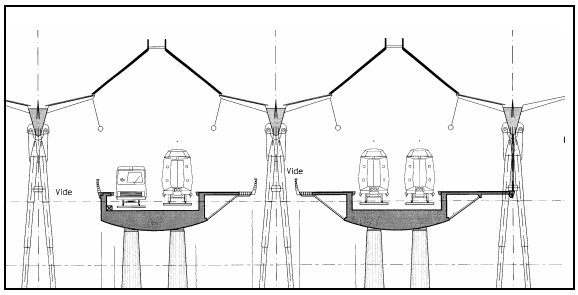
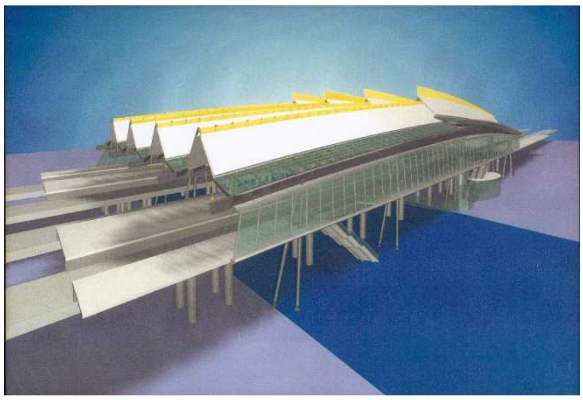
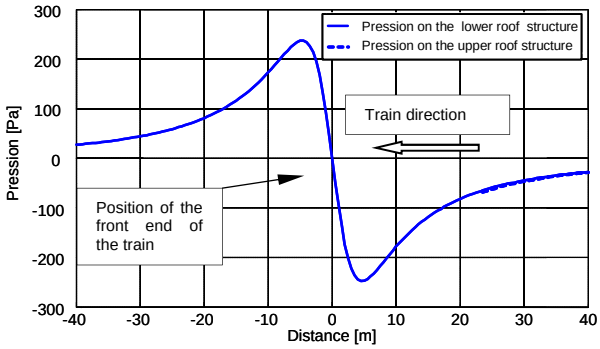
Bijlmer Station, Amsterdam (NL)
Aerodynamic loads



Cross-section through Bijlmer station



3D view of Bijlmer station



Calculated pressure loads acting on the roof structure of Bijlmer station while a train is passing through

Description

HBI Haerter Consulting Engineers became appointed by ARCADIS (NL) to investigate the aerodynamic effects of the through-passage of high-speed trains travelling at up to 200 km/h through Bijlmer station in Amsterdam. The main objective was to estimate the aerodynamic forces acting on the station structure and on passengers on the platforms.

Due to the lateral distance between the trains and the station structure, the flow calculations were undertaken using a one-dimensional method. This method had already been employed by HBI for other major projects and was validated independently by measurements.

Services

HBI's professional services included the following points:

- Estimation of the aerodynamic forces caused by the moving trains on critical structural components (roof and sidewalls).
- Definition of a minimum allowable distance between moving trains and passengers on the platform.
- Definition of the bow wave of the moving trains and the boundary layers of the flows around the trains for a number of cases.

The study indicated that the aerodynamic forces on the station structure were of an acceptable magnitude. The minimum safety distance from the platform edge was defined in order to ensure the safety of passengers.