

Net-Zero Energy Buildings – New Addition to SHC Book Series

April 2015. New addition to SHC book series published by Wiley. This book aids designers in optimally using simulation tools for net-zero energy building design. It presents advanced modeling techniques as well as in-depth case studies.

The IEA SHC Programme is publishing a book series covering a diverse array of solar heating and cooling topics. *Modeling, Design, and Optimization of Net-Zero Energy Buildings* is the second book in this series.

Building energy design is currently going through a period of major changes. One key factor of this is the adoption of net-zero energy as a long term goal for new buildings in most developed countries. To achieve this goal a lot of research is needed to accumulate knowledge and to utilize it in practical applications. In this book, accomplished international experts present advanced modeling techniques as well as in-depth case studies in order to aid designers in optimally using simulation tools for net-zero energy building design. The strategies and technologies discussed are also applicable for the design of energy-plus buildings.

Written by both academics and practitioners (building designers) based in North America and Europe, this book provides a very broad perspective. It includes a detailed description of design processes and a list of appropriate tools for each design phase, plus methods for parametric analysis and mathematical optimization. It is a guideline for building designers that draws from both the profound theoretical background and the vast practical experience of the authors.

After presenting the fundamental concepts, design strategies, and technologies required to achieve net-zero energy in buildings, the book discusses different design processes and tools to support the design of net-zero energy buildings (NZEBS). A substantial chapter reports on four diverse NZEBs that have been operating for at least two years. These case studies are very high quality because they all have high resolution measured data and the authors were intimately involved in all of them from conception to operating. By comparing the projections made using the respective design tools with the actual performance data, successful (and unsuccessful) design techniques and processes, design and simulation tools, and technologies are identified.

This book is the result of collaborative R&D in the International Energy Agency's Solar Heating and Cooling (SHC) Programme and Energy in Buildings and Communities (EBC) Programme through the joint SHC Task 40/EBC Annex 52: Towards Net Zero Energy Solar Buildings.

PRESS RELEASE

Books in the SHC books series:

“Modeling, Design, and Optimization of Net-Zero energy Buildings”. To order:
<http://www.wiley.com/WileyCDA/WileyTitle/productCd-3433030839.html>

“Solar and Heat Pump Systems for Residential Buildings”. Publication date: August 2015.
Pre-order: <http://www.wiley.com/WileyCDA/WileyTitle/productCd-3433030405.html>

“Polymeric Materials for Solar Thermal Applications”. To order:
<http://www.wiley.com/WileyCDA/WileyTitle/productCd-3527332464.html>

Further information:

- IEA SHC website: www.iea-shc.org
- Project webpage: <http://task40.iea-shc.org>
- Wiley website: <http://www.wiley.com>
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About the International Energy Agency’s Solar Heating and Cooling Programme (IEA SHC):

- The Programme was established in 1977.
- Its objectives are co-operative research, development, demonstration and exchange of information regarding solar heating and cooling systems.
- 20 countries, the European Union and four organizations are IEA SHC members.
- The research topics of the current 12 projects range from general topics, such as “Solar Resource Assessment and Forecasting”, system research, such as “Large Solar Thermal Systems” to market support and integration topics such as “Solar Rating and Certification” “and Solar Energy in Urban Planning”.
- Additional information: www.iea-shc.org

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