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# ARCHITECTURAL NARRATIVE DRIVEN DESIGN FOR ADDITIVE MANUFACTURING OF PERMANENT OUTER SPACE HABITATS.

**Abstract**

Which presents a collaborative exploratory design submittal to ICON's December 2023 "Initiative 99" 3D Printed affordable housing competition".

The comprised of myself as architect and Linz artist Matthias Göttfert refrained from iterating a simple ultrafunctional layout, and instead put forward a novel architectural typology via exploratory narratives translated into an original architectural design proposal, that elaborates profound lasting synergies between habitat and inhabitant, via a focused conceptual text alongside regular architectural deliverables.

We favoured a narrative design process over a space-planning one. We rationalized a dynamic Architectural Boundary of the Habitat that is timeless in its expression, nurturing in manifestation, that provides a dignified and economic incipient habitation yet accommodates growth over lifetime without becoming outgrown. In our submittal, the additive printing technology amounts for the Architecture throughout: physically and conceptually.

The Habitat absorbs the notion of property lines into its volume; proposes maximal walls within the ICON print bed, with arcades permeable to ecosystem and pedestrian comings and goings. Novel modes of interaction between neighboring homesteads are encouraged. Biodiverse iterations of the semi-open arcade courtyards are enabled. The Habitat Core contains an obstacle that invites definitions of interior space through consideration and reaction and acts as a distributor for the technical umbilicals. Additive printing technology is employed in inventive ways to crafting modular roof elements. Over the life of the Habitat and its inhabitants, the extents of the interior quarters are to be increased with the added adaptability of the modular roof and articulated glass membranes (walls).

TO OUTER SPACE: The project has an essential inbuilt outer space dimension. The architectural object is fundamentally an Arc intended to foster authentic new cultures, devise and seed resilient original life on site, on New Outer Worlds. The conceptual and physical formulation of the expandable Habitat is aimed at producing self-sustaining societal activities. The emerging expressions of Life within the later-stage Habitat overflow the semi-open courtyards beyond the arcades and into the larger social- (culture-generative) and natural- (nature-generative) space of the surrounding community, accreting in time and in concert into authentic permanent local cultures.

TO BE ADDRESSED IN THE SESSION PRESENTATION Sociological questions and opportunities alongside technical arise from the exploratory formulation of architectural narratives for culture-building, nature-building permanent Outer Space Habitats via additive manufacturing technologies - which can readily be simulated on Earth to research potential outer space typologies and emerging synergies.

The project can be viewed online at: https://planbun.eu/adrma-icon-initiative99