

Sustainable Design in the Use of Deployable Structures

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Abstract : Deployable structures have been used in various scenarios from moving roofs in stadia, space antennae or booms. There has been a lot of literature relating deployable structures but with main focus on space applications. The complexities in the design of deployable structures may be the reason only few have been constructed for earth based solutions. This paper intends to explore the possibilities of integrating sustainable design concepts in deployable structures. Key aspects of sustainable design of structures as applicable to deployable structures have not been explored. Sustainable design of structures have mainly been concerned with static structures in the built environment. However, very little literature, concepts or framework has been drafted as it relates to deployable structures or their integration to static structures as a model for sustainable design. This article seeks to address this flaw in sustainable design for structural engineering and to provide a framework for designing structures in a sustainable manner. This framework will apply to deployable structures for earth-based environments as a form of disaster relief measures and also as part of static structures in the built environment.

Keywords : deployable structures, sustainable design, framework, earth-based environments

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