

23rd SYMPOSIUM ON SPACE ACTIVITY AND SOCIETY (E5)
Moon, Mars and Beyond: Analogues, Habitation and Spin-Offs (2)

Author: Dr. Ondrej Doule
Space Innovations, v.o.s., United States

LUNAR BAROQUE: AN ARCHITECTURAL STYLE

Abstract

Over the years architectural styles are often recognized and described after a number of buildings adopting the same design principles are built and have withstood the test of time. The questions of style in space architecture may be very uncertain due to its short history and only few applications. The style description and its name could also stem from past and existing microgravity habitats or it could be described according to the location where the structure is built (Martian, Lunar, Orbital architecture), materials chosen or specific functions.

This paper describes a characteristic style of an existing space architecture concept called Lunar Base 10. The Lunar base concept for ten (LB10) astronauts is an architectural concept of a lunar habitat with an astronomical observatory. LB10 is a base designated for scientific research but also commercial utilization of permanent human presence on the North Pole of the Moon. The architecture of the LB10 is driven by minimum mass of the structure components transported from the Earth and maximum safety during construction and use of the base. A number of robotic and deployable structures are used to achieve this goal. The base is composed of inflatable, rigid and regolith structures serving to different purposes. The inflatable, fragile, inner part of the base holds the human's biosphere while the exterior regolith shell provides solid shield against radiation and micrometeoroids. The architecture exterior thus resembles terrestrial fortification to endure object and radiation impact. The major links with the terrestrial Baroque are thus in the functional geometries required in the polar regions on the Moon... How shall the first habitat also made of local resources be fabricated and what form will it inherit? Will there be need for significantly different architectural approaches and styles adoption than in the terrestrial architecture? This paper is raising a polemic above theoretical and practical issues regarding architectural style on other celestial bodies with concrete case study of the "Lunar Baroque" architecture style.