

LUNAR URBANISM

The Lunar Urbanism is an eulogy against minimalist mindset and the practice of Asceticism. We design the lunar colony base with the following missions:

1. To establish an adaptive self-sustaining material-cycling system: This system must ultimately extract material, human, spatial and other resources on the Lunar surface.
2. To "contextualise" the human activities in deep space: The process of contextualisation is inspired by "The Architecture of the Community" by Leon Krier that touches on the concept of typology. Contextualisation of a space is to endow proper comprehension of the tasks associated with that space.
3. To "structuralise" the interrelation between human and non-human actors: The Moon is a dangerous place for humans to live, and the dust and regolith are almost deadly. The occupation of non-human actors will aid the colonisation process.

To achieve the three missions, the architectural program considers the flow of mass and activities.

The flow of mass means the traffic of materials and humans. In order to build the base with minimal acquisition of Earth materials, the base is to be constructed out of the Starship's steel structure. This methodology of construction yield significantly less spatial resources compare to the volcanic tube construction method. Therefore, the design must sharply allocate the robotic production zone and human habitation zone.

The flow of activities concerns with the human cognitive behavioural psychology. Through the lens of the field of cognitive behavioural psychology, we understand that most humans cannot perform well under a non-contextual space. The design uses varied floor heights and ceiling heights to mark uniqueness. Also, the use of vegetation within the building will grant more context and help with place making in a long-run.

CONSTRUCTION PROGRAM

1. The fuel tank cavities of launched Starships can be sustainably repurposed as primary building structures, and the cargo will be preserved intact for future deep space exploration or for returning to Earth.

2. To begin with, the first industrial zone will be constructed. Automated robots will excavate lunar regolith and soil on-site to produce necessary building materials for future lunar urban development, such as iron products.

3. The industrial zone will gradually expand, increasing production lines for oxygen and hydrogen, and establishing a Helion fusion reactor to address the energy needs during the polar lunar night. Additionally, surplus materials can be stored for future space exploration.

4. The human habitation zone will be constructed lastly. Incorporating vertical gardens as the ambient context of both the residential and working area, these gardens will not only provide essential vegetable supplies, but also bring a familiar Earthly element to the Moon.

5. In the final stage, long-term residents will be introduced to live in the lunar urbanism and conduct a series of scientific research in the subsequent Artemis program. More important, this community could have the opportunity to continue expanding in the future.
(6.) Once the initial 30 plus population stabilises, the community and Lunar Urbanism project will expand and ultimately reproduce itself to form larger Lunar colonies.

