

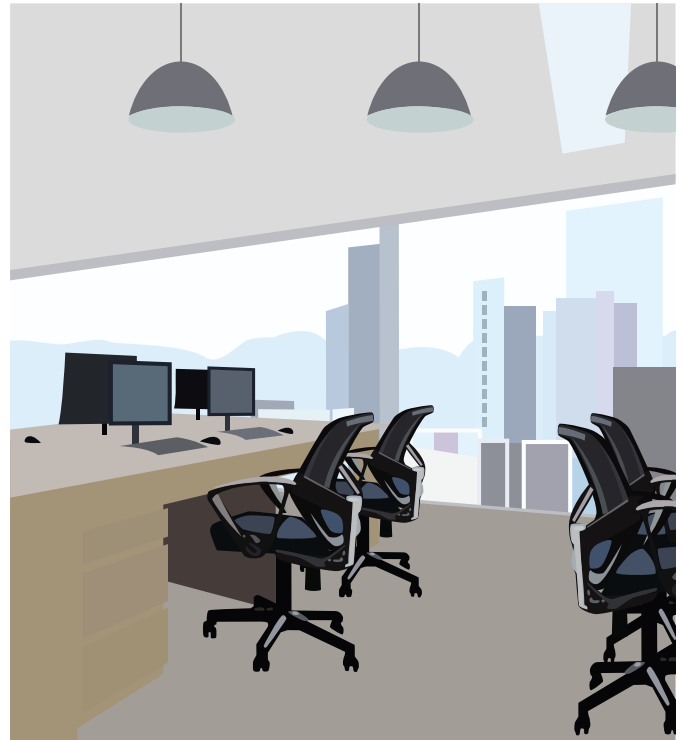
RESEARCH INSIGHT

DEMANDING OFFICES

HOW MARKET STANDARDS DRIVE UP ENERGY DEMAND

Key points

- Standards expected by those procuring and letting commercial offices work together to require highly-serviced, over-specified office designs.
- Standards are used as differentiators in the offices market, progressively ratcheting up expectations and driving up energy demand.
- If 'market standards' were not followed, lower energy demand could be 'designed in' to offices that would still be attractive and productive.
- Designing and developing lower energy offices requires thinking about what constitutes 'normal office work' and tenant 'needs', and how these change.



Introduction

This research explored the energy implications of the design and specification of ten post-2010 new and refurbished speculative office developments in London. The aim was to better understand how expectations of users' needs have escalated, to discover what role 'standards' play in this process, and with what consequences for energy demand.

To discover how decisions affecting energy performance were made, we interviewed the architect(s) and mechanical & electrical (M&E) engineering consultant(s) for each building, plus letting agents, developers, and/or occupiers. Additional interviews were conducted with key stakeholders and institutions involved in developing office design standards and guidelines.

Questions

- What are the main influences on building design and servicing in modern, prime quality speculative developments in London?
- What 'taken-for-granted' standards, guidelines, rules of thumb and assumptions are used in design, and what are their effects?
- Which are the most important aspects of office building design for energy demand?
- How might the practice of office building design be changed to reduce energy demand?

Findings

We found that office design is heavily influenced by a need to meet 'market standards'. These standards are not legally enforced regulations, but are hard-to-ignore norms: office space is expected to have 'Grade A' features and adhere to British Council for Offices (BCO) Guidelines. These standards have implications for the design, look and feel of office buildings, resulting in homogenised spaces which have corporate quality 'lifts, loos and lobbies', which are light, bright, and open, and can accommodate any type of occupier.

Speculative developers adhere to 'market standards' in order to maximise return on investment, and ensure flexibility and competitiveness. Buildings which meet these standards are expected to be able to cater for the most demanding potential occupants in the letting market e.g. bank trading, lawyers' offices or call centres, in a context of ever-shorter leases and changing tenancies.

Market standards matter for energy demand because they lock together unrealistically high assumptions about occupational density and small power and other requirements. This often produces a need for cooling that cannot be satisfied without energy consuming air-conditioning systems (see Figure 1).

If 'market standards' were not followed so strictly, many agree that lower energy demand could be 'designed in', reflecting realistic rather than worst case occupant demands and peak loads. Additionally, such designs can be more attractive and productive than the 'plain vanilla' offices that 'market

standards' tend to encourage. For example, one developer – Derwent London – has successfully exploited the qualities of now fashionable refurbished warehouse spaces, producing the White Collar Factory concept. This does not follow 'market standards' and generates lower energy demand. Yet the concept has proven highly marketable to a range of tenants, making non-standard 'quirkiness' not something for a risk-averse letting market to avoid, but a selling point.

The potential for designing and developing lower energy offices depends on rethinking outdated assumptions about normal office work and tenant needs. Our respondents identified many acknowledged trends (changing uses of IT, diversification in working practices away from desk-based activities, flexible and mobile working etc.) that point to new concepts of 'offices' and office work, and the potential for more diverse designs including more appropriate levels of specification that in turn result in reduced energy demand. However, the tendency is to slavishly follow 'market standards' which do not reflect evolving occupant practices.

Implications

Standards might be changed in the future to help reduce energy demand. This could involve:

- *More closely coupling 'market standards' to evolving occupant practices.* Recent changes in office work are coupled to a growing popularity of design aesthetics that were originally associated with the technology, media and telecommunications sector – e.g. concrete slab, exposed soffits and high ceilings. This design provides an opportunity for lower energy mixed-mode ventilation systems and is also important in creating more adaptable and future-proofed buildings. If 'market standards' took account of such developments, energy demand in commercial offices might drop. We suggest that standards should focus less on design specifications, and more on performance in practice – i.e. how well a building caters for the actual work practices of occupants.

- *Spatially differentiated standards.* The geographical location of a building is important to the likely business sectors of its tenants and thus the work practices it will be catering for. The levels of provision associated with current 'market standards' are only needed in some places, and only to support the highest occupier densities and most energy intensive work practices. There is a case for new guidance and/or spatial planning policy that would allow 'market standards' to reflect this diversity and to enable less energy demanding systems to be designed-in.
- *More categories within market standards, such as the BCO guidance.* Specific sectors and/or space plans should be differentiated such that 'market standards' can help promote lower specifications as 'gold standard' – i.e. as most appropriate in specific sectors/plans (Legal, Media etc). This would again place value on more appropriate specifications and levels of service provision.

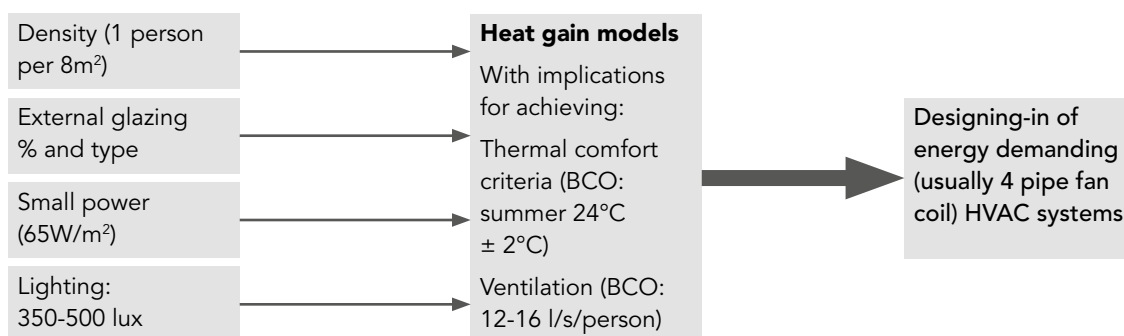
These are just some initial possibilities. Moving away from over-provision as a means of addressing the difficulties associated with designing for unknown occupiers, and connecting more closely to actual work practices, provides a means of refining the role of 'market standards' in design and in the market. However, this requires engagement from all of these involved in the commercial office sector.

Significance

Issues of energy demand should not be thought of in narrowly technical, engineering and environmental terms. Rather, standards reflect and reproduce shared cultures and conventions which lock-in higher energy demand through design.

'Market standards' are important and have impact because they are taken to represent occupants' needs and practices. Because standards assume worst-case scenario, they cater for the 'needs' of the most demanding occupant. Market standards ensure that these 'extreme' situations become normal: as a result, specifications of service provision and ultimately the energy demand of buildings are ratcheted up.

Figure 1
The lock-in of high energy demanding HVAC by market standards and ideas about flexibility



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Further reading: BCO (2013) Occupier Density Study. The British Council for Offices, London. BCO (2014) Desk Power Load Monitoring June 2014. The British Council for Offices, London.

Contact the researchers: James Faulconbridge (j.faulconbridge@lancaster.ac.uk), Noel Cass (n.cass1@lancaster.ac.uk), John Connaughton (j.connaughton@reading.ac.uk)

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