Creating a Healthier and Safer Environment

Common Design Process

- Thermal models
- Analytical design
- Experience
- CFD
- Laboratory simulation
- Concept design

Methods

Strategies

- BMS or Stand alone
- Indoor Air Quality
- Indoor Temperature
- Heating interface
- AHU interface
- Wind speed
- Wind direction
- Morning Purge
- Night Cooling
- Thermal Mass

Some limitations

- Simulation of internals… most resource intensive
- Dynamic modelling… people moving!
- Limited options simulated
- Quality control
- Experience
- Time pressures
- Timely availability of material data
- Assumptions!
- Weather data… limited & unspecific
- Weather …fickle!
- Budgets
- Controls… response times

Leading to …Specification

- Architectural Spec - Facade
  ‘windows to be fitted with electric actuators for BMS operation’
- M&E Spec - BMS
  Windows to open 25% at 23 degrees, 50% at 25 degrees and 100% at 27 degrees.
  Windows to open 10% for night purging when external temperature is ...
  Similar or approved!

  Often **brand** based
  Rarely **performance** based

Leading to …Interpretation

...by all of these

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**Common onsite reality**
- Specification too loose
- Specification not understood or misinterpreted
- Budgets change
design intent
- Everyone else focussed on next contract
- Fine tuning process omitted or not planned for

**Results**
- NV commissioned last on site
- Handover often pressured
- Occupant/Client satisfaction low
- Occupant/Client understanding often poor
- Strategy needs 12 month fine tuning but no budget or time allowed for this
- Fine tuning process omitted or not planned for

**Common results onsite...examples**
- Sensor Installation
- Strategy too sensitive
- Heating interfaces
- Damper control

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**Room for improvement?**

**Improved Design Process**

- Client
- AOV Specialist
- M&E Consultant
- Architect
- DESIGN TEAM
- M&E
- BMS
- Builder

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**Room for improvement?**

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**Key points**

- Precise performance specification essential
- Whole team involvement & understanding
- All trades available during commissioning
- All trades allow time during D&L period
- GET SPECIALIST INVOLVED VERY EARLY
  - Higher Quality result
  - SATISFACTION

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**.....any questions??**