

MARCH 2020

DESIGN RESEARCH UNIT RESEARCH INTO THE BUILT ENVIRONMENT'S RESISTANCE TO CONTAGION

The global pandemic of the COVID-19 virus is changing the world. It will have outcomes that we might be able to predict, but many that we cannot even begin to guess. What is clear, is that it may change the way in which we live, work and socialize together even after we return to normal conditions – whatever that new 'normal' might be.

Rather than being reactionary or even passive participants or agents in this matter, we should be asking what can we do as architects and designers to change future outcomes via evidence and research based inquiry into positive change?

Darren Comber, CEO of Scott Brownrigg has charged the Design Research Unit to focus its entire activities into identifying and proposing design initiatives and outcomes to address these fundamental issues. This aligns perfectly with part of our five year plan and our mantra of “the practice that changed things”.

The intention is to move significantly beyond the current trends in well-being/wellness which is often open to subjective nuance, into rigorous research based evidence that offers a potential future direction of professional practice in this regard.

One current theory from Imperial College London, has looked at the connection between bats (carriers of coronavirus) and ground mammals – but insists that neither are independently or mutually to blame, the real cause is changes of human behaviour. So what building technologies, new building typologies and community engagement projects can inform the necessary adjustments in behaviour – if any?

These are some of the fields of investigation we intend research and utilize in our study:

1.00 Responsive environments

Active and passive environmental techniques that respond not only to climate, but climate change, air density and composition.

2.00 Plan shape, form and density

There has been a drive towards greater density in our urban spaces, offices and living complexes – perhaps it is time to be advocates of change or resistance to ever squeezing parameters or at least offer alternatives, additions or supplements to a trend that balances commerce and critical health? What is clear, is that the current crisis indicates that these two aspects are not in opposition, but are mutually inclusive. Are there particular plan forms and types that might reduce risk?

3.00 Material Science – Nano-technology

Research into not just new materials, but the value and properties of historic ones (copper, brass etc). The use of self-repairing materials/ Self-cleaning using organic Nano-biotic robots currently being developed. If we can coat metals in PV coatings, what other coatings can we use to protect and resist virus spread?

4.00 Automation

Should humans be excluded totally from any processes that may initiate virus contamination and contagion? We looked at robotic medicine dispensing in a project – Medical City in Bahrain project, 8 years ago. Should we relook at this technology now? This may protect front-line health care workers? Circular economies in food generation in clean, controlled environments (salmon and vegetable farm in east London) – new building typologies. Drone production and delivery (Scott Brownrigg's Smart City Block).

5.00 Prediction modelling

We have been using Computational Fluid Dynamics (CFD's) to predict air and fire movement for years. Can this technology be adapted for virus spread modelling not just at the building but on an urban scale? We have a close association with Dyson, who lead the world in 'air technology' – can this be used to benefit not only current hygiene standards but advance the human environment to the next level of thinking?

6.00 Digital Twin testing

The new technology of the 'digital twin' could afford us numerous possibilities to make real-time assessments but in a parallel world that is devoid of risk but equally, significantly more dimensionally accurate?

7.00 Avatars

Aligned with the above. Making humanoid avatars that can 'experience' augmented 'physical' environments and actually report on those conditions, including environments that feel 'sick' and have the potential to incubate dangerous or contagious places?

Touch, heat and facial recognition

These technologies are very much already in place – though some are questionable over their use or validity set against personal freedoms. However, these could be invaluable tools when combined with building materials and technology, make an assessment of the health status of individuals entering or using public buildings. Cognitive buildings, responsive environments, could make huge differences in how we can ensure the health and welfare of global and local populations.

IOT

By the end of this year, more ‘things’ will speak to one another than there are people on the planet (approx. 7.8 billion).

Given some of the above, what if your fridge told your phone that your temperature was raised? Or as you entered your apartment, your laptop was made aware that your breathing was labored because it could measure air movement and density? That face recognition could see that you had contracted conjunctivitis and lowered the window blinds?

Collaborations

We are looking to augment and establish further links with academic, learned and research led institutions. This also needs to be driven down the supply chain. We are in a unique position whereby we control a vast amount of data within our design process – thereby, controlling the agenda.

To revert back to the principle of the topic – what can we do to change things, make them and this place just a little bit better than how we found it? How can we lead, rather than follow? Be advocates rather than apologists?

The collective intelligence and creativity of Scott Brownrigg and others within the profession is immense. We all have something to contribute to this. Let’s make a difference. Let’s be the profession that changes things.