Paper ID: 86894
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35th IAA SYMPOSIUM ON SPACE AND SOCIETY (E5)
Interactive Presentations - 35th IAA SYMPOSIUM ON SPACE AND SOCIETY (IP)

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IN-BETWEEN: RETHINKING HABITABILITY IN LUNAR ENVIRONMENTS

Abstract

Numerous studies support the idea of human return and potential permanent settlement on the Moon, highlighting the need to explore architectural aspect of this endeavor. The In-Between project aims to delve into space architecture, focusing particularly on the design process and the creation of a lunar settlement. Within an engineering-focused context, this research attempts to shift the perspective from a general and finite view of space projects to an analysis of the lunar settlement as a composition of specific processes culminating in an architectural design.

In this context, the research is structured as an investigative journey to establish a connection between the technical aspects and the socio-cultural dimensions inherent in architectural design.

This work aims to establish a methodological framework to guide future projects on the Moon. The guidelines cover both macro and micro-scale considerations and explore an interdisciplinary and open approach.

In-between proposes various design strategies, such as interacting with concurrently planned projects in the same lunar area, sharing support infrastructures and relevant areas, to establish an integrated and collaborative system. This accomplishment has been facilitated through the comprehensive study and analysis of pertinent stakeholders, regulations, and agreements.

At the architectural scale, a thorough analysis has been conducted to determine whether the concepts that are clear and well-defined on Earth require re-evaluation in the lunar environment.

The analyses encompass technical details, including the dimensions for individual environments, identification of necessary spaces, and their configuration. Simultaneously, these analyses explore considerations related to human factors.

The project examines aspects such as the interaction between the interior and exterior spaces, and the necessary reconceptualization of this theme in the lunar context, where the external environment is hazardous. The designated function of the settlement is tourism, and given the perilous nature of the lunar exterior, an intermediate space has been devised to facilitate connections with the outside while providing protection from the dangerous atmospheric conditions.

Mapping has proven to be a crucial tool for spatializing emerging issues, illustrating how each choice arises from intrusions and negotiations.

Space architecture offers the opportunity to critically reassess the design and architectural conventions that are unconsciously adopted on Earth. Developing an atlas becomes a means to narrate not only the ultimate design of lunar tourist infrastructure but also to document all the intermediate steps required to reach the final proposed project.