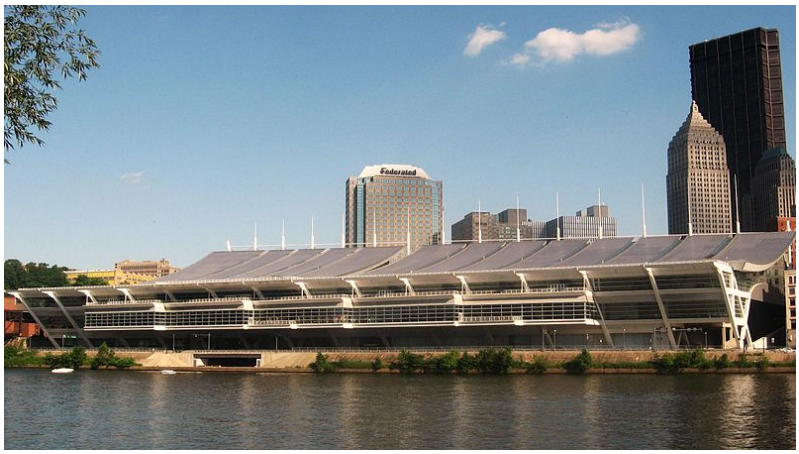
The David L. Lawrence Convention Center, Pittsburgh, Pennsylvania

Wind Engineering Study



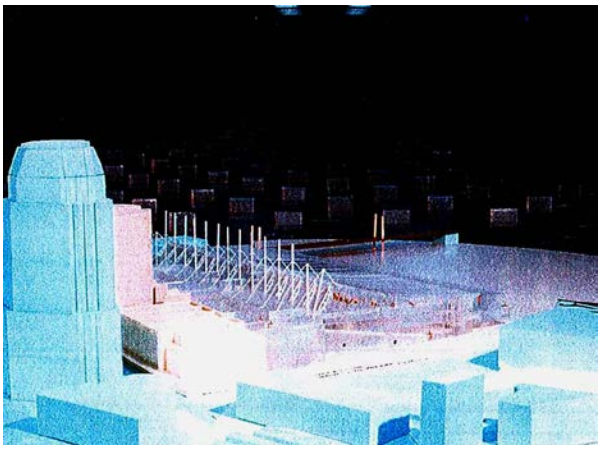


Image Credit: Wikipedia

Client	*Structural Engineer*	*Architect*
Dewhurst Macfarlane and Partners	Goldreich Engineering P.C.	Rafael Vinoly Architects PC
Height	*Year Tested*	*Model Scale*
160 feet	2000	1:300

The Project

The David L. Lawrence Convention Center in Pittsburgh, Pennsylvania is a 1,500,000-square-foot facility and is the only LEED certified convention center in the world. The convention center is located on Fort Duquesne Boulevard and overlooks the Allegheny River.

The project consists of a large cable-stayed trapezoidal shaped roof. The roof is 840' in length with a width that varies from 380' to 270'. The roof membrane is supported by tensioned cable trusses at 60' centers with spans varying 380' to 270'. The highest point on the roof is just over 160' above ground.

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The Wind Tunnel Studies

The wind engineering studies for David L. Lawrence Convention Center included a study of the wind-induced area averaged loads and deflections, local cladding pressure loads, pedestrian level wind environment and snow loads.

The study of overall area averaged loads, deflections and other load effects were determined using the pressure integration of the pressure time series with appropriate influence coefficients.

A study of wind-induced cladding pressures was carried out for 740 measurement locations distributed over the project.

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