TensiNews

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Comparison between uniaxial and biaxial test methods

MECHANICAL PROPERTIES OF ETFE FOILS

Anticlastic minimal surfaces as elements in architecture

SOFT.SPACES

REPORT

TENSILE STRUCTURES MONTEVIDEO 2011

PROJECTS

Stone-age temple
MEMBRANE ROOFS SHELTER

Olympic Stadium
RECONSTRUCTION

TensiNewsINFO

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Edito

Tensinews observes the current trend of expanding the use of technical membranes and foils in architectural projects. The variation in available materials is increasing, with respect to the appearance as well as the (structural) behaviour. The field of application is widening; more delicate, creative and intriguing projects are being built and more architects explore the possibilities of the technology of tensile surface structures, e.g. textile sustainable wraps, a large span stadium cover or a heritage shelter to protect an archaeological temple. A holistic approach is the way to go for these designs.

Numerous workshops, symposia - like the 4th Latin American Symposium on Tensile Structures in Montevideo - and conferences act as forums to discuss and disseminate the state of the art. The next TensiNet Symposium is planned for 2013. The younger generation is stimulated to hand in their student-projects at the bi-annual International "Textile Structure for New Building 2011" Competition at Techtextil.

There is also an increase in research projects to deepen the current knowledge, like testing and analysing the material properties of coated fabrics and foils, the study of deployable S(P)PEEDKITS for disaster relief or the exploration of anticlastic minimal surfaces as architectural and constructive components.

A new TensiNet Working Group on Pneumatic Structures is launched: Matthew Birchall (matthew.birchall@ burohappold.com) will be the leader of this Working Group.

The TensiNet association is part of the expanding topic of technical membranes and foils and hopes to further contribute to this evolution.

CALL
for Participants for TensiNet Working Group on Pneumatic Structures

Pneumatic Structures are increasingly being considered for a variety of applications in the built environment, from stadium roofs to bridges, and from permanent structures to deployable enclosures. The design, analysis and specification of these structures is often treated differently by different consultants in different countries, with occasional reliance upon qualitative and empirical experience, or applications from other industries.

TensiNet is launching a working group on Pneumatic Structures to consolidate the current best practise in this specialist field. It is envisaged that this working group will focus on analysis techniques, design processes, applicable standards and technical references, materiality options, and construction practicalities. Reference will be made to the existing working groups on ETFE and Analysis & Materials without duplicating their findings, of course.
The aims, scope and membership of the working group will be discussed at the start-up meeting to follow after the Annual General Meeting of TensiNet in Barcelona on 4th October 2011. Any interested parties who would like to participate should contact the leader of the working group, Matthew Birchall, at ***matthew.birchall@burohappold.com***

Forthcoming Meetings

TensiNet meetings in Barcelona, Spain

Thursday 4/10/2011

16:30 - 17:00 Welcome
17:00 - 18:00 Partner Meeting (2/2011)
18:00 - 19:00 Annual General Meeting
19:00 - 21:00 Working Group Meetings "Specifications" (Marijke Mollaert), "Analysis & Materials" (Ben Bridgens) and "ETFE" (Rogier Houtman)

Location: Technical University of Catalonia (UPC), Master Room, Building A3, Campus Nord, Jordi Girona 1-3, Barcelona, Spain

CEN/TC250 WG5 _ core group meeting in Paris, France

Wednesday 02/11/2011
10:00 - 16:00
Core Group Meeting

Location:
SFEC, 3rd floor, 65 Rue Prony, Paris, France

Forthcoming Events

International symposium **IABSE-IASS 2011** London, UK *20-23/09/2011* ● *International conference on* **Structural Membranes 2011** Barcelona, Spain *05-07/10/2011* **http://congress.cimne.com/membranes2011/frontal/**Dates.asp ● *1st international* **Textile Architecture Seminar** Universidad de Castilla-La Mancha,Toledo, Spain *26-28/10/2011* ● *second international conference on flexible formwork* **icff 2012** Bath, UK *27 - 29/06/2012* **www.icff2012.co.uk**

ESMERY CARON

Open-air theater

Colmar, France

1800M² SUSPENDED STRUCTURE

Context

The City of Colmar wanted to cover the open-air theater of its Exhibition Park in a lasting and esthetic way. The challenge was to cover the existing Eastern and Western tiers by installing a textile cover fixed on a metal framework with particularly short delays and taking into account the existing equipment and the constraints inherent to the site. For example, the theater is located very close to the Colmar airport and part of the construction stands inside the area concerned by the planes' taking-off and landing operations. The solution chosen by ESMERY CARON was to install very big textile cones suspended at 20m above the theater stands.

Structure and installation

The plan dimensions of the two covering modules are about 55m by 2 X 65m, i.e. 2 textile covers of 900m² and 2.2 tons each. The metal structure supporting the tension fabric cover is mainly made of two triple masts of 3.5 tons each, holding a 135m long cable placed at an altitude of about 20m. The textile covers are completely independent from the existing open-air theatre structures by being tensioned on main cables (56mm in diameter). The metal frames were treated by bath galvanization and bolted on-site. Erection of the elements was performed using a telescopic crane

KIEFER TEXTILE ARCHITEKTUR

Temporary roof structure

Festung Ehrenbreitstein, Germany

Context

Built in early 19th century the "Festung Ehrenbreitstein" is a landmark in Koblenz, located opposite of the famous "Deutschen Eck" between Rhein and Mosel. In one of the moats of the historical "Festung Ehrenbreitstein" a main stage and stands for the Bundesgartenschau 2011 (BUGA 2011) have been located (Fig. 1). All kind of concerts will take place from April until October 2011. The moat called "Retiriergraben" is about 24m to 27m wide and 100m long. The slope of the "Graben" ends in east direction at the "Landbastion", is bordered to the North by "Kurtine" (both 25m high ancient walls) and to the South by a ramp in front of "Contregarde Rechts", which is opposite inclined to the "Retiriergraben", from 4 to 12m height (Fig. 2). The moat opens up upwards.
Client and investor was BUGA 2011, the owner is "Bundesland Rheinland-Pfalz".

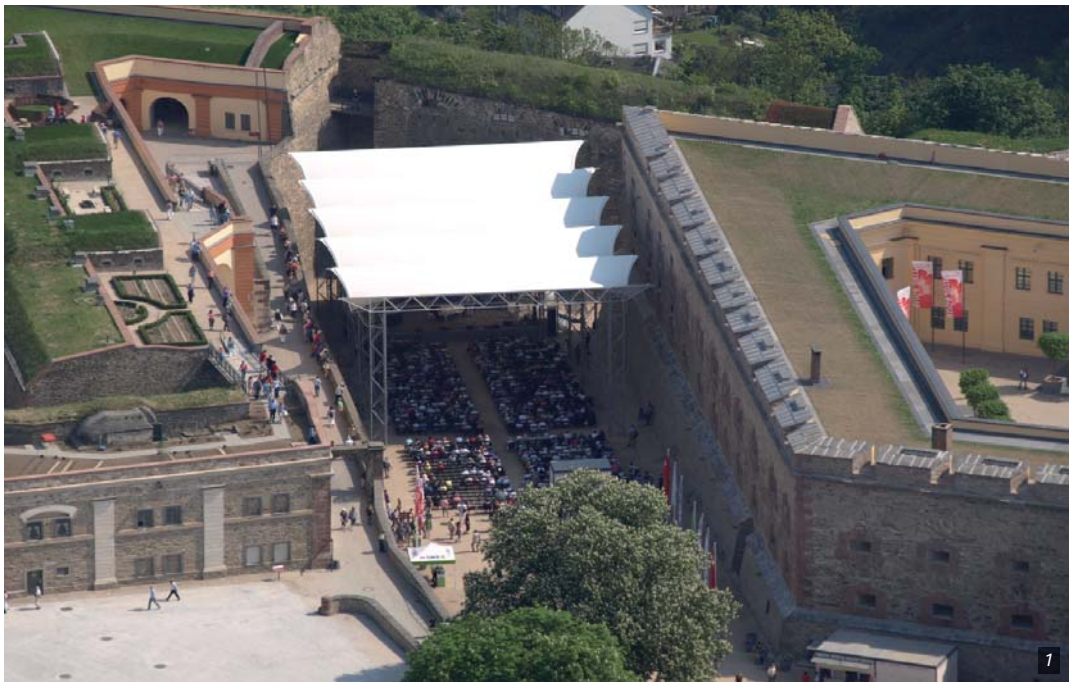

Figure 1. Aerial view on the main stage © PP Koblenz

Project

Kiefer. Textile Architektur provided a range of architectural solutions, until the client´s and owner´s requirements, which changed during the design process, had been achieved. The final brief was to create a temporary covering for a stage of 8 to12m and approximately 800 spectators in a way that no attention is taken away from the ancient masonry of the surrounding buildings and the new construction is not attached to the old (Fig. 3).