



# WELLBEING

White paper report

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## Overview

This paper was put together following the CBx breakfast event in February 2015, to summarise the open discussion around wellbeing in the working environment, including case studies from organisations that have seen the benefits of implementing a workplace strategy focussed on enhancing health, wellbeing and productivity for their occupants.

With special thanks to our fantastic panel of experts; Peter de Bie of Ipsum Energy, Richard Francis of the Monomoy Company, Richard Reid of Arup and Tim Oldman of Leesman.

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## WELLBEING

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The subject of health, productivity and wellbeing in buildings has garnered increasing interest over the last few years and the ability to track the relationship between environmental, organisational and financial performance looks set to be a major agenda over the next 5.

The effect of a shop floor on customers has a direct influence over footfall and revenue and is the clearest manifestation of the effect of wellbeing on profits. It is not surprising, then, that the retail sector is most advanced in this area with a strong focus on natural lighting.

The Solatube information leaflet on 'Daylighting Fact and Figures' sets out a useful summary of the research projects carried out in this area in the US. A report prepared for the California Energy Commission Public Interest Energy Research Program in October 2003 found that daylight was as reliable a predictor of sales as other more traditional measures, such as parking area, number of local competitors and neighbourhood demographics. The Houston Business Journal describes customers' response to a non-specific improvement in environment and suggest that this can be attributed to a number of hypothesis including; more relaxed customers, better visibility, more attractive products and increased employee morale.

Most of us know implicitly that our buildings and surroundings are important to our health and yet there is still very little tangible research or information available. The principal challenges in the development of this topic have been the difficulty in building a strong business case and the

lack of metrics for measurement; as such, development in the energy and carbon field has been much more rapid – stimulated further by the raft of environmental legislation.

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However, while energy consumption and carbon emissions are highly technical mechanisms which a building inflicts on the world with little global effect, the wellbeing of one's workspace is a very local, very personal matter affecting everyone. Consequently, it is much easier to secure staff buy-in.

There is a lot of work being carried out in the UK across other sectors by bodies such as the Rothschild Foundation, the RIBA, the British Council for Offices and the British Council of Shopping Centres (BCSC). Amongst the library of work on the subject, the World Green Building Council (WGBC) launched an instrumental report in September 2014 entitled 'Health, Wellbeing & Productivity in Offices' in conjunction with a number of industry partners and 4 national Green Building Councils (GBCs).

The report comprises two sections; the first sets out the relationship between office building features and occupants health, wellbeing and productivity whilst assessing the extent to which they also facilitate the reduction of energy consumption. The second section begins to provide a high-level

## WELLBEING

framework and metrics to begin tracking the impacts of a building on its occupants.

### THE BUSINESS CASE

The WGBC report describes how staff costs – salaries and benefits – typically account for approximately 90% of business operating costs in the office sector and therefore small changes in employee wellbeing have the potential to generate huge financial savings for an organisation. In comparison, energy bills typically account for around 1% of total expenditure for a company and therefore financial savings associated with energy efficiency are diminutive in comparison. That said, in many cases strategies for increased wellbeing also have positive consequences for energy consumption and carbon emissions.

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Richard Francis chaired the metrics working group for the WGBC report and is Principal of the Monomoy Company, an industry leader in leveraging environmental performance into broader organisational and financial success. Much of his recent work has been on putting together business cases for sustainability such as rent reviews on energy performance and exploring how energy performance might affect asset value.

These two sides of the coin also exist for the wellbeing business case; as cost savings (lower absenteeism) and increased profit (more

productive staff) for tenants and as higher asset value and higher rental yields for landlords.

There are a number of practical applications of wellbeing data; due diligence exercises may begin to prioritise more windows, higher ceilings and access to healthy food choices. Wellbeing metrics could have an impact at rent reviews, upon compiling fit-out guidance on refurbished space or in the futureproofing of assets. There may even be a practical application in employing wellbeing data to leverage health insurance premiums by arguing that a staff member is spending the majority of their time in a healthy environment.

### LEESMAN INDEX

Tim Oldman launched the Leesman Index in 2010 having struggled to find the business case to justify costs associated with a relocation or a capital project whilst working as a workplace strategist. He found that the necessary data were being collected as part of various consultancy packages but there was no authoritative audit and database of how the built environment was supporting its commercial occupants.

The Leesman Index is an 11 minute questionnaire taken by each occupant in a workplace that comprises a number of questions in 3 categories aiming to; profile occupant activity, understand the individual features needed for each employee's role and profile the facilities and services available.

Occupants are given lists and asked to identify which activities are important for their work, which facilities they consider important for an effective office and which features they consider important

## WELLBEING

for an effective workplace. Against these, they are asked to rate how supported or under-supported these features are.

Results enable clients to understand the spread of performance of their buildings, highlighting some of the more unintuitive facts; one small, expensive space in the west end with an occupancy rating of 29% was proven to have a higher nett efficiency level than a densely occupied building in Huddersfield, for example.

The database currently holds responses from 83,000 employees across the UK and Scandinavia and performance can be benchmarked across each line of data. As such the Leesman Index provides clients with clear recommendations moving forward.

***“3 in 10 people feel that their productivity is hampered by their working conditions”***

Aggregate figures from the database are published in a quarterly report and Leesman have noted that the headline figures hit stability at around 72,000 responses meaning that it is now possible to give definitive figures for the satisfaction of employees in the workplace. Across the database, 54% of respondents report that their buildings allow them to work productively whilst 29% are in active disagreement; 3 in 10 people feel that their productivity is hampered by their working conditions. Large buildings are defined within the Index as buildings with more than 100 occupants and analyses on this group returns a productivity agreement of 77% of respondents. Happily, the

Index also shows that increasing wellbeing is about strategic intervention rather than big capital spends; one client dramatically increased their Index results by implementing a set of way-finding signs throughout their building.

***“Increasing wellbeing is about strategic intervention rather than big capital spends”***

The database can also begin to give conclusive figures to back up the intuitive understanding that natural light is more important than artificial light and by what magnitude. Furthermore, it can identify if it is more important in a city centre or a campus environment and if natural light is more important to employees in the UK or in Scandinavia.

## WGBC REPORT & METRICS

The WGBC report explores the set of metrics necessary for organisations to quantify and benchmark the wellbeing, health and productivity of their staff. Upon screening the options against potential barriers such as applicability across business types, cost to measure and manifestation times, a final list of 8 metrics was determined;

1. Absenteeism
2. Staff Turnover/Retention
3. Revenue breakdown
4. Medical costs
5. Medical complaints
6. Physical complaints
7. Self-perceptions as determined by a survey
8. Physical conditions of space as determined by a survey

The objective metrics (1-6) were compiled alongside 25 Human Resources teams to ensure that what

## WELLBEING

was developed was simple and inexpensive to collect. It was concluded that many organisations held a bank of information that could yield important immediate improvement strategies for their two biggest expenses; people and places. Furthermore, the full set of information is likely to be held by three different people inside a company and will involve a process of sharing and collaboration. That said, the only major difference in the way data is analysed for this process is to ask companies to compare these data by building as opposed to by division, manager or employee. No definitive metrics have been set out for numbers 7 & 8, although the Leesman Index is cited as one of the methods by which to survey self-perceptions.

***“Many organisations hold a bank of information that could yield important immediate improvement strategies for their two biggest expenses; people and places”***

The report goes on to propose that health, wellbeing and productivity are three, interrelated but not always overlapping topics which need to be considered from three angles; physical, perceptual and financial; looking at air quality metrics alone will not convey whether or not the staff finds the building inspiring. By considering physical data alongside perception data, it is possible to understand necessary improvements to office space. Physical with financial and financial against perceptions should also be considered.

## WELLBEING & ENERGY PERFORMANCE

The Innovate UK Building Performance Evaluation (BPE) funding programme required each project team to carry out a Building User Survey (BUS) as part of their activities. Early analysis does not show any clear correlation between user satisfaction and energy consumption. Anecdotally, the more highly serviced buildings tend to be more frustrating for occupants although it does not necessarily follow that the energy performance of these buildings is worse than buildings with more simplified service strategies; the frustration is most often born from a lack of local control such as mechanised windows. The forgiveness factor has also been observed in the BUS results; occupants are more tolerant of discomfort if they are proud of the building and / or perceive the building to be well-designed.

***“Occupants are more tolerant of discomfort if they are proud of the building”***

Surveys such as the BUS are primarily designed to gauge system outputs (occupant satisfaction) but ignore the system inputs (energy). Building occupants give positive feedback when their space is sufficiently heated and when the air is fresh; in this sense they are not concerned with how this is delivered i.e. ground source heat pump vs. back up boiler or whether the mechanical ventilation ramps down when the room is not occupied.

Although it might be difficult to establish a direct link between energy performance and wellbeing,

## WELLBEING

there are a number of strategies that can increase both in parallel. Adrian Leaman's work has concluded that occupants are generally more satisfied with naturally ventilated buildings and this, of course, can have positive effects on the energy consumption. Similarly, natural lighting promotes health and wellbeing and, discounting issues of glare, minimises the need for artificial lighting.

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The WGBC report is careful to point out that there also exist some contradictions and challenges, from deep plan, urban locations and particularly in warmer, more humid climates. It highlights the importance of ongoing product and systems innovation and the responsibility of the real estate sector to drive grid decarbonisation.

Recent research being undertaken by IPSUM in conjunction with the University of Twente has led to the development of an algorithm that learns how to identify the fingerprints of the appliances in a building by recording the energy consumption from LED bulbs to the HVAC systems. The information is sent to a main IPSUM computer from a device that is installed adjacent to the main electricity meter. Disaggregated appliance loads can be identified in real time and analysed to translate the results into human behaviours.

Although it has been established that no direct correlation is possible between energy consumption and wellbeing, this type of disaggregated information can be useful as part of the sensor system that corroborates perception data. It would also highlight any environmental modifications that occupants are making to their space; for example personal fans or heaters and extra artificial lighting. IPSUM have also observed that a complex understanding of the energy consumption of a building increases the occupant satisfaction by creating a feeling of ownership and understanding and providing points of conversation.

## WELLBEING DESIGN TO OPERATION

As with energy performance; health, wellbeing and productivity must be integrated into a project at briefing stage and ring-fenced as a priority through project milestones in order to maximise potential outcomes. A soft landings approach would encompass this; for more information see the CBx White Paper 'Soft landings: how to facilitate cross industry collaboration'.

Many commercial buildings are designed as a prospective leasing asset and therefore cannot be tailored to the specific needs of a tenant. To create a successful design, all known stakeholders need to be involved upfront at the briefing stage with a view to identifying what wellbeing looks like in operation and applying previous experience of the project team. Where future occupants are known, preoccupancy surveys should be carried out to draw on their experience and inform the brief and

## WELLBEING

performance objectives. These processes are also crucial in refurbishments.

Consideration of facilities management resources post-completion is just as critical in terms of wellbeing as energy performance and this should be reality-checked through design. Without this process, the building may very quickly drift out of calibration and become an uncomfortable space for the occupants.

Client and occupant expectations need to be managed. If occupants are moving from a naturally ventilated building to an open plan, sealed building with no local control the project team will need to ensure this is the best solution to the brief and will need to work with the occupants so that they understand the strategy of the new building.

Controls and interfaces can be the cause of much frustration for occupants. These items are very rarely specified in detail and often no real thought is given to how they will be understood by the building users. This is another example of a strategy that can positively contribute to both energy performance and occupant wellbeing.

Smart technology offers intuitive apps for systems control such as 'The Hive' from British Gas or 'Comfy' from Building Robotics. More information on these can be found in the CBx White Paper, 'Occupant Behaviour: how do we define occupant?' However, a reliance on smart technology with no careful planning and design can lead to problems such as continually moving fully automated blinds causing noise and changing light levels. System set points are not enough on their own; a dry-bulb set-

point will not measure drafts – a common cause of occupant dissatisfaction.

## MOVING FORWARD

There are many sectors where occupant wellbeing is vital to facilitating the activities they encompass including hotels, schools, apartments and restaurants. In retail complexes and out-of-town business parks, the additional offerings increase in importance; easy access to gyms, health centres and healthy eating options.

***“A building that maximises health, wellbeing and productivity will show a higher level of social cohesion and infrastructure”***

Looking ahead, a building that maximises health, wellbeing and productivity will show a greater understanding of environmental psychology and a higher level of social cohesion and social infrastructure – as substantiated by analysis from the Leesman Index. Examples include buildings designed with circulation corridors around their perimeter removing ownership over windows or blinds.

As wellbeing can be affected by both physical and perceptual factors, it is difficult to separate decrease in morale caused by the building from that which is caused by the organisational ethos. A second challenge is the identification of attitudes observed in the workplace that begin at home from attitudes created at work. Healthy workplaces have been proven to have positive effects elsewhere; a

## WELLBEING

study entitled, "Impact of Workplace Daylight Exposure on Sleep, Physical Activity, and Quality of Life," found that employees who sat near to a window will sleep, on average, for an extra 47 minutes at night with higher quality sleep overall as a result of correctly reset circadian rhythms.

***"Healthy workplaces have been proven to have positive effects elsewhere"***

Large datasets such as the Leesman Index begin to eliminate these types of noise in the data and facilitate the identification of anomalies. For example, one extremely well-scoring building included in the Index was a temporary site office. Upon investigation, it was found to be run by two ex-military personnel who gathered their staff once a fortnight to commend them on the quality of their work.

Increasingly people have the tools to measure and understand how their building is performing allowing them to connect with the topic personally in a way that they do not with energy and carbon. This suggests that, increasingly, sustainability will be driven from the bottom up. Sensors are becoming cheaper and full-disclosure of information on a building's facilitation of wellbeing, almost 'trip-advisor' style is not such a leap of imagination. Again, see CBx White Paper, 'Occupant Behaviour: how do we define occupant?' The WGBC report describes the new possibilities created by wearable technology which could help to measure previously unrecorded health conditions, or measure and map physical conditions at a more

granular level (such as heart rate or brain activity). These types of research have already been piloted by companies such as Lendlease in their 'Stand Up Lendlease' campaign.

## RESOURCES

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