

Recent developments for multi-layer membrane structures

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Abstract

Structural membranes are widely used for building envelopes of different sizes and various types of use. Especially in long-span structures lightweight membrane materials often provide benefits compared to other building materials. Freedom in form and a high tensile strength combined with a growing selection of available materials make their application very popular and versatile. In today's architecture and even more so in the future, increasing demands are and will be placed on the functionality and aesthetics of these building skins.



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Today, single layer membrane envelopes are not able to fulfill all the specified requirements on state-of-the-art building skins anymore and multilayer membrane structures are developed and realized. The different layers serve different purposes: the outer membrane layer is primarily used for direct weather protection and to withstand environmental loadings, while the lower or inner membrane layer – often referred as liner membrane - has to fulfill various other requirements, such as improved room acoustics, aesthetically pleasant architectural finishes, hiding of technical equipment or to fix thermal insulation modules. For these purposes special membrane products are developed and used. The presented projects show a variety of applications and solutions using multi-layer membrane systems. Additionally, the process of developing new products for liner membranes and systems for a specific project application is being described.

In conclusion multi-layer membrane systems including a liner membrane provide great benefits for various applications and will be used more often in future designs.

References

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