

ABL Tunnel

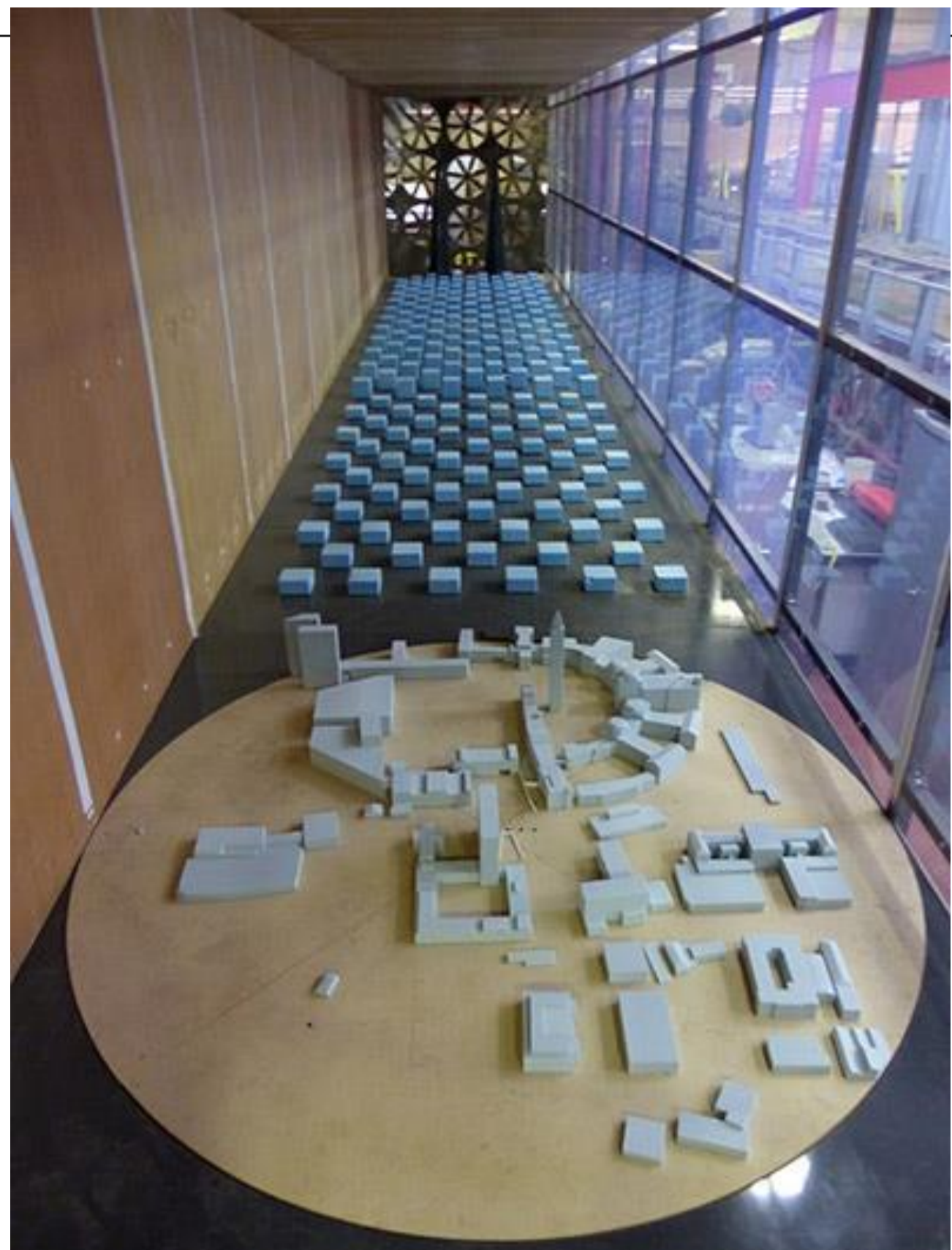
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Pedestrian-level wind comfort

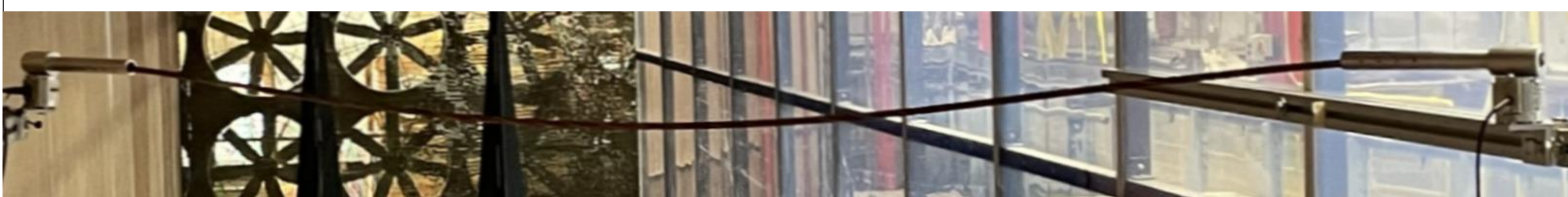
- High-rise developments in urban centres have caused uncomfortable and even dangerous conditions for pedestrians, cyclists and other user of the surrounding area.
- Planning permission for high-rise urban development often requires assessment of the effect of the proposed development on the local wind field
- Research into how well physical (wind tunnel) and numerical modelling perform when used for these..



(Joseph, G.M.D. et al., 2020. Determination of crop dynamic and aerodynamic parameters for lodging prediction. *Journal of Wind Engineering and Industrial Aerodynamics* 202, 104169. doi:10.1016/j.jweia.2020.104169)

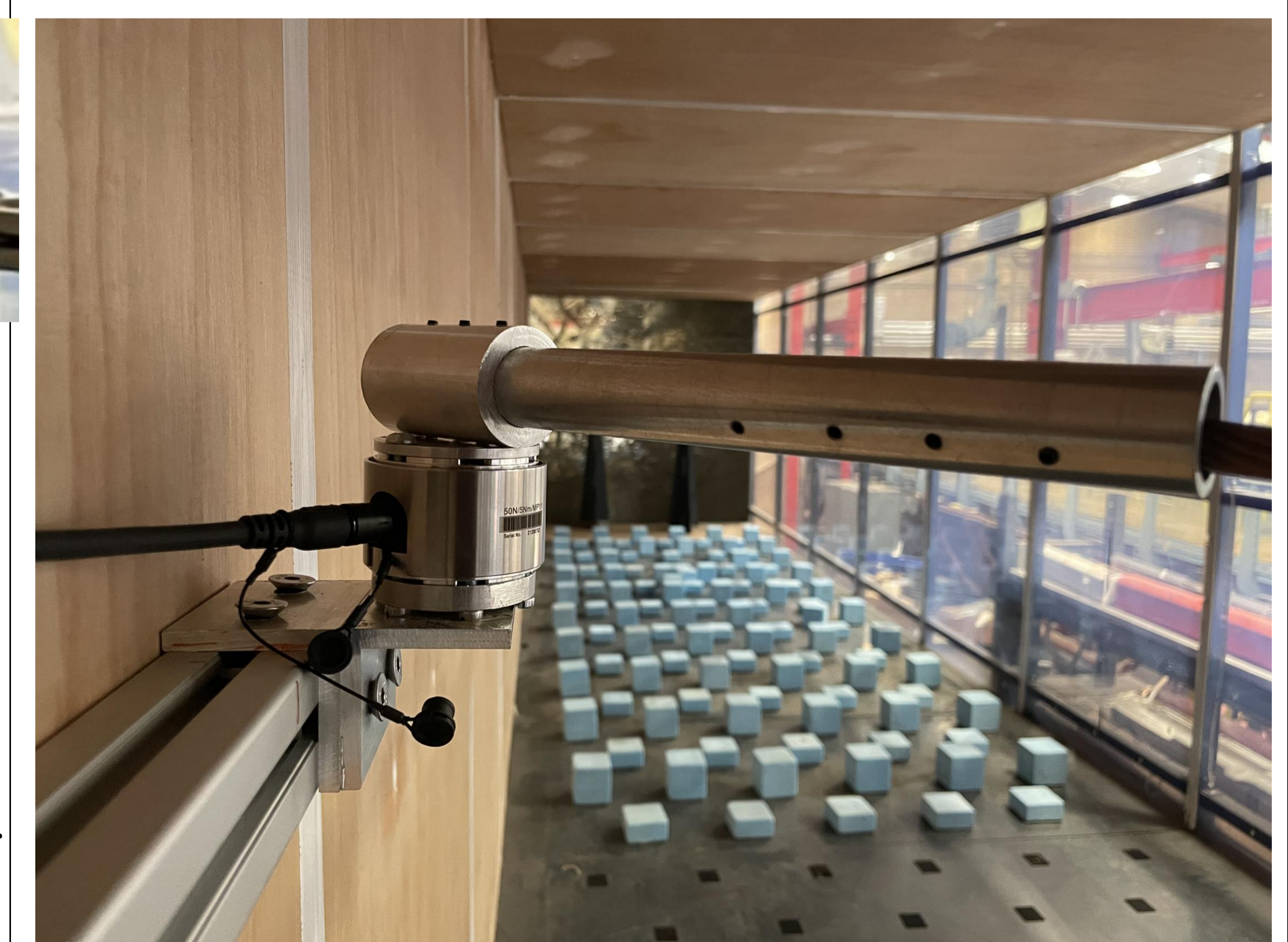
Crop Lodging

- Wind lodging (stem breakage or uprooting due to strong winds) causes hundreds of millions of pounds worth of damage in the UK alone.
- Lodging models developed at the University of Birmingham (UoB) require an understanding of the crop aerodynamic parameters.
- The flexibility of the wind tunnel configuration has allowed unique wind tunnel tests on a range of crops to determine the parameters needed for successful modelling of the problem.
- Based on these models, advice on planting and cultivation is provided to farmers.



OLE Conductors

- Electrification of the UK rail network is an important part of reducing the carbon footprint of UK transport.
- Design of overhead lines requires understanding of the aerodynamic properties of the cables used, in particular the drag coefficient and it changes with cable type, yaw angle and other parameters.
- As part of a Network Rail project, wind tunnel tests were used in conjunction with computational fluid dynamics and finite element modelling to quantify cable drag coefficients under a range of conditions, and the impact of this on overhead line infrastructure design.



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