

Energy, Environment and Sustainability of Green Buildings



**Shamzani Affendy Mohd Din
Moustafa Anwar Moustafa
Muhammad Abu Eusuf**



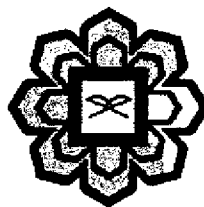
IIUM PRESS

INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA

ENERGY, ENVIRONMENT AND GREEN BUILDINGS

Editors

Shamzani Affendy Mohd Din
Moustafa Anwar Moustafa
Muhammad Abu Eusuf



INTERNATIONAL ISLAMIC UNIVERSITY OF MALAYSIA

Published by:
IIUM Press
International Islamic University Malaysia

First Edition, 2011
©IIUM Press, IIUM

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without any prior written permission of the publisher.

Perpustakaan Negara Malaysia

Cataloguing-in-Publication Data

Individual contributors copyright © Asst. Prof. Dr. Shamzani Affendy Mohd Din, Moustafa Anwar Moustafa, Rawia Marwan Abdul Aziz, Soran Hama Aziz Ahmed, Hamror Shikheldin & Azrina Alip: Energy, Environment and Sustainability of Green Buildings

ISBN: 978-967-418-034-8

Member of Majlis Penerbitan Ilmiah Malaysia – MAPIM
(Malaysian Scholarly Publishing Council)

Printed by :
IIUM PRINTING SDN. BHD.
No. 1, Jalan Industri Batu Caves 1/3
Taman Perindustrian Batu Caves
Batu Caves Centre Point
68100 Batu Caves
Selangor Darul Ehsan

CONTENTS

Contents	iii
List of Figures	v
List of Tables	xi
Foreword	xii
Preface	xiii
Contributors Biography.....	xiv

SECTION 1: ENERGY AND IMPACT TOWARDS ENVIRONMENT

Chapter 1: Energy Crisis & Water Pollution	1
<i>Shamzani Affendy Mohd Din & Moustafa Anwar</i>	
Chapter 2: The Negative Impact of Nuclear Energy on Environment	11
<i>Shamzani Affendy Mohd Din & Rawia Marwan Abdul Aziz</i>	
Chapter 3: Air Pollution Generated From Coal Fuel Fired Power Plant	19
<i>Shamzani Affendy Mohd Din & Soran Hama Aziz Ahmed</i>	
Chapter 4: Global Warming as A Phenomenon of Climate Change	35
<i>Shamzani Affendy Mohd Din & Hamror Shikheldin</i>	
Chapter 5: Impact of Hydroelectric Dams on the Environment	44
<i>Shamzani Affendy Mohd Din & Azrina Alip</i>	

SECTION 2: GREEN BUILDING PROJECTS

Chapter 6: Oregon Health & Science University - Center for Health & Healing, USA	56
--	----

Shamzani Affendy Mohd Din & Moustafa Anwar Moustafa

Chapter 7: DR Byen Building in Copenhagen-Denmark	66
--	----

Shamzani Affendy Mohd Din & Soran Hama Aziz Ahmed

Chapter 8: California Academy of Science, California, USA	75
--	----

Shamzani Affendy Mohd Din & Rawia Marwan Abdul Aziz

Chapter 9: NEXT21 – Osaka, Japan	84
---	----

Shamzani Affendy Mohd Din & Hamror Shikheldin

Chapter 10: GEO (Green Energy Office) Bangi, Malaysia	100
--	-----

Shamzani Affendy Mohd Din & Azrina Alip

CHAPTER NINE - NEXT21 – OSAKA, JAPAN

Shamzani Affendy Mohd Din & Hamror Shikheldin

9.1 INTRODUCTION

Open Building is an approach to the design of buildings that is recognized internationally to represent a new wave in architecture, but a new wave with roots in the way ordinary built environment grows, regenerates and achieves wholeness.

NEXT21 is an experimental 18-unit housing project. It anticipates the more comfortable life urban households will characteristically enjoy in the 21st Century. The project was conceived by Osaka Gas Corporation in collaboration with the NEXT21 planning team. The NEXT21 Construction Committee developed the basic plan and design. Its objectives were:

- Using resources more effectively through systemized construction
- Creating a variety of residential units to accommodate varying households
- Introducing substantial natural greenery throughout a high-rise structure
- Creating a wildlife habitat within urban multi-family housing
- Treating everyday waste and drainage onsite within the building
- Minimizing the building's compound burden on the environment
- Using energy efficiently by means including fuel cells
- Making a more comfortable life possible without increasing energy consumption



Figure 56: General view