

# The Energy Implications of 'Standards' in Speculative Office Design

The Building Centre 28<sup>th</sup> January 2016



# Welcome & Introductions

Noel Cass, Lancaster University

John Connaughton, University of Reading

James Faulconbridge, Lancaster University

[www.demand.ac.uk](http://www.demand.ac.uk)



# Format & Objectives

- Chatham House Rules
- Discussions to be captured and reported in non-attributable form
- Some key questions to address
- Drawing on and informing ongoing research
- Final project report mid/late 2016
- Questions or clarifications?

# Our Research

## CASES

10 London Offices

- 6 New Builds;  
4 Refurbishments
- All developer-led;  
1 pre-let
- From 3,000 sq/m to  
23,000 sq/m

## DATA

49 interviewees

- Architects (15)
- M & E (11)
- Developers & Agents  
(14)
- Consultants etc (9)

# Market Standards:

## Maximum is the new minimum



'BCO+' by developers: "So building regs for fresh air is 10 litres a second, but BCO recommends 12 litres to 16 litres...the client said 16 litres plus 10%. And on cooling loads it was plus 10%" (M&E engineer)

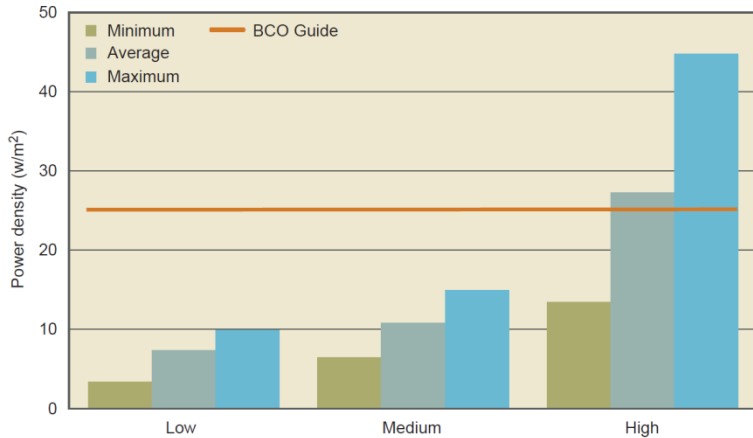
**Energy Efficiency Rating**

	Current	Potential
<b>Very energy efficient - lower running costs</b>		
(92 to 100) <b>A</b>		
(81 to 91) <b>B</b>	85	85
(69 to 80) <b>C</b>		
(55 to 68) <b>D</b>		
(39 to 54) <b>E</b>		
(21 to 38) <b>F</b>		
(1 to 20) <b>G</b>		
<b>Not energy efficient - higher running costs</b>		

England, Wales & N.Ireland EU Directive 2002/91/EC



# Locking-in Air Conditioning

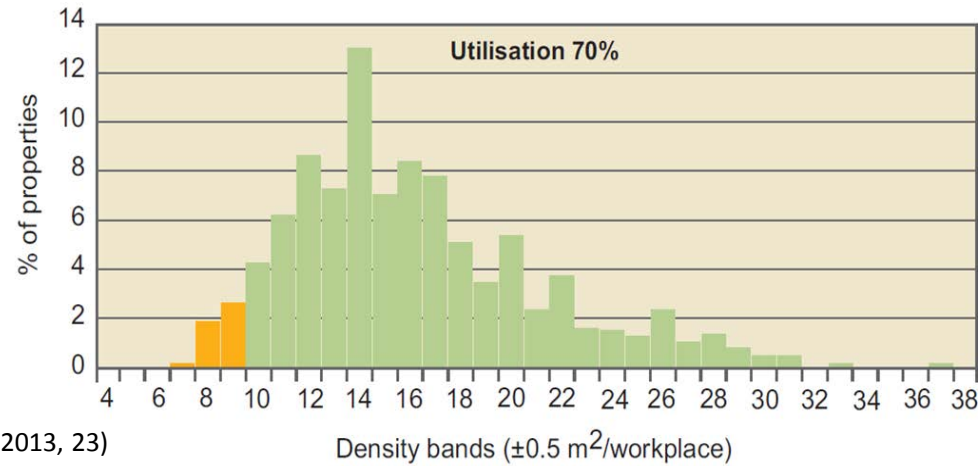


BCO (2014, 12)

Figure 3 – Average power density for 1 person per 10 m<sup>2</sup>

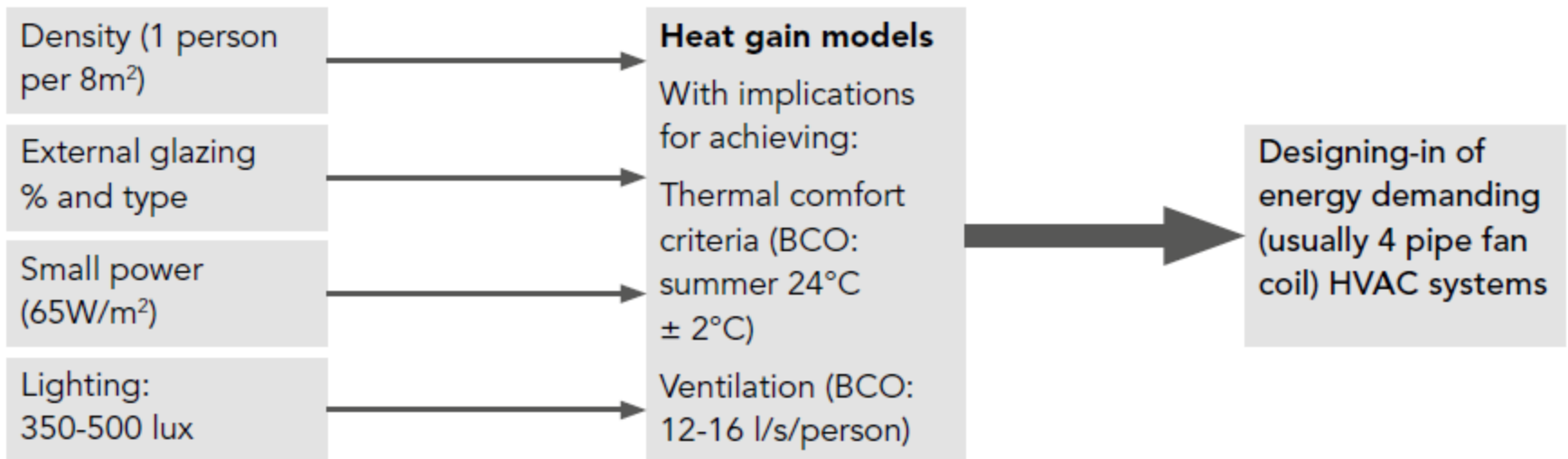
“a tendency to cater for the highest densities across the whole space: providing for the worst-case scenario, everywhere, from day one” (BCO, 2013: 6)

“what you tend to find is there’s some enormous peaks which dictates the choice of your systems...that is going to define your AC system and lo and behold you then have all of these hundreds of fans put in, grossly over-sized” (M&E consultant)



BCO (2013, 23)

# Locking-in Air Conditioning



# The Culture of Maximum Flexibility

“you get built to an industry standard ... to appeal to a wide range of tenants. So ... if a tenant comes along and says ‘I want a massive internal gain’ [due to high occupancy rates and small power provision]... you can deal with it” (Consultant)

“Should the optimum flexibility afforded by high specification, and required by a relatively small segment of the demand market, justify its blanket provision?”  
(BCO, 2013: 30)

How to challenge this culture?





# Challenges

**Challenge 1:** How to avoid over provisioning: making 'more realistic' standards and specifications acceptable?

**Challenge 2:** Occupant/tenant 'needs': how to close the feedback gap?

**Challenge 3:** 'Standards' blocking innovation – is there a new 'Grade A' model?

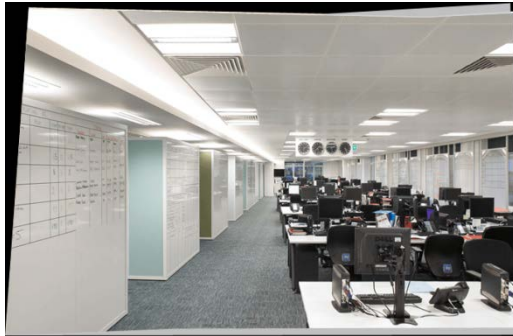
**Challenge 1:** How to avoid over provisioning: making ‘more realistic’ standards and specifications acceptable?

“Peak loads are very short lived and can be ignored for the purposes of HVAC design”  
(BCO, 2014: 4)

How can lower levels of provision become normal and ‘BCO plus’ be avoided?

What role might ‘regulation’ play in normalising lower levels of provision?

## Challenge 2: Occupant/tenant 'needs': how to close the feedback gap?



How can standards better promote design responding to diversity in office work and occupant 'needs'?

Is there scope for differentiation in standards by sector, location or other factors?

### Challenge 3: Standards blocking innovation – is there a new ‘Grade A’ model?

“there are good examples of some city occupiers who’ve taken some quite radical alternative space. And I think that’s a trend we will probably continue to see” (Letting agent, major developer)

How can standards redefine low energy design as optimum quality?

Can flexibility be redefined through standards that set a lower baseline that can be upgraded?

# Summary of Discussion Points

## Challenge 1

- The need for a new proxy of quality that isn't 'more is better'
- A consensus driven approach – revealing what is 'needed' and what can provide for this (R&D need)
- Managing risk but not by over-provision

## Challenge 2

- Tenants need to be more central - which means performance not specification the focus
- Make flexibility associated with possibility not provision

## Challenge 3

- Agents and the market as the focus of efforts
- Good legislation to drive in the right direction – an industry view; a 'new' EPC?
- Focus on what cannot be changed in markers of quality

# Thank You

Further input and comments

[n.cass1@lancaster.ac.uk](mailto:n.cass1@lancaster.ac.uk)