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NEW FRONTIERS LUNAR SPACE ARCHITECTURE

Abstract

New Frontiers is a collaboration between the teams at SOM in New York, NY and Lockheed Martin Space in Denver, CO established to investigate next-generation lunar habitat architecture focused on designing for the human experience and behavioral performance for long duration missions. The teams applied a human centered approach with an emphasis on the influence of environmental variables in design. The design considered parameters such as anthropometry, lighting, temperature, human-machine interactions, comfort and wellness, using design and engineering methods. The habitat was constrained by transportation limits for lunar surface missions that would be available by the late 2020s. The human centered architecture is a key feature in our proposal and results in design strategies that enhance mission durations, and human systems integration. The final concept is characterized by an innovative architectural design, crew systems, and various environmental design features that reinforce a human-centered approach to lunar habitat architecture.