DesignIntelligence

# SPECIAL EDITION CORONAVIRUS DesignIntelligence

# DesignIntelligence

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# **Design in a Post-Virus World** DesignIntelligence Foresight Perspectives

In response to the global outbreak of the COVID-19 virus pandemic, we share our thoughts and reactions with the greater DesignIntelligence community. We are focused on research publications and content that make a difference in helping our clients and partners makes sense of a rapidly changing personal, professional, and broader world. On behalf of the DesignIntelligence Editorial Board, we offer these perspectives to bound and unleash your thinking and posture you for survival and leaps forward.

We believe helping our clients anticipate and prepare for possible future scenarios is a worthwhile endeavor. To understand the impact, we include a snapshot vision of a possible future – key focus areas in a post-virus world for the built environment industry.



We share these leverage points after assessing the growing impact of the coronavirus pandemic - key areas for consideration for leaders and practitioners in the built environment industry. We asked DI board members and regular editorial contributors to offer rapid-response reactions for use by the DesignIntelligence and Design Futures Council communities. In their current form, these essays and opinions are not peer-reviewed whitepapers - they are the collective viewpoints of more than two centuries of industry experience and observation during change events.

We hope that they help you – and that you will connect with us to share your perspectives.

**Resilience in Action** Establishing a Strategy for Business Continuity

DesignIntelligence

If not now, when?



# DAVE GILMORE

President & CEO, DesignIntelligence How do leaders react in uncharted times? Have they planned for the future? What steps can they take to preserve business continuity?

The COVID-19 pandemic has turned us downside up exposing the frailties of many systems which we rely upon to operate as a nation, industry, community, and practice. The soft underbelly of the built environment industry is now openly exposed putting thousands of jobs at risk. But this new open exposure also offers us a unique opportunity to envision a new way and steer the industry towards a new resilience. As Hillel said long ago, "If not now, when?"

At the heart of this crisis is a call for business continuity planning. By definition, "business continuity is an organization's ability to ensure operations and core business functions are not severely impacted by a disaster or unplanned incident that take critical systems offline." (INAP) Global supply chains are severely impacted. From raw material extraction and processing to manufacturing and assembly to validation and certification assurance to packaging and shipping logistics . . . all are under threat in this present context of fearful uncertainty. Organizations that have irresponsibly placed their eggs in single baskets when it comes to supply dependence are now coming up short. This irresponsibility has resulted in wide disruption across global economics, governments, industries, and individual consumers. Businesses that single source without any contingencies expose themselves and their employees to life-altering disruption that in some cases may not be recoverable. The absence of business continuity strategies will always result in unnecessary loss.

# **An Approach**

So, what's a straightforward approach to business continuity strategic planning? Here are few points to get us started:

- Creating human resource cross-training programs ensures more than one subject matter expert is available to carry the workload. Overdependence on key individual contributors is risk not worthy of responsible leadership governance.
  - Identify the key contributors in your organization.
  - Articulate their contributory value.
  - Create "knowledge contagion programs" that ensure knowledge, understanding, and expertise are learned across multiple resources.
- Examine the current supply chains that are required to operate. Rank each by their criticality to determine your most vulnerable exposure. Then plan for 3-deep sourcing,

identifying, vetting, and assuring adequate supply flows against your quality and timeliness standards. In other words, spread the goodness to multiple suppliers to mitigate critical supply risks.

- Perform an information technology business continuity audit. This is different than a disaster recovery plan which focuses on a negative episodic event. Business continuity planning is both broader and deeper, inclusive of all essential aspects of a business to keep it afloat during and after a negative event. Dimensions of a business continuity plan include:
- Availability of and access to critical technology systems and data processing necessary to run the business.
- Security of all essential technology assets both physical and virtual.

- Readiness to execute disaster recovery actions to ramp-up any disabled technology assets necessary for business continuity.

Now is the time for organizations to get serious, make investments of time and money, and defend the business with adequate protection. This current threat is but one episode in the overall life of your firm. Many more will come, both physical and virtual. Let's move out of reactionary fear-driven panic to proactive planning, sourcing, and assurance.

This is what good leaders do.

The absence of business continuity strategies will always result in unnecessary loss. The Post-Virus World of Design Coronavirus Foundations

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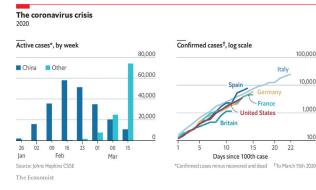


# **BLAINE WISHART**

Software Architect based in Berkeley, Ca. and Hainan, China

# **To** *info@di.net*

**Subject** In this rapid response, DI's technology expert Blaine Wishart shares email stream-of-thought data and links on the virus with our internal team. We include his tips on accessing real data in their original, raw, unvarnished form for broader reach.



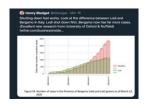
# Confirmed cases<sup>†</sup>, log scale 100.000 10,000 1.000 100 20

Days since 100th case

# Team:

I've been following the data published by Johns Hopkins daily since January 24th. The image above from The Economist is the most informative single image I've seen. "

Understanding what has happened on the ground in China is challenging for anyone.



The runner up is this graph that illustrates the impressive power of lockdowns.

Understanding what has happened on the ground in China is challenging for anyone. The information does not flow freely there. Yale's Human Nature Lab is a world-class lab and it's director, Nicholas A. Christakis, is publishing some wonderful material from China with the help of his students, who can read and write Mandarin. It documents what is happening on the ground and gives a hint of how diverse the Chinese response has been.

The conversation Dave kicked off with his note on The Post-Virus World of Design can be valuable. My personal inclination is that an assessment of the events of this year is a good starting point. In two weeks, that will have been very preliminary. For example:

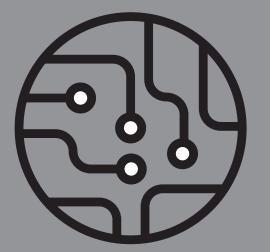
- We don't know if the US and Europe will reverse their current trajectories as China and S. Korea have done. That result success or failure will lead to drastically different Post-Virus worlds.
- We don't know if the concept of Post-Virus is valid. I can't speak for him, but Bill Gates may well think we have been in an ongoing virus world for 2 decades.
- We don't know if China's apparent reversal will hold as people return to work.



Nonetheless, I think a working assumption is that we will do as well or better than China (we do have some advantages) and in the foreseeable future we will be able to look back on COVID-19 as we look back on SARS. These assumptions can lead to useful discussions. [Other discussions may also be useful.]

# Communication: Existing trends will get stronger.

- Most notable is the trend toward async communication. Whether using text, images, sound, video or a combination the common thread of TicToc, Instagram, YouTube, WeChat, Twitter, and even some blogs is async communication and that implies remixing. [This email is an example.]
  - When the synchronization is frequent, WeChat or Twitter feels like, well, chat. But synchronization is often at the level of minutes, hours, days or more.
  - When we sit in a zoom meeting,
  - it feels interactive, not async but many also make use of texting to coordinate or conduct other business during zoom sessions. Often people don't participate directly but use the recordings.
- Interactive communication, but not face to face, will become more important. Does this require pre-existing social connections? I'm not sure. Often, they will facilitate things like use of Zoom, but I think we are seeing a generational divide. Some of the richest interactive communication I have comes from my Twitter feed and I observe others (younger) for whom interactive media is the primary initial social channel.



- It is worth mentioning that as many of us use it, Zoom is largely asynchronous.
- For the foreseeable future, conferences at a specific location and time will be greatly reduced.
- The rhythm of science will continue at a faster pace. Many people I know who once checked a few journals a few times a month now check bioRxiv and/or medRxif frequently, if not daily. That makes preprints feel almost interactive rather than the batch processing mode of journals especially in the context of Twitter and WeChat. Interesting preprints are propagated quickly worldwide. COVID-19 is a good example because so much of the basic science is well known as this article explains. As a result, scores of clinical trials are in progress or are about to be launched. [Weird that in the US we have not mastered the testing S. Korea established by February 7th which has allowed it to flatten the curve w/o massive lockdowns.]
- The ratio of information I receive async compared to interactive video is more than 100:1.
- Rich data will become an even more important dimension of communication. Those who collect it will gain an advantage.

## **Technology: Better Editors and Remixing Tools**

• We are where the internet was before HTML/http. Before Cern released those, we could get information from all over, but combining gopher, ftp, etc. was cumbersome. Cern defined the APIs that allow Mosaic, then Netscape, etc. to get rapid adoption. Right now, combining information from diverse sources, especially mixed language sources, is painful and time-consuming. Story: I listen to WeChat in English (using a Baidu plugin and a text reader plugin), select a 15-second clip and paste it into email as English text and then add a live link to a Python animation of hospital ICU bed utilization in the Bay Area. [This could be written now.]

l've been in 'shelter in place' or the stronger Chinese lockdowns since January 25th. Hate to say it, but it feels moreor-less normal.

- We can get much we need to know about communication by looking at how Old Town Road evolved and answering the question: Why is it easier for some native English speakers to check into a Chinese hotel where only Mandarin is spoken than to check into a quality hotel in London where everyone is a native English speaker?
- Concern about secure communication channels will grow as reliance on face-to-face communication declines and the Iot/5G hacking possibilities become obvious.

Except for a brief, and wonderful, 4-day stint in London in early March, I've been in 'shelter in place' or the stronger Chinese lockdowns since January 25th. Hate to say it, but it feels more-or-less normal. I can have face to face conversations with neighbors in the back yard. We keep a big distance (3-5 m) but it is great. Bike riding and CRX in the yard have replaced a gym and the wonderful surf of Hainan.

I hope you are all well too.

Please look at that graph from Italy again: Every day of social separation has an impact.

thank you, Blaine Wishart

\*On 3/23/2020 Blaine informed us from Berkeley, CA via email that he had awakened with symptoms. Upon testing he was deemed virus-free.



# **Economic Implications** of COVID-19

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# **BOB HUGHES**

Senior Economic Fellow, DesignIntelligence

# In response to the COVID-19 outbreak, DI Economist Bob Hughes outlines the economic reaction sequence and offers perspective.

There is a rapidly increasing likelihood that the record-long economic expansion which began following the worst recession since the Great Depression may come to an end as a result of an unprecedented global pandemic. While there are still many unknowns regarding the progression of the COVID-19 outbreak, effects of the outbreak across the economic and financial market spectrum are becoming apparent. Policy responses such as shelter-in-place orders, guarantines, and shutdowns are compounding distortions in economic activity. Monitoring economic conditions, financial market reactions, and policy responses is essential for businesses to survive the crisis.

# **Outbreak Of COVID-19**

The World Health Organization states that the first patients were reported to it by China on December 31, 2019. From sometime in mid-to-late December through March 22, 2020, COVID-19 has spread to more than 316,000 people in 166 countries causing more than 13,500 deaths. In the U.S., more than 27,000 confirmed or presumptive cases have resulted 200 deaths across all 50 states and 4 territories.

# **Reaction Sequence**

As news of COVID-19 spread, financial markets were the first to react. Next came soft sources such as comments from major public companies regarding the outlook for business or surveys of businesses. Finally, the effects started to show up in hard statistical data despite lags of weeks or months.

### **Initial Reactions**

U.S. financial markets began to significantly react to information about COVID-19 in mid-February. The Standard and Poor's (S&P) 500 stock index closed at 3,386.15 on February 19 while the yield on the 10-year U.S. Treasury note was 1.57%. Since then, the S&P 500 has fallen by about 30%, hitting 2,386.13 on March 16. The VIX index, a measure of equity market volatility, has surged to the highest level since 2008. The yield on the 10-year Treasury note touched a low of 0.50% on March 9. Equity, debt and commodity markets around the world have suffered similar rapid declines.

Public companies such as Apple and Disney were among the earliest firms to announce lowered expectations for future earnings due to significant disruptions to supply chains, production, and sales. Since then, dozens of public companies have warned of potentially significant negative COVID-19 consequences.

# Hard data

Until just recently, there had been little hard, statistical evidence of the distortions to economic activity because of the lag in collecting and compiling official economic statistics. Among the early data to show effects, initial claims for unemployment insurance surged in the week ending March 14, jumping 70,000 to 281,000, the highest level since 2017. To put that in perspective, in 1982, initial claims surged high as 695,000 and in 2009, claims reached 665,000.

### What's coming

Rapidly expanding use of aggressive policy to reduce the spread of COVID-19 including shelter-in-place orders are going to cause substantial distortions to economic activity including labor market conditions, consumer income and spending, business revenue, profit and investment, prices, financial system intermediation including credit availability, and capital market functioning. For the labor market, additional job losses and work-hours reductions are a certainty. These effects are likely to be seen in the upcoming Employment Situation report due out on Friday April 3. The current consensus estimate is for a loss of 420,000 private sector jobs for the month of March. That compares to an average monthly gain of about 180,000 over the last five years.

To put those numbers in perspective, during the two most-severe recent recessions, 1982-83 and 2008-09, average monthly declines in payrolls were 166,000 and 374,000, respectively, with the worst single-month declines coming in at 344,000 in July 1982 and 800,000 in March 2009. The peak-totrough losses totaled 2.7 million and 8.8 million, respectively. The unemployment rates peaked at 10.8% and 10%, respectively. As of February 2020, the unemployment rate was 3.5%.

# 10-YEAR TREASURY NOTE

-30%

S&P DECLINE

Rising layoffs and lost work hours will reduce aggregate personal income. Lower aggregate income suggests lower aggregate spending, with the exception of the panic buying of disinfectants, sanitizers, cleaning products, personal hygiene products, and food items. With layoffs rising and incomes falling, expect a drop in consumer confidence and a rise in savings for those who continue to have income.

With the negative effects of rising layoffs, falling incomes, and declining consumer confidence swamping any positive effects from a surge from panic buying, expect total output, measured as real gross domestic product (GDP), to post declines. Since many of the effects of the outbreak and subsequent drastic policy restrictions didn't hit until later in February and March and since the current pace of progression of the outbreak suggests it could take months to get fully under control, the impact may be spread over at least two quarters. The initial estimate of first quarter GDP is due out at the end of April, assuming government statisticians are still working. Second quarter real GDP is scheduled to be released in late July. Since 1950, the U.S. has had six quarters with declines of 5% (at an annualized rate) or more, the most recent in fourth quarter of 2008. Either or both of the first two quarters of 2020 could see significant declines.

Whether or not the declines in output will eventually be classified as a recession by the National Bureau of Economic Research (the widely recognized authority for determining and dating U.S. recessions), is a matter of semantics. The disruptions are substantial, and they are going to get worse, possibly much worse, before they get better.

Historically, recessions often occur as a correction to an imbalance in the economy. In the 1950s, inventory cycles – the buildup of excessive amounts of inventory followed by a reduction in production while excess inventory is reduced - were a primary cause of recessions. In more recent recessions, asset bubbles or debt bubbles were major factors. The stock market bubble in the late 1990s contributed to the 2001 recession while the Great Recession of 2008-09 was largely due to both an asset bubble (housing) and a debt bubble (mortgages). One unique aspect to the current disruption is that Pre-COVID-19, there were no severe excesses in the economy. Therefore, it is possible that the economy may recover more quickly compared to previous recessions or downturns. A key determinant will be the extent of permanent damage such as bankruptcies, especially small businesses. If efforts to protect businesses from permanently closing are successful, then laid-off workers may be recalled more quickly, and economic activity may return to normal levels more quickly.



With layoffs rising and incomes falling, expect a drop in consumer confidence and a rise in savings for those who continue to have income.

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# Potential longer-term structural changes

My colleagues at DesignIntelligence have discussed some potential changes that may occur as a result of the COVID-19 outbreak. Certainly, business and governments at all levels will review business continuity and disaster plans. Those reviews may result in increased capital investment in new and/or additional equipment, software, and inventory. The increased investment may temporarily boost GDP.

However, increased investment in research and development may result in new inventions, mechanical devices, information technology, or biotechnology. Those inventions may then develop into new business opportunities (i.e. the next Apple or Microsoft, but for biotechnology) and create whole new industries. The resiliency and adaptability of the U.S. economy should never be underestimated.

Public policy will likely have heightened focus on public health, resulting in greater public investment as well as tighter regulations. Again, greater investment may boost GDP, but additional rules and regulations may impose additional costs on businesses and require higher taxes or diversion of existing public funds away from other programs.

Among the more intriguing potential structural changes may be the role and magnitude of remote working. The capability for remote working has existed for some time but is advancing every day. "

For the federal government, deficits and debt levels have already been skyrocketing, a very dangerous policy path. Should a permanent shift to a higher percentage of remote working occur, the implications are enormous. A more mobile and flexible workforce could change demographic patterns, particularly geographic distributions which could significantly alter current and future demand for the built environment.

Increased flexibility could lead to happier, more productive workers as well as greater labor force participation. Both could lead to a higher trend growth rate for the overall economy, something of a Holy Grail for developed economies.

On the downside, all the money spent on these initiatives must come from somewhere. Resources may be diverted from other initiatives or there may be increases in costs (in the case of businesses) or taxes (in the case of governments). For the federal government, deficits and debt levels have already been skyrocketing, a very dangerous policy path. Massive spending now and in the future, while justified in a crisis, are going to exacerbate the very poor fiscal position of the Federal Government.

After a traumatic event, there is likely to be a strong desire to return to normalcy as quickly as possible. Yet, some positive and some negative structural changes are likely to occur.

The best course of action is to stay informed of developments and be as proactive as possible.

# **Design Thinking** Goes Viral

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# SCOTT SIMPSON

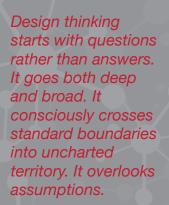
Senior Fellow, DesignIntelligence

# What do Black Swans and viruses have to do with design?

The rapid spread of the COVID-19 virus is a true "black swan" event. It was entirely unexpected, there is no effective treatment or cure yet, and nobody knows what will happen next. But we do know this: while eventually things will settle down to some semblance of normalcy, our lives going forward will never be quite the same.

There is no shortage of expert opinion about what could or should be done. We've heard from the usual suspects: physicians, economists, and politicians, etc., some of whom offer conflicting opinions. The stock market has tanked; schools, restaurants, and businesses are closed; sports stadiums are empty; and some store shelves are bare. The prospect of massive unemployment, at least in the near term, looms large. While all this gets sorted out, the biggest enemy is uncertainty. *Here's the good news:* this is the ideal time for design thinking. After all, design thinking thrives on uncertainty. It's when we don't know what we don't know that the creative juices get flowing. For designers, thinking outside the box and going beyond conventional constraints is what powers innovation. It's how we discover new ideas and methods that will lead us in surprisingly productive directions.

The short-term focus is relatively straightforward: find ways to stop the rapid spread of the virus, treat those who fall ill, and figure out how to prevent similar outbreaks in the future. Once that's done, attention can be turned to the longer-term effects. Much of the burden for short term results will fall on healthcare and biotech industries professionals, who are best equipped by expertise and



experience to deal with the underlying medical issues. This will also require the active support of business and political leaders as well as the public. There are plenty of ways for design thinkers to help.

Design thinking starts with questions rather than answers. It goes both deep and broad. It consciously crosses standard boundaries into uncharted territory. It overlooks assumptions. Very often, it works backwards: imagining the most ideal outcomes and then swimming upstream to the source. Design thinking often combines ideas that appear to be polar opposites in new and unusual ways. That's where the good ideas tend to hang out.

So for starters, how can we keep people both separated and connected at the same time? How can people not go to work and yet still earn a living? How can schools be closed while still providing a good education? How can businesses thrive when they have no customers? How can we go places without traveling? How can we make sure that public spaces are actually the safest places to be? How can we see that sick people get the care they need without going to doctors or hospitals? What are the hidden benefits of social distancing and working from home? Design thinking believes that there are real answers to all these questions, and more.

### **Pragmatic & Practical**

To be effective, design thinking must also be pragmatic and practical as well as idealistic. It must propose solutions that are both implementable and demonstrably better than the status quo. For this, design thinking depends on data as much as it does on imagination. Data is the best way to combat the biggest obstacle, which is fear of the unknown. The current data suggest that a certain segment of the population is particularly vulnerable: the elderly with underlying medical conditions. Fortunately, for most people, the danger is statistically small, and many infected persons may actually experience few ill effects. Learning why some people stay healthy while others fall sick will provide important clues about what to do.

The longer-term implications are intriguing. As with any crisis, difficulty breeds opportunity. In 2008, when the economy was in near-collapse, businesses were forced to learn some hard lessons about how to stay competitive under radically different circumstances. They learned how to do more with less by restructuring operations, investing in technology, and shedding non-essential staff. In a surprisingly short time, things rebounded, sparking the

# "

As a bonus, how can the lessons learned be applied to other kinds of seemingly unrelated problems going forward, such as income inequality or global warming? longest-running economic expansion in history. Trillions of dollars of new value was created, shrinking the unemployment rate to historic lows. Such an outcome would have been unimaginable in 2008, but it did happen.

# Design Thinking and Crisis Management

And what of the current crisis? Thinking backwards, what needs to be done today so that six months or a year from now we can say we made the right moves? Which conventional practices, now suddenly outmoded or ineffective, should be discarded in favor of new and different ways of doing things? As a bonus, how can the lessons learned be applied to other kinds of seemingly unrelated problems going forward, such as income inequality or global warming? How do we make lemonade out of lemons? Design thinking is the key. Some fundamental changes are easy to imagine. If people can work effectively from home (at least part of the time) then the demand for conventional office space is likely to change, the time & cost of commuting will go down, traffic and parking congestion will ease, and there would likely be a spike in the demand for remote conferencing technologies, opening up new opportunities for telecommunications firms. As schools become more adept at delivering quality instruction online, the education industry, which today operates primarily on a nine-month schedule from September to May, could conceivably evolve to a twelvemonth business model, making its products and services more widely available at lower cost. Automated factories already operate at higher capacity with fewer personnel, and this trend is likely to accelerate. A factory that can run with little or no live staff can produce goods on a 24/7 basis,

immune from the biological threats that are posed by pandemics. Autonomous trucks could deliver goods more efficiently, programmed to eliminate traffic accidents and to use highways and city streets during off-peak times, thus reducing both travel time and congestion, not to mention fuel cost. And so forth. The implications for design thinking are huge. Here are a few quick ideas:

- 1. Design ventilation systems for airplanes that eliminate the virus.
- 2. Design extra-large mailboxes that can handle bigger deliveries (food, cleaning supplies, etc.).
- 3. Design doorknobs and gas pumps with built-in hand sanitizers.
- 4. Mobilize food trucks to provide widespread delivery of meals-on-wheels.
- 5. Broadcast educational programs for K-12 students to supplement home schooling.

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- 6. Open stores 24/7 but limit the number of customers who can shop at any given time.
- 7. Invent a toothpaste that kills the virus on contact.
- 8. Design a walk-through screener for airports that identifies potentially infected people.
- 9. Use large parking lots at shopping centers to set up automated curb-side pickup.
- 10.Broadcast "virtual vacations" that can be enjoyed from home.

The bigger and more important questions have to do with sociology rather than technology. Human beings are wired to be social animals. How will the "new normal" affect relationships in families, communities, companies, cities and even nations? How can we design systems and physical spaces that promote a genuine sense of intimacy without actual physical contact? What is it about the current crisis that will bring people together, operating in common purpose, rather than driving them apart? How can diverse individual interests, which may appear to be at cross purposes or even diametrically opposed, be woven together so that the body politic is strengthened rather than weakened? Some means and methods (such as Facebook, LinkedIn, and Instagram) already exist, but they are far from ideal virtual communities. The upside potential is huge.

If we can design therapeutics to cure biological ills, why not apply design thinking to tackle critical social issues as well? That may be the most intriguing question of all.



# Working From Home: The New Normal?

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# **KEN SANDERS**

Managing Principal, DesignIntelligence Strategic Advisors What are the consequences - unanticipated, physical and psychological - of working remotely?

Among many dramatic impacts of COVID-19, working from home (WFH) is a new and disruptive reality for design professionals globally.

As a write this, I've begun day two of a three-week "shelter-in-place" order issued by six county governments in the San Francisco Bay Area. Many companies around the world, including a number of AEC firms, have also voluntarily initiated their own broad WFH programs.

The good news: many firms have been well-prepared for such large-scale virtual collaboration. Indeed, the technology infrastructure required – personal videoconferencing, virtual meeting platforms, cloud-based software applications, etc. - is essential to any modern multi-office organization. Over the past decade, drivers have included connecting talent from multiple offices, leveraging talent in lower-cost markets, filling expertise gaps of co-located teams or simply facilitating cross-disciplinary collaboration among separate AEC firms.

However, this time is different - in a big way - and involves sustained virtual collaboration among individuals who normally sit together in close proximity. They are surrendering all physical contact. Even if AEC firms are well-prepared technologically, is their talent prepared emotionally? What are the consequences of isolation, especially for those who live alone? And what are the practical considerations of WFH programs for privacy, acoustics, The good news: many firms have been well-prepared for such large-scale virtual collaboration.

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ergonomics and work-life balance, particularly for parents with children at home?

It is uncertain how long these WFH programs – voluntary or involuntary - will last. But when the crisis ends, which it inevitably will, our perspectives on WFH programs will likely have changed. What will be the *new normal*?

# Challenging Legacy Assumptions

The great open-office debate is certainly not new. Companies generally prefer open offices because they provide greater flexibility, increased density and decreased real estate costs. And beautiful, well-designed open offices, which provide multiple options that support different modes of work, are an attractor for recruiting and retaining talent.

Having said that, maintaining acoustical privacy and providing the right conditions for sustained, focused work remain vexing design challenges. Most people toggle between working alone and collaborating. Overhearing a one-way conversation can be more disruptive than overhearing a twoway conversation (the "need-to-listen" effect), so phone calls or headphoneenabled webinars in an open office are always challenging. In a WFH arrangement, this may be less problematic, but not if you are sharing the same work room as your spouse, partner, roommate, or child.

But here is the core issue: foundational to the open office concept is the assumption is that if everyone works for the same firm, in the same city, doing similar things, they should ideally work together in the same location. It is generally understood and accepted that some degree of in-person interaction is both healthy and necessary to building trusted relationships and productive teams.

What remains to be seen is if and how this assumption shifts (or not) postcrisis. A key question to be answered: is most-of-the-time physical interaction actually better than periodic physical interaction? And how will individual preferences change (or not) as a result of the pandemic?

## **One Firm's Experiment**

In one multi-office U.S. architecture firm, with a small ten-person office facing an upcoming lease renewal, the office leaders evaluated the usual options: stay in place, look for new space elsewhere, upsize or downsize. In this case, the COVID-19 crisis inspired them to make a different choice: no long-term lease at all for the next 12 months.

In this case, the COVID-19 crisis inspired them to make a different choice: no longterm lease at all for the next 12 months. In doing so, they are undertaking a brave experiment. How can the firm sustain and grow a creative, productive ten-person office without the benefit of long-term space? What are the tradeoffs? How frequently and where should in-person gatherings still occur, and how should the firm support individuals who do not have a good home office option?

Fortunately, their talent has a critical head start: they have been working together for years, the trusted relationships exist, they are familiar with one another's skills and capabilities, and communication "short hands" are already in place. It would be a very different (and problematic) proposition to start up a brand-new office that way.

More good news: the explosion of co-working spaces over the past decade now provides many flexible options for regularly scheduled and/or ad-hoc physical gatherings. (Although on hold during social distancing, such physical meetings remain important.) Economic savings are offered as well: renting such ad-hoc space several hours a week is much less costly than long-term leased space.

But what about clients, both current and potential? How will they react to the lack of a permanent, physical office space? This is a risk, and in some cases, it will be a net negative. But the firm's current clients are enthusiastic – they view this as worthy research and appreciate the potential of innovative outcomes. In synergistic partnership, the clients will also learn along the way.

The idea of "non-permanent" workplace, driven by the reality that much (but not all) AEC collaboration can happen virtually, was already a clear and growing trend before COVID-19. Indeed, many clients value more frequent interactive webinars and reducing the time involved in traveling to and from physical meetings. As a result of their COVID-19 experiences, and despite the enforced physical separations, more individuals and organizations may even become more comfortable with the idea.

We should all be fascinated to learn from this, and other experiments undertaken in response to the pandemic, and how different AEC trends might accelerate, decelerate or stay in place. Exactly how our legacy biases and behavioral habits may shift also remains to be seen, but shift they will.

From every crisis emerge new opportunities, fueled by unexpected lessons and transformed perspectives.

Enlightened AEC firms will experiment, watch, listen, learn and act.

Workplace Safety: Learning Across Cultures .

DesignIntelligence

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### SPECIAL EDITION: CORONAVIRUS



# MICHAEL LEFEVRE

Managing Editor, DesignIntelligence To cope with newfound safety risks, we need only look outside of our own cultures. And perhaps expand and adapt systems we already have. Technology and humans will be required.

In the wake of the news of COVID-19 spreading across the globe, one is compelled to ask: what can we in the design and construction community do to be safer? How can we get better, smarter and more well protected in response to viral risks? One quick response approach is to look to the practices of those who build our buildings: the construction and trade contracting communities. What can we learn from them? What can we do to prepare? In times like this, these are thought-provoking questions. If we ask them, maybe we can find some answers.

# A History of Safety and Risk Management

Onsite, laborers have always been faced with risk. After all they are

working in the real world. Heights, machinery, weather – and perhaps the most dangerous of all - other humans, are present. To guard against such hazards the industry has evolved to a well-developed state of awareness and practices when it comes to safety. Further downstream, in the manufacturing sector, OSHA, EPA, unions and other regulatory agencies have long implemented safe practices in factory environments. While even they may not yet have virus testing and safety procedures in place, we can learn from them. Since it's well known that offsite work is safer, faster, more productive and more qualitative, we should continue the push to do more offsite. More prefabrication and componentization. Within a firm's

What can we in the design and construction community do to be safer? How can we get better, smarter and more well protected in response to viral risks? own plant, they are much more able to control conditions – including processes, technology, and staff - even potentially to the point of tracking, preventing and controlling infections.

# **The Difference**

Despite the legacy of having mature safety cultures on job sites, the coronavirus invokes a new set of questions to



address. While the physical issues of safety have long been addressed, the systemic effects of a global pandemic now present us with new issues. What about psychological safety? When we can't touch one another or get close enough to see each other's eyes, smile, or facial expressions, we are forced to rely on new communication modes. Body language, appearance and other kinds of signals (perhaps technology assisted) could help. How do we cope with these new questions?

# Human and Technological Solutions

Scene: You're on the jobsite. The drywall man just coughed. Do you challenge him? Has he gotten the virus? or was it merely dust in his throat? You are in your office working in a shared, free-address, benching, or hoteling environment. Nearby, Jenny begins to cough, spreading aerosols visibly. How should you react?

In an eerily similar parallel to the zombie-apocalyptic TV series The Walking Dead, we are now faced with asking previously unasked questions. What are the new rules of an on-site construction "society" — or any business, retail, office, or social setting of any kind — in a world in which the infected walk among us? Is it time for paranoia and irrationality - "It's him or me!" Or are abundant caution and heightened awareness enough? Perhaps a kinder, more helpful outlook, behavior set, and collective thinking would be more prudent. And maybe putting some improved systems in place?

Since the dawn of building information modeling and virtual design and construction (BIM/VDC) decades ago, leading research universities such as Georgia Tech, Texas A&M, Stanford and others have been developing software and exploring the beta test use of on-site apps to track worker location, proximity and safety. Apps are already deployed on job sites across the country that track - via sensors, badging, and chips - who is onsite, during which hours, and their location relative to hazardous points such as structural openings and deep excavations. Technologies such as these could be adapted to track new criteria such as: tested or not; trained or not, et al. Mobile devices, sensors and jobsite workplace intranets already exist. We simply need to expand their capabilities.

# Expanded On-Site Testing and Training

Large jobsites already have mandatory safety and drug training. It's built into the cost of the work. It's purchased into trade subcontracts. And who would have it any other way? Accidents or loss of life are unacceptable outcomes. In work environments filled with hazardous equipment and conditions the goal is always the same: to send every worker home safety to their families every night. Do we have such practices in place in our office and homes for those we care about most?

# Signage, Prevention and Incentives

As is the mantra for most safetyconscious construction firms, safety is everybody's business. "If you see something, say something", "Zero Accident Culture" and other slogans and campaigns have proven highly effective in managing risk. Most large projects are staffed with one or more safety directors whose job it is to train, observe, and report incidents. Who is the safety director in your office or home?

Smart firms have evolved to instill safe cultures in their firms and with their partners and clients – even to the point of self-insuring through Contractor Controlled or Owner Controlled Insurance Programs. (CCIP and OCIP). Teams in such programs that are aware and safe reap the benefits of their performance: reduced premiums and the return of the resulting unspent common funds as rewards for their efforts. In such onsite construction cultures, lost time accidents and incidents are reported and enforced with penalties for nonreporting. On the positive side, there are rewards for safety performance. Giveaways such as small tools, coolers and promotional stickers are dispensed regularly to promote safety - all with demonstrable, measurable results.

I'll be the first to admit, coming from my first career as an architect, all this emphasis on safety and risk management on construction sites was news to me. It was a new language and set of concerns. But it spoke to the life and death nature of the work in the field. And it paid off. Based on the metrics, my former employer, Holder Construction, was recognized by the industry as

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Daily task plans and other safe practices support these safety programs. It seems easy to imagine that policies for social distancing and viral safety could also be implemented and communicated on site and in offices. the safest contractor in America on multiple occasions. This resulted in lower insurance modifier rates, lower bonding rates, and happier staff with better retention rates. And all of it meant lower construction costs passed on to owners. Those of us in the design, retail and other professional communities would do well to learn more about safety from our construction brethren. I bet they would even to talk to us and help us get started if we asked.

# Stretch and Flex and Other Safety Policies

For the sake of their workers, many major construction projects start each day (and even many in-office meetings) with a safety minute – a brief, informal message to keep safety top of mind. It could be as simple as to keep hydrated during summer hours, or to keep skin covered from damaging UV rays. Most jobsites also begin their days with mandatory stretch-and-flex exercise programs to ensure that their most important resources – their people – are limber and ready to do their jobs effectively and safely. Daily task plans and other safe practices support these safety programs. It seems easy to imagine that policies for social distancing and viral safety could also be implemented and communicated on site and in offices. Equally so, in a possible new world involving significantly more remote work.

# Personal Protective Equipment (PPE)

Along with currently required OSHA protective gear such as hardhats, safety goggles, gloves, vests, and safety harnesses for vertical, above-ground work, new gear incorporating filtration and medically-rated breathing masks and respirators could be implemented. Masks are already in use for particulategenerating work such as drywall, stone cutting, asbestos mitigation, and other processes. New policies such as staggered work hours to achieve lower onsite staffing densities could flatten the curve for peak onsite staff loading, easing demands for parking, as well as concerns for exposure to viruses. Projects already work extended hours to account for concrete pours, schedule recovery, work-flow sequencing and other efficiencies. Why not worker safety and better resource use?

A recent article by Stephen Sandherr, President of the Association of General Contractors, posits that construction should be slowed, not stopped, due to the virus. This is an understandable position given the number of on-site laborers across the country and the attendant economic impacts.

# **Adaptive Strategies**

To check the pulse of what others are doing to manage their situations, I reached out via phone to former colleague, Jorge Cisneros, Corporate Safety Director at Holder Construction Company. They are immediately implementing the following measures:

- 1 Asynchronous Safety Orientations. Training is being developed and delivered creatively via use of video and audio. To avoid physical contact, completion and metrics are self-governed. Employees take stickers left on the desk and mark themselves complete.
- 2 **Shift Work.** To allow for 6-foot minimum social distancing, onsite work crews have been split into two shifts.
- 3 **Remote Work.** Office staff are working remotely from home
- 4 **Daily Leadership Communication.** Company leadership convenes on a daily Zoom call to update, react

and stay ahead of virus-related issues and impacts. Our own team at DesignIntelligence is doing the same.

# What Can You Do? Six Lessons to Apply

Based on the practices above, organizations of almost any size can begin, adapt, or continue these best practices. Few of us in the design and construction community have the skills to preemptively deal with the medical and social issues we now face. We trust that those responsible do - and will. For the rest of us, here are seven specific lessons we can borrow and apply to our own safety – at home, in the office, and interpersonally, to cope.

Track your people /

Manage your data.

Starting now, create a list, spreadsheet, database or central shared file of all members of your firm, team, family and friends. In the

absence of some other more urgent task, if you can afford to, now is a fine time to update your network. Keep track of your most valuable resources - those you love and work with. Who are they? Where are they? What is their health status? Are they connected? Is there anything you can do to help or reassure them? You can't meet face-to-face or give them a hug, but you can connect in other ways. You may not have the infrastructure to have already equipped them with sensors, but, using existing technology, you can see when they are online, are available for a chat or text Reach out to those most important to you - and maybe some you may have forgotten. It's possible that hearing from you may be the most important thing for their health – whether physical, psychological, spiritual or emotional.

2 Manage Your Resources

Now would be a good time to organize your material possessions for your business and personal lives. List them. On a personal / home level this could include food and critical resources. Any good contractor or businessperson knows where their materials or resources are and when they need them. You, and your business and home should too. Time permitting, you may find you can cull, organize, label and make accessible all the stuff that was cluttering or slowing you down because you couldn't (or didn't) manage it. Get your Marie Kondo on.

3 Develop an Emergency / Crisis Management Plan

On every well-managed construction job site, every good contractor has – visibly posted – a crisis management plan. When a storm or an accident occurs, clear steps have been communicated and trained for. Who do you call? What do you do? Where do you go? Do your business and home have one? Keep it simple. Write it down, communicate and practice it. Plan for the worst case. Hope for the best.

- 4 Use Safe, Healthy Practices Review with your team and family the best practices for social distancing, hand washing, mental health and other advice we've gotten recently from the experts.
- 5 Control What You Can / Don't Fret About the Rest

This is, and always has been good advice. Stay rational.

6 Be Creative

Creativity is little more than combining two things that haven't been together before. I have delighted in seeing countless stories about out-of-the-box workarounds. Visiting your parents in assisted living through the windows, video conferencing and signing more to release endorphins are just a few examples. Reverting to homemade, do-it-yourself crafts, trades, and skills such as sewing your own masks gives hope. Based on my clever sister's suggestion, I made a face screen out of a plastic sheet protector and some strips of doublesided tape. Binder clipping it to my glasses worked well. Sure, I looked like a nerd, but I was better equipped to block aerosols at the grocery store. Was it medically rated? No. Better than nothing? Yes.

7 Stay Connected

One of the best ways to be creative is to reach out. Use more than one mind. Diversity and inclusion are proven to generate better ideas. Call your colleagues or family. Brainstorm. Do the things you might do in the office to generate a stellar design.

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# To have good ideas, have lots of ideas.

- Linus Pauling

In his seminal book, *Together*, Richard Sennett shares the German concept of Geselligkeit: the pleasure people take in one another's company. While we may not be able to physically connect for a while, we should do all we can to keep in touch. Not only will give us the kind of ideas discussed above, but it will provide in the best way possible the essential need for human connection.

# **Crossing the Line**

Suggestions such as the ones above are the kind of learning we can achieve if we are willing to look outside our own cultures. Traditionally, such behavior would have been frowned upon. They're contractors! We're architects! We do different jobs! That's work – this is home! are all responses that exemplify past, conventional thinking.

The stakes are higher now. We're in a global correction. It's time to open our culture, eyes, and ears. It's time to cross the line. In such challenging times, what better way do we have than to learn from each other?

I hope we do.

# **Crises Drive Innovation** in Higher Education

DesignIntelligence

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### SPECIAL EDITION: CORONAVIRUS



# **BARBARA WHITE BRYSON**

Associate Dean for Research, College of Architecture, Planning and Landscape Architecture at the University of Arizona In a call to create opportunity from crisis, Barbara Bryson challenges academic leaders.

From The Chronicle of Higher Education, March 19, 2020: "Moody's Investors Service issued a bleak forecast this week for higher education in America, downgrading it from 'stable' to 'negative' in light of the pandemic."

Moody's hasn't been a big fan of higher education for a while, and the recent Coronavirus-related closures haven't helped an industry that has had a hard time with self-examination.

# Opportunities Lost: The Need for Change

Hundreds of millions of dollars, perhaps billions, will be lost by an industry already burdened by forty years of overbuilding, deferred maintenance, slowing enrollments, and a lack of innovation. Many industry professionals understand the higher education business plan is broken. Most everyone also recognizes that students now entering our campuses are very different in demographic profile, economic profile, cultural profile, and educational experience than the students of forty years ago. Yet, the inertia of the giant gorilla of higher education cannot adjust to anything other than a cohort-based four to six-year experience for our students.

Around us, entire industries have changed. The design and construction industries are in the middle of extraordinary change, pressured by competitors, market, economy, and labor scarcity – not to mention technology. However, the schools of architecture have rarely Sometimes, a late freeze will delay spring for a few weeks, but once that spring arrives, it is twice as beautiful. adjusted to reflect the industry needs or to prepare students for a very different future. Innovation in teaching is excruciatingly difficult to achieve. Before the pandemic, upon hearing suggestions of putting studio classes online, some faculty and administrator eyes rolled back into their heads.

## **New Possibilities**

But not today...Today, we in higher education and design education are imagining all sorts of possibilities for teaching innovation, syllabus revision, and program reinvention. Some of this innovation is generated by the immediate need to go online. Other innovations are quickly growing from realizing that the university closures will severely impact our budgets. We are learning to collaborate, research and, somehow, hold jury reviews remotely. One of our most significant challenges is how we will build community for our students remotely.

## Lessons and Learning

We will learn many lessons from this time of forced innovation. One important lesson is to recognize we are not all equally equipped to thrive in isolation. During Coronavirus, connectivity has become our salvation, our access to education, our only social network, and our metaphorical lifeblood. At this time, we need to be aware that lack of connectivity, for whatever reason, is a form of being disadvantaged. Happily, universities are working hard to address this challenge, one that existed before Coronavirus but has been brought into sharp focus by this crisis.

Other lessons include realizing that campuses can be smaller. We do not need so much space. Campuses must unload the heavy burden of financing and maintaining so many buildings. Large individual administrator and faculty offices should quickly retreat to history. We can be flexible and adaptive to students' needs. We are learning through this process: our students want to learn but need support. Often very different kinds of support because they come from very different backgrounds. Sometimes the support is financial because the student or a family member has lost service-oriented income during the pandemic. Sometimes the student needs time-flexibility because they have children to care for at home because of school closures. Sometimes the student simply does not have the

This innovation – a movement toward a more adaptive education - could be a tremendous long-term strategy for higher education and design schools. connectivity needed to be successful. We are learning that our students are truly unique and that we have to be better listeners. We must be more innovative so we can be more supportive and adaptive.

This innovation - a movement toward a more adaptive education - could be a tremendous long-term strategy for higher education and design schools. Our students have different needs than they did forty years ago. They come to us with different skills. The industries of design, planning, and construction are morphing and expanding with different job descriptions being written every day. These jobs translate and interface between technology and human contributions. New jobs have emerged that support the industries, enable technology, stimulate collaboration, connect communities, and enhance communication.

## The Long Term View

Sometimes, a late freeze will delay spring for a few weeks, but once that spring arrives, it is twice as beautiful. Our current challenges and closures are changing higher education profoundly. Moody's downgrade changes bond pricing, which means many new higher education projects have quickly stalled. Stopping projects hurts higher education as well as the design and construction industries.

From this crisis, if we can develop innovations that make higher education stronger – and design education better – the professions will benefit in the long term.

# DesignIntelligence

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