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APPLICATION OF THE BIODOME GRIDSHELL SYSTEM FOR LUNAR HABITAT AND ANALOG  
BASE CONSTRUCTION

**Abstract**

The Biodome gridshell system is a proven and constructed lightweight structure developed for the Pannon Park Biodome of the Budapest Zoo. The gridshell system was optimized for loadbearing capability, while maintaining a homogenous structural system consisting of repeating elements. The system can be used for mid and large span base habitat and analog base structures. While the elements of the structure were constructed using steel alloy, they were originally intended to be constructed out of aluminium, making it flexible in terms of metallic content of in situ extraction. The structure can withstand the internal pressure of potential inflatable habitat inserts, and the homogenous load of regolith shielding. The maximum span possible, and the optimal span in terms of construction efficiency will be presented. Advantages of the system such as applicability for ISRU construction methods and variability of covered floor area, as well as the potential pitfalls and technology gaps such as radiation protection and element sintering will be discussed.