

12 October 2011

Temperature Wars: Reconciling comfort, cost and carbon

Wednesday 12 October 2011 University College London, Gower Street, London WC1



For this Chapter meeting we were privileged to be welcomed into the hallowed halls of University College London, founded in 1826 by the philosopher Jeremy Bentham (whose fully clothed skeleton still sits in a porter's lodge in the entrance hall) to provide higher education for students of all beliefs and social backgrounds then an innovation. Now a world leading institution, boasting 21 Nobel prizewinners, UCL welcomes students from all over the world and its graduate schools are renowned for innovative thought.



Nick Winter introduced us to **Alexi Marmot**, Professor of Facility and Environment Management at the Bartlett School of Graduate Studies. Explaining that the School of Architecture founded in 1841 was one of the first to take in women students, she then presented three PhD students all working in the field of facility and environment management, at the forefront of the Temperature Wars debate, on how to reconcile comfort, while making significant savings in energy cost and carbon emissions. The 'temperature wars' are of two kinds: first the daily skirmishes that happen in many buildings in which some occupants complain of excessive heat, others are too cold and the building manager has to act as peacemaker; second are possible future wars over land, water and natural resources should climate change continue and result in significant global warming. As buildings are responsible for 45% of carbon emissions, the temperature at which they operate today, may help to avoid future problems.



Michelle Lakeridou, a civil engineer by background, explained that many countries around the globe, including Japan, China, and Spain, have already introduced limits to summer cooling temperatures. She has been looking at whether such a policy might be applied to the UK, and if so, what temperatures would be appropriate, should they be voluntary or obligatory? Does dressing down (as part of a carbon reduction plan) encourage feelings of inferiority? How can facility managers encourage tolerance of a variety of workplace temperatures? What are the social norms surrounding your building? Should you consider the needs of the occupants before carbon output?



Darunee Mongkolsawat, from Thailand is an architect, investigating the challenge of temperature control in tropical countries, with their large and growing populations and increasing wealth. She has carried out an extensive survey of the changing habits of air conditioning in non-residential buildings specifically in educational estates. In the tropics



she explained there is an increasing demand for air conditioning, beyond the traditional fans and open windows. Then when air conditioning is installed the existing fans fall into disuse. 'How can individuals adapt?' She asks. And then having investigated further, 'how can organisations adapt?' Opportunities for individual thermal adaptability in non-residential buildings is limited, partly due to the design of buildings so design, she believes, needs to create the possibility for diversity of thermal experience so that occupants can still feel comfortable in a wide range of temperatures. Facility managers can also play a significant role in achieving savings in energy and a reduction in carbon emissions, but need to be empowered to do so.

Finally **Samantha Price** described her participation in work with Modus on the MoD's Grade 1 listed Main Building in Whitehall with its 4,000 permanent occupants and 150,000 visitors. Here the aim is to reduce carbon emissions by 10%, a step as she said 'beyond turning the lights off'. Project 10 involves reducing overall emissions and includes photovoltaic panels on the roof, a borehole, using biodiesel made from used cooking oil, recycling and food composting in the kitchens. The overall result is a greening of the supply chain, creating a standard which includes the environment, the staff and finance, improving year on year and embedding a cultural change.

A lively question and answer session resulted in an offer by Alexi to provide students who would 'crawl over our buildings' to suggest solutions to what is an ongoing and growing challenge. The most important thing she said is not to lose the skill of thermal adaptability, not to accept the status quo but to be prepared to look at new and innovative solutions.

This session will be repeated as a WebEx for CoreNet Global Young Leaders on November 4th at 16:00 GMT.