

The background of the cover is a photograph of a modern architectural interior. It features curved, light-colored walls and a bright light source that creates a prominent lens flare effect, illuminating the space. In the lower-left foreground, there is a dark, angular architectural element, possibly a window or a piece of furniture, silhouetted against the lighter background.

# BIOCLIMATIC ARCHITECTURE and Cyprus

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## Preface and Acknowledgements

“Bioclimatic Architecture and Cyprus” sets out to demonstrate that bioclimatic architecture is a viable energy-saving concept which can be applied in the context of Cyprus through both research and hands on examples. A principal aim of the research revealed in this publication was to develop an understanding of the criteria needed for an appropriate bioclimatic architecture that is sensitive to both energy use and climatic conditions.

For this purpose, the climatic conditions Cyprus, thermal comfort, passive solar systems, comparison of vernacular and contemporary buildings, energy uses, building and energy legislations, education in bioclimatic architecture and building examples (academic and professional) were studied, concluding that passive solar design may be successfully applied through the design of modern buildings in Cyprus.

A crucial argument that transpires from this research is whether environmentally responsible architecture should be regarded as a specialisation within architectural education or whether the entire spectrum of architecture should be taught as a science and as an art that is equally accountable to man and to the environment. This begs the question: Shouldn't architecture always be ecologically responsible?

This book brings local case studies to the forefront in an attempt to give a concrete understanding on bioclimatic architecture. It entails of a compilation of student design projects from the [Department of Architecture](#), of the [University of Nicosia](#) as well as built projects by the author which address bioclimatic design approaches.

I would like to extend my appreciation by acknowledging the contribution of all students who have participated in the various courses that I have taught on various aspects of Bioclimatic Architecture such as the Sustainable Design course, the Space and Light course, the Bioclimatic Architecture course, the Energy Efficient Buildings course, the Sustainable Design Unit and the Design for Diversity Unit from the first years of its inception.

Deep appreciation is extended to [Dr Anna Papadopoulou](#) for her stimulating interest and valuable advice throughout my work, and for extending her valuable knowledge and time to assist in my research. To [Melissa Hekkers](#) for her personal input and proofreading of the book. I also wish to thank my family, my daughter Lara, my colleagues (practicing and academic) and my friends for a lifetime of support and friendship, without whose love, understanding and moral support, this work might never have been completed.

This book is dedicated to designers of buildings, every single one of whom, from student to senior partner, have an important role to play in the reduction of energy consumption in buildings around the world. The goal of this book is to transcend knowledge without any monetary benefit. The book is available for free.

**“Bioclimatic architecture** refers to the design of buildings and spaces (interior – exterior – outdoor) based on local climate, aimed at providing thermal and visual comfort, making use of solar energy and other environmental sources. Basic elements of bioclimatic design are passive solar systems which are incorporated onto buildings and utilise environmental sources (for example, sun, air, wind, vegetation, water, soil, sky) for heating, cooling and lighting the buildings” (CRES, 2017).

**“Passive solar systems** are the integrated parts – elements of a building which function without mechanical parts or additional energy supply and are used for heating as well as cooling buildings naturally. Passive solar systems are divided into three categories: Passive Solar Heating Systems, Passive (Natural) Cooling Systems and Techniques, Systems and Techniques for Natural Lighting” (CRES, 2017).

**“Green building** (also known as green construction or sustainable building) refers to both a structure and the application of processes that are environmentally responsible and resource-efficient throughout a building’s life-cycle: from planning to design, construction, operation, maintenance, renovation, and demolition (Wikipedia, 2017).

**“Sustainable architecture** seeks to minimize the negative environmental impact of buildings by efficiency and moderation in the use of materials, energy, and development space and the ecosystem at large. Sustainable architecture uses a conscious approach to energy and ecological conservation in the design of the built environment” (Wikipedia, 2017).

**“Solar architecture** is an approach that takes in account the sun to harness clean and renewable solar power. It is related to the fields of optics, thermics, electronics and materials science. Both active and passive solar housing skills are involved in solar architecture”. (Wikipedia, 2017)

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Bioclimatic architecture is a viable energy-saving concept which can be applied in the context of Cyprus. This book investigates the influence of passive solar systems in traditional and contemporary architectural forms. It focuses on the typical Cypriot family house and aspires to support the development of a specific regional, local architecture, which is sensitive to both energy use and climatic conditions.

A crucial argument is whether environmentally responsible architecture should be regarded as a specialisation within architectural education or whether its entire spectrum should be taught as a science and art that is equally accountable to man and the environment. This begs the question: Shouldn't architecture always be environmentally responsible?

Through a compilation of both the author's and his student's bioclimatic architectural designs, the book addresses bioclimatic design from a practical and academic approach.

