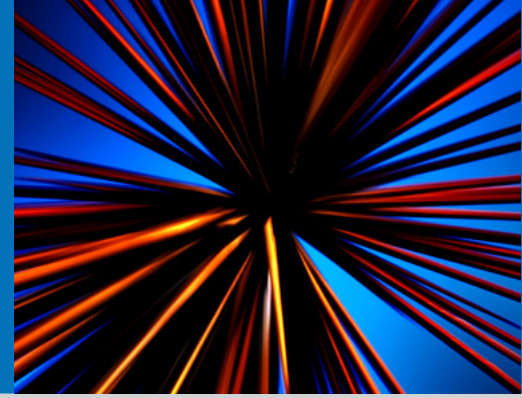


# MARC Research Findings

## Carbon Reduction in Buildings (CaRB):

A socio-technical, longitudinal study of carbon use in buildings



Background: Reducing carbon emissions from buildings requires an understanding of both the technical and social dimensions of energy use. To this end, the CaRB socio-technical study is examining the social and cultural influences on energy use and is exploring opportunities for socio-technical interventions – interventions that look at how people use technologies in practice, how these practices are affected by the design of the technologies, and how they affect energy use. This socio-technical study forms part of the EPSRC Carbon Reduction in Buildings (CaRB) programme, led by the University of Manchester. CaRB's vision is to create an innovative, public domain, socio-technical model of energy use in buildings applicable at national, regional, city and community level.

### Phase One: Case Study - Bruntwood's City Tower

As part of this project, the Manchester Architecture Research Centre (MARC) undertook an assessment of energy consumption practices within Bruntwood's City Tower. The aim was to address a perceived imbalance, whereby research on the domestic and industrial sectors had taken precedence over a consideration of energy consumption within office buildings. The project also investigated the related issue of how energy use associated with the transport patterns tied to office buildings might also be addressed. Throughout the study, it was stressed that 'place specific' solutions are required, with the energy demands of the City Tower comprising three 'spheres of practice': building design, ongoing building operation and maintenance, and everyday work and travel. Phase one was delivered in October 2008.

### Phase Two

Following the completion of Phase one, several topics emerged that were of particular interest to both Bruntwood and MARC, with potential for further investigation. These included a closer analysis of energy consumption in buildings, namely heating, ventilation and air conditioning (HVAC) technologies, as well as exploring pathways for the sustainable refurbishment of office spaces. Two new projects have been developed. The first explores the choice, design, and practices associated with HVAC, with a particular focus on users' perceptions and day-to-day interaction with these technologies. The second project looks to highlight the opportunities and constraints of achieving sustainable office spaces from redevelopments and refurbishments.

#### Website

<http://www.sed.manchester.ac.uk/research/marc/research/projects/carb/>

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#### Duration

October 2004 - March 2009

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