

WHY EXISTING DESIGN STAGE TOOLS AND METHODOLOGIES ARE NOT PREVENTING OVERHEATING

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

Susie Diamond - Inkling



Women in Engineering Day



- [#NWED](https://www.nwed.org.uk)
- [#whatengineersdo](https://www.nwed.org.uk)
- [#IAmAnEngineer](https://www.nwed.org.uk)

www.nwed.org.uk @nwed2015 #nwed

Join WES

Organise an engineering event for girls

NATIONAL WOMEN
In ENGINEERING DAY
23 June 2015

What will you do to help focus attention on great opportunities for girls and women in engineering?

Show your support via Twitter #nwed @nwed2015

Invite a female engineer to speak at your school

Visit a local engineering company

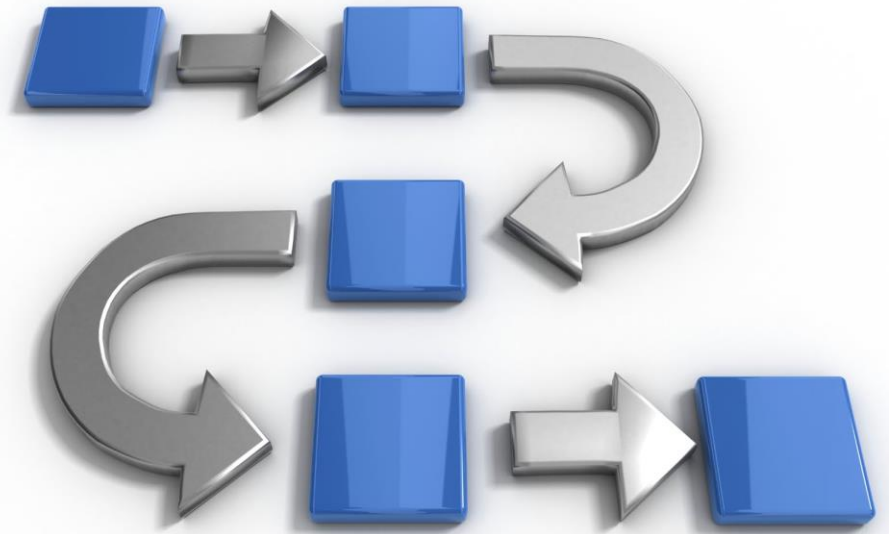
AIRBUS ROYAL ACADEMY OF ENGINEERING Santander

Assessing Overheating risk – publication

- Zero Carbon Hub publication
- Co-authored by Inking 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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