EVIDENCE SPACE

Improving employee productivity by reducing noise

Introduction

Situated hundreds of feet above the ground in the upper reaches of a high rise office building, separated from nature, bathed in artificial light often without even a view to outdoors, office workers can rightfully claim to inhabit a strange environment where it is difficult to work comfortably for 8 hours a day [1].

There can hardly be anything more important than our own health and wellbeing, and that of our loved ones. This is also a priority for most employers; a healthy, happy workforce is a vital component of a productive, successful business in the long-term [2]. Staff costs, including salaries and benefits, typically account for about 90% of business operating costs [2].

Therefore what may appear a modest improvement in employee health or productivity, can have a huge financial implication for employers – one that is many times larger than any other financial savings associated with the actual physical building (energy efficiency savings for example)[2]. It follows that the productivity of staff, or anything that impacts their ability to be productive, should be a major concern for any organisation [2].

Health, wellbeing & productivity

According to recent research carried out by the British Council of Offices, a staggering 99% of UK employees are expected to be high performing, and 98% are also expected to display creativity and innovation, yet at the same time 96% are expected to be relaxed and stress-free. This amounts to a pressure cooker of expectations, with little evidence that many organisations are providing a culture to support employees [3]. Costs of ill-health vary by sector and country, and are rarely comparable, but the impact is clear:

- Poor mental health specifically costs UK employers £30 billion a year through lost production, recruitment and absence [2, 4]
- The annual absenteeism rate in the US is 3% per employee in the private sector, and 4% in the public sector, costing employers $2,074 and $2,502 per employee per year respectively [2, 5]
- The aggregate cost to business of ill-health and absenteeism in Australia is estimated at $7 billion per year [2, 6]

Employee satisfaction is extremely important in the work place as it influences an organisation's success and performance by improving morale. This, in turn, reduces staff turnover [7, 8]. It has been shown that employees who are comfortable with their working environment are more likely to generate better work as the physical environment affects their job perception, attitudes and job satisfaction [7, 9, 10]. Careful attention must therefore be paid to designing work environments in order to facilitate productive work outcomes.

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Open plan offices

In the modern workplace, the emphasis is on teamwork, flexibility and communication. For most companies and designers this means open plan work areas. Today's workplace dictates the need for open and easy communication between staff to provide an environment that promotes the exchange of ideas and an efficient working environment [7]. For this reason assigned open plan seating is the most common type of working environment, making up over half (54%) of workplaces for UK employees [3].

> Two major drawbacks directly related to open plan offices are unacceptable noise levels and poor speech privacy [7].

Noisy office environments

Numerous research studies have confirmed that noise, in addition to causing nuisance and disturbance in an office environment, is a primary cause of reduction in productivity and can contribute to stress and illness which, in turn, can also contribute to absenteeism and turnover of staff [7, 11].

A study, published in the British Journal of Psychology, asked workers to perform two tasks. In one they memorised and then recalled a piece of prose and in other they undertook simple mental arithmetic. During the tests the subjects were played recordings of general office noise. It was found, that the accuracy of their work, when exposed to this noise, reduced by approximately 67% [7, 12].

A paper was written in 2004 reviewing research relating to the effects of conversational noise on office workers. It was found that when conversational noise was reduced and speech privacy increased, the ability of office workers to focus on tasks improved by 48%, conversational distractions decreased by 51%, performance of tasks relating to accuracy and memory improved by 10% and the actual physical symptoms of stress such as high blood pressure and increased heart rate were reduced by 27% [7, 13].

A study by Jensen *et al* analysed acoustic satisfaction in office environments in buildings surveyed by The Center For The Built Environment (CBE). A total of 23,450 respondents from 142 buildings were included in the analysis [14]. Of those working in open offices, over 40% of people indicated that acoustic quality interferes with their ability to get their job done, and of these 64% were dissatisfied with people talking on the phone and 76% were dissatisfied with others overhearing their private conversations [14].

The studies indicate that even moderate levels of noise in an office environment can cause increased distraction and stress amongst employees this can lead to a reduction in productivity and can ultimately affect a company's financial performance [7].

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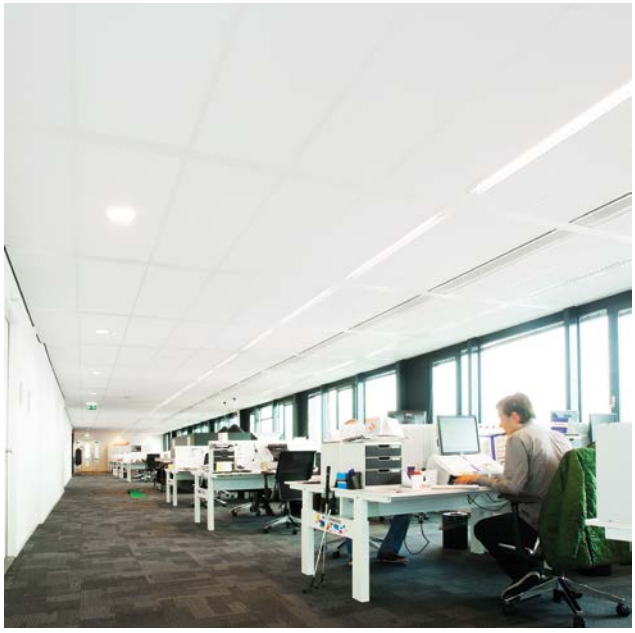
Reducing office noise



Acoustics are an important attribute of commercial office building design. Noise is probably the most prevalent annoyance source in offices, and can lead to increased stress for occupants [10, 14, 15]. Yet acoustics in most cases do not receive the same level of design attention as thermal, ventilation and other architectural and engineering considerations [14, 16]. To improve speech privacy in office environments acoustical engineers and consultants traditionally use a method called "the A, B, C's" [13]. This convenient acronym describes the three factors that need to be controlled to achieve good speech privacy i.e., Absorption of sound waves (such as by using a high performance acoustic ceiling tiles), Blocking (such as by using high performance sound reduction partitions, walls, and windows, etc.) and Covering (such as adding a source of low-level background sound to counter the office noise).

Conclusions

With staff accounting for 90% of business costs small differences such as reducing distraction from noise by making acoustic improvements (such as installing high performance acoustic ceiling tiles) can have a large effect. What may appear a modest improvement in employee health or productivity, can have a significant financial implication for employers. This equation is at the heart of the business case for healthy, productive offices [2].

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