Creating a Healthier and Safer Environment

Common Design Process

- Thermal models
- Analytical design
- Concept design
- Laboratory simulation
- Methods

Experience

Common Design Process

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

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Strategies

Some limitations

- Time pressures
- Experience
- Budgets
- Quality control
- Weather data is limited & unspecific
- Timely availability of material data
- Assumptions!
- Dynamic modelling is people moving!
- Limited options are simulated
- Weather is fickle!
- Experience is Controls response times

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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

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Leading to …Interpretation

...by all of these
Common onsite reality

- Specification too loose
- Specification not understood or misinterpreted
- Budgets change design intent
- Everyone else focused on next contract
- Fine tuning process omitted or not planned for
- 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
- Specification too loose

Results

Common results onsite...examples

- Sensor Installation
- Strategy too sensitive
- Heating interfaces
- Damper control

Room for improvement?

Improved Design Process

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

Room for improvement?

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

.....any questions??