AREP

Urban Winds and Wind Comfort

Certain draughts induced by the built environment can be a genuine source of discomfort, both indoors and outdoors. These complex phenomena can only be appreciated by using state-of-the-art numerical simulations, and the use of a suitable comfort index. These spatial studies can highlight local phenomena on a small and large scale.

L'hypercube refers to AREP's internal research and scientific support workshop, specializing in the modeling of complex physical phenomena.

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Our Expertise

Our approach is based on a **numerical wind tunnel model** providing the air velocity fields necessary for the airflow study of the project. The results are translated into **wind comfort levels** using **statistical processing**. For a representative year, a given level of activity level and following the CSTB methodology , the model associates the frequencies at which the disturbance threshold is exceeded with an acceptability scale.

Our Services

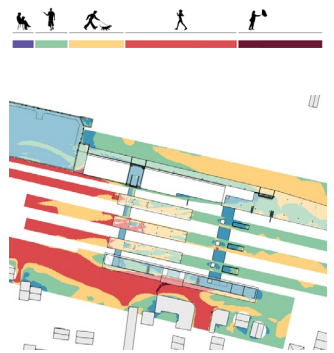
Analysis of urban air flows:

- Calculation and mapping of local air velocities over a representative year,
- Assessment of the effects of the presence of protective devices and/or vegetation on local air velocities,

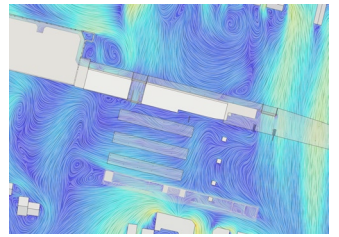
Analysis of the impact of air circulation on comfort:

- Calculation and mapping of wind comfort levels,
- Assessment of the risks of discomfort in the wind as a result of different activities and climatic scenarios,

Architectural or Urban design assistance by recommending preventive and corrective solutions.



Bondy Train Station
Mapping the wind comfort levels



Bondy Train Station
Mapping local wind velocities