Breathing City
Future Urban Ventilation Network

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Drivers

• Understanding airflow is key to understanding and mitigating poor air quality
  • Link between pollution sources and exposure
  • Need to be able to interpret measurements

• Physics of indoor– outdoor flows is technically challenging
  • Urban and indoor flows both matter
  • Complex and at different time and length scales

• Multiple factors including energy, comfort, noise, climate alongside air quality

• Ventilation doesn’t consider health or behaviour effectively

• Building ventilation is not connected with city design - huge legacy infrastructure that is not fit for purpose
Objectives

Bringing people together across disciplines to:

- **Scope** the Breathing City framework – how do we integrate health evidenced flow design?
- **Define** and initiate new research to model flows, pollutant transport and exposure risks
- **Build** partnerships, drive technology solutions, enable user engagement
- **Identify** the policy requirements to enable health-based ventilation design
Theme 1 – Coupled indoor-outdoor environments
Theme Leads: Malcolm Cook and Maarten van Reeuwijk
Consider mechanisms for ingress and egress of pollutants in buildings and the techniques for quantifying this exchange

Theme 2 – Health-centred ventilation design
Theme Leads: Abigail Hathway and Henry Burridge
Explore innovations required to deliver good ventilation for occupant health

Theme 3 – Breathing City into practice
Theme Lead: Tim Sharpe
Identify and engage with potential users at different scales to inform cohesive strategies for informed policy
Events

• Policy event at Westminster with Healthy Buildings APPG and HEMAC Thursday 30th September

• Metrics for Indoor and Outdoor Air Quality Wednesday 22nd September

• Perspectives on Ventilation and Air Quality Modelling (theme 1) Tuesday 14th September

• Several theme-led workshops throughout the summer

• Clean Air Day (with other SPF networks) Thursday 17th June

• Seminar Series (April 2021 - July 2021) and (October 2021 - February 2022)

• Network Launch Event Monday 18th January

• We have recordings of all past events on our YouTube channel.
Surveys

**Theme 2 Survey: Impact of Ventilation on Energy, Comfort and Air Quality**
To understand what professionals working the field consider typical ventilation provision in a range of settings, and the resulting impact on energy, comfort and air quality. Through this we hope to understand where there is consensus amongst experts, and areas of uncertainty assisting the direction of future work in this field.
Live

**Repository Survey: Drafting a Breathing City Open Repository**
To collect comments/suggestions for the draft Open Repository of the Future Urban Ventilation Network.
Live

**Theme 3 Survey: Public Attitude and Awareness of Ventilation and Air Quality**
To gain a national picture of ventilation awareness and behaviour.
Coming soon
Four researchers have received a share of £20,000:

- ‘Real-time residential monitoring of children with suspected pollution related respiratory diseases’. PI Dr. Jonny Higham. University of Liverpool

- ‘Ventilation, indoor air quality and people health in care homes’. PI Dr. Hong Yang. University of Reading

- ‘Not every air quality measurement should be treated the same: standardising visuals’. PI Dr. Marco-Felipe King. University of Leeds

- ‘Impact of different building standards on indoor air quality in homes’. PI Dr. Monica Mateo-Garcia. Birmingham City University
Network Scoping Document

A paradigm shift to combat indoor respiratory infection (Author list includes Noakes)

Infection Resilient Environments: Buildings that keep us healthy and safe (Author list includes Noakes)

Website blog posts
System map approach
System map approach
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