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Guidance Notes
for Commercial Offices
following COVID-19
Executive Summary

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Original Research by

UCL**C**

Consulting with Experts

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Summary

A team of property, architectural and construction experts partnered with University College London (UCL) faculty specialists from virology, construction, behaviour and architecture to create a study on the post COVID-19 return to the office.

This scientific investigative summary aims to provide business leaders with well-informed decision-making information.

It is not intended to be definitive but to provoke discussion and consideration by business leaders of key potential outcomes and effects of the COVID-19 pandemic on office environments and behaviour.

The full report is available online at savilerowprojects.com

Executive Summary author
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Read the full
report here.

Meet the Authors

UCL Consultants

Dr Simon Addyman

Project Manager and Associate Professor in Project Management

Programme Director - MSc in Project and Enterprise Management - The Bartlett Faculty of the Built Environment - School of Construction and Project Management

Simon has had a varied career: working for VSO in West Africa for 4 years, for the UN in Yugoslavia and most recently at Transport for London (TfL). In this time, he became a member of the Association for Project Management and a certificated project manager. In 2013, he won the APM's Project Professional of the Year award.

Dr Evangelia Chrysikou

Lecturer

Bartlett Real Estate Institute, Faculty of the Built Environment

Evangelia's research on mental health, architecture for Health and Welfare, medical planning and accessibility, ageing, welfare and wellness facilities, autism, healthcare, medical architecture innovation, medical tourism planning and design of tourism facilities spans several countries of the world (UK, France, Belgium, Greece, Middle East, Japan, New Zealand etc.). Her work on therapeutic environments has received prestigious international awards (Singapore 2009, Kuala Lumpur 2012, Brisbane 2013, Birmingham 2014, London 2014, Vienna 2017, London 2019). She is the author of the new National Guidelines for mental health facilities in the community.
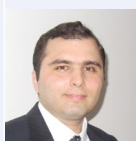
Dr Esfandiar Burman

Lecturer

Bartlett School of Environment, Energy & Resources, Faculty of the Built Environment

Esfand was the lead field investigator for building performance evaluations of several educational buildings funded by Innovate UK (formerly Technology Strategy Board) and the Engineering and Physical Sciences Research Council (EPSRC). The projects entailed detailed and long term energy performance analysis, monitoring and analysis of the indoor environmental quality, operational vs. designed performance review, and Building Use Studies (BUS). Esfand also contributed to other Innovate UK projects funded under the Building Performance Evaluation programme including post-occupancy evaluations of Pool and Tremough innovation centres, Centenary Quay development, and CarbonBuzz metadata analysis. Esfand joined IEDE as a Research Associate in complex built environment systems in December 2014.

Dr Lena Ciric

Associate Professor

Department of Civil Environmental & Geomatic Engineering, Faculty of Engineering Science

Lena's research expertise lies in the application of molecular biology techniques to the profiling of microbial communities in various environments, from diesel degrading consortia, the healthy and diseased human microbiome, to the communities present in the air and on high touch surfaces in public spaces. She also studies bacterial antibiotic resistance mechanisms and their modes of transfer among different communities. Furthermore, she is interested in the discovery of novel antimicrobial strategies. Lena leads the Healthy Infrastructure Research Group at UCL CEGE (www.cege.ucl.ac.uk/HIRG). The group carries out research investigating engineering solutions that reduce the spread of infectious disease and improve environmental health.

## Eva Hernandez Garcia and Eleftheria Savvopoulou

Research Assistance

Professor Alexi Marmot

Professor of Facility and Environment Management and Director

Bartlett Global Centre for Learning Environments

Alexi Marmot has been responsible for developing innovative methodologies to solve practical problems that face all organisations in using space efficiently and effectively to fulfil their mission. Her research-led approach to professional consultancy specialises in 'evidence-based design', development of methods, data gathering, analysis and interpretation of results for application to real-world problems. The WorkWare methodologies she has developed and refined over twenty years, gather quantitative and qualitative data on space utilisation, audit, attitudes and behaviour. Results are interpreted to assist strategic decisions by clients, evidence-based design, and change management for building users.

Alexi has co-authored the definitive book on office space planning in the USA, and another in the UK: Office space planning: Designing for tomorrow's workplace (McGraw-Hill, 2000) and Understanding offices: What every manager needs to know about office buildings (Penguin, 1995).
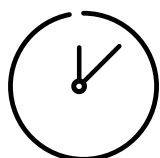
Vaccine

**When will a vaccine offer effective protection?**

As the vaccine distribution reaches over 9million people in the UK, populations are now highly sensitised to viral threats. Society needs to adapt to this by taking sensible precautions as we have done with other major hazards over a lifetime.

We welcome the vaccine advancement as our study identified that, without clinical intervention, the virus could remain active in the population until 2022 at the earliest and 2025 at worst.

This has necessitated short term (2020), medium term (next 12-24 months) and long term (24 months plus) action.

> *Irrespective of whatever outcome, populations are now highly sensitised to viral threat.*
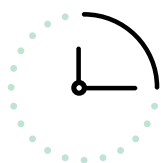
Short Term Actions

Short term actions have largely been taken already such as:

- **Homeworking**
- **Rotational working (multiple teams with some personnel in the office on predetermined days to eliminate potential cross-infection and guarantee continued company operation)**
- **Enhanced cleaning regimes**
- **Introduction of signage and defined traffic routes in buildings**
- **External air intake for mechanical ventilation and open windows where possible**

These have generally been low cost and quick to implement as companies are unsure of the timescales for the pandemic and reluctant to spend significant capital sums at a time when revenue is reduced as a result of the virus.

Short-term interventions can go further. Our work with UCLC was overwhelmingly clear that cleanliness is paramount, and this can be achieved in a few ways:

- Make hand sanitisers available at all touch points including lift buttons, escalators and entrances. The travel environment is outside your control so provide your employees with hand sanitiser for journeys.

- Facilities Management staff need to be trained to health facility standards. We learnt from our study that retained cleaning staff, as opposed to outsourced staff, improved the health outcomes in some circumstances.

- Form a task group to regularly debate employee wellbeing.
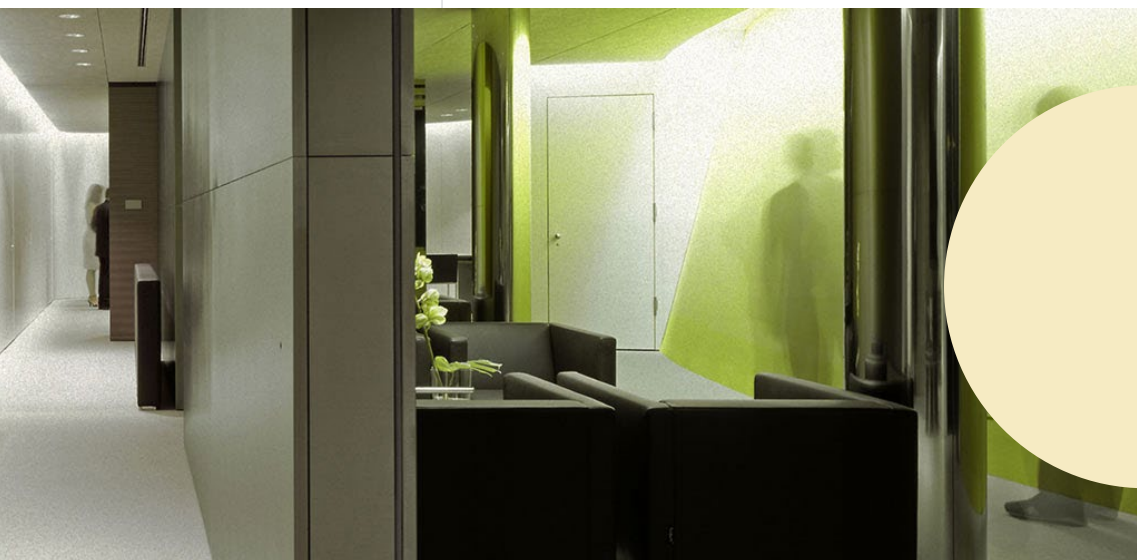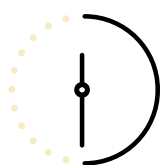
Medium Term Actions

Working from home (WFH)

The genie is out of the bottle: people favour being in the office less whether it is because concentration levels improve, home comforts or just to avoid the daily grind of commuting.

The office has had purpose for centuries dating back to the Medici family in Florence. The major changes since then are technological advancements which 5G is likely to accelerate.

There are clear advantages to WFH. Companies can shrink the office footprint in expensive urban areas during a period of economic decline.

However, the disadvantages run considerably deeper and are more complex

We are at the very beginning of the global WFH experiment. Low productivity and mental health issues were increasing pre-pandemic and working from home is unlikely to be the solution for reversing that trend.

An organisation's value-chain is reliant on knowledge-givers, knowledge-managers and knowledge-receivers. An organisation will likely suffer without sufficient people interaction be it one-to-one, in groups, the ad hoc moment or through regular peripheral vision.

The knowledge givers are likely to be most settled WFH. They are likely to have space for a desk, children will be of school age providing a quiet environment during the day and they have the knowledge so don't need to be in an environment to receive it. However, this is the group that are most needed in the organisation to pass knowledge, support culture, recruit and mentor a company's greatest assets: its people.

As the economy recovers, selling of services and products will come to the fore again. Selling is best practiced in person and we expect there will be an upswing in safe face-to-face meetings reminding us of the importance of the conference, meeting and show room.

Changes to building design

Air management and surfaces are key concerns whilst office layouts may change to accommodate more private spaces, formal meeting rooms and informal meeting spaces.

Key facts of viral infection

- **Virus-laden aerosol particles expelled from breathing, talking and coughing can remain for up to 16 hours in the air and travel long distances in indoor environments**
- **The SARS-COVID-2 aerosol may reach up to 4m distance in a room**
- **Human movement may increase the infection risk by up to 50% for the occupants in the same room**
- **Sneezing and coughing can transport droplets by 7-8 metres**
- **Infected areas can be moved around from surface to surface by touch**
- **The virus remains active for up to 9 days depending on the material, 3 days on stainless steel and plastic, 24 hours on cardboard and 16 hours in air samples**

Air management

Whilst the available guidance from Public Health England (PHE) states that COVID-19 is assumed to be primarily transmitted through respiratory droplets or via contaminated surfaces, airborne transmission is also a route, particularly in poorly ventilated spaces.

Not all air-conditioning filters are effective. The two effective filters are:

HEPA filters can be considered although these filters may not be fully effective due to the small size of the virus particles. They will however capture larger droplets that contain the particles.

UVGI filters are more effective because they damage the DNA structure of the virus however are expensive to retrospectively install.

Improve the ventilation rate by keeping manually operated windows open and to override the settings of automated vents to enhance ventilation where applicable. The ventilation schedule should be extended to provide purge ventilation at least two hours before and after occupancy each day.

Treat air locally in the office to kill and manage the virus. There are now portable UVGI filters available that enable air to be treated in local areas such as meeting rooms and open-plan locations. See Steri-Desk and Steri-Move products (erichkeller.com).

STERI-DESK air recirculation unit from Erich Keller.
www.erichkeller.com

> *The most effective cleaners are directly employed.*

Surfaces

Hard and smooth surfaces are the most hygienic because they are easier to clean.

Glass and laminate scratch less when cleaned preventing the harbouring of the virus. A consequence is soft surfaces are good for acoustics so additional measures are required to manage acoustic levels.

Anti-bacterial surfaces are not always effective as viral droplets from sneezes, coughs etc. are often encased in mucus/saliva and don't come into direct contact with the anti-bacterial agent when in contact with a surface. Copper ironmongery can be effective in reducing the viable lifecycle of a virus however, as these items are normally susceptible to touch-based transmission.

Cleaning

Introduce more regular and effective cleaning practices to lower touch-based transmission risk.

- Cleaners are no longer one of the under-appreciated office services but now one of the most important and valued. The highest risk areas for touch-transmission are common areas such as bathrooms, kitchens and meeting rooms. They will specifically include lift buttons, card swipers, printers, coffee machines etc.

- The most effective cleaners are directly employed and not out-sourced, as was established during the MRSA outbreak by the healthcare profession, as they feel valued and know their contribution to the organisation.

> *Acoustic absorption becomes necessary if additional hard and smooth surfaces are introduced to an office environment.*

Acoustics

Increased sound-masking and private space will become necessary for the increased use of video conferencing.

In open plan offices the level of background noise is important in order to mask otherwise potentially distracting sounds thereby improving privacy. This may well become worse with socially distanced (less densely packed) seating, leading to lower background noise levels and more distinct voices (people talking to colleagues over longer distances thereby raising their voices).

It is likely to be exacerbated with the increased use of video-conferencing from laptops. Electronic sound masking may well therefore become more important in order to guarantee a constant minimum level of background noise thereby improving privacy. Of course, there is the potential for noise from ventilation systems to become slightly louder with increased air change rates and velocities although this is difficult to predict.

Solutions are available such as acoustic pods or open-plan acoustic screening, Strähle Kubus, System 7400 or similar. Alternatively flexible systems such as Strähle System 2000 or similar.

Acoustic absorption becomes necessary if additional hard and smooth surfaces are introduced to an office environment (see Strähle System 7000 acoustic panels). Out of reach acoustic absorber panels will assist and become a natural collection point for aerosol viruses.

Partition design

Flexible and relocatable partitions are likely to be preferable to traditional plasterboard walls to provide enhanced adaptability and flexibility, in a sustainable way. This allows walls and cellular spaces to be easily increased and reconfigured according to the changing demands of the organisation. See Strähle System 2000 or similar (savilerowprojects.com).

For referenced product solutions visit **savilerowprojects.com**

Long Term Actions

The challenge now is companies are struggling to understand the options and opportunities open to them as a result of confused and sometimes conflicting information. For the long-term, consideration should be given to:

• **Change in working practices**

• **Change to building design**

• **Utilise alternative working options as part of general plan e.g. co-working facilities, hub and spoke strategy**

• **Make the commute worthwhile**

Changes to building design

Building owners will respond to rapidly modified working practices in a post viral world.

These may include:

• An occupier's office footprint could reduce to reflect smaller centralised headquarter functions but the level and number of amenities could increase to leisure facilities for all the family, childcare, dining and more collaborative spaces to encourage a campus style communicative environment.

• There will be more automated systems to reduce touch buttons.

• Under raised access floor air conditioning may be beneficial as it naturally creates upward air currents to carry the virus away but it can create office planning issues such as planning for background noise and partitioning planning.

• UVGI filters may be installed for new buildings or a greater balance of oxygen and carbon dioxide provision which has wellbeing and mental health benefits.

• Improved floorplate configuration allowing better access to light.

Savile Row Projects Acoustic Studio

Make the commute worthwhile

Offices will need to be safe and productive. They will also need to offer clean air and quiet working spaces to promote employee wellbeing.

They may become more like university style environments where personnel can arrange to come in on the same days to meet colleagues, work together and, use facilities as and when they choose.

Personnel will attend offices for key functional reasons as their jobs demand it, for social reasons and mental health and, to foster communication and instil a sense of corporate identity, values and culture.

In conclusion, office services and environments will need to work harder and smarter to attract people back to them.
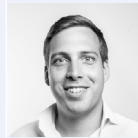
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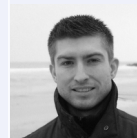
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