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DESIGN A COLONY ON MARS FOR 25 COUPLES

Abstract

Dream of extraterrestrial habitation and waiting for beginning it made new hope for the people on our planet. Throughout the history human-kind always tried to survive and adapt himself to his surrounding environment. But 21st-century human-kind is ready to start an extraterrestrial life? In less than the last 50 years, we landed on the moon and we still striving to see other unknown worlds. In recent years, space agencies did some researches and paid much attention to the Mars. Now Mars is the most possible option to start extraterrestrial life in. This planet has a lot of raw materials to create a sustainable human colony. NASA and other private organizations are planning to send humans to Mars by 2030s. Sending humans to Mars is much more than landing on this planet and there is an advanced step: making a durable and sustainable habitat on Mars surface. However, survival is not the only factor that makes a habitat successful. Especially on Mars, it is complicated to provide a healthy environment to maintain both human physiological and psychological conditions in a limited habitat. The most critical design challenge is to create a habitat as a "home", so the new planet inhabitants do not just survive, but grow and wholly adapt to the new environment. This paper at first identifies the Mars environmental conditions and then analyzes some novel case studies such as NASA's Mars competition winners. Accordingly, presents a 25 couples Martian habitat with the help of environmental psychology considering different scenarios for its future inhabitants. This design inspired from fractals as its main concept. In addition to finding suitable materials, this design tries to convey a sense of "home" to its habitants. After examining conditions, the result presents architectural documents at the end of this paper.