

DESIGNING HEALTHIER, HAPPIER EXPERIENCES AND MORE PRODUCTIVE UNIVERSITY BUILDINGS



25th May 2015

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BUROHAPPOLD

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HEALTHIER &
MORE
PRODUCTIVE
ENVIRONMENTS

SUMMARY

BACKGROUND TO BUROHAPPOLD

40 YEARS OF

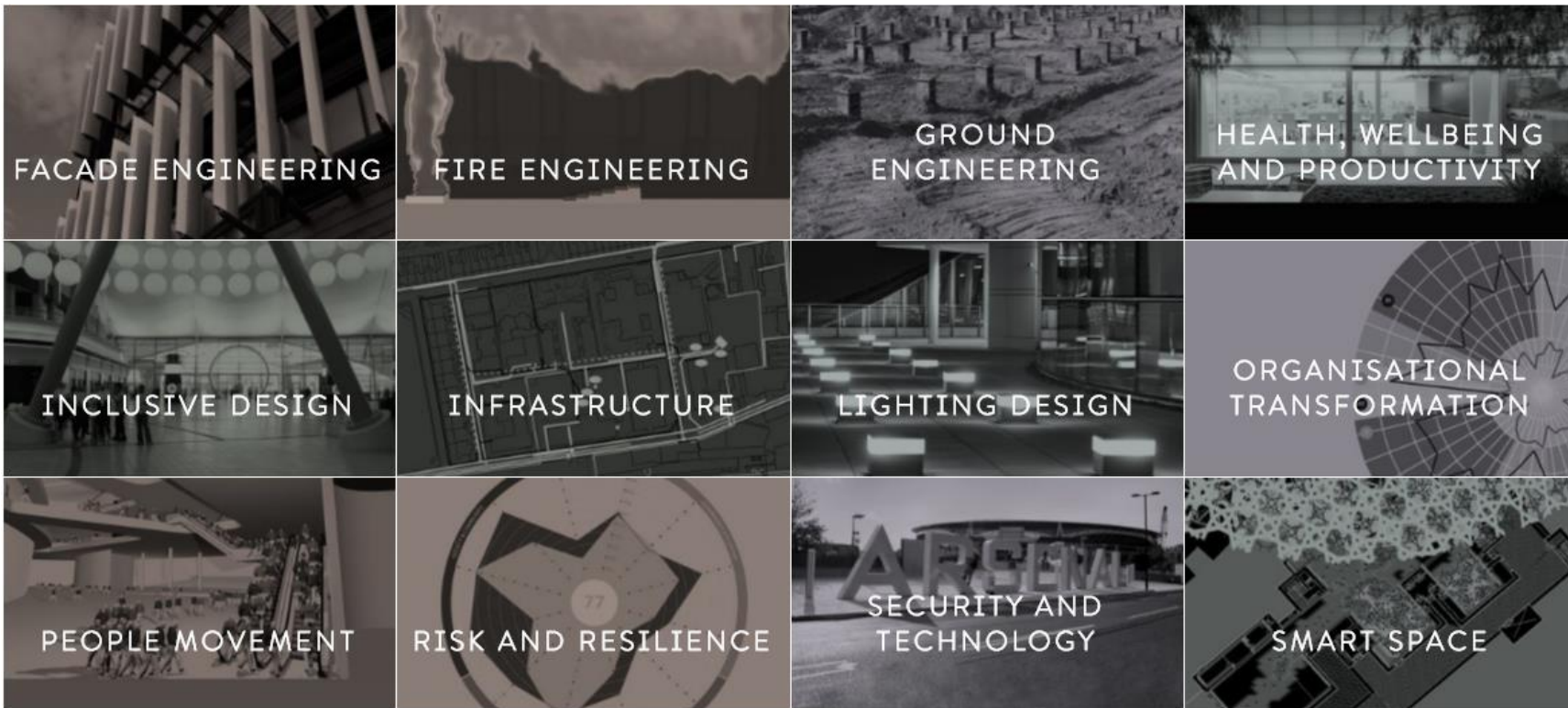


MAKING THE VISION VIABLE

BURO HAPPOLD: WHAT WE DO



BURO HAPPOLD: WHAT WE DO



BURO HAPPOLD: WHAT WE DO



OUR HIGHER EDUCATION CLIENTS

Top 10 World Universities



Over 300 projects at over 75 UK universities



BACKGROUND TO THE HEALTH, WELLBEING AND PRODUCTIVITY AGENDA

HOW DOES YOUR ENVIRONMENT



HOW DOES YOUR ENVIRONMENT



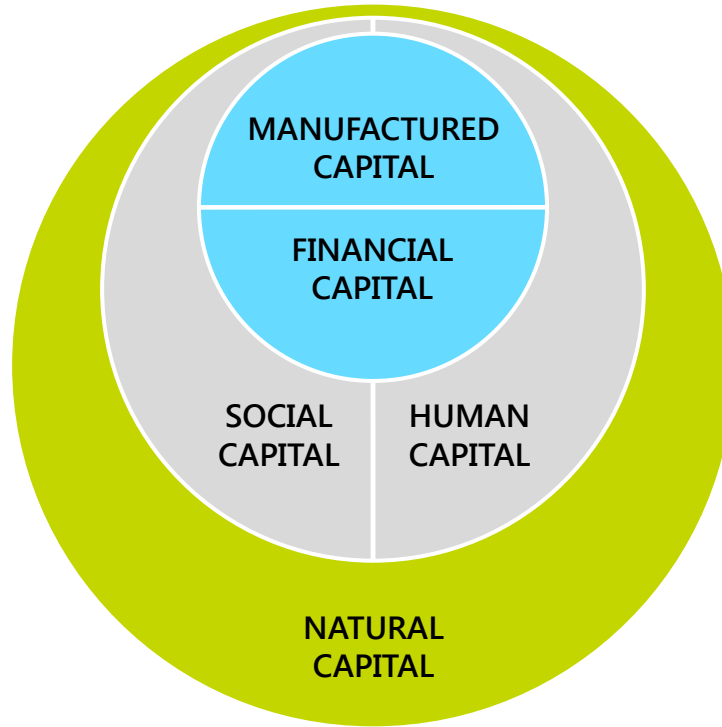
IMPACT YOUR HEALTH, HAPPINESS AND PRODUCTIVITY?



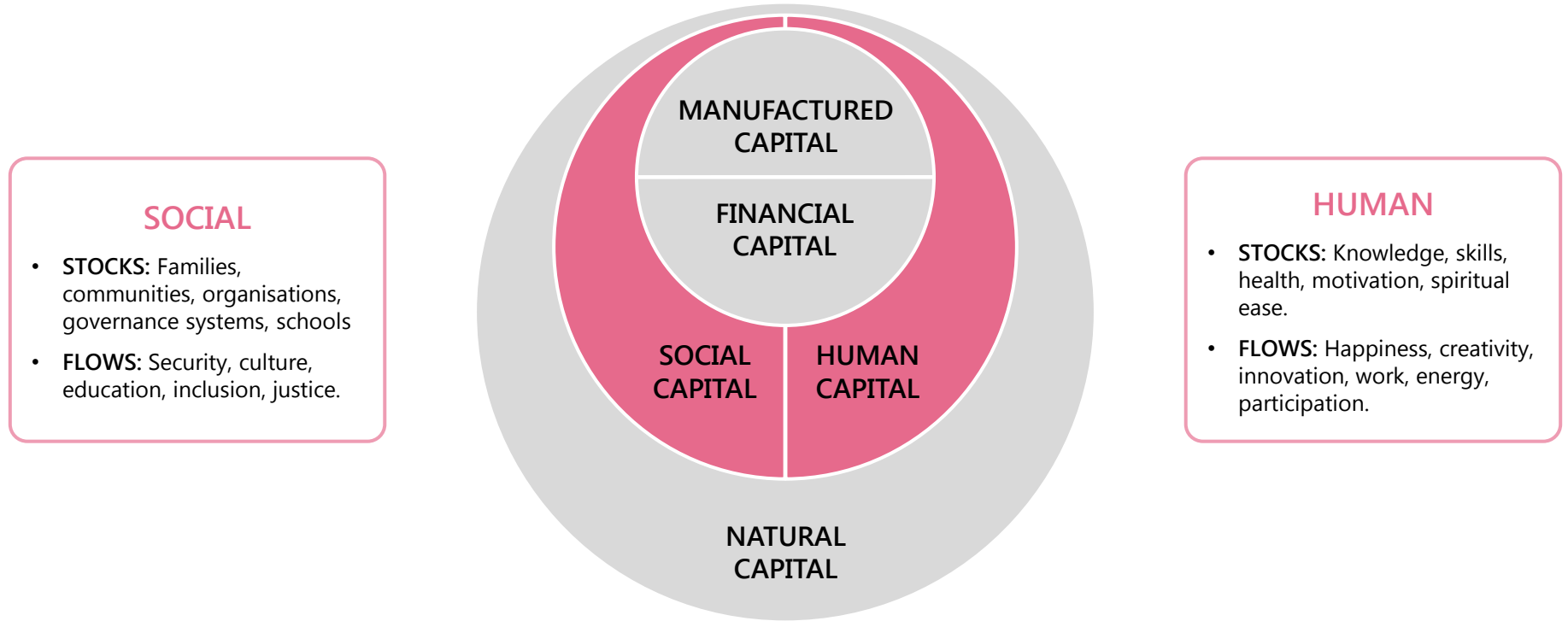
**DESIGN SPACES AND PLACES WHERE
PEOPLE ARE HEALTHIER, HAPPIER AND
MORE PRODUCTIVE...**

...AND TOUCH THE EARTH LIGHTLY

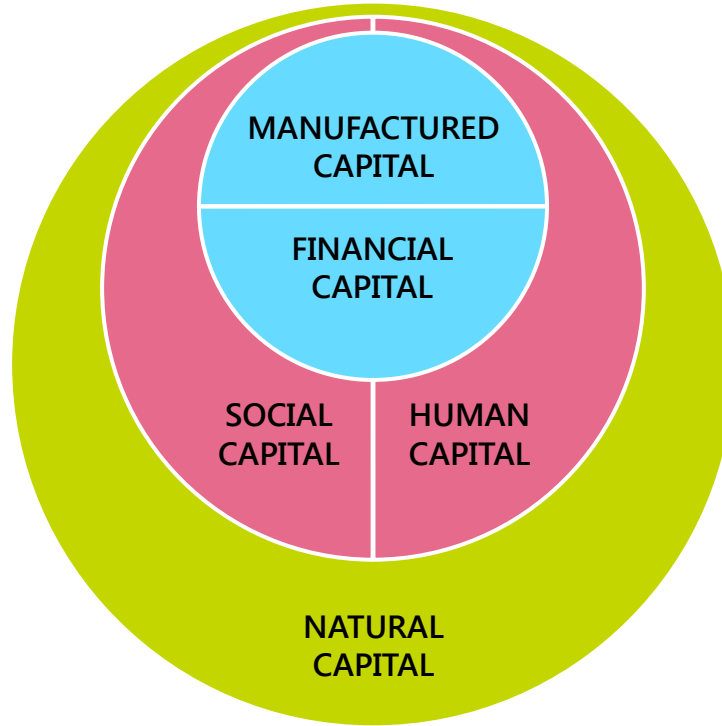
5 CAPITALS MODEL OF SUSTAINABILITY



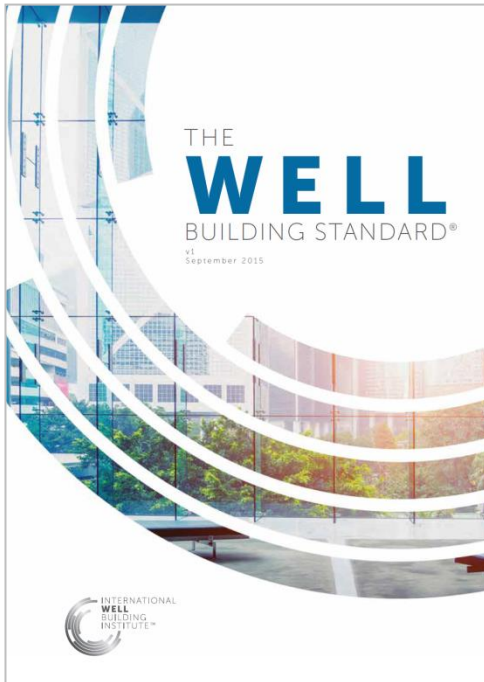
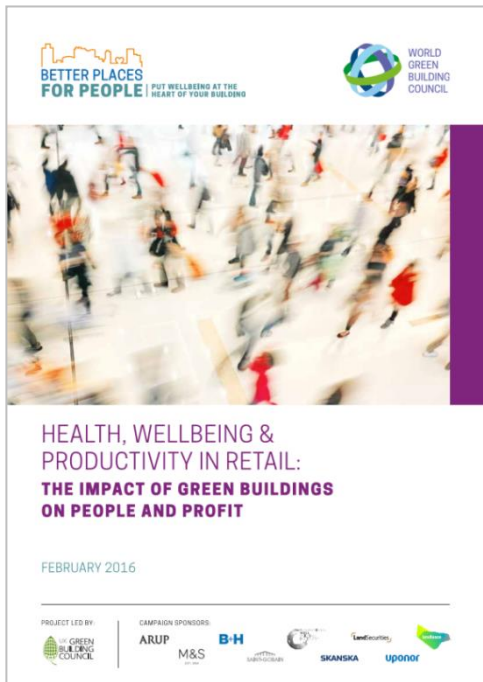
5 CAPITALS MODEL OF SUSTAINABILITY



5 CAPITALS MODEL OF SUSTAINABILITY



INDUSTRY IS ON A JOURNEY...



WHAT THIS MEANS FOR HIGHER EDUCATION

THE DRIVERS FOR HIGHER EDUCATION

Inter-connected drivers for Healthy, Happy and Productive Higher Education Buildings



HEALTHY: Reduced absenteeism, improved mental health and ability to concentrate

University	1	2	3	4	5	6	7	8	9	10
College	77	73	2.5	17.5	1534	41	92	71.5	7	7
Wick	79	2.5	13.1	1511	447	90.4	71.5	7	7	7
John School of Economics	85	2.5	13.1	1511	447	90.4	71.5	7	7	7
Durham	74	2.5	13.1	1511	447	90.4	71.5	7	7	7
Exeter	79	2	11.4	1521	41	92	71.5	7	7	7
Bristol	78	2	11.4	1521	41	92	71.5	7	7	7
York	78	2	11.4	1521	41	92	71.5	7	7	7
Kings College	74	2	11.4	1521	41	92	71.5	7	7	7
London	84	2	11.4	1521	41	92	71.5	7	7	7
Bath	78	2	11.4	1521	41	92	71.5	7	7	7
Edinburgh	74	2	11.4	1521	41	92	71.5	7	7	7
Leicester	84	2	11.4	1521	41	92	71.5	7	7	7
Southampton	78	2	11.4	1521	41	92	71.5	7	7	7
Loughborough	85	2	11.4	1521	41	92	71.5	7	7	7
Sheffield	78	2	11.4	1521	41	92	71.5	7	7	7
Glasgow	79	2	11.4	1521	41	92	71.5	7	7	7

HAPPY: Improved Student Experience, Reduced drop-out rate & improved League Tables Performance

Success as a Knowledge Economy:
Teaching Excellence, Social Mobility and Student Choice

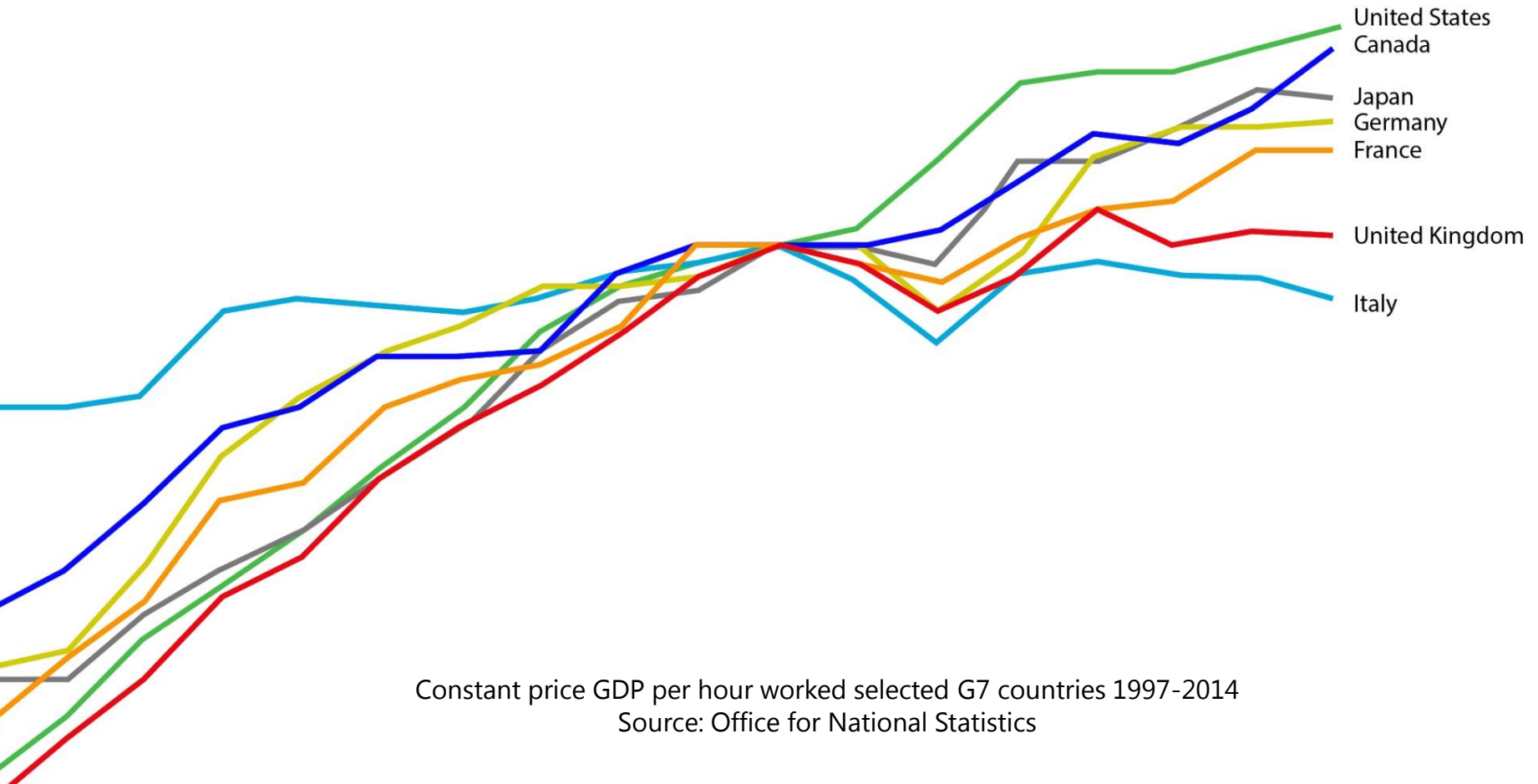
May 2016

Department for Business Innovation & Skills

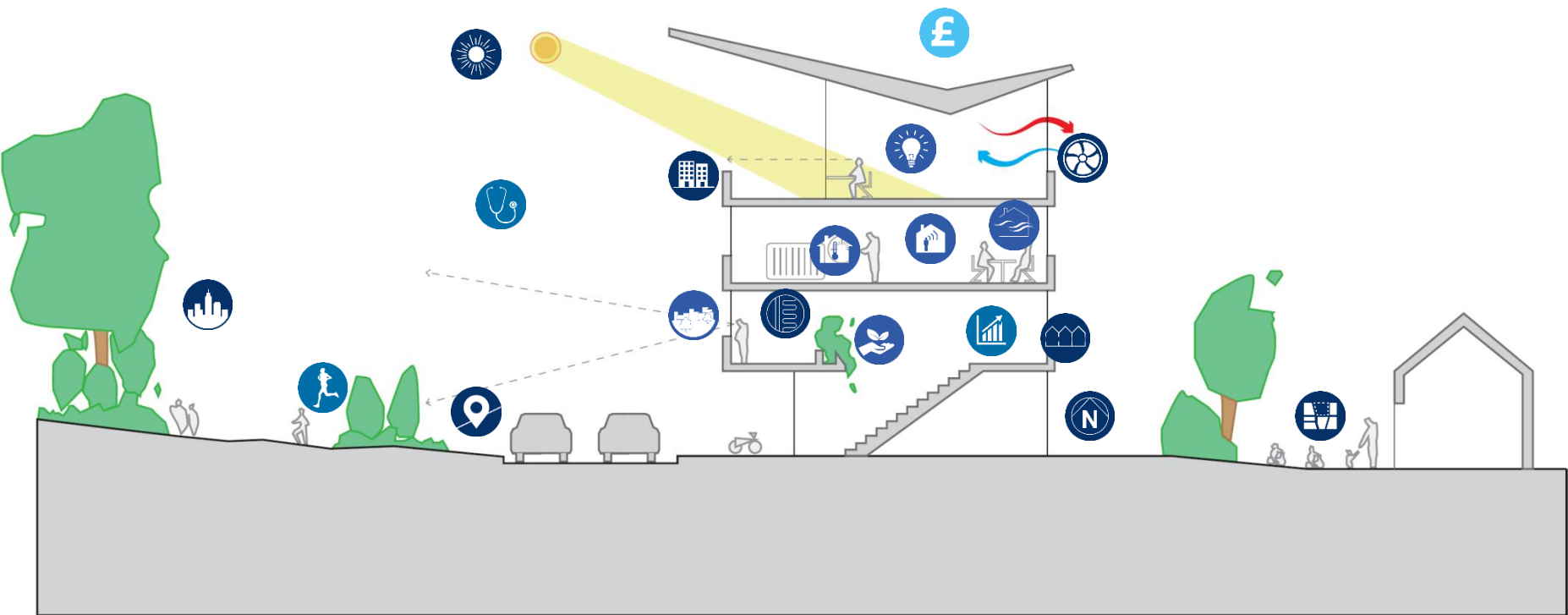
PRODUCTIVE: Improved students outcomes, improved exam results, increased competitiveness of UK plc

PRODUCTIVITY: A NATIONAL PROBLEM

UNIVERSITIES CAN PLAY A STRONG ROLE IN ADDRESSING THIS



DESIGNING FOR HEALTH, WELLBEING AND PRODUCTIVITY

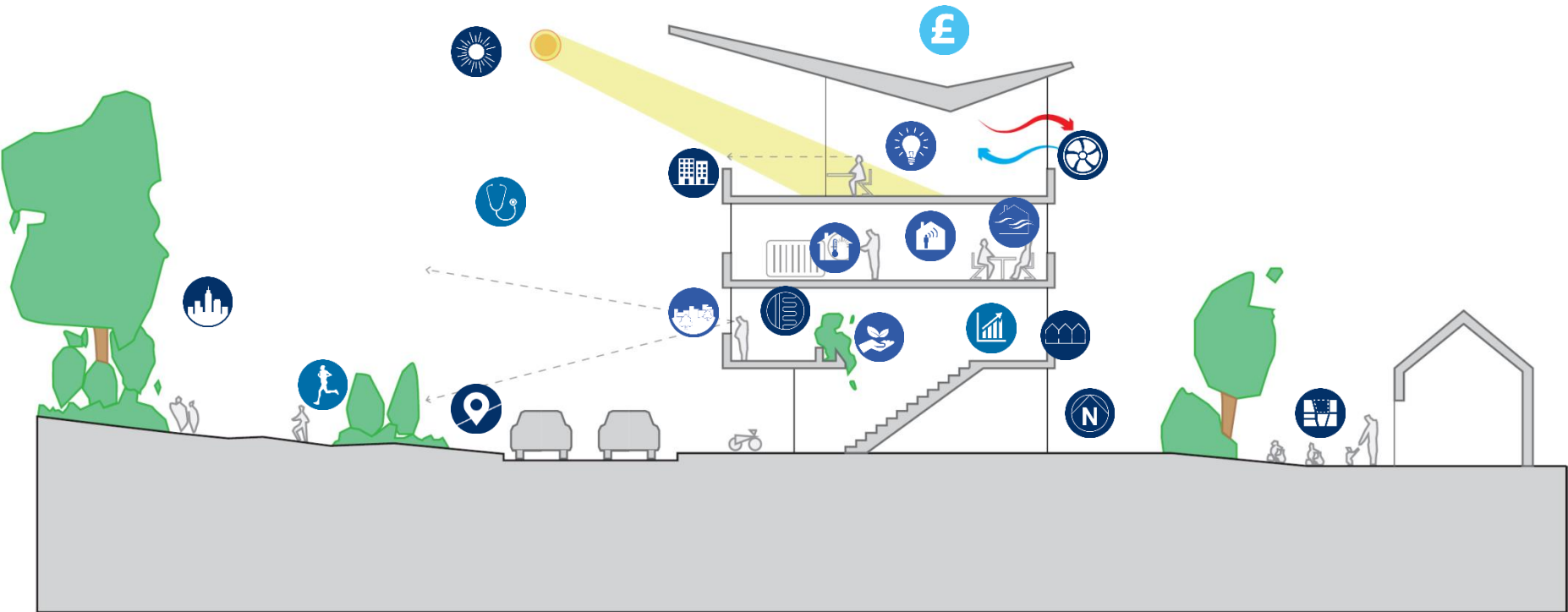


ELEMENT

ENVIRONMENT

EXPERIENCE

ECONOMICS



ELEMENT



Site



Massing



Orientation



Building Form



Facade



Room Proportions



Ventilation Strategy



Constructions



Lighting

ENVIRONMENT



Air Quality



Thermal Comfort



Light



Noise/Acoustics



Views



Biophilia

EXPERIENCE



Health



Wellbeing



Productivity

ECONOMICS

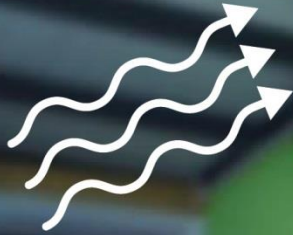


Economics

HOLISTIC THINKING IS NECESSARY

AIR QUALITY

ELEMENTS



Natural ventilation, air conditioning, and mixed mode strategies impact health and wellbeing and must be balanced against thermal comfort.

ENVIRONMENT



For high indoor air quality (IAQ) the optimum ventilation rate is between 20 and 30 l/s to renew oxygen and dilute pollutants.

EXPERIENCE



Short term sick leave is 35% lower in offices ventilated by an outdoor air supply rate of 24 l/s compared to 12 l/s. (Milton et al, 2000)

ECONOMICS



Better air quality can result in 8-11% overall improvement in overall productivity. (Loftness et al, 2003)

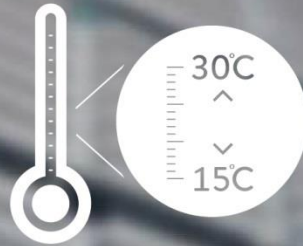
THERMAL COMFORT

ELEMENTS



HVAC, thermal insulation, solar gain and heat from people and equipment influence thermal comfort.

ENVIRONMENT



Recommended operative temperatures to achieve thermal comfort vary with season and environment type, but the zone of thermal comfort is typically achieved above 15°C and below 30°C.

EXPERIENCE



Occupants who remain within their thermal comfort zone have lower heart rate, respiratory ventilation and higher oxygen saturation, which improves task performance.

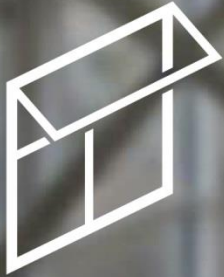
ECONOMICS



3% gains in overall productivity as a result of personal control of workspace temperature. (Loftness et al, 2003)

LIGHTING AND DAYLIGHTING

ELEMENTS



Access to windows, facade design, dynamic lighting, quantity of light, quality of light, and glare impact occupant health and wellbeing.

ENVIRONMENT



Optimum quality of light can be achieved with a Colour Rendering Index of 90 or above.

EXPERIENCE



A study showed office workers with windows receive 173% more white light and slept an average of 46 minutes more per night. (Chueng, 2013)

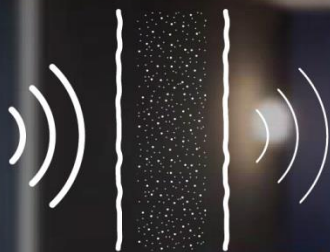
ECONOMICS



A study showed increasing the amount of daylight in retail environments can increase sales by up to 40% (Heschong Mahone Group, 1999)

ACOUSTICS

ELEMENTS



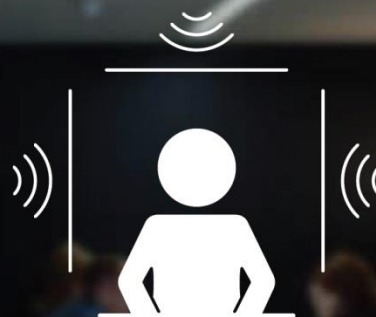
Acoustic comfort considerations include acoustic insulation, absorptive surfaces, workspace variety and flexibility, and background noise levels.

ENVIRONMENT



Optimum background noise levels vary for different environments. 45dBA is recommended for open plan offices but cellular offices can reduce this to 40dBA.

EXPERIENCE



Acoustic comfort improves worker satisfaction, reduces stress and increases productivity.

ECONOMICS



Noise reduction in the workplace can increase productivity by 27.8% (Oseland and Burton, 2012).

VIEWS AND BIOPHILIA

ELEMENTS



Biophilia considerations include site location, orientation, building form, materials, interior layout, and landscape design.

ENVIRONMENT



Biophilia can be enabled through direct access to natural spaces, visual connection, natural elements or symbols, and place-based design.

EXPERIENCE



Nature views allow eye re-focusing, which reduces fatigue, headaches and eye strain. Biophilia lowers stress, improves cognitive function and enhances creativity.

ECONOMICS



Workers were found to process calls 7-12% faster if provided with an improved external view (Heschong Mahone Group, 2003)

COMMUNITY

ELEMENTS



The relationship of the building users with the local community has wellbeing implications.

ENVIRONMENT



Engaging with the local community to understand and respond to their needs can deliver mutual benefits to the community and building users.

EXPERIENCE



Beneficial health and wellbeing outcomes are associated with acts of generosity and charity.

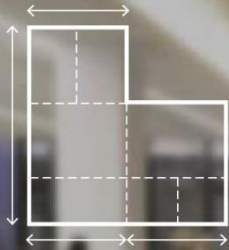
ECONOMICS



Community engagement and provision of community activities increased footfall by 5% and retailer sales by 10% (Milton, 2014)

INTERIOR AND LAYOUT

ELEMENTS



Interior layout considerations that influence health and wellbeing include legibility, density, flexibility, types of working spaces, provision of social spaces.

ENVIRONMENT



Interior planning that considers legibility, density, workspace diversity, flexible working, and social spaces has beneficial wellbeing outcomes.

EXPERIENCE



Optimising interior layout reduced absenteeism at one organisation from 12.7% to 3.5% (Beauregard, 2011)

ECONOMICS



Improved workplace cohesion led to a drastic reduction in employee turnover from 40% to 12% (Waber, 2013)

AMENITIES

ELEMENTS



Agglomeration, transport and related facilities, the provision of open space, exercise facilities and the quality of the public realm impact health and wellbeing.

ENVIRONMENT



Occupant health and wellbeing can be increased by providing access to reliable public transport, facilities for cyclists, high quality public realm, access to recreation, and social space.

EXPERIENCE



Improving amenities access can reduce stress, improve physical and mental health, and increase convenience for occupants thereby improving productivity.

ECONOMICS



Making places more walkable can boost footfall and trading by up to 40% and raise retail rents by 20% (Designed to Move: Active Cities, 2015)

LOOK AND FEEL

ELEMENTS



Colour treatment, texture, shapes, artwork, ergonomics, proportion, and contours impact occupant wellbeing.

ENVIRONMENT



Appropriate use of colour, textural variety, generous proportions, ergonomically designed furniture, and inclusion of artwork can improve occupant wellbeing.

EXPERIENCE



Textural variety can improve cognitive ability to access knowledge, helping the brain to stay alert and engaged. (Helen Hamlyn Centre for Design, 2005)

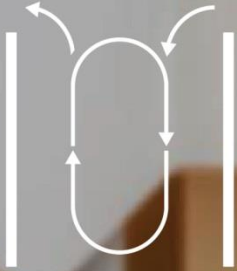
ECONOMICS



Research shows the visual appeal of the workplace is a major factor in employee recruitment and retention and therefore an organisations economic profitability. (American Society of Interior Designers, 1999)

ACTIVE / INCLUSIVE DESIGN

ELEMENTS



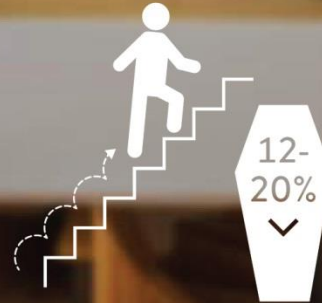
Placement and treatment of vertical circulation, facade and massing, workstation design and provision of facilities for exercise impact occupant health.

ENVIRONMENT



Active design features such as accessible, appealing, prominent staircases stimulate movement to improve health and wellbeing.

EXPERIENCE



Consistent stair use is linked to 12 -20% reduction in all-cause mortality including cardiovascular disease. (Designed to Move: Active Cities, 2015)

ECONOMICS



Encouraging physical activity improves health and reduces economic costs associated with inactivity.

SUMMARY

SUMMARY

1. Green is great, but healthy, happy, productive and green is even better
2. Many aspects of design can influence factors that impact on health, wellbeing & productivity
3. Intelligent design can have a measurable impacts on performance
4. Research can help inform a business case for better places for people
5. There is no one size fits all solution
6. To achieve productive and aspirational spaces that impact on student and staff experience an integrated project team is key
7. We need to consider and challenge the standards where they do not go far enough

MORE INFORMATION

TOMORROW'S SESSION

Research into, *"If students were in charge of their estate, what would they do?"*

Workshop 19 (11:10 – 12:00), Itchen Room

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