

SUSTAINABILITY THROUGH ARCHITECTURAL MORPHOLOGY

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ABSTRACT The search for a smart energy-efficient alternative to the conventional single-family house has led to a unique building approach of ancient origins: The Earth-sheltered house. After looking at the different types of such homes it is clear that, in order to update this cave-like structure to modern living standards, a morphological approach is imperative. This means developing the overall shape and function-assignment of various spaces created depending on the building site and its characteristics, all the time thinking of sustainability issues and low energy consumption in future use of the house.

The project studied in this paper is a single-family house due to completion in the second quarter of 2013, a house following the earth-sheltered typology, customized for the both the site's and client needs. In establishing whether or not this house reached a high sustainability standard through morphology, we analyze certain issues specific to this type of house underline its advantages and present the energy-consumption assessment.