Case Study No 34

Twenty Two Over Seven
Architecture and Design

Micro-climate

Twenty Two Over Seven, Architecture and Design commissioned The Airshed Ltd to conduct a micro-meteorological study in Belfast city centre. The scope of the study was to assess how a proposed development would affect pedestrian comfort and safety.

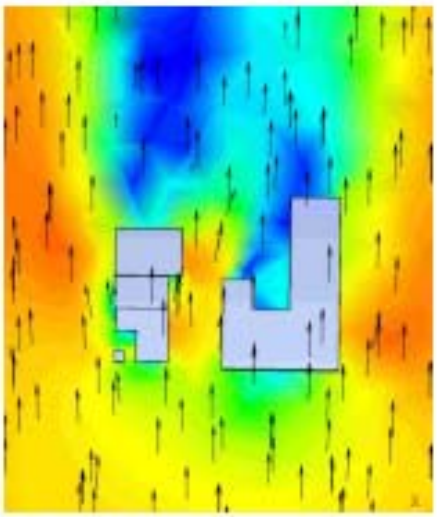
The proposed building was 54m above ground level with a service tower up to 60m above ground level. The assessment was based on the Lawson criteria: comfort criteria are based on 95%ile of reported mean hourly wind speed at pedestrian height; safety ratings are based on the 99.9%ile of the reported mean hourly wind speed for the site.

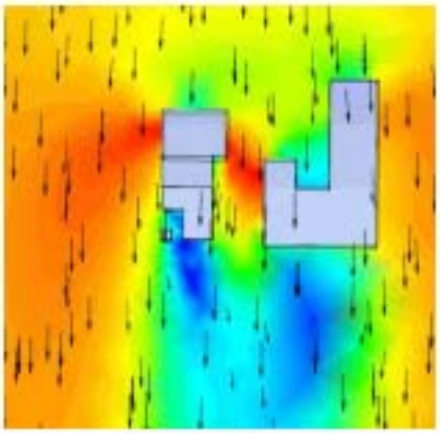
Wind speeds were predicted using Ansys CFX computational fluid dynamics (CFD) for the existing building layout and with the proposed development.

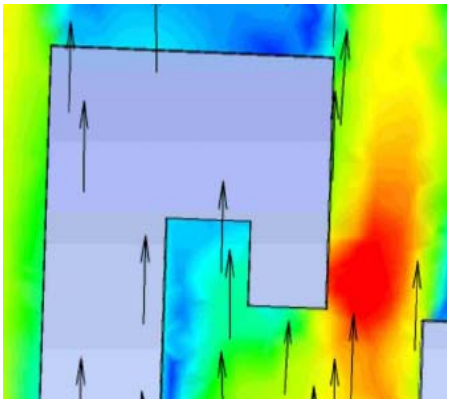
The baseline Scenario indicated that comfort levels may sometimes be exceeded near the corners of existing offices, car parks and church buildings. The main significant change resulting from the proposed development was predicted to be to slightly increase wind speeds in an office car park. This condition was only predicted to occur when winds are from the north, which seldom occur in practice.

In the case of all other wind directions the proposed building was found to reduce wind speeds near ground level. Wind speeds are predicted to be acceptable outside the entrance to the Church for all wind directions considered.

Based on this assessment, the proposed development was unlikely to affect the local micro-climate. This assessment was accepted by the City Council.







The Airshed

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