

عنوان مقاله:

Flexibility in Architecture: An Innovative Design for Covering of a Transformable Dome Using Kinetic Elements

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خلاصه مقاله:

Flexibility is a concept associated with variable needs of human beings. Today transformable structures are used to meet human changeable demands with different purposes and functions such as facades, roofs, sunshades, etc. A Flexible structure must be able to change physically and adapt to predetermined conditions. To provide flexibility and adaptability, transformable systems are required to possess appropriate covering and a proper mechanism. Given their high elasticity, membranes can be considered as the first and easiest solution, but not necessarily the best one, for such deployable structures as they may interfere with the function of the structure; so that the use of membranes in deployable structures often leads to functional, operational and visual problems which indicate the necessity of application and investigations into rigid covers for such structures. Aimed at finding a new solution to improve flexibility of transformable structures with rigid covers, this paper attempts to evaluate and assess a variety of coverings suitable for the structure proposed in this research. Being widely used, suiting various functions and having capability of design in different forms, scissor-like structures are chosen among other types of transformable systems and a design is proposed for rigid cover of scissor-hinged transformable domes. The solution for adding rigid covering involves adding additional kinetic elements to the scissor-like structure. Reciprocal elements, are connected to the structure in two directions, on which rigid covers are installed. One of the advantages of this proposal is that the elements are designed in such a way that rigid covers can be installed through various forms and configurations of .modules

کلمات کلیدی:

Transformable structures, Kinetic covering, Scissor-like structures, Transformable dome

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