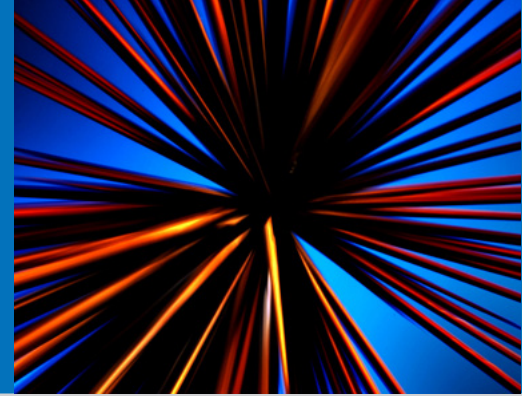


MARC Research Findings

Sustainable energy and thermal services:
Exploring heating, ventilation and air
conditioning in Bruntwood buildings (SETS)
(Phase Two of the CaRB project)



Background: As the UK property industry becomes increasingly attuned to the issue of ecological sustainability, the need arises to assess specific components of the eco-design / refurbishment process. SETS examines a key component of Bruntwood's building service offering, Heating Ventilation and Air-Conditioning (HVAC), focusing on the design, installation and maintenance of HVAC systems within two of Bruntwood's managed office spaces – Portland Tower & No. 1 Portland Street. Alongside this investigation, SETS also examines a range of more general issues around the links between sustainability and commercial viability.

Theory: SETS stresses the relationship(s) between HVAC services, building fabric, and customer behaviours / expectations. Drawing upon previous research and experience within the Manchester Architecture Research Centre. SETS uses a socio-technical approach to the study of energy use within the built environment, highlighting the co-evolution of social practices (including patterns of behaviour) and the technological landscapes within which they occur. A considerable focus is placed upon how users' perceptions and experiences of HVAC technologies are formed and (re)produced.

Emerging themes

1. **Building Specificity:** Organisational policy must take full account of building specificities, alongside the systems installed within these buildings. (Re)design should consider how buildings and systems might be more effectively integrated in the pursuit of energy efficiency.
2. **Centralisation vs. local control:** A worker's ability to control conditions within their 'local workspace' (in terms of heating, lighting, temperature, air quality, etc) is vital. However, the extent to which control is related to satisfaction will change at different times of the year.
3. **Zoning:** In conjunction with a well operated BEMS (Building Energy Management System), effective zoning can produce what might be termed 'automated energy minimisation', also introducing elements of local control into otherwise centrally controlled buildings.
4. **Maintenance & Engineering:** Complaints around air quality are often made in terms of indoor cooling, and within an air tight buildings, efforts must be in place to avoid the system going into constant cooling mode. Future assessments might be made around the utilisation of (energy efficient) 'chilled beams' within non-sealed buildings.
5. **Consultation:** It is important to keep customers informed regarding maintenance schedules, in addition to ad hoc non-scheduled maintenance work (and what the likely effects will be). Customers should be encouraged to log and report suspected deviations in system operation, and this could be supplemented through ongoing customer research.

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