

International Expo
"water and sustainable development"

FLUVIAL BANK PERGOLAS

ARTICLE

MEMBRANE COMPONENTS
FOR THE MAN-MADE ENVIRONMENT

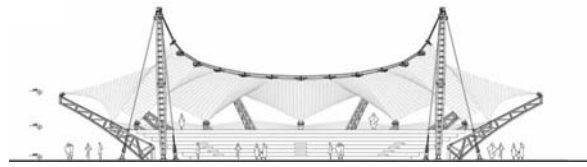
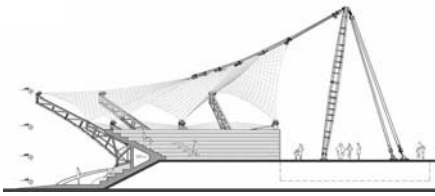
Structural Fabrics

DEPENDENCY OF LOAD TRANSFER
ON BOUNDARY CONDITIONS

RESEARCH

ULTRA-LIGHTWEIGHT
CONSTRUCTIONS
FOR TEMPORARY USES

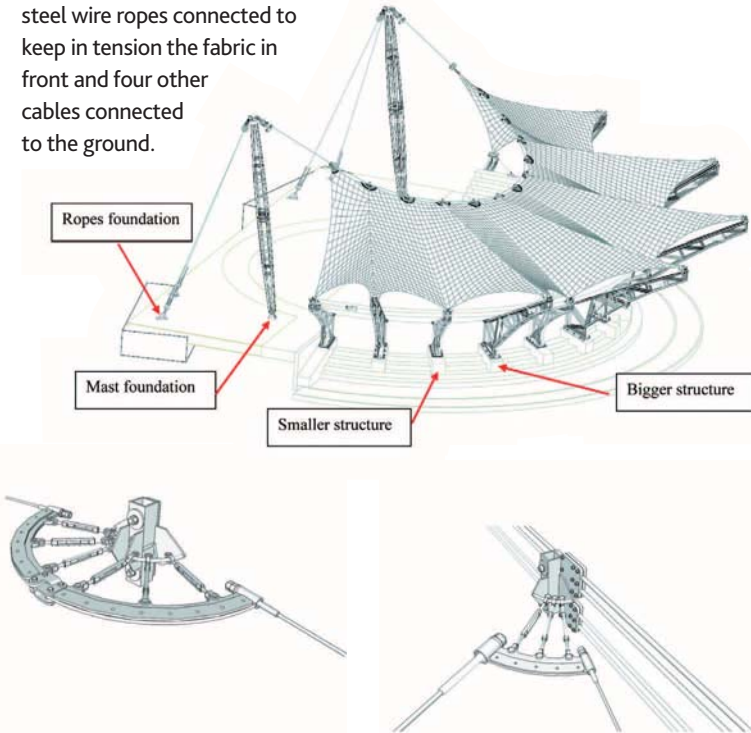




Open air amphitheatre

Ab-o-Atash Tehran, Iran




The project is located in the leisure park "Ab-o-Atash" (meaning: "Water and Fire" in Persian language) in the North of Tehran, Iran. It's a stage for sitting with a fabric roof over it, making an open amphitheatre. The concrete seating place, with a capacity of 750 seats, is the foundation for the roof. This roof is a one piece PVC-PVDF coated Polyester fabric of 709m² and covers a total area of 600m². The roof is suspended and tensioned by two 16m high steel masts in front with a span of 24m. The masts keep in tension four steel wire ropes connected to keep in tension the fabric in front and four other cables connected to the ground.



Name of the project:	Ab-o- Atash Amphitheatre
Location address:	Didar St., Tehran, Iran
Client (investor):	Nosazi Abasabad
Function of building:	Leisure Park, seating area
Type of application of the membrane:	roof for seating stage
Year of construction:	2009
Architects:	Diba Tensile Architecture
Structural engineers:	Massimo Maffei Engineering and Consulting
Consulting engineer for the membrane:	Massimo Maffei Engineering and Consulting
Contractor:	Diba Tensile Architecture
Supplier of the membrane material:	Mehler Technologies
Manufacture and installation:	Diba Tensile Architecture
Material:	PVC coated polyester fabric type III
Covered surface (roofed area):	600m ²

On the other side the fabric is fixed to steel trusses in the back part of the stage. A double curvature is created by high points and low points at the top of each truss in order to find the geometry which is structurally stable under wind load and snow load. The difference in height for the membrane is between 4m and 16m. The span between the trusses are between 4,18m and 13,05m. Because of the slope of the ground the stage is designed in a way that people can sit on both sides of it. The roof also extends back to provide the shelter for the ones who are using the back side. These two levels are connected by a ramp which goes round the stage. The stage has 8 platforms in total.



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