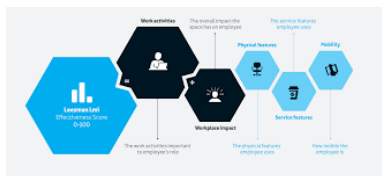

Above: Zoom Issues
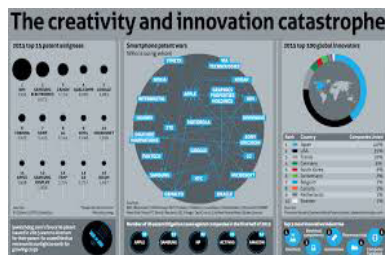Below: Alana Samuels, Failed Office Design
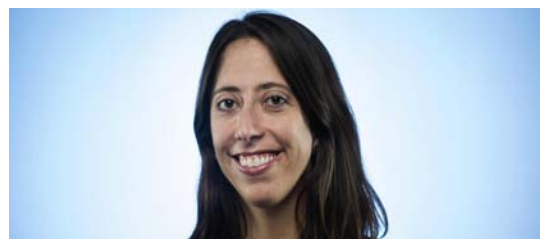
Top to Bottom:
1. Open Plan failure
2. Open Plan failure
3. Leesman Index Summary
4. Leesman Activity Index Summary
5. Leesman Index Summary

occupancy costs – typically 3%-8% of operations – and embrace desking arrangements that have reduced or eliminated to a fault space allocations to each employee, and reduced all visual and acoustical barriers, creating environments where concentration has been virtually impossible.

Every scientific study has identified that open plan offices have produced increased absenteeism, increased sick time consumption, and diminished employee satisfaction because open plan environments cause conflict, high blood pressure and increased staff turnover ((Oomen, 2013; Queensland, 2018; Kim & deDear, 2013; Ipos, 2017; Konnikova, 2014; Bernstein, 2018; Belk, 2017; Kaufman, 2013; Gensler, 2013, Church, 2015, Oldman, 2018, etc.).

"The open plan environment is like some gigantic experiment in willful delusion."

Feifer, *Fast Company*, 2018

Few if any organizations have been bothering to define and measure work output, so most are unable to define the corresponding decrease in work quantity and quality. This is partly attributable to the change in the nature of work, which has become increasingly analytical and strategic in nature. This makes the quality and quantity of work challenging to objectively measure with any effectiveness.

And the AD community has generally performed as scribes to the corporate real estate executives who have imposed ever-smaller space standards, desking and limited private space for heads-down concentration work, and small team interactions. We have seen over a decade of design awards with handsome spaces supposedly intended for collaboration, with the trademark large steps between floors and refreshment areas with fun furniture and lighting – often with no images offered of areas where people are actually assigned to work. There has been a reason for that.

The research has overwhelmingly indicted the ineffectiveness of these environments for decades with little or no acknowledgement or response from the AD community. The Organization for Economic Cooperation and Development has stated that since the 2008 global economic downturn, productivity has failed to rise markedly.

The 2018 Leesman Index that surveyed 250,000 workers found that only 57% agree that their workplace enables productivity at any level. Belk (2017) found that 58% of High-Performance Employees (HPE) say they need more

quiet to do their work, with 54% clarifying that their offices are too distracting, and that only 18% believe their workplaces provide "operational benefit."

Gensler, the top workplace planning and design firm in the world surveys its client annually and in 2013, concluded "While the proven connection between collaboration and innovation remains, our research suggests that the strategies often used to achieve it – open workplaces, low- or no-panel desks – aren't hitting the mark. As a result, focus work has been compromised in pursuit of collaboration. Currently, neither is working well."

These workplace failures have produced diminished productivity, increased absenteeism and illness, diminished worker satisfaction, increased worker turn-over and lost profits. Gallup estimated that the cost of "employee disengagement" in the US at $550 Billion in 2013.

Employers have argued that the lack of sound privacy in condensed open plan offices is offset by the ease of communication. But over 90 research initiatives and surveys published since 1998 have overwhelmingly established that this is not the case.

An oil and gas company that moved from a traditional to an open plan office environment commissioned a team of psychologists to conduct a post-occupancy evaluation: "The psychologists assessed the employ-ees' satisfaction with their surroundings, as well as their stress level, job performance, and interpersonal relationships before and after the transition, and, finally, six months afterward. The employees suf-fered according to every measure: the new space was disruptive, stressful and cumbersome, and instead of feeling closer, coworkers felt distant, dissatisfied and resentful. Productivity fell."

The Center for the Built Environment at US Berkeley conducted a post-occupancy evaluation of 4100 users in 15 buildings and found that 99% stated that their concentration was negatively impacted by office noise – phones and background speech, which was verified by the World Green Building Council to cause a 66% drop in performance.

Many employers have tried to make up for substan-dard work environments with amenity gimmicks. Google is legendary for its slides, pool tables, ham-

Top to Bottom:
1. Gallup Survey, Employee Engagement Costs
2. Facebook Workplace
3. Google Workplace

mocks and on-tab beer. Facebook CEO Mark Zuckerberg, Google and Bloomberg have all drunk the Kool-Aid.

"Google got it wrong. The open office is destroy-ing the workplace."
Kaufman, *The Washington Post*, 2014

A recent field study by Harvard Business School's Ethan Bernstein utilized people analytics technol-ogy to track face-to-face interactions with wear-able sociometric devices before and after open

plan moves. He found that open plan settings supposedly designed to enhance collaboration had exactly the opposite effect. People put on headphones to tune out audio distractions, and face-to-face interactions decreased by 73%. Internal email increased 22% - 51%.

Working from home during the CV eliminated these distractions while likely presenting new ones. Studies have yet to present a credible definition of the merits and liabilities. But one significant liability is the separation of us from our co-workers.

Gensler's surveys found that people found working from home stressful – 32% in April/ May of 2020, which reduced to 24% by the fall, with 75% of home workers feeling equally or more productive than working in the office.

Cushman & Wakefield's 2020 survey found that many find it much more difficult to achieve a sense of well being when working from home. Many are experiencing Zoom fatigue as it is more difficult to process information digitally than in-person.

So the PCV workplace is not about band-aids to put people back into the previous dysfunctional spaces with inadequate tools that fail to protect people responsibly from contaminants and provide appropriate environmental assets to permit effective focus work and safe collaboration.

Low-Hanging Fruit:

The PCV workplace will likely involve new protocols for entry, masks, safe distancing and interacting with co-workers. Mechanical systems will need to increase the outside air changes and incorporate upgraded MERV 13 filters. Nightly system flushes and the use of operable windows are sensible and will become standard responses. Combination thermostats with CO_2 sensors will be able to deliver better fresh air to breathing zones.

But the standard large-zone overhead Variable air Volume (VAV) systems in US offices are not easily or inexpensively converted to Variable Refrigerant Flow (VRF) systems with smaller zones for better localized distribution. The benefits of decoupling ventilation from heating and cooling will be needed to provide adequate ventilation in transition seasons which can make up nearly half the year. Smaller HVAC zones that address what can be anticipated to be smaller work neighborhoods can improve thermal comfort and wellness. These betterments will come at a cost, particularly where the existing conditions are above-ceiling mixing boxes, ductwork

Top to Bottom:
1. Sociometric Device
2. Open Office Band-Aid
3. MERV 13 Filter
4. VRF System Isometric

MERV 13
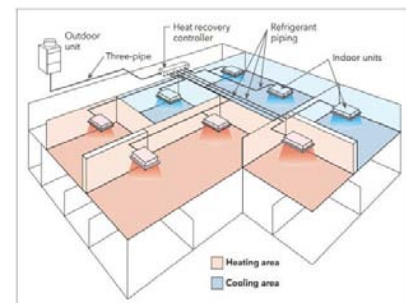
Variable refrigerant flow systems can deliver cooling to some zones and heating to others, with no reheat needed (an air-source system is shown here).

and distribution.

Increased ventilation costs more energy, justifying energy recovery systems – which are not inexpensive. Tax incentives would help. Touchless devices will come out of the bathroom and make their way to refreshment areas and elevators.

Corridors in the PCV Workplace need to be wider than code minimum to achieve safe distancing. Hand sanitizers and wash sinks will be beneficial at entry points and conveniently deployed throughout.

Collaboration spaces can and should be more than a 20" high piece of Plexiglas down the middle of the conference table. Tiered seating at large whiteboards and/or video screens where participants can engage safely in multiple rows will be far more effective and give occupants choice in their safety.

Landlords can be expected to be cooperative to retain tenants, even if many seek to diminish the magnitude of their leasable area.

Moving Past the Dysfunctional Offices of 2000-2020:

One reasonable reaction to the CV crisis is revisiting the applicability of space standards and work station designs from the 1970's-1990's where individuals were housed in individual work stations – 6'x8', 8'x8', etc., with panel-supported work surfaces and fabric-covered acoustical panels that absorbed 75%+ of the sound energy that hit them. Panel heights varied from 60" – 80" depending upon status of employee or the degree of speech privacy needed by the occupant. These panel heights in the post-CV world represent the liability of compromising air circulation, needed for effective air changes for an acceptable parameter of indoor air quality.

Such space standards if adapted to post-CV criteria would suggest that supplemental air circulation fans that would aid in air circulation could with proper workstation configuration and orientation prove effective.

An additional reasonable reaction would be to return to the 1980's and 1990's version of hoteling – albeit in a modified manner. The initial hoteling initiative began in the accounting and management consulting practices which saw the majority of their employees working at client sites for four out of five days a week. Too often hoteling took the form of library-carrel sized open plan rows that provided little qual-

Top to Bottom:
1. Conference table Glass divider band-Aid
2. Tiered Collaboration Space
3. 1990's Panel-Based Open Plan Work Stations
4. Hoteling Work Stations
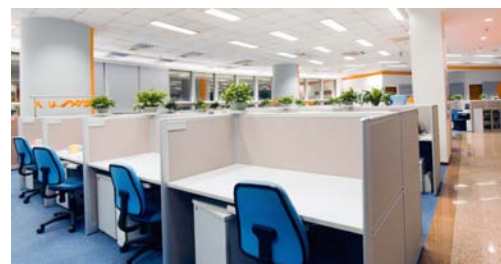
Top to Bottom:
1. Management Consulting Firm Principal Office
2. Management Consulting Firm Open Plan
3. Management Consulting Firm Space Plan

ity but did deliver a certain degree of visual and acoustical privacy that the desking paradigm of late have stripped away.

Corporate real estate consultants and executives suggested providing workstations for one-fourth to one-half of the middle management headcount whereby people would reserve a space when they needed to be in the office. The concierge would bring the employees' personal effects and files to that workstation so that when they arrived, they would be prepared to work.

The simplistic concept behind this type of hoteling was its downfall for it failed to address the essential questions – what does the employee need to accomplish and what ***kind*** of space and tools are required to provide a setting for successful work?

Over two decades ago, our firm was asked to design new offices for the relocation of a prominent management-consulting firm in Cleveland, OH. The firm had just completed a new hoteling project for its Chicago operation and wanted the Cleveland office to utilize the same space standards and space utilization strategy to reduce the firm's real estate costs.

The firm's national real estate consultant negotiated a Cleveland lease predicated on the Chicago standards and determined the Cleveland project's space needs and budgets before consulting the local office principals or our firm. The new standards represented a dramatic reduction in leasable area per professional. The local principals had seen the award-winning handsome Chicago office designed by a nationally prominent AD firm and were outraged. They refused to embrace the Chicago space allocation strategy and standards for the Cleveland office - for functional reasons.

The Chicago office paradigm reduced partner and principal spaces to perimeter offices of 10' x 12' with glass storefronts. Aside from the reduction in space and status from 180-200 sf, the glass storefronts for principal offices ignored one of the most fundamental dynamics of the principals' duties. Consultant reviews are conducted quarterly in the principal offices.

These reviews were candid and often involved critiques that elicited emotion and occasional tears from the consultant staff. Glass storefronts compounded the shame, which required the principals to rent hotel rooms nearby for reviews that involved critical content. This also added to the annual occupancy costs, wiping out the reduction in office rent savings with the smaller offices. Suddenly, an off-site review immediately implied a negative review and potential termination, stigmatizing

both principals and consultants.

The only other space standard for the Chicago hoteling paradigm were open staff work stations built of 4' high drywall partitions. These bullpens provided no acoustical or physical privacy or separation, which made heads-down concentration impossible.

Conference and meeting rooms were clustered adjacent to the reception/ waiting areas with full-height glass walls and wood floors throughout. Displayed work of project teams was not possible due to the inability to have visual confidentiality, resulting in sheer curtains added after the fact. The noise of heels on the wood floors was a constant distraction. The handsome award-winning space failed to meet the essential needs of the firm. Because the new hoteling initiative was the brainchild of the national corporate real estate team and its consultant, the Chicago local office's input was not taken into consideration.

The Cleveland team demanded the right to take over their project. We hosted two half-day Imagineering sessions with large cross-sections of the office to identify all work tasks and the environmental criteria needed to support that work. We focused on culture and identified aspirational changes the client team valued.

The more challenging but vital discussion required each session to extend into the afternoon to gauge the dynamics and types of work and anticipated population density of each in time. Both the client and our team wanted to achieve the national objectives for space reduction and budget while exceeding expectations for user satisfaction. And this is the most important of all conversations and data-gathering needed if post-CV workplace environments are to legitimately meet the needs of users.

We developed a custom questionnaire that was distributed to everyone in the firm which asked each person to identify their range of work tasks, the type of work setting would be most effective at meeting those needs, and the critical anticipated frequency of use. The synthesis of this information enabled us to propose five different space standards and a specific count for each:

- **Principal Offices:** 160 sf with a storefront that was half solid and half glass;

- **Manager/ Consultant Offices:** Originally relegated to open plan occupancy, 8' x 12' enclosed offices with glass fronts and carefully scaled furniture were used for full-time support staff and administrative managers with a number of unassigned offices that could be reserved by consultants who needed relative

Top to Bottom:
1. Management Consulting Firm Perimeter Touchdown Work Zone
2. Management Consulting Firm Personal Harbor & Open Plan
3. Management Consulting Firm Manager/ Consultant Office

Top:
1. Management Consulting Firm Team Room

visual and acoustical privacy and anticipated the need for regular collaboration with one or two guests.

- **Touch-Down Stations:** For those consultants who were in the office for a training or administrative session and simply needed a space to plop their laptop, get email and make telephone calls between meetings, a perimeter zone at the full-height glass corners of the building were reserved for these tasks and personnel.

- **Open Plan Work Stations:** 6'x8' Open plan work stations with P-tops were developed and provided for administrative support staff and consultants to reserve for those who needed a large work surface area to spread out work in progress and if necessary, collaborate with a teammate.

- **Personal Harbors:** Manufactured at the time by Steelcase, PH's were 6'x8' enclosed private work stations with a small work surface area, a curved sliding door to signal head-down vs. welcoming status with a fan and an acoustical ceiling and light.

These met the heads-down concentration needs of consultants and were the most popular space standards, which our analysis contemplated. The 29 PH's provided was the largest order Steelcase ever received for the product.

The mix of workstation settings and the number of each proved extremely effective at meeting the needs of the office. A range of meeting/ workrooms was also incorporated with the ability to adjust meeting room sizes. Small team meeting rooms for 4-8 proved to enjoy the highest utilization. We also achieved and even exceeded the space density objectives of the corporate real estate office and completed the project on budget.

Results:

The success of the initiative is reflected in the fact that the client gave our space standards, space plans and work setting calculations to other AD firms executing projects around the country in abandoning their original Chicago hoteling initiative.

Our design exceeded the corporate space reduction objectives reducing both real estate square footage and occupancy costs per employee by 26%. Revenue per square foot increased by 36%. User Satisfaction was graded A from its previous C, as was functional efficacy.

Post CV Keys to Success:

The keys in the Post-CV Workplace are 1). The determination of work tasks, and the corresponding identification of the appropriate work settings that provide appropriate social distancing/ visual and acoustic privacy, meet applicable ventilation criteria and do so with a responsible carbon footprint, and 2). The determination of the appropriate mix of those settings to accommodate the anticipated headcount and density of the staff. The challenge in the latter is the ability to determine the maximum demand and evaluate the risks for failing to meet essential needs to arrive at the appropriate diversity factors.

The Post-CV Workplace can be expected to impose new geometry for space plan density, workstation size and barrier separation type and height. Desking does not work for any work mix requiring focus work and should be relegated to the dust heap. Some of those parts and pieces may be repurposed in the P-CV Workplace. But the idea of simply adding a padded 20" barrier added – or even worse, a glass barrier which does nothing whatsoever for visual or acoustical privacy - between two inward-facing desking configurations fails to provide adequate visual and acoustical privacy and a functional barrier to airborne particle movement to appropriately protect staff.

The design and popular press have been deluged with articles that also suggest the appropriate Post-CV Workplace should be open tables ten feet apart. Such a space standards fail to deliver even a basic parameter of visual privacy, acoustical privacy and provide zero protection from airborne contaminants.

The design and popular press have been deluged with articles that suggest the appropriate Post-CV Workplace should be stretched desking tables all oriented in the same direction with seated privacy barriers (54" or lower) between rows. But the speech privacy plane is 66" so any barrier below that height fails to be properly positioned as an effective noise absorption barrier to provide adequate speech privacy.

The Number One complaint of open plan offices is that they fail to provide acoustical privacy. The absence of visual privacy is Number Two.

It will be interesting to see how the large corporate offices and the large legal, accounting and consulting firms manage the prospect of hoteling offices for senior personnel. Many jumped on the bandwagon in the past two decades of eliminating the distinction between senior executives and executives, or senior partners and associates, with all being given associate-sized offices. That saved them real estate and eliminated the headache and cost of juggling people when their promotion kicked in,

Top to Bottom:
1. Desking with "SMARTdesk" acrylic dividers alleging it is a "social distancing solution"
2. *Time* magazine cover, May 29, 2020
3. Photo from *National Real Estate Investor*, July 7, 2020
4. Weston Williamson & Partners advocates eliminating every other person and adding glass barriers, which misses the whole point of open plan failures.
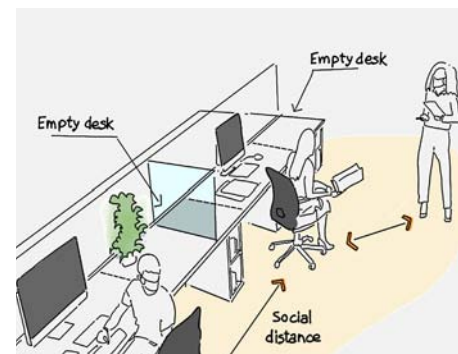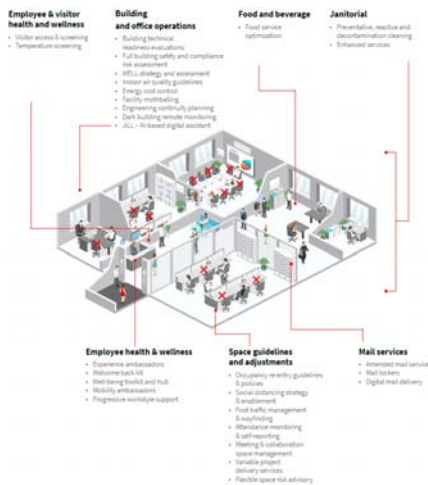
Top to Bottom:
1. JLL PCW article excerpt, April, 2020
2. WeWork 'social distancing space plan'
3. Desks 10' apart
4. "Good-Bye Open Office," NPR, 5-19-20

Goodbye, Open Office? How Workspaces
Will Change After Coronavirus

May 19, 2020

GABE BULLARD   FROM WAMU 88.

▶ 4-Minute Listen   ＋ PLAYLIST

entitling them to that bigger office.

JLL - Jones Lang LaSalle, the international real estate brokerage firm, has published a proposed PCW workplace design that simply crosses out half the population and includes securing mail and other tweaks to justify continuing to occupy the same amount of space. JLL can be forgiven for their lack of objectivity on the subject since they start with the assumption that the existing office design effectively meets staff needs. WeWork's 'social distancing plan' similarly misses the mark.

Most enterprises have found it possible to function at a reasonable level with staff remote during the pandemic. Many are finding that their staff morale is higher and most appreciate the ability to 'get back' their time commuting and their expense to park in the CBD. But many are adopting the management consulting paradigm of having all hands on deck at least one day a week to communicate with one another on work in progress, manage project team assignments and schedule for work delivery. For the larger firms, this may be most effective in controlling reduced space utilization if undertaken by practice groups with staggered days.

Samuels noted that before the pandemic, 8% of office workers were working from home globally, and that the pandemic has boosted that to 25%. Anecdotally, I believe that percentage is now much higher.

Culture & Work:

More than a century ago, French social scientist Émile Durkheim (1858–1917) put forth the theory that the social cohesiveness of small, undifferentiated societies (mechanical) and of societies are differentiated by a relatively complex division of labor (organic).

Durkheim's theory held that mechanical solidarity is the social integration of members of a society who have common values and beliefs. These common values and beliefs constitute a "collective conscience" that works internally in individual members to cause them to cooperate. Because, in Durkheim's view, the forces causing members of society to cooperate were much like the internal energies causing the molecules to cohere in a solid, he drew upon the terminology of physical science in coining the term mechanical solidarity.

In contrast to mechanical solidarity, organic solidarity is social integration that arises out of the need of individuals

for one another's services. In a society characterized by organic solidarity, there is relatively greater division of labor, with individuals functioning much like the interdependent but differentiated organs of a living body. Society relies less on imposing uniform rules on everyone and more on regulating the relations between different groups and persons, often through the greater use of contracts and laws.

In 1973, anthropologists Leslie A. White and Beth Dillingham authored a concept of culture that identified two basic areas of our lives that make us feel alive and give us meaning and put a different spin on Durkheim's theory.

Dillingham and White kept Durkheim's labels of mechanical and organic solidarity, but defined them differently. Organic solidarity refers to those with similar values and beliefs, regardless of the origin or nature of those beliefs. Mechanical solidarity referred to those who share knowledge, beliefs and shared experiences derived from a shared vocation, craft or technical education. This flips Durkheim's theory that organic solidarity is a social cohesion based upon the interdependence that arises between people from the specialization of work and complementarianism as result of more advanced modern and industrial societies.
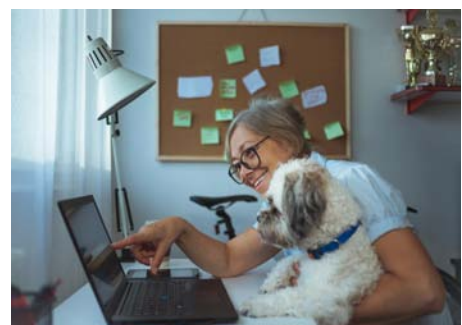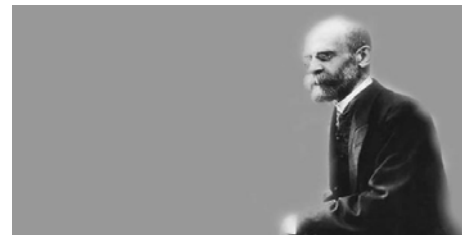
Modern social theory still regards Durkheim's theory as the gold standard, but what is relevant is that most organizations have recognized the value and need to support both forms of cohesion for a balanced and healthy workforce.

Quarantined workers surveyed indicated a marked feeling of loss with 50% saying they most missed working with others in parson (C+W XSF, 2020), with 30% stating that they felt that they were not learning due to a lack of access to leadership and resources. Gensler found that 70% want to work in the office most of the week.

Organizations have come to value the development and maintenance of a healthy 'office culture' where cooperation, collaboration, respect and teamwork are found to positively impact productivity and employee retention. Doing rewarding work, feeling respected, sharing experiences and access to leadership and tools have all been consistently reported in surveys as most important to office workers in recent years.
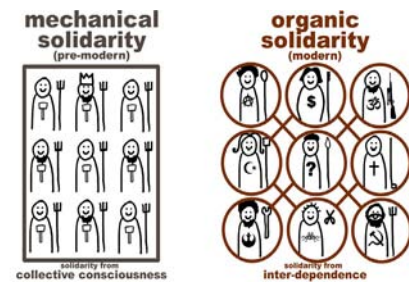
Top to Bottom:
1. Mechanical vs. Organic Solidarity
2. Emile Durkheim
3. Working together
4. Working from Home

Top to Bottom:
1. Workflow
2. Column Five monthly town hall meeting
3. Dr. Bourouiba MIT pathogen transport studies (sneeze)
4. What's Next?

The Costa Mesa, CA marketing company Column Five was experimenting with the idea of incorporating "flow" time into employee schedules before the pandemic hit. From 12:30 – 4 pm every day, the company encouraged staff to refrain from Slacking, emailing or calling one another so workers could concentrate on their own projects and work. But flow is not something that can be scheduled.

During the pandemic, Column Five employees at home experienced their schedules disrupted by family responsibilities, and the company doubled down. Workers now set a blue lightening-like imogi on their Slack status to let workers not to disturb them.

In a November 2020 video from Steelcase, Dr. Lydia Bourouiba, Director of the MIT Fluid Dynamics of Disease transmission Laboratory elaborated on her 2018 TED Talk.

Dr. Bourouiba specializes in examining pathogens transport and how that process is shaped by physical sciences. Her lab utilizes high speed imaging to understand the dynamics of space and time that determine pathogen transfer that have produced and validated models. Dr. Bourouiba hopes that her work leads to us using the built environment as a "tool for resilience" for covid-19. She notes that we have experienced seasonal flu and just since 2000, SARS, MARS, ebola, H1-N1, indicating that these threats are not rare or isolated.

Dr. Bourouiba believes that recirculating the air to enhance energy efficiency that reuses air to introduce it again to avoid utilizing 100% fresh outside heating air is "something that should be avoided," because it reduces resistance to pathogen transmission.

Dr. Bourouiba believes that the configuration of indoor space is a critical key in effectively managing pathogen transport to create safe and effective work environments. There is no 'one-size fits all' panacea for how to return people to a workplace that is safe and effective. We need to reassess our historical biases in light of the overwhelming evidence that our society's reliance on open pan environments - particularly those void of visual and acoustic barriers - have failed to provide a functional and safe environment.

We need to begin by backing us and determining what our people do and how do they do it which will imply discreet environmental criteria. What has been missing is an appropriate level of detail and concern with the acoustical characteristics needed to support various work tasks.

The role and value of daylight, sustainability, enclosure, the type of configuration needed to heads down focus work as well as safe collaboration work must be examined and crafted. User control and social interaction via technology warrant attention in establishing appropriate space standards.

And we must now add to that the environmental considerations associated with thermal comfort, air movement and pathogen transmission. Flexibility will be a criteria for most users that will rise in its importance. Spaces will need to be zoned to manage density and noise.

We can do this - if we are focused and responsible.

But we need AD firms to stop parading small or insufficient ideas pretending that they are solutions when they themselves are still living with dangerous and dysfunctional desking systems that represent the failure of the workplace environment that worldwide research has determined to be a failure.

The AD community needs to step out from behind the curtain of fashionable tools that have shrunken and rendered dysfunctional the workplace and again become a value-adding business partner to re-energize the workplace for optimum effectiveness and safety.

Top to Bottom:
1. Setting new space standards
2. Cleveland AD firm utilizing its same desking environment in its post-covid-19 occupancy
3. The Wizard of Oz