WHY EXISTING DESIGN STAGE TOOLS AND METHODOLOGIES ARE NOT PREVENTING OVERHEATING

Overheating and Indoor Air Quality in New Homes – 23rd June 2015

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Women in Engineering Day

- #NWED
- #whatengineersdo
- #IAmAnEngineer
Assessing Overheating risk – publication

- Zero Carbon Hub publication
- Co-authored by Inkling and Anastasia Mylona (ARCC and CIBSE)
- Part of report series and ongoing research
Tools and methodologies
Existing Methodologies

- **SAP**
  - Single calculation for June, July and August using monthly averages for weather data
  - Single zone model
  - Easy to fudge
- **CIBSE Guide A**
  - Follows TM52 – adaptive thermal comfort
  - Based on commercial buildings - advice for dwellings: ??
- **PHPP**
  - Passive House Planning Package
  - Spreadsheet based
  - Uses bespoke internal gains but similar calc to SAP
Evidence?
Key Overheating risks

- Single aspect
- Limited ventilation
  - Restricted openings
  - Noisy environment
- Large areas of glazing
What do we need?

• A stakeholder agreed methodology to follow:
  • Reliable
  • Cost-effective
  • Flexible
  • Understandable
• Not as easy as it first appears, but do-able
My Opinion

- Two phased approach
- Triage risk level for each unit
- Run dynamic thermal modelling test on high risk only
- Define set of internal gains based on ‘upper reasonable’ limit
- Methodology based on adaptive thermal comfort – possible focus on night time temps
The End

Thank you for listening!

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