Carnegie-Mellon University

COLLEGE OF FINE ARTS

DISSERTATION

Submitted in partial fulfillment of the requirements

for the degree of Ph.D. in Architecture

Title MODELS OF ARCHITECTURAL KNOWLEDGE:

An Information Processing Model of Design

Presented by [illegible]

Accepted by the Dissertation Committee [illegible] Chairperson — 6/10/79 Date

Herbert A. Simon

William G. Chase

Robert S. Taylor

Approved by the Dean

[illegible] Dean — June 10, 1979 Date

INTRODUCTION

> Artistic creation, which was a clearly definable intellectual activity, based on explicable and learnable rules of taste, for both courtly classicism and the enlightenment now (in the eighteen century german romanticism) appears as a mysterious process derived from such unfathomable sources as devine inspiration, blind intuition and incalculable moods. For classicism and enlightenment the genius was a higher intelligence bound by reason, theory history, tradition and convention.
>
> (A. Hauser, The Social History of Art, London: Routledge, 1951, p. 612)

Throughout the history of art the position of the artist towards his goals and his product has been constantly redefined. The two opposing views in the above quotation, those of German Romanticism and Classicism, are typical of the temperamental nature of the state of the art. Today's artist uses intuition as well as reason in his creative work. Similarly, whether we consider the architect an artist or a scientist, he is constantly required to use his intellectual as well as emotional resources while designing. I do not intend to endorse an attitude for the architect which condones only one of those sources at the expense of the other.

Today there is a real opportunity for understanding the reasoning used in problem-solving and applying these to the area of architectural design. The opportunity arises due to a large amount of knowledge accumulated in the area of human problem-solving, methods of anlayzing and developing models for human problem solving behavior. The most frequently refered points of departure in this area are Simon's pioneering work in the area of decision-making (1944) and Newell, Shaw and Simon's work on "heuristics" (1957).