

ARTICLE

JOSÉ MIGUEL DE PRADA POOLE

REPORT

STRUCTURAL MEMBRANES 2021

PROJECTS

AN IMPRESSIVE CIRCULAR AND TRANSPARENT CLADDING





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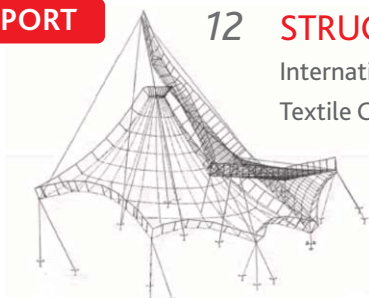
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 International Conference on
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 at Nantes University

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Edito

Dear Reader

I hope this finds you well. We had just the feeling that we are leaving the crisis behind, when we stumbled in the next crisis. Beside any impact on our daily business, it is moreover a humanitarian crisis, acting against humans, against friends, and against tolerance and democracy.

Please enjoy anyhow this issue of TensiNews, where you find once more interesting contributions from our network. Two ETFE projects are presented, the largest one chamber ETFE cushion today, in the city of Posen and a wall like roof of an entertainment park in Denmark, and a double skin membrane for a mobile exhibition. A tribute to the Spanish architect Jose Miguel de Prada, a pioneer of pneumatic structures and textile architecture, who passed away last year, has been written by Josep Llorens, as well the summary of Structural Membranes 2021.

A research and innovation unit in Switzerland is presented, demonstrating how digital concrete construction together with flexible formwork can lead to reduced embodied energy. Four temporary structures have been evaluated with respect to their environmental impact.

Initiated by our working group Sustainability and Comfort, we will now become member of IBU, with the target to get a grouped EPD for our members.

Furthermore, we applied as Partner of the New European Bauhaus, an initiative that connects the European Green Deal to our living spaces and experiences.

Mid of the year, with the contribution of our working group Specification and Eurocode, the draft of prCEN/TS 19102 will be submitted to CEN for final approval and to be released as a Technical Specification for membrane structures.

After two years pandemic we are glad that many events restart this year in presence, or hybrid. Very soon the 25th edition of Textile Roofs 2022 will take place in Berlin, followed by the Techtexsil fair in Frankfurt in June, where we will have also our general assembly.

In autumn the Essener Membranbau Symposium will be held, and the Advanced Building Skins Conference in Bern. TensiNet will again chair two sessions there and will have a booth.

I hope to meet many of you again in real. Please enjoy this issue of TensiNews and stay healthy and safe.

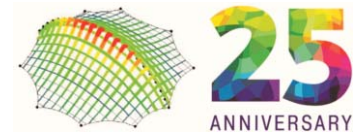
Yours sincerely,
Bernd Stimpfle



Forthcoming Events

Please verify if events haven't been cancelled, postponed or replaced by a tele-conference due to COVID 19 virus

Textile Roofs 2022 | 9-11/05/2022 | Berlin, Germany | <https://www.textile-roofs.com/>



Techttextil & Texprocess 2022 Beyond innovation Performance. Function. Future. | 21-24/06/2022 | Frankfurt am Main, Germany | <https://techttextil.messefrankfurt.com/frankfurt/en.html>

IASS Annual Symposium and Asia-Pacific Conference on Spatial Structures (APCS) 2022 Innovation, Sustainability and Legacy | 19-23/09/2022 | Beijing, China | <http://www.iass2022.org.cn/>

Essener Membranbau Symposium 2022 | 23/09/2022 | Essen, Germany | <https://www.uni-due.de/iml/07veranstaltungen.php>

International Conference on Advanced Building Skins 2022 | 20-21/10/2022 | Bern, Switzerland | www.abs.green

TensiNet Activities



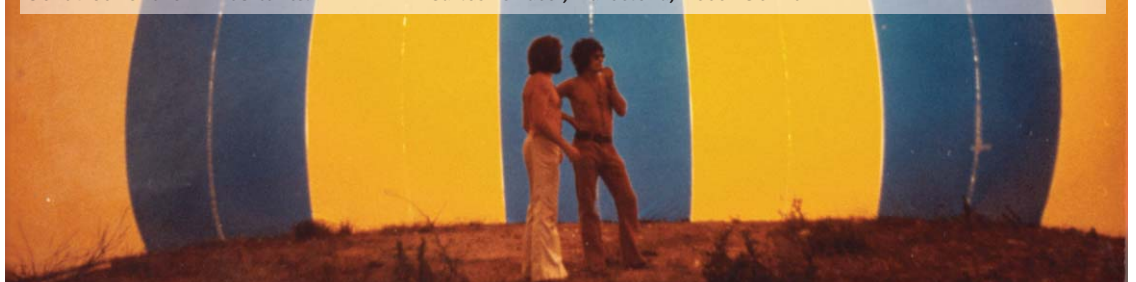
TensiNet at Techttextil & Texprocess 2022

Wednesday 22 June 2022
(hybrid meeting)
14.00 – 15.00
Annual General Assembly

In memory of Jose Miguel de Prada

At the end of 1971, two architecture students from Barcelona organised the "Instant City" in Ibiza via the FAD (El Foment de les Arts i del Disseny). After the events in France of May '68, Woodstock in '69 and the Isle of Wight in '70, we issued a manifesto to summon students from all over the world to Cala Sant Miquel for a month. There, we built a temporary city based on work, leisure and counterculture. We asked José Miguel de Prada for his help after learning about his inflatable site huts in Madrid. Obtaining sponsorship from Aiscondel after making a test inflatable in its factory, we travelled to Ibiza to build a city that would fade away with its last inhabitants – what Prada called "a city of seagull's footsteps" – reflecting impermanence, and the rejection of cities that mark out the behaviour of their inhabitants.

Carlos Ferrater, Barcelona, December 2021



José Miguel de Prada and Carlos Ferrater in the test inflatable at Aiscondel.

CORRECTION
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"The Hulasol parasol":
Lin Bertels and Peter Mortel-mans of Solspiration have dedicated five years of research and development to make the Hulasol parasol. Amandus VanQuaille (The Nomad Concept) is co-author and designer of this remarkable object.

ETFE roof Rynek Łazarski

An impressive circular and transparent cladding

Poznań, Poland

The rearranged Rynek Łazarski in Poznań is covered by a circular cushion roof. Thanks to the transparent cladding a bright space is created, protected from the weather conditions, inviting to shop at the market stalls underneath, or just to stay.

The cushion roof covers an area of approximately 2400m². A structure like a steel table is formed by an outer ring, an intermediate ring and an inner ring. These rings are connected with an orthogonal grid, supported by columns underneath. Two large cushions are attached to these rings, to form the pneumatic roof.

The outer cushion has a constant span of approximately 13.5m, while the inner cushion has a maximum span of 17m, which is reduced to less than 1m at the opposite side. To allow these spans, arrays made of 12mm stainless steel cables form the structural cushion. The inner pressure applies the tension to these cables through the ETFE foil in-between.

The lower foil is penetrated by the steel columns. Around these columns the cushion has flying clamping joints. The upper and the lower foil are separate layers.

The total volume of the two cushions is approximately 5150m³. Three blower units provide the cushions with supporting air pressure. The blowers are located on two pavilions under the roof structure. The regular cushion pressure is 300Pa. In case of snow this is increased up to a maximum of 800Pa, controlled by a snow sensor.

The single panels have more than 400m² surface area. To minimise the handling of the panels a suitable confection site has been chosen. Prior to fabrication a mock-up has been installed with different printing to shade the place underneath. After a visit of the mock-up the client chose the print pattern. The printing was applied to the lower foil, so that the rather linear steel structure is not too dominant, seen from below.

The installation started with the inner cushion, which allowed to put it under pressure immediately after closing the cushion. Then the outer cushion has been installed starting from the top. This outer cushion forms the biggest one-chamber worldwide today.

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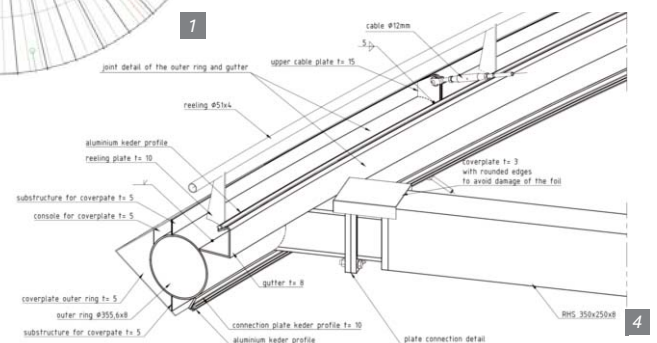
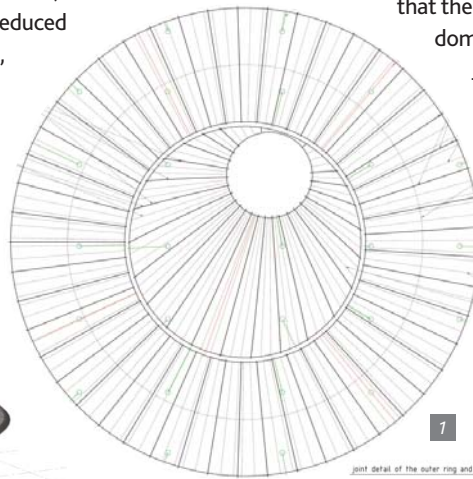
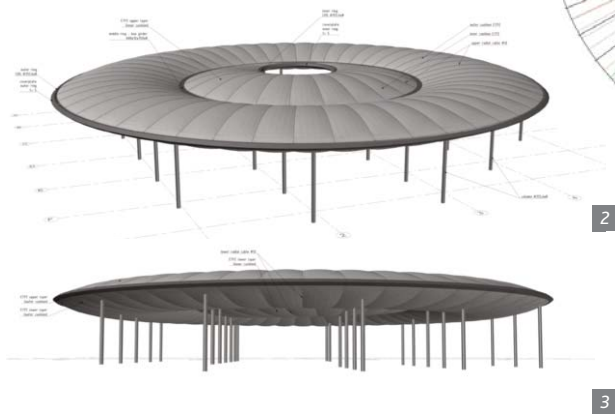


Figure 1. Cutting pattern layout and location of the joints © formTL

Figure 2. Perspective view from above © formTL

Figure 3. Perspective view from underneath © formTL

Figure 4. Connection detail outer ring © formTL

Figure 5. Inner cushion after completion © Temme // Obermeier GmbH

Project:	ETFE roof Rynek Łazarski in Poznań, Poland
Architect:	Jacek Bułat, Posen, Poland
Conceptual design:	Andrzej Kowal, Breslau, Poland
Foil cushion engineering:	formTL, Radolfzell, Germany
Execution foil cushion:	Temme // Obermeier, Rosenheim, Germany
Confection:	Flontex, Bytom, Poland
Cables:	Top-line, Wüstenrot, Germany
Air supply:	Elnic, Rosenheim, Germany
Material:	Clear and printed ETFE foil 300µ
Cables:	stainless steel spiral strand
Surface area foil:	4600m ²
Cushion volume:	5150m ³
Dimensions:	55m diameter, 7m above ground