

SPACE EXPLORATION SYMPOSIUM (A3)  
Interactive Presentations (IP)

Author: Ms. Elisa Cenini  
Politecnico di Milano, Italy

Ms. Elisa Desole  
Politecnico di Milano, Italy  
Prof. Massimo Facchinetti  
Prototipi, Italy

Dr. Irene Lia Schlacht  
Politecnico di Milano, Italy

Prof. Bernard Foing  
European Space Agency (ESA/ESTEC), The Netherlands

Mr. Matteo Artusi  
Politecnico di Milano, Italy

Prof. Giulio Ceppi  
Politecnico di Milano, Italy

## MOON HABITAT MODULE: NEW WAYS OF LIVING EXTREME SPACES

**Abstract**

Will human be able to keep their habits even in extreme conditions like on the Moon? Or will their habits change to adjust to new spaces? In order to appease these questions we decided to analyze human's primary needs to give life to new ways of living the space. In extreme contexts or minimal spaces it is very hard to preserve an emotional and psychological balance. Therefore man becomes an actor within the space, adjusting to make it his own and changing his habits. This is why we chose to design with the User Centered Design philosophy: human is our inspiration font. We aim to design a living space employing a standard container that can be used as a working and living research station for both Moon and Mars or in emergency context on Earth. The project is divided into 3 equally important parts: analysis, metadesign and technical design. We start by researching minimal spaces under extreme conditions, such as military shelters, submarines, emergency houses after natural or chemical disasters, etc. Moreover we study space perception, proxemics and man needs. Secondly, we analyze the given space we have to design and people who will be living there, including work activities and hobbies. The third phase consists on the space designing itself. Our goal is to create a familiar but innovative, functional and emotional environment to guarantee an effective standard both for living and working. The design takes into account every relevant piece of information found through the research. The space is multifunctional and convertible; the different areas (working station, kitchen, and lounge area) are mostly open and common but they guarantee privacy when convenient. Shapes, colors, materials, scents and sounds are an essential part of the project. In summary this paper focus on the design of a minimum habitat on the Moon characterized by: Applicability of the design on extreme context on Earth (e.g. disaster context); study of existing habits and human interaction in extreme contexts; proposal of new way of living; User Center Design; familiar spaces; sensorial interaction trough materials, shapes and colors, flexible and organized spaces and zoning.