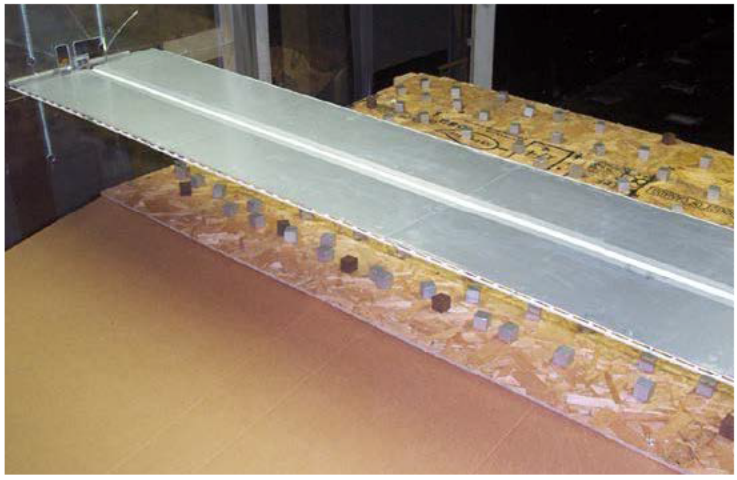
Neratziotissa Interchange Roof - Greece

Wind Engineering Study



Roof Section Model with Simulated Terrain Condition

Underneath of Roof Section Model

Client: Sinclair Knight Merz (Europe) Ltd.	*Year Tested: 2003*	*Total Length of Roof: 335 m*
Length of Cable Supported Main Roof: 155 m	*Width of Main Roof at Midspan: 20 m*	*Roof Section Model Scale: 1 to 55.1*

The Project

The Neratziotissa Interchange Roof is supported by an arch through 108 cables. The cable supported main roof section is about 155 m long, and the total length of the Roof is 335 m. The roof width varies from a maximum of 20 m in the midspan section to very small at the outmost girder section. The section model study uses the properties at the midspan section of the Roof.

The Wind Tunnel Studies

A section model of the roof structure was designed and constructed at a geometric scale of 1:55.1.

The behaviour of the structure was studied at the inlet to the High Speed Section of the Boundary Layer Wind Tunnel II. An additional test was also carried out using simplified simulated upwind terrain model. The wind characteristics are expected to be similar to the wind over the terrain approaching the actual site.

The Wind Tunnel Studies (Cont.)

The primary objectives of the section model study were to:

1. Provide basic aerodynamic information for the roof section design;

2. Investigate the overall stability of the roof section in high wind condition and possible flutter instability problem;

3. Investigate the behaviour with respect to possible vortex shedding induced oscillations of the roof section in smooth wind;

4. Define the behaviour due to buffeting in turbulent wind;

5. Determine the static force coefficients in both smooth and turbulent flows for the roof section;

6. Determine the equivalent static wind loads for the roof section.

The Boundary Layer Wind Tunnel Laboratory

Western

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FSBR/ 80 / April 2020 / LK
Last Printed: April 16, 2020