

Sirs,

I read with interest the piece on micro CHP in your Winter 2003 issue. As a forester I work under the principles of the UK Forestry Standard. This document is very specific about the requirements of sustainable forest management, which is a fundamental concept for the Standard and indeed UK forestry policy as a whole. It is available on the Forestry Commission website www.forestry.gov.uk by searching in the library part of the site.

In the broader context, sustainability has been defined as "development that meets the needs of the present without compromising the needs of future generations to meet their own needs". ("Our Common Future", 1987; Report on the World Commission on Environment and Development.

I was therefore concerned about the liberal use of the word "sustainable" in your article. Since the principal source of energy for the micro CHP systems featured appears to be natural gas, there is no way that the word "sustainable" can be applied to these technologies, no matter how efficient and clean burning they may be. I would be concerned if any of your readers got the wrong impression that the burning of fossil fuels is sustainable. I am no expert, but of this I am certain!

The principle of sustainability underpins many worldwide environmental policies and its importance should not be underestimated or diluted by ill-advised use of the word. For example, one comprehensive definition of sustainability is found in Paul Hawkin's book, *The Ecology of Commerce*:

"Sustainability is an economic state where the demands placed upon the environment by people and commerce can be met without reducing the capacity of the environment to provide for future generations. It can also be expressed in the simple terms of an economic golden rule for the restorative economy: leave the world better than you found it, take no more than you need, try not to harm life of the environment, make amends if you do."

This comes from www.sustainability.ca, the Professional Engineers and Geoscientists of British Columbia Sustainability Website. I would urge to you to visit this site and be careful with your use of the word "sustainable"!

On balance, I would like to say that I support your aims and think that what you are doing and promoting is "a good thing".

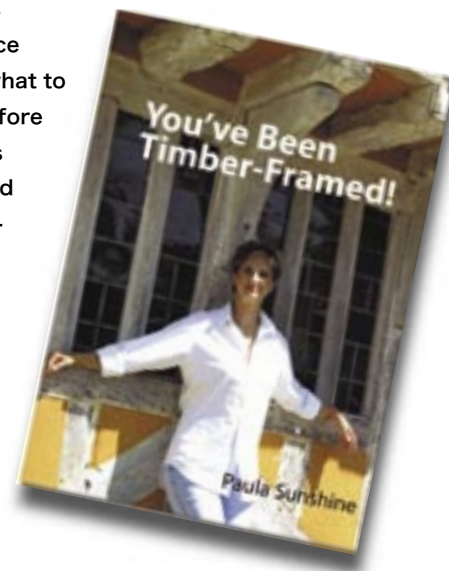
Andrew Clark, BALLYMENA, Northern Ireland

You've Been Timber Framed!

This little book is a hidden treasure of history and the tender loving care needed in relation to historic timber-frame homes. It is written as a basic manual for both existing occupants and potential buyers of such buildings. Its format is clear and concise, well and beautifully photographed and easily demonstrates the directions and pitfalls regarding surveying, renovation and maintenance of timber-framed dwellings. Traditional materials and construction techniques are covered whilst the pitfalls of using inappropriate methods and materials are illustrated and justified. By following the author's wisdom many of the problems these old buildings face today can be avoided. It guides the reader through what to look for in a survey and relevant questions to ask before purchase and during renovation. It covers all aspects briefly with the main thrust being on the contents and application of traditional building materials and techniques. It gives the rationale behind avoidance of the use of modern inappropriate procedures. Although it may seem fairly expensive for such a small book, it is quite delightful, informative and inspiring with the author's obvious love for her own timber framed home shining through.

Anita Bradley

Paula Sunshine £12.99 ISBN 09545952-0-3 Published by Barry Harper PR



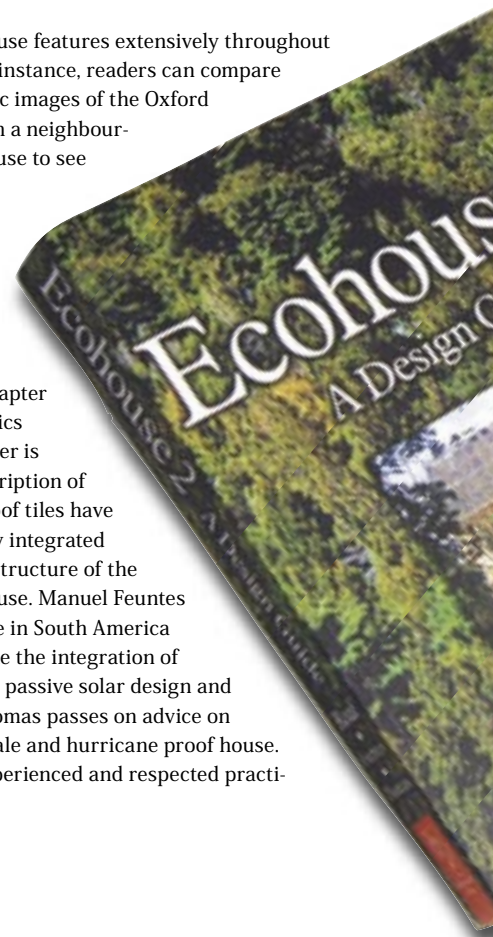
EcoHouse 2 A Design Guide

This is the second edition of Susan Roaf et al's guide first published in 2001. The general format and organisation of the second edition has changed very little from the first, however, many of the topics covered in the first edition have been updated and expanded.

Eco House 2, like its predecessor, begins by stressing the importance of building ecologically in order to avoid ruining the earth with buildings that are profligate consumers of energy and producers of more than half of all greenhouse gases. According to the authors, the world needs 'a new profession of ecotects, archi-engineers and engi-tects' to design buildings to work passively, use less energy and rely on renewable energy when and where possible. The main aim of Eco House 2 is to provide "how to" information not well covered in other books" and therefore, should not be seen as an all encompassing guide to energy saving or ecological construction.

The main body of the book presents the reader with wide-ranging and often in-depth advice and technical guidance. The authors own experiences in designing and building their own 'eco houses' are used throughout the book to demonstrate principles and technologies in practice. Susan Roaf's

Oxford Ecohouse features extensively throughout the book. For instance, readers can compare thermographic images of the Oxford Ecohouse with a neighbouring 1950's house to see the difference higher levels of insulation and triple glazing make in reducing heat loss. In the chapter on photovoltaics (PVs) the reader is offered a description of how the PV roof tiles have been carefully integrated into the roof structure of the Oxford Ecohouse. Manuel Feuntes uses his house in South America to demonstrate the integration of rock beds in a passive solar design and Stephanie Thomas passes on advice on designing a gale and hurricane proof house. A range of experienced and respected practi-



tioners in the field of ecological design, some of whom appear in BFF, have also lent their expertise to the book.

After taking the reader through the ideas, principles and technologies of ecological design of 'eco houses', the book finishes with case studies of 'eco houses' from around the world, which further illustrate many of the principles and ideas discussed in the main section of the book.

Readers who are familiar with or who have read the first edition of Eco House may be wondering what Eco House 2 has to offer in the way of new material.

Chapter 1 - The form of the house: Building as an Analogy is not significantly different, although readers may be entertained by Mike Humphries informative dissection of what makes a Hobbit hole so comfortable. Chapter 2 The Environmental Impact of Building Materials is page for page the same as in the first edition.

One of the more expanded and most useful chapters in Eco House 2 is Chapter 3 - Pushing the Building Envelope covers the following: performance and specification of insulation, avoiding cold bridges, condensation, as well as air infiltration and leakage. Readers are told the 'trick' in getting it right with insulation is to "choose the right insulation for the climate and the available local energy sources". The second edition also highlights issues to be considered in the selection of insulation materials. Does the manufacture of the insulation material contribute to ozone depletion? Is the insulation derived from natural or man-made materials? What is the embodied energy of the material? A new section highlighting methods of dealing with condensation through the use of ventilated cavities, vapour checks and breather membranes is included in Ecohouse 2. With respect to the topics of infiltration and air leakage, the reader is advised to "build tight, ventilate right" and is given practical advice on how to design, build and test for airtightness.

Chapters 4 & 5, Christopher Day's Building in Soul and a chapter on Ventilation, respectively, are virtually unchanged.

Chapter 6 - Health and Happiness in the Home is an encyclopedic listing of health issues to be considered when designing a home. In Ecohouse 2, the section on moulds has grown from less than a page to five pages with input from toxicologist Dr. Dave Anderson. 'Dr. Dave' guides the reader through investigation, understanding and prevention of mould growth in the home. Another notable addition to this chapter, is the new section on timber which will aid the reader in asking the appropriate

questions when it comes to sourcing sustainable timber: Endangered species are obviously out, FSC timber is the preferred choice and if that isn't available, look for a chain of custody certificate to ensure timber comes from a sustainably managed forest. Readers are reminded to use their common sense if the suggested criteria are not met and look into local sources of timber. A draft copy award winning Lambeth Council's guidance on timber specification is included to prove the point that even local authorities 'are going green'. The underlying physics and principles of passive solar design are explored in Chapter 7. In the second edition readers will find a section called 'The Importance of the Orientation'. This part of the chapter focuses on results from running the Oxford Ecohouse through a modeling program designed to test the performance of passive solar designs. The outcome of the modeling helps emphasise the role appropriate (southerly) orientation plays in ensuring a manageable and comfortable internal environment. I think it would have been interesting to see this modeling used to compare the performance of the Oxford Ecohouse design, for example, but built using methods that employ varying arrangements of thermal mass. Ideas on integrating PV's into a design are briefly expanded upon in Chapter 8: making use of PVs shading elements; installing PV roof tiles; use of translucent PV's for areas like sunspaces or conservatories.

Chapter 9 in Ecohouse 2, which deals with solar hot water systems, goes into more detail in describing the differences between open vent, sealed and pressurised and pumped, closed loop systems. The step-by-step approach to solar hot water system design and installation now asks readers to consider how climate might affect collector choice and considering the location of the collector and store for the system. A new step has been added which points out to the reader the importance of an auxiliary heat source to prevent bacterial growth, how mixers or automatic bleeding devices are possible ways to avoid the danger of scalding.

In Chapter 10, Using Water Wisely, the case is made for a more positive approach to water conservation based on five categories of water saving measures: water conservation; water sufficiency; water substitution; water reuse. Technologies are shown to play an important role in reducing water consumption of household items like WCs, showers, washing machines and taps. There is also a new small section that discusses the impact of rainwater harvesting as well as highlighting the importance of more sustainable approaches to rainwater drainage. Two 'tools' are presented that assist the reader in analysis of the case studies. Craig Simmonds' explanation of ecological footprinting offers an important reminder that our lifestyle and activities once we are settled in our 'eco house' merits as much attention as the design if we are to truly reduce our environmental impact. Fergus Nicol explains how to use local data on temperature to

construct their own 'Nicol Graph', a useful tool in defining optimum temperature for a specific building design.

Three new case study houses are added to bring the total number of case studies to 24 houses. The houses demonstrate a variety of interesting design approaches and many of the case studies offer very useful information on how well certain design ideas and technologies have performed. One of the main strengths of this book lies in the fact that the authors' own designs are used to demonstrate many of the principles discussed. Contributions by others like Pete Warm, Chris Laughton, Nick Grant, and Steven Szolkay also enhance the quality of the book's content. Much of the detailed information which assists the reader in sizing solar panels or a PV array, for example, is useful on two main levels: as a general overview of important issues to be considered prior to design or installation; and as a 'how-to' manual for those 'hands-on' types. Extensive references at the end of each chapter will be handy for those wishing to learn more about topics covered in the book.

Although Ecohouse 2 explores the importance of designing a relatively compact, well insulated, air tight building with adequate controlled ventilation and low energy demands, prior to considering the use of renewable technologies, I find Roaf's assertion that 'PV's should be an essential feature of a real Ecohouse' somewhat prescriptive. It comes across as an 'eco cliché' (to borrow a phrase from Howard Liddel and Nick Grant's article titled 'Eco Minimalism' in BFF v.12 No.3) because the text focuses solely on PVs and fails to explore with its usual rigour the potential of wind, water or biomass energy systems.

Ecohouse 2 covers a lot of ground and does so in a very readable fashion. Even the more technical sections on PV system design, for example are easy to understand. However, I feel these sections would probably be most useful to the self builder or competent DIYer whereas the book as a whole would be suited to both students and professionals in the construction industry. In conclusion, I would recommend this book as an easily accessible and informative reference source for the professional and an introductory text for students (as well as newcomers to green building) that provides a solid understanding of the main principles of ecological house design.

Eric Parks

By Susan Roaf, Manuel Fuentes and Stephanie Thomas ISBN Architectural Press 0-7506-5734-0

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