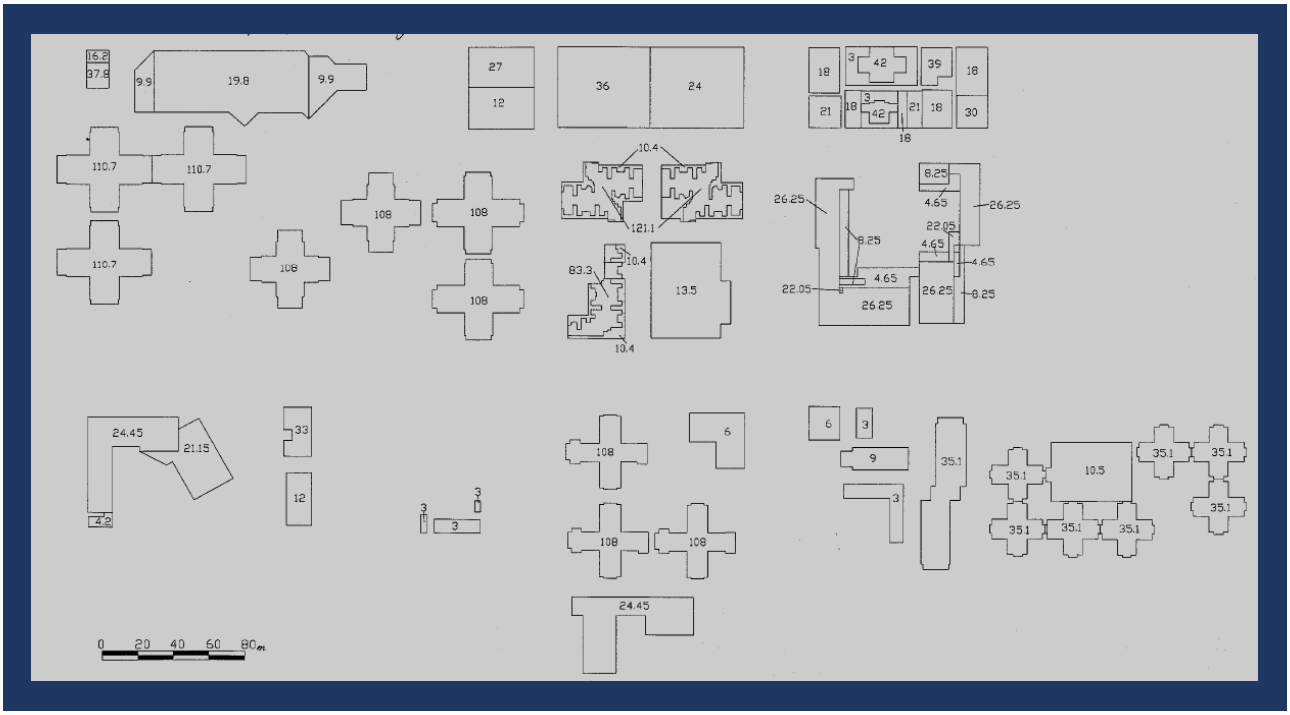
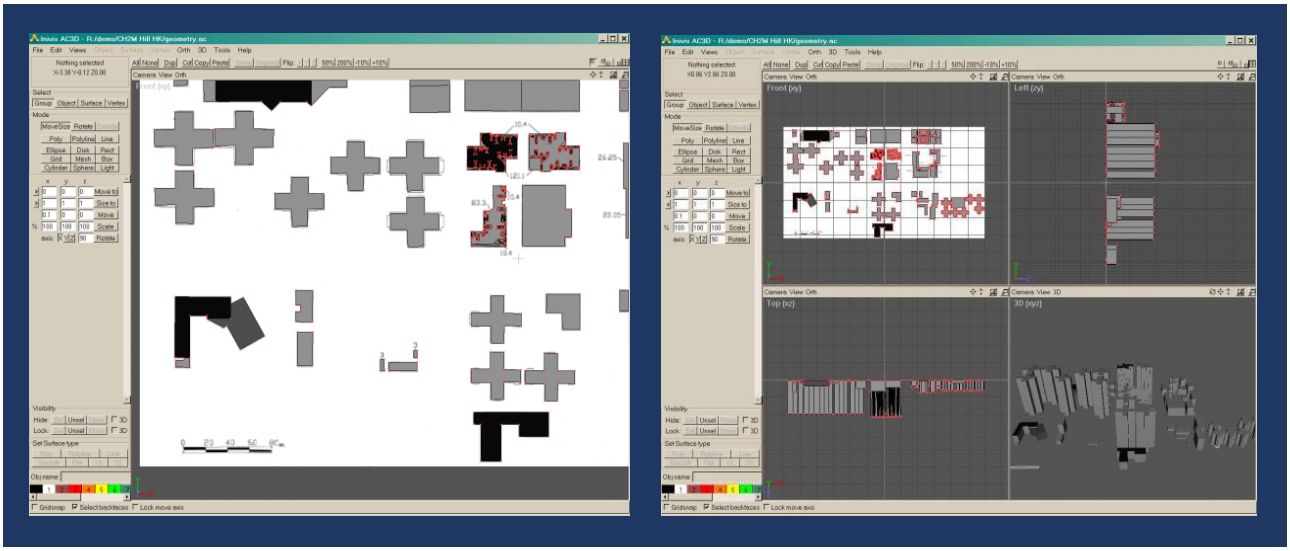
PHOENICS Case Study: Environmental
Urban Wind Flows around High Rise Buildings

In this demonstration, PHOENICS simulated air flows around a set of high-rise buildings in Hong Kong, to investigate the wind velocities at various heights. A 3D solid model of the geometry was not available; the client supplied only a scale drawing as a plan view, with heights shown for each building:



The drawing was scanned, and used as a backdrop in the AC3D software, supplied as a utility in PHOENICS/FLAIR .The outlines of the buildings were traced to create polygons, which were extruded to produce individual buildings.



Finally, the entire scene was exported to the VR-Editor as a single PHOENICS object.

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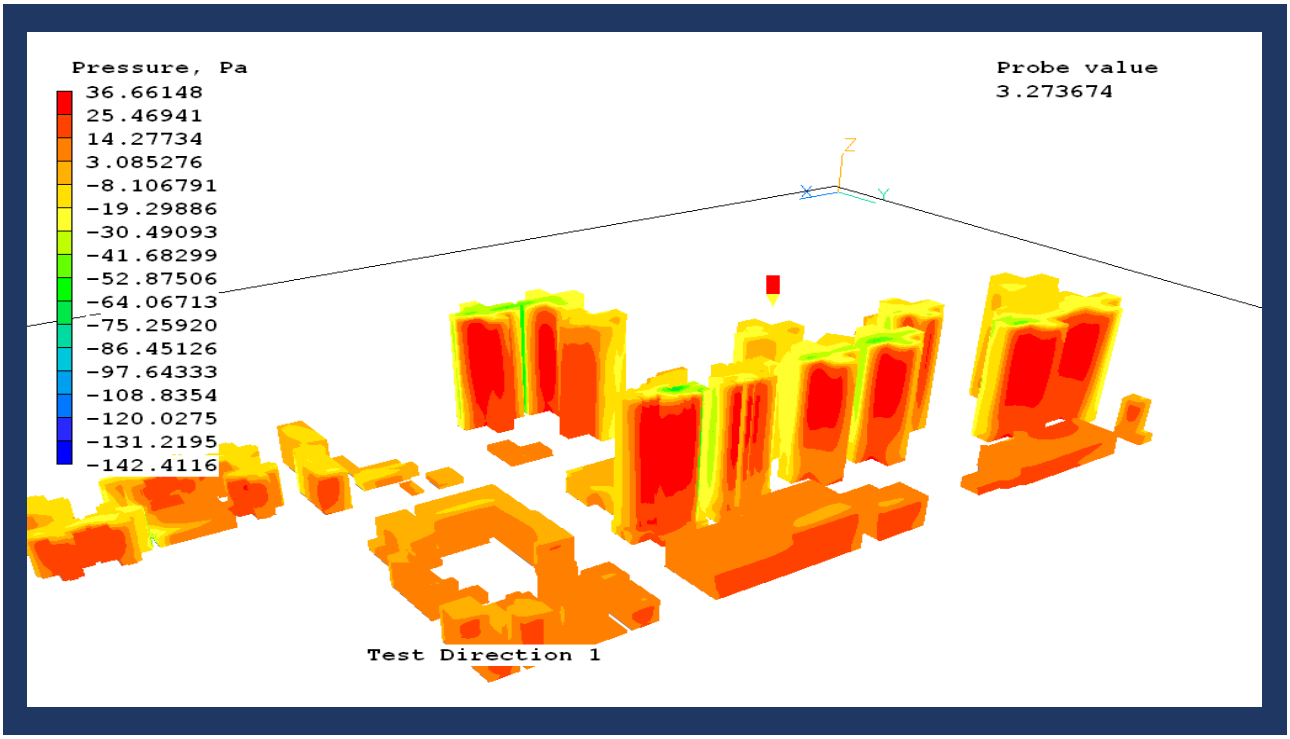
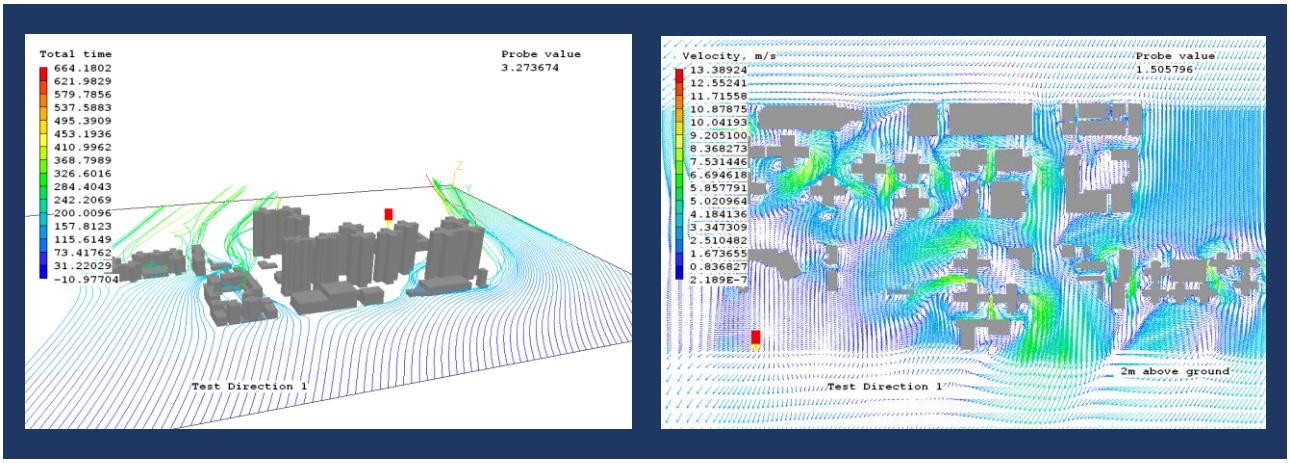


The inbuilt wind-profiling feature of PHOENICS/FLAIR was used within the model to represent more-accurately a real situation though, for this particular demonstration scenario, no representation was made of the surrounding hilly terrain which would greatly affect results.



Images were generated of various views of the velocity fields at 2, 20, 40, 60, 80 and 100m above the ground; two of these are shown below.