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Abstract

The capability of living on another planet is the next step in humankind's development toward a multiplanetary civilization. While Mars is sequential in this logical evolutionary process, many of the design concerns and constraints present on Mars can also prove useful for designs in extreme climates here on Earth. As climate change continues unabatedly, the negative effects on Earth's ecosystems are becoming increasingly amplified. While this project is a disciplinary exercise, the implications of solving architectural problems through a scientific approach is one that is increasingly relevant on our own planet. In this thesis project, I have identified the architectural and scientific elements of space design that need to be synthesized to create a functional solution for astronauts to live on Mars. This home design is intended as the first phase of a multistep process of colonizing the Red Planet. The design of a constrained environment is exceptionally necessary because the occupants rarely leave. Therefore, architecture on Mars must leap beyond what is present on Earth by offering a more holistic environment to its users through measures of safety, a sense of comfort, an appeal to the human psyche, a means to conduct effective research, and designed adaptability for future growth.

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