



## Bioclimatic lessons from James C. Rose's architecture

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### ARTICLE INFO

#### Article history:

Received 19 July 2008

Received in revised form

3 November 2008

Accepted 25 November 2008

#### Keywords:

Bioclimatic concepts

Architecture

Environment

Interior courtyard

Landscape

### ABSTRACT

This paper attempts to interpret three residences designed by landscape architect James Rose, focusing on their bioclimatic concepts (layout of the buildings: orientation in relation to sun and wind, geometry of the building form; spacing: site planning-landscape; air movement; openings: size, position and orientation, protection; and building envelope: choice of building materials and construction detailing). James Rose (1913–1991) was one of the three pioneer landscape architects who established modern landscape design in the United States. He had the opportunity to design three residences and their landscapes which constitute the clearest expression of his views about environmental design. Residences conceived in Rose's design philosophy result to the creation of an "environment" instead of the ordinary approach of architecture plus landscape, exhibiting his contribution to the development of a less aggressive architecture, more attentive and integrated to the environment. This is a rare approach where the design is product of one single mind that of the landscape architect. Several bioclimatic concepts are apparent in the landscape architect's works, showing a deep concern with the integration between construction and environment. The three cases explored are: the landscape architect's environment (1952, 1970), the Zheutlin environment (1956), and the Slutzker environment (1964).

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### 1. Introduction

James Rose (1913–1991) is arguably the most important American landscape architect of the second half of the twentieth century, yet much of his work is little known and understood [1]. He established modern landscape design in the United States along with his colleagues Dan Kiley and Garrett Eckbo. He reacted against the dominant attitude of considering landscape as something that comes after the structure is completed to further embellish it. The notion of integration between inside and outside –one of the defining issues of modernism in landscape architecture– rather than their design approach separately was central to his thinking from the time when he was a student at Harvard, recorded in an article he wrote in 1938, entitled "Integration" [2]. Therefore, it can be argued, he promoted a different approach towards design a revolutionized approach which would be thought of as "fusion of architecture with the landscape" instead of the ordinary approach of "architecture plus landscape."

Rose had the opportunity to design three residences and their landscapes which constitute the clearest expression of his views about environmental design. Residences conceived in Rose's design philosophy result to the creation of an "environment", exhibiting

his contribution to the development of a less aggressive architecture, more attentive and integrated to the environment. This is a rare approach where the design is product of one single mind that of the landscape architect. Several bioclimatic concepts are apparent in the landscape architect's built works, showing a focus on a holistic approach that considers the role of the environment as a major element of design [3].

The aim of this paper is to interpret the three "environments" designed by landscape architect James Rose, focusing on their inherent bioclimatic concepts (layout of the buildings: orientation in relation to sun and wind, geometry of the building form; spacing: site planning-landscape; air movement; openings: size, position and orientation, protection; and building envelope: choice of building materials and construction detailing). It is also to point out the creation of building environments which are attentive to climatic conditions, use techniques and materials available in the region, and try to integrate as much as possible buildings with their surroundings is achieved when there is no clear cutting edge between architecture and landscape architecture. Associating bioclimatic design with architectural projects designed by landscape architect James Rose may indicate a different concept of creating design solutions that intend to adapt constructions to local climate and provide thermal, luminous, and acoustic comfort. Three case studies are explored as examples of environmentally responsive architecture: the landscape architect's environment (1952, 1970), the Zheutlin environment (1956), and the Slutzker

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environment (1964). The paper comprises two major parts: (1) a discussion concerning the evolution of the concept of integration as a major principle in modern landscape architecture, James Rose's philosophy of environmental design, and an analysis of the three "environments" designed by Rose; and (2) a bioclimatic interpretation of Rose's three environments and their response to climate, based on passive design principles which are responsible for their bioclimatic character.

## 2. The concept of integration: a major principle in modern landscape architecture

James Rose, Garrett Eckbo and Dan Kiley, or as they were often called, the Harvard Triad, were the pioneers of the art of landscape design, but they did not come into existence independently from others. Their appearance in time coincided with the 1932 landmark exhibition "International style: architecture since 1922" at the Museum of Modern Art in New York. Its curators, Henry-Russell Hitchcock and Philip Johnson, advocated three basic criteria which defined modern architecture: a new conception of architecture as volume rather than mass, regularity rather than axial symmetry, and spatial integration of indoors with outdoors [4].

In response to such architectural thought, in their now-famous manifesto of 1939, Rose and his collaborators Eckbo and Kiley called for a new definition of landscape architecture. It appears obvious that the Harvard Triad, writing some 6 years later, borrowed the main characteristics of modern landscape design from current architectural discourse: the concern for space rather than pattern, the rejection of symmetry and the classical axis, and the valorization of a close integration of house and garden [1]. Their manifesto, a coauthored series of articles in 1938–1941 in *Architectural Record*, differentiates substantially from modern architectural discourse which mainly focused on the formal aspects of modern architecture rather than on the integration of environmental variables in the process of architectural design. They condemned the *Beaux-Arts* formalism that had dominated the profession of landscape architecture for half a century, and argued that instead of the creation of formal and ornamental compositions derived from classical precedent, the concept of the free plan and interpenetrating spaces of modern architecture provided a valuable model for defining landscape architecture. They recommended flowing space as a medium of a subtle spatial transition from the inside to the outside of the building, and permeation by the outside of the inside. They thought of architecture as a part of the terrain in which it is sited, relating harmoniously to the landscape through the use of modern materials and techniques. Nature was viewed not as an aesthetic delight, but rather as a valuable source for modifying and modulating architecture [5]. It is indicative of the strength and viability of this notion that it has survived and flourished in the last half of the past century to become the dominant mode of thought and action in the practice of landscape architecture today [6].

### 2.1. The Harvard Triad: James Rose, Garrett Eckbo and Dan Kiley

In the subsequent years, Rose, Eckbo and Kiley developed their personal voices concerning the development of landscape architecture. A comparison of Rose's landscape ideas with those of his colleagues may clarify the innovative concepts Rose brought to landscape architecture through his environmental conception of landscape design.

Kiley was not as a prolific writer as his other two classmates. However, one may deduce from his built work that he integrates architecture with the surrounding landscape using a shared geometric order, responding in his own way to the principle of

integration. His landscape schemes are developed into rooms structured by their particular uses and their relationship to interior spaces; they represent a synthesis of modern spatial ideas and classical structure. Kiley collaborated with several established architects who placed a high value on the integration of architecture with outdoor space. However, such integration was closely associated to issues of form, mass, scale, and material which unify the whole without allowing the building to succumb to the surrounding environment [1].

Eckbo, on the other hand, in his book, "A landscape for living," published in 1950, he conceives of modern landscape architecture as based on four principles: primacy of space, truth to materials, fulfillment of human needs, and climatic regionalism. His call is essentially an application of central concerns of architectural modernism to the profession of landscape architecture. Eckbo's discussion of the proper relationship of human beings to the world of nature and the implications of that bond for landscape design is perhaps the most original and challenging aspect of his thought. What emerges is an attempt to develop a new design vocabulary that transcends the old formal/informal split while expressing a harmonious relationship between humans and the world of nature [7]. Such an urge to design in accord with the principles of the environmental sciences associates him to Rose's philosophy of landscape design, a philosophy that was to become the pre-eminent statement of landscape architectural theory in the 1970s [8].

### 2.2. James Rose's philosophy of environmental design

James Rose from the very beginning of his career advocated complete spatial integration of exterior and interior which differed from the common approach of architecture plus landscape or at best an understanding of formal and aesthetic unity between architecture and landscape. Indeed, he proposes not only a complete spatial integration of house with its landscape, but also a deeper union of "shelter" with the landscape when he refers to the residences he designed as "environmental complexes", attempting to eschew the classic western notion that regards them as two discrete entities [9]. For Rose, the integration of house and garden was even more importantly the integration of people with their environment. He points out that no single word exists in the English language which describes the concept of landscape with shelter included, or the house and garden as one. He wrote in 1958, "with such a word we might build a whole community of space sculpture with shelter, instead of houses with gardens. It might even spread to cities, the fusion idea, and when we would have a lot of people going from one place to another and carrying on their business and living in the midst of nature" [10]. In "Freedom in the garden," his first important individual publication, Rose juxtaposes his own garden project with a painting by Theo van Doesburg and the plan of Mies van der Rohe 1924 project for a brick country villa to illustrate this sense of continuous space and overlapping geometric planes, that is the complete integration of interior and outdoor spaces [11]. By employing such design concepts, Rose brought his version of modern landscape design. His approach is based on the notion of space designed in flowing masses which form sculptural objects within the landscape, and the valorisation of a close relationship between indoor and outdoor spaces.

For Rose, sites do not provide a mere framework for design; rather they are revealed through design and construction. Such a notion was also clear to Richard Neutra who views landscape in much the same way as Rose does, that is as part of a house that was part of a city, part of the environment. Much of Neutra's written work may be read to suggest that he understood architectural design as a kind of applied climatology since he consistently

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