

# Airborne Infection Reduction through Building Operation and Design for SARS-CoV-2 (AIRBODS)

## AIRBODS: *A brief overview*

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# Project Aim

Our aim is to deliver guidance on the ventilation operation and future design of non-domestic buildings and to quantify the risk of, and reduce the transmission of SARS-CoV-2 in buildings,

*using ...*

# Methods

- Experimental
  - Computer Simulation
  - Fieldwork
- Design guidance

# Work Packages

## Work Package 1: Experiments

(Hathway and Ciric):

Use class 2 environmentally controlled chambers to provide experimental data on the transport and distribution of aerosols.



*Courtesy: L. Ciric, UCL*

# Work Packages

## Work Package 2: Modelling

### Task 2.1 (Fitzgerald, Stoesser):

Use analytical methods to develop an understanding of the physical processes involved in aerosol transport; in particular we will consider the correlation between temperature, relative humidity and the behaviour and evaporation of aerosols.

## Work Package 2: Modelling

### Task 2.2: Computational Fluid Dynamics (CFD) Modelling (Cook and Malki-Epshtein):

The work here will compare different CFD modelling techniques, e.g. URANS with LES, and inform a Relative Exposure Index. The work will also underpin design and operation guidance for practicing engineers wishing to use CFD for other scenarios and geometries.

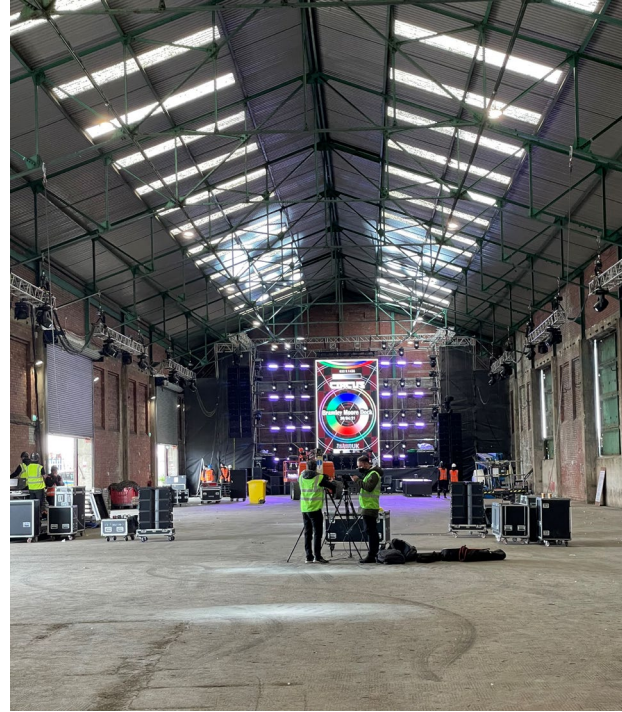


## Work Package 2: Modelling

### Task 2.3 (Jones and Iddon):

Augment an existing Indoor Environment Relative Exposure Index model using the mathematical models generated in Task 2.1 and the outputs from the CFD simulations in Task 2.2.





## Work Packages

### Work Package 3: Field Studies (Malki-Epshtein, Ciric):

Undertake field studies in a wide range of large and small space types. This will include measuring temperature, relative humidity, CO2 and air flow to be used as inputs to the RRI.

# *And back to the aim ...*

## **Work Package 4: Design Guidance and Dissemination**

**(Adamu, Woolf and Cook)**

Use the lessons learnt from Work Packages 1, 2 and 3 to inform practical guidance on responses to SARS-CoV-2 for at least the building typologies investigated, and provide prediction tools and modelling advice.