TensiNews

Newsletter of the European based Network for the Design and Realisation of Tensile Structures

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REPORT

TENSINET SYMPOSIUM 2013
[RE]THINKING LIGHTWEIGHT

TEXTILE ROOFS 2013

PROJECTS

arenas, protective zones, stadiums and coverages

CHINA - DENMARK - FRANCE - GERMANY
ISRAEL - ITALY - LUXEMBURG
SWITZERLAND - USA

Esmery-caron © Sergio Grazia / SL-Rasch © Sefar Architects

n°25

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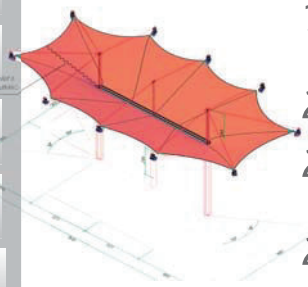
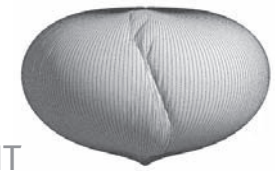
PROJECTS



REPORT



MISC

TensiNewsINFO

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Edito

Dear Reader,

We proudly look to a lot of successful activities since the last TensiNews. The ETFE working group has finished and published the ETFE Guide, the result of 4 years work. It is a state of the art document presenting basic information, different design approaches and perspectives for the future development. Beginning of May we had an excellent TensiNet symposium 2013 - [RE]THINKING lightweight structures in Istanbul, with more than 150 participants. The three days were full of interesting presentations from a wide range of professionals and researchers.
TensiNet was again one of the main sponsors of the student competition at Techtextil, and TensiNet was present on Textile Roofs 2013 in Berlin.

Many working groups are actually going on. The Specification and Eurocode Working Group is very active. Many countries have already established their national standards committee, and the core group meets regularly. The group is actually working on the master document and on background documentation. Furthermore the different countries are now asked to compare the safety approach in the actual master document with their code of practice. The ETFE working group has been asked to contribute to the Eurocode Working Group with a chapter on ETFE foil. The Analysis and Materials Working Group will initiate a follow-up Round Robin exercise. The results of the first exercise have been presented in different symposia and they have been published in "Engineering Structures". The LCA working group is preparing a series of new meetings and is inviting to join the Working Group. The Pneumatic Structures Working Group would like to organise an "onside workshop" to learn from real projects.

During the Symposium in Istanbul we held the annual general meeting and a TensiNet Partner meeting. The new board has been elected during this partner meeting. Vice-chairs are Heidrun Bögner-Balz, John Chilton and Peter Gosling. The secretary is Marijke Mollaert. I am proud to announce that I have been elected to be the new chair.

This issue of TensiNews contains again interesting projects in membrane and foil, reports about the TensiNet symposium, the Students Competition at Techtextil and Textile Roofs. I hope you find it of great interest and I will be glad to see you at one of the next TensiNet events.

Yours sincerely, Bernd Stimpfle

Forthcoming Events

Transformables 2013
Seville, Spain - *18-20/09/2013*
www.transformables2013.com

2013 IASS Annual Symposium
Beyond the Limit of Man
Wroclaw, Poland - *23-27/09/2013*
http://iass2013.pwr.wroc.pl/

Structural Membranes 2013
Munich, Germany - *09-11/10/2013*
http://congress.cimne.com/membranes2013

7th Aachen-Dresden International Textile Conference
"Adding Function and Value"
Aachen, Germany - *28-29/11/2013*
www.aachen-dresden-itc.de

Forthcoming Meetings

TensiNet Meetings
Denyon, Gendorf, Germany - *11/10/2013*
08:30 Pick up at TU Munchen / 10:30 Partner Meeting / 11:30 Tour / 12:30 Lunch / 13:30 WG meetings / 17:30 Drop off at Munchen airport

Naharia, Israel

Skateboard Arena

BREATHABLE FABRIC SUITS HOT COASTAL CONDITIONS

Paturiz Shade Solutions, recently installed a 1.440m² shade structure in Naharia, Israel. The brief was to create a shade structure for a Skateboard Arena located in a windy coastal environment. The company designed a unique structure with a breathable knitted HDPE fabric from Gale Pacific called Synthesis Commercial 95. Due to the knitted construction of the fabric air will flow more freely through the membrane resulting in more comfortable conditions beneath. Paturiz went one step further and designed purpose built holes into the fabric canopy to allow even further airflow to compensate for the high velocity winds (Fig. 1 and 2). Winds of up to 130km/h are frequent in this region and the holes are designed to allow airflow both from above and below the canopy. This is intended to relieve the stress loading on the overall structure and ensure the long life of the fabric. It also allowed for additional light transmission and created a unique aesthetic element for the design.

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Name of project:	Skateboard Arena
Location address:	Naharia, Israel
Function of building:	shading for a popular skating park
Year of construction:	2013
Architectural firm:	Nava Cohen Architect
Structural engineering firm:	David Blank
Cutting, preparation and assembly:	Paturiz Shading Solutions
Design of fabric shapes:	Paturiz Shading Solutions/architect Michael Mikulsky
Duration to fabricate/install:	All preparation in the factory/two weeks; Works and assembling on sight/two days
Fabric Manufacturer:	Gale Pacific Limited
Material:	340g/m² high tenacity knitted HDPE fabric Synthesis Commercial 95 (Navy Blue and Cherry Red)
Covered surface (roofed area):	1.440m²

SYNTHESIS COMMERCIAL 95 TECHNICAL DATA

FABRIC PERFORMANCE
Tensile Strength - Warp - 635N/50mm
Elongation at break - 95,6%
Tensile Strength - Weft - 2494N/50mm
Elongation at break - 70,4%
(AS 2001.2.3.1)
Wing Tear - Warp (mean) - 187N
Wing Tear - Weft (mean) - 359N
(AS 2001.2.10)
Bursting Pressure (mean) - 3500kPa
(AS 2001.2.4)
Bursting Force (mean) - 2146N
(AS 2001.2.19)

GENERAL CUTTING GUIDELINES FOR TENSION STRUCTURES AND AWNINGS
Patterns should be cut about 2.5% less in the width and about 5% less in the length.
The above listed % is an approximate range the fabric can be stretched when applying over a tension structure.
The % can differ depending on the size of the tension structure.
The fabric can be sewn. The uses of polyester trim or sewing a hem are the recommended finishing process.
More information on www.synthesisfabrics.com

Figure 1. Aerial view of the fabric canopy
Figure 2. Additional holes to relieve the stress loads as well as for extra airflow and light transmission