The BRE Biophilic Office

Building a better world together

Dr Flavie Lowres
BREEAM
Over 561,000 buildings certified in more than 70 countries.
www.breeam.com
What defines a great indoor environment?
Your feelings for your main workplace?

a. Depressing
b. Inspiring
• Highly urbanised population: 66% of developed world will be urbanised by 2050
• We spend ~90% of our time indoors
• WHO forecast that stress related illness primary cause of sickness by 2020
  • In 2015/16 stress accounted for 37% of all work related ill health cases and 45% of all working days lost due to ill health
    • In UK: 11.7 millions working days lost due to stress
The workplace of the future
The importance of the occupants
Impact of environment on people

66%  
Drop in performance when exposed to distracting noise.

46 mins  
More sleep per night on average for office workers with windows.

4%  
Reduction in performance at cooler temperatures.

6%  
Reduction in performance at warmer temperatures.

WGBC report – Health and wellbeing & productivity in offices
Most wanted features

Human Spaces report: “The global impact of biophilic design in the workplace”
nature

colour

texture

light

view

sound

aesthetic

diversity

air
Evidence from Offices

- 15% increase in reported levels of well-being
- 6% more productive
- 15% more creative
- reduction in absenteeism

WGBC report – Health and wellbeing & productivity in offices
Roger Ulrich (1984) demonstrated benefits to patients recovering from gallbladder surgery in rooms with views onto nature:

- patients recovered 8.5% faster
- they required 22% less medication
- patients felt less pain

Evidence from Schools

“A pyramid of benefits” to the student, the staff, the education establishment and the economy on the whole:

- children learn 20-26% faster when natural light is present,
- classrooms with plants see improved performance in spelling, mathematics and science subjects of 10 to 14%
- green walls improve acoustics and can reduce CO2 levels
- reduced absenteeism of 3.5 days per year per pupil

https://www.oliverheath.com/garden-school-hackney/#_ftn2
Nyrud et al. (2014) investigated preferences for wood in patient rooms

- Patients and clinical staff were asked to evaluate computer-manipulated images of rooms with different amounts of wood on surfaces
- A room that had no wood present, some wood present and a lot of wood present.
- The room with some wood present was preferred, then the room without any wood and then the room with a lot of wood was liked least.

Study suggests a limit to how much wood is preferred.
Grow and deepen the evidence base for health, wellbeing and productivity impacts of restorative office refurbishment.
The questions

• What **practical interventions** can office owners implement to improve health and wellbeing?

• Can these be **quantified** as part of the decision making process?

• Measures of **better business outcomes** - occupant productivity?

• Provision of practical **guidance** to engage refurbishment contractors, real estate owners and designers
– 1980s concrete framed office
– Civil service cellular offices
– ‘Standard’ refurbishment heating, lighting and ventilation strategy and controls
IAQ
Acoustic
Lighting
Occupants
Materials
 Indoor/outdoor
Control building
Occupant monitoring

Psychology: Questionnaires, tools, cognitive tasks, interviews
Physiology: Biomarkers, wearables
“Productivity” measures
Dissemination partners

bre

BRITISH BLIND & SHUTTER ASSOCIATION

CONSTRUCTING EXCELLENCE
in the built environment

INNOVATION GATEWAY
innovationgateway.com

LIGHTING INDUSTRY ASSOCIATION

plants@work

CIAT

CIBSE

SBID

ibpc

Royal Horticultural Society
General results after nearly 1 year of monitoring

– Indoor Air Quality:
  – TVOC content: below BREEAM Hea02 limit – Most VOCs attributable to occupants.
  – Temperature and humidity: within the acceptable limits.
  – Baseline CO$_2$ monitoring: build up during the day and a decline overnight.

– Acoustic:
  – Higher noise levels: generally linked to office activities (eg: conversation).
  – Unoccupied noise levels: within current recommended ranges.

– Lighting:
  – Generally below British standards recommendations.

– Occupant survey:
  – Look and feel: high % respondents rated overall look as poor
  – Pride: 2/3 respondents would not be happy to show clients and colleagues round their office.
  – Temperature: 73% rated the temperature as unstable i.e. it varies too much over the day.
Timeline

2018

- Project Launch and Partner Recruitment
- Pre-Refurbishment Inventory & Mapping
- Occupancy Monitoring & Engagement Surveys
- Design & Concept Brief Development
- Detailed Design & Specification
- Refurbishment Pre-Planning

2019

- Indoor Environment Monitoring
- Refurbishment

2020

- Building Opening
- Post-Occupancy Evaluation
- Project Dissemination

#biophilicoffice
The future?
Wellness and Biophilia Symposium -
Using Nature-Inspired Design to Foster
Workplace Wellness

6-7 June 2019 @BRE
Thank you

BRE Global
Watford, UK
WD25 9XX
+44 (0)333 321 88 11
enquiries@bre.co.uk
www.bregroup.com