

Hyper [D-M] Process

Emerging Conditions for Digital Design and Manufacturing in Architecture

Marta Malé-Aleman, José Pedro Sousa

ESARQ – Universitat Internacional de Catalunya, Spain

www.d-a-w.net

Abstract. This paper participates in the current digital architecture debate taking into account the introduction of CAD-CAM technologies in architecture and focusing on the way this could further change the process of architectural production. It proposes a mode of integration based on associative parametric environments and explains that new conditions for developing architectural projects indeed emerge from this digital framework. Finally, the research developed at DAw is presented as an academic laboratory where the arguments of this paper have been tested and stimulated.

Keywords. Design Process; Parametric Design; Digital Fabrication; CAD-CAM; Architectural Education.

Introduction

The end of the century was the beginning of the integration of Computer Aided Manufacturing (CAM) processes into architecture; by then, mechanical engineering, automotive and aerospace industries were using powerful digital tools that could develop building technologies in new directions. This cross-disciplinary vision opened a new field for a generation of architects that were working at the cutting-edge of digital design. A few of them attempted to extend the impact of the computer in their work by including digital production processes that would lead to a built physical object.

Nowadays, this tendency has become a widely spread reality. Not only architectural practices but also many schools of Architecture have started to integrate digital production equipment as part of their facilities, challenging the specific potential of the digital for the “making” of Architecture.

This paper participates in the current digital

architecture debate by taking into account the introduction of CAD-CAM technologies, and focusing on the way this can further change the process of architectural production. The research developed at DAw (Digital Architecture Workshop) will be presented as an experience to test how the use of a single integrated CAD-CAM package offers stimulating conditions to influence design production and promote innovation.

From conception to construction: a linear sequence

Traditional process

Traditionally, an architectural project is developed through a sequence of design steps that unfolds linearly, from conception to construction. Design and manufacturing are separated stages, each with their own mode of representation. To move from one to the other requires multiple processes of conversion and transformation of information. By shifting between different media and techniques the continuity of the whole