

# **Environmental Health in Buildings or Why Does the Environment Matter?**

Derek Clements-Croome  
University of Reading

For an organisation to be successful and to meet its necessary business targets, the performance expressed by the productivity of its employees is of vital importance. In many occupations people work closely with computers within an organisation which is usually housed in a building. Today, technology allows people to work easily while they are travelling, or at home, and this goes some way to improving productivity. There are still, however, many people who have a regular workplace which demarcates the volume of space for private work but is linked to other workplaces as well as to social and public spaces. People produce less when they are tired; have personal worries; suffer stress from dissatisfaction with the job or the organisation. The physical environment can enhance one's work, but an unsatisfactory environment can hinder work output.

Concentration of the mind is vital for good work performance. Absolute alertness and attention are essential if one is to concentrate. There is some personal discipline involved in attaining and maintaining concentration, but again the environment can be conducive to this by affecting one's mood or frame of mind; however, it can also be distracting and can contribute to a loss of concentration.

A number of personal factors which depend on the physical and mental health of an individual, and a number of external factors which depend on the environment and work-related systems, influence the level of productivity. Experimental work on comfort often looks at responses of a group as a whole and this tends to mask the individuals' need for sympathetic surroundings to work and live in. People also need to have a fair degree of personal control of various factors in their environment. They react to the environment as a whole, not as discrete parts, unless a particular aspect is taxing the sensory system.

Productivity can be measured in absolute or direct terms by measuring the speed of working and the accuracy of outputs by designing very controlled experiments with well-focused tests. Comparative or indirect measures use scale and questionnaires to assess the individual opinions of people concerning their work and environment. Combined measures can also be employed, using for example some physiological measure such as brain rhythms to see whether variations in the patterns of the brain responses correlate with the responses assessed by questionnaires. Beyond brain rhythms a range of wireless sensors are now becoming available which can be embedded in clothing as well as structures and systems. These will measure a physiological data set from which we will learn which biometric parameters are the most significant when assessing personal well-being in various environments besides encouraging the user to self learn about how they react in various environmental conditions.. Personal control is becoming a reality.

The built environment affects our well-being and building designers now have the opportunity with more data on human performance becoming available to create more human orientated work environments with usable personal control features.