

# EnFlo Wind Tunnel

University of Surrey



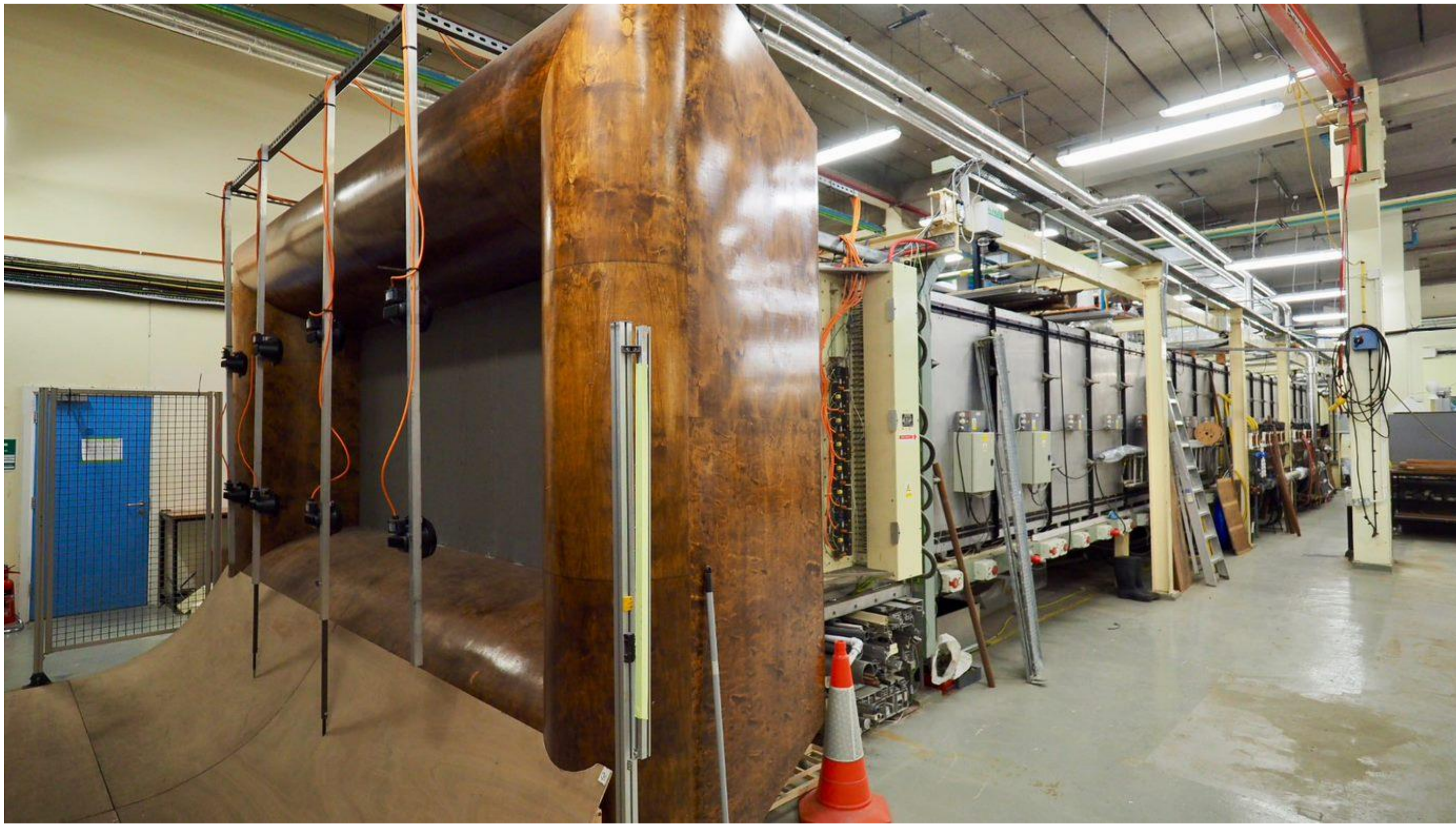
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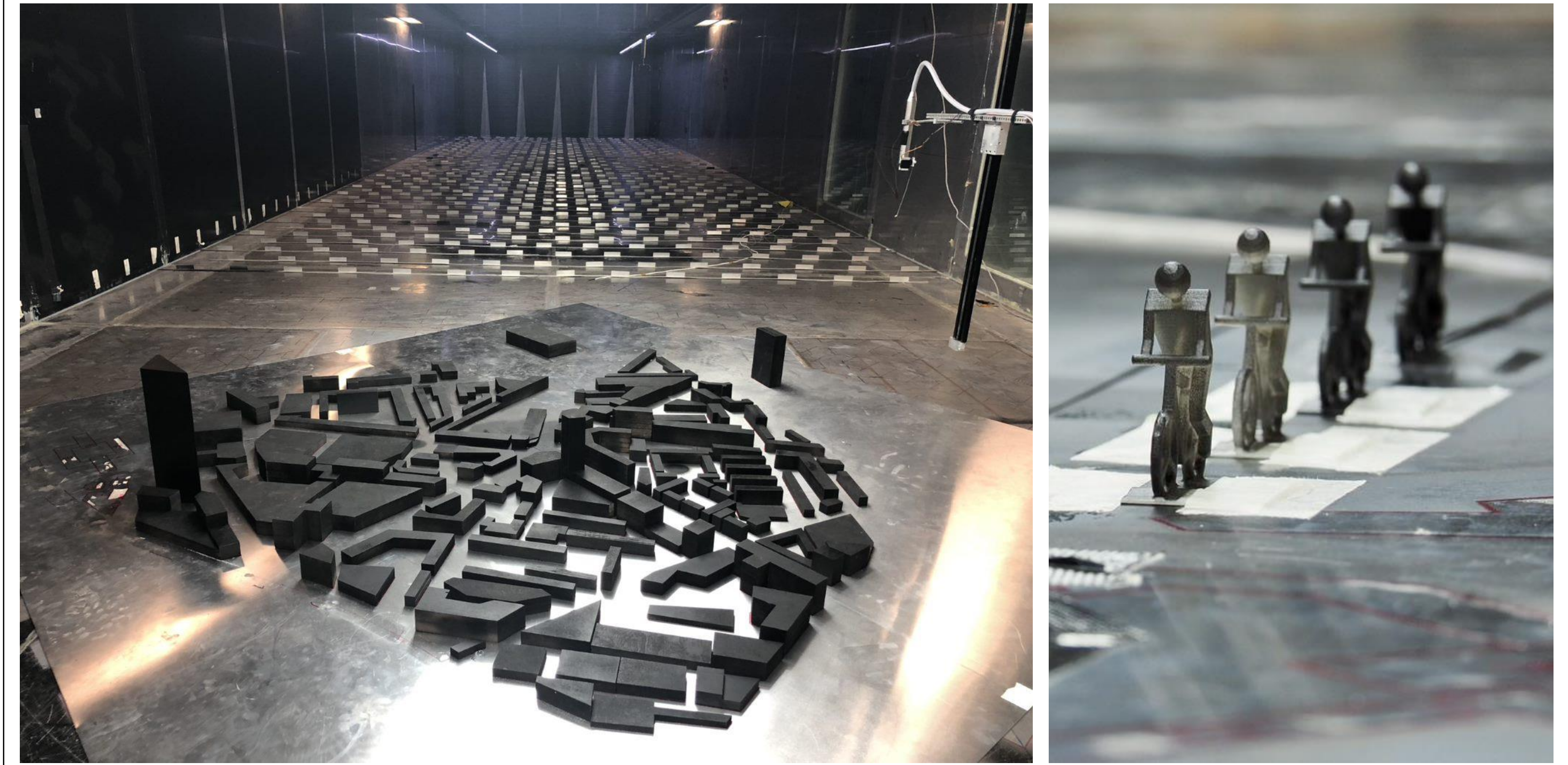


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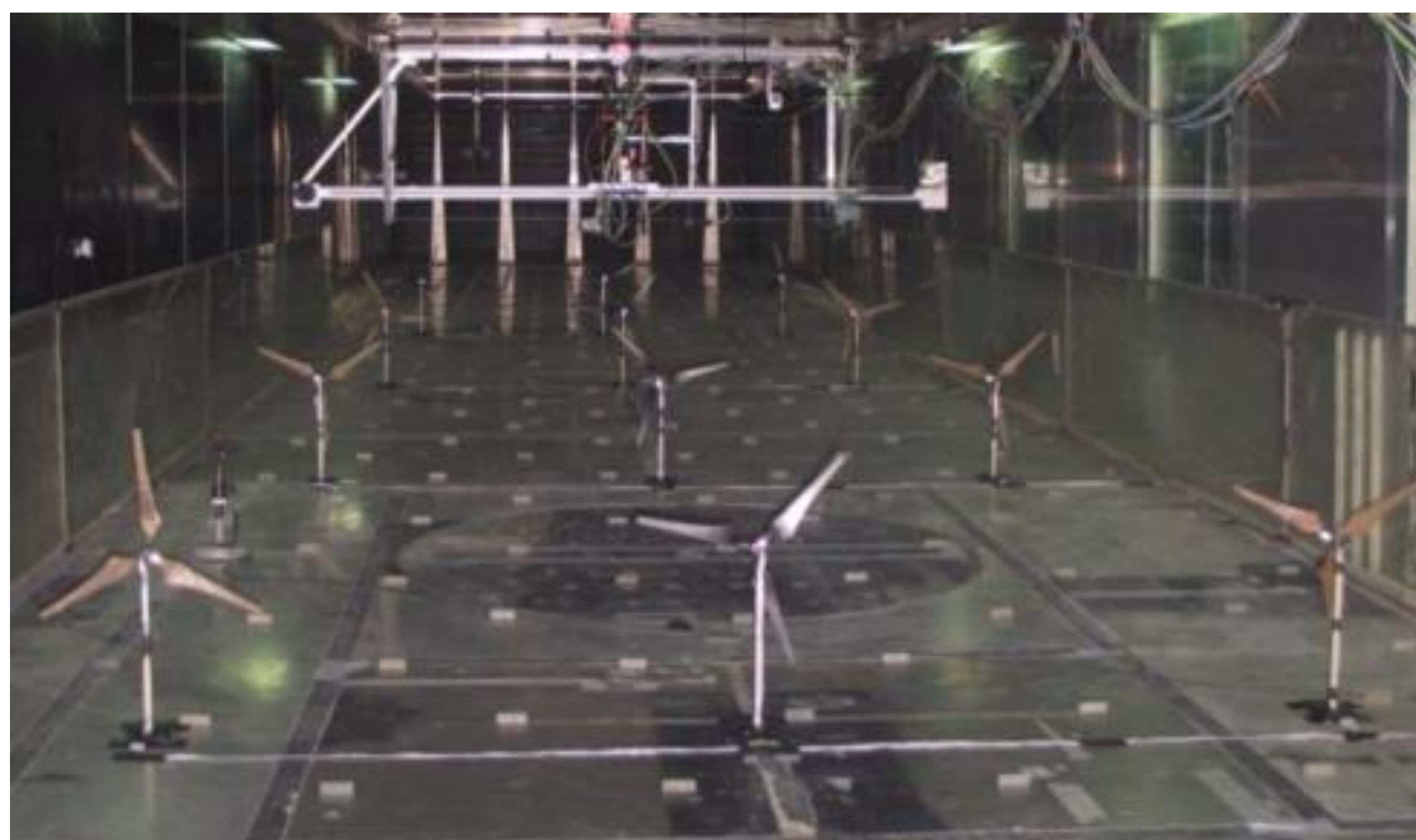
## EnFlo Meteorological Wind Tunnel

- The wind tunnel is 27m long with 20m × 3.5m × 1.5m working section.
- It can be operated in a density-stratified mode, which give the facility a unique experimental capability and also enables a very wide range of environmental conditions to be modelled.
- It is equipped with comprehensive inlet flow and surface heating and cooling systems for operating thermally-neutral, stable and unstable boundary layers.
- It is fully computer-controlled and used extensively in unstaffed conditions to maximise availability and minimise interference from other work in the laboratory.



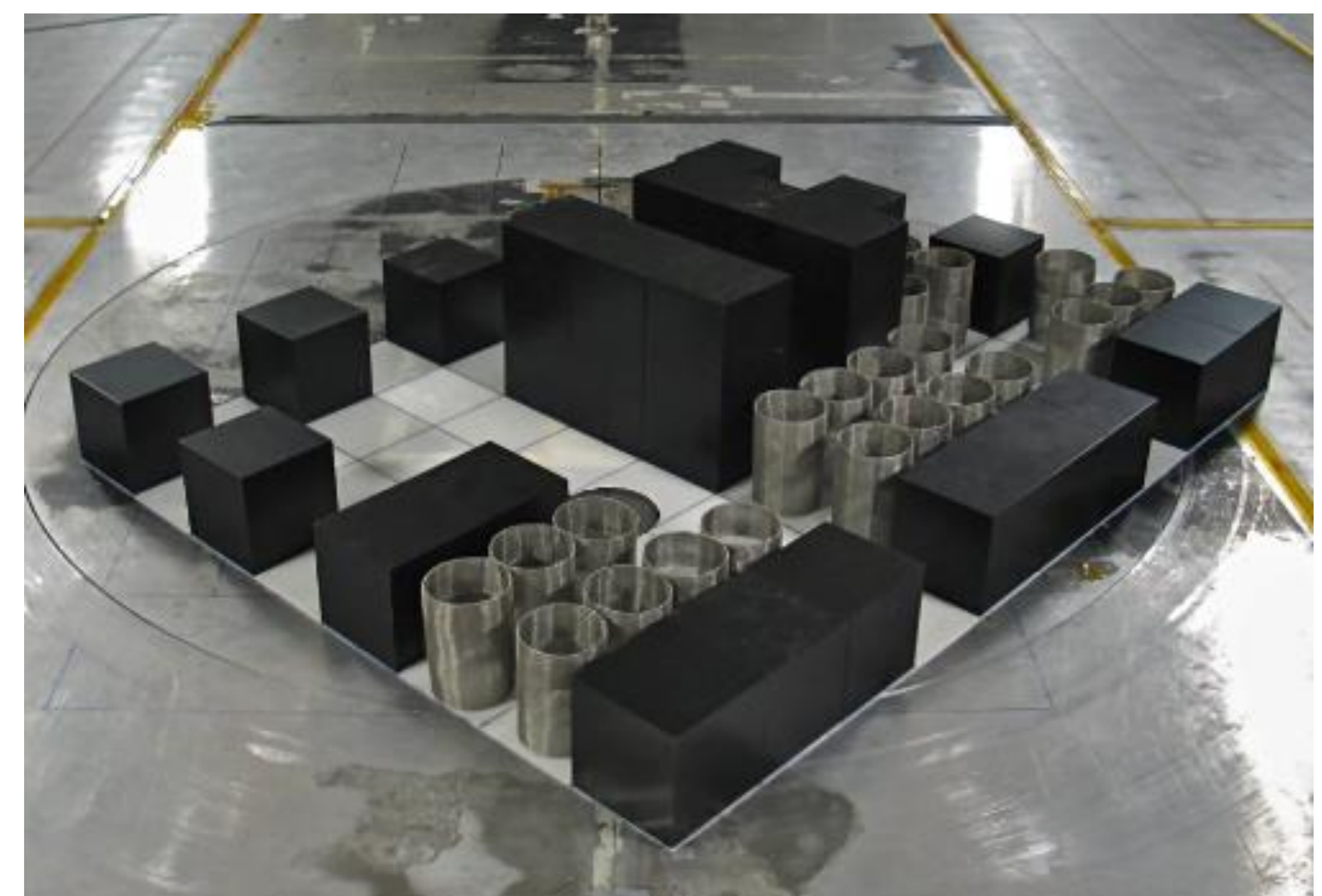
## Urban flow and dispersion

- Pollutant and hazardous release dispersion in urban areas, measuring (up to 8 channels FFID) tracer concentration and fluctuations for passive and (positively and negatively) buoyant sources.
- Flow characterisation (within-canopy and above-canopy) for the full urban boundary layer, fast-response 3-component point measurements (LDA, HWA, 7HP) or PIV analysis.
- 512-channel fast-response surface pressure measurement system.
- Applications include studying effects of tall buildings, non-neutral stratification, heterogeneity, source buoyancy, vegetation, urban ventilation, and others.



## Wind farm aerodynamics

- Offshore wind farms, wake flows, effect of non-neutral boundary layers.
- Horizontal and vertical-axis wind turbines.
- Onshore wind farms, effect of terrain (e.g. hills).
- Wake meandering, wake steering, power yield optimisation.



## Industrial applications and fundamental research

- Accidental and deliberate releases of hazardous gases.
- Aerodynamics of industrial sites.
- Plume dispersion in a wide range of conditions.
- Rough-wall boundary layers, heterogeneous rough walls.

## Industrial & Academic Partners

