HANDBOOK ON ENERGY CONSCIOUS BUILDINGS

Prepared under the interactive R & D project no. 3/4(03)/99-SEC
between
Indian Institute of Technology, Bombay
and
Solar Energy Centre, Ministry of Non-conventional Energy Sources

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Preface

The global energy scenario has undergone a drastic change in the last two decades. Due to ever growing demand and shortage of supply, the cost of fossil fuel (coal, oil and natural gas) is increasing day by day. Increasing consumption has led to environmental pollution resulting in global warming and ozone layer depletion. Consequently, the era of fossil fuel is gradually coming to an end and the attention is focused on the conservation of energy and search for renewable sources of energy, which are environmentally benign.

Buildings are major consumers of energy insofar as their construction, operation and maintenance are concerned. Though this is not very well quantified in India, yet there is ample scope for energy savings. The indoor environments are becoming increasingly important for human comfort and from health point of view. It is estimated that almost 50% of the global energy demand is due to buildings. Thus, the energy conscious architecture has evolved to address these issues. It involves the use of eco-friendly and less energy intensive building materials, incorporation of passive solar principles in building design and operation including daylighting features, integration of renewable energy technologies, conservation of water, waste water recycling, rainfall harvesting and use of energy-efficient appliances in buildings.

In spite of access to a large information base on various features and techniques, and despite pioneering work in this field by architects the world over and in India, the energy conscious design approach is not very widespread. The expertise developed at various Indian institutes has not percolated to architects at large, especially in a form that can directly be implemented in their designs. This book is an effort to orient the thinking of practising architects towards the importance and benefits of energy conscious architecture. The book provides information on basic principles, climatic conditions of India, passive solar approaches, general recommendations, specific guidelines and integration of renewable technologies in buildings. It contains a number of illustrations, working drawings, examples, case studies and references. In addition to practicing architects, it will also be a useful reference book for students of architectural and building scientists. Those who are conversant with the basic aspects of climate and passive solar architecture may skip Chapter 2 and 3 and refer to Chapter 5 for guidelines.

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Buildings account for over one third of global energy use and associated greenhouse gas emissions worldwide. Reducing energy use by buildings is therefore an essential part of any strategy to reduce greenhouse gas emissions, and thereby lessen the likelihood of potentially catastrophic climate change. Bringing together the latest research and practical guidance, this book provides a comprehensive guide to energy conservation and sustainable design in buildings. It is an essential reference for all students, researchers, and professionals involved in the design, construction, and management of buildings.

Therefore, a conscious approach needs to be developed in order to reach the right solution at the stage of architectural design through enabling necessary data. In the end, the product to be obtained must be aimed to have the quality of being more efficient, in other words, spending less resource within a longer period of time to perform the same action. This book and others given below are available from Amazon.com and other internet booksellers. Accumulator adding to what is found in this Handbook, see: www.orgonelab.org/orgoneaccumulator ii The Orgone Accumulator Handbook Wilhelm Reichâ€™s Life-Energy Discoveries and Healing Tools for the 21st Century, with Construction Plans Third Revised and Expanded Edition with New Sections on Living Water, and the Cosmic Ether of Space, plus a German University Study documenting the Physiological Effects of.