

## Moveable textile roof for the „Parkenstadium“, Copenhagen (DK)

The moveable roof consists of 12 textile membrane cushions, each with a length of 92 metres and a width of 7 metres. In a closed condition, these are automatically filled with air by special blowers. In between, a total of 13 four-boom travelling trusses, with a trapezoidal sheeting insulation, provides for the required space stability against wind, snow and rain loads over a total width of 140 metres. Additionally, the roof is rated as a permanent structure, particularly as it can withstand full snow pressure! With a width of just 1.8 metres, the four-boom trusses are extremely slim, yet there is no problem with the stability of the elaborate overall design due to the interplay of the membrane cushions and the additional rope construction.



The complete process of closing, according to the specification, takes just half an hour – after that time, the entertainment area below it then can be heated completely! However, inside events should not run excessively long, because after two days the lawn could be damaged due to the reduced incidence of light, according to horticulturists. Accordingly, a compromise has had to be found for the preparation of cultural events: during the installation of stage technology, the roof is closed over the stage at only half of its length in order to prevent the lawn from being stressed too much.

Unlike shading systems which are opened by scissor-type mechanisms, the Copenhagen stadium roof travels on two parallel running gantry girders known from big industrial operations.

In its retracted condition, the roof is parked in a trapezoidal sheeting garage just 30 metres deep, and is supported therein by three amply-dimensioned truss-structures. Air is also exhaled during the parking process, so that the membrane cushions hang flaccidly, awaiting their next deployment.



### Project data

Architekt / Architect	Gert Andersson Arkitektfirma ApS, DK-Kopenhagen
Konstruktion / Construction	Rambøll A/S, DK-Virum Jørgen Søgaard ApS, DK-Helsingør Ing.-Büro Teschner, D-Kosel
Statik (Membrane / membrane)	Ing.-Büro Teschner, D-Kosel
ÜGF / Covered Area	ca 8.000 qm
Baujahr / Year of Construction	2001