

## DETAILING - CASE STUDIES - INSTALLATION PROCESS

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### ABSTRACT

Lightweight, structural membranes have been regularly applied in the field of human construction as mobile, transformable, temporary structures and spaces for several thousand years. Their use ranges from shading to umbrellas to protective roofs to building envelopes from various materials. The last decades have brought numerous significant innovations in terms of materials, design and computation tools, as well as detailing and installation methodology. Besides their structural efficiency, lightweight structures have become the focus of interest for reasons of sustainability, adaptability and other design-related features in architecture. These innovations have been fostered by academic research as well as by practical development and applications and consequently, structural membranes now have an established place in the field of Engineering and Architecture.

However, some imperative questions arise. At what stage of development are the best built examples today? How will current advancements in design and technical regards contribute to lighter, more efficient, safer structures and to environmentally compatible, comfortable and mind-elevating spaces? What potentials of structural membranes remain to be explored? Are structural membranes subject of a research-by-design approach?

In this context, the Invited Session "Detailing - Case Studies - Installation Process" at the XII International Conference on Textile Composites and Inflatable Structures – STRUCTURAL MEMBRANES 2025 asks for realized and unrealized/planned state-of-the-art projects, which contribute to the field of structural membranes in a future-oriented way. The projects range from large scale such as stadium roofs to small scale pavilions and prototypes, from roof structures to building-envelopes to the artistic use of membranes and foils and from novel design approaches to unusual applications and the use of unusual materials. The asked contributions will highlight design intents resulting in appropriate or completely unusual detailing, as well as installation process - depending design or detailing and learned lessons from realized projects and case studies.

### REFERENCES

J.Llorens, 2024: "Structural Membranes 2023 Report". *TensiNews* 46, May, p.4-13