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Interpreting Architectural Designs via Graphical Analysis and Digital Modeling

Introduction

In this chapter, articles that deal with source surveys, graphical analysis, and digital modelling aimed at interpreting architectural designs are collected. These articles concern designs developed by architects during the 1930s that were designed not necessarily to be built, but were assumed as paradigms of their poetics of architecture, interlaced with a new way of life. The Modernist house is the subject of these case studies.

The drawing and the tools offered by the digital revolution in the field of architectural representation become a heuristic method of survey applied both to original design drawings and built architectures. The scholars, adopting this method, re-draw and, or, re-model the space and use the graphic model similar to scientists artificially reproducing a certain phenomenon in the laboratory. This method involves the identification and deconstruction of the building elements to retrace the ideative process by hypothesizing its phases. Digital models are the most useful database for collecting and synthesizing these analyses and interpretations.

Serafina Amoroso discovers and highlights elements of conceptual similarity between Eileen Gray's approach to space and architecture and the Japanese culture and way of life. The author discusses her hypotheses, referring to two case studies, the houses *E. 1027* and *Tempe à Pailla*, using perspective views of the interiors decomposed in several layers and frames, showing a moving point of view.

Starlight Vattano proposes a graphic reading of the *House of Dr. Nelken* (1932) by Helena Niemirska, made by graphic analysis and 3D modelling. This methodological approach allows the author to re-construct in three dimensions the modular grid and to search out the compositional criteria related to the sequence, development, and volumetric composition of spaces.

Giorgia Gaeta analyses Charlotte Perriand's unbuilt project for a *Maison du week-end* (1934) in which the architect faces the fundamental rules of human life in a minimum space and with the organisation of leisure. The digital model, intended as a hermeneutic tool, interprets the design process in order to deepen the compositional aspects of this flexible house to get formal and spatial values.

Vincenza Garofalo re-draws two built projects by Hana Kučerová Zaveská (Balling house, 1931, and a villa for her parents Olga and Maximilian Závěských in Dobrichovice, 1933–34). The graphic

analysis and construction of the 3D model are aimed at understanding the architectural organisms in a process of abstraction, synthesis, and choice of sign, which reveal the spatial dynamics, trying not to betray the original qualities of architecture.

Francesco Maggio focuses on the graphic reading of *Casa sul mare di Sicilia*, Lina Bo Bardi's unbuilt project (1940). The representation, conceived as a critical tool of analysis, is a bridge between ideal creation and construction, a medium for the verification of the project's intentions; the digital model is a virtual construction that simulates the materialisation of the project in a true, real, architectural 'body'.

