

# HOME WORK

## Handbuilt Shelter

Lloyd Kahn

Copyright © 2004 by Lloyd Kahn

All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording, computer scanning, or any information and retrieval system without the written permission of the publisher.

Distributed in the United States by Publishers Group West and in Canada by Publishers Group Canada.

**Library of Congress Cataloging-in-Publication Data**

Kahn, Lloyd, 1935–

Home work : handbuilt housing / by Lloyd Kahn.

p. cm.

Sequel to Shelter. 1973.

Includes bibliographical references and index.

ISBN-13: 978-0-936070-33-9 (trade paperback)

ISBN-10: 0-936070-33-1 (trade paperback)

1. Dwellings — Pictorial works. 2. House construction.  
3. Dwellings — Design and construction — Amateurs' manuals. 4. Architects and builders — Interviews.  
5. Dwellings — Pictorial works. 6. Architecture, Domestic.  
7. Vernacular architecture. I. Title.

TH4815 .K34 2004

690'.837 — dc22

2003018478

9 8 7 6—11 10 09 08

(Lowest digits indicate number and year of latest printing.)

Printed in China

Shelter Publications, Inc.

P.O. Box 279

Bolinas, California 94924

415-868-0280

Email: [homework@shelterpub.com](mailto:homework@shelterpub.com)

Orders, toll-free: 1-800-307-0131



Visit Our Website  
**SHELTER ONLINE**  
[www.shelterpub.com](http://www.shelterpub.com)

# CONTENTS



## BUILDERS 1

Louie Frazier	2
Ian MacLeod	10
Bill Castle	16
John Silverio	22
Paul Nonnast	23
John Welles	24
<u>Rennie &amp; Andrea Raddocia</u>	26
<u>Bill Coperthwaite</u>	28



## HOMES 31

<u>Jack Williams</u>	32
<u>Kate Todd</u>	34
<u>Susan Lewis</u>	36
<u>John Fox</u>	37
<u>On the Beach</u>	38
<u>The New Settlers of New Mexico</u>	40
<u>Funky</u>	42
<u>Archilibre</u>	44
<u>House on the Rocks</u>	52
<i>Home Power Magazine</i>	54
Cabaña en España	56
Cabin in Tennessee	57
<u>Joanne's House</u>	58
<u>The House that Renée Built</u>	59
Color in the Carribean	60
<u>San Francisco Bay Area Color</u>	62
<u>California Kitchens</u>	64
Small Building Designs	66
Tiny Houses	70
<u>Bobolink</u>	72



## NATURAL MATERIALS 73

<u>Bill &amp; Athena Steen</u>	74
Catherine Wanek	82
Mud Dancing	84
Family Homestead	86
Kelly & Rosana Hart	88
Bamboo — Oscar Hidalgo	90
Rand & Cookie Loftness	94



## PHOTOGRAPHERS 97

Yoshio Komatsu	98
Kevin Kelly	106
Hans Joachim Kürtz	112
W. E. Garrett	116
Robert Barab	118
Clay Perry	119
Dr. Mehmet Hengirmen	120



## FANTASY 121

Michael Kahn	122
Ma Page	130
Flying Concrete	134
Timolandia	136
Tropical Treehouses	141



## TRIPS 143

On the River	144
Nova Scotia	146
Utah & Nevada	152
Costa Rica	158
Deep in the Heart of Baja	162
Cowboy Poetry Festival	172



## ON THE ROAD 173

<a href="#">Donkey Train Across America</a>	<a href="#">174</a>
On the Road	176



## LIVING LIGHTLY 185

Perpetual Camping	186
Mongolian Cloud Houses	188
Less Is More	190
Native American Shelter	194
Native American Builders	196
Tipis	198



## BARNS 199

Barns of Washington	200
California Farm Buildings	202
Round Barns	204
Cowboy Cathedral	205
Keeping the Trade Alive	208
Gambrel Barn	212



## OLD BUILDINGS 213

Stone Structures of Northern Italy	214
Nepal-Everest 1996	216
Discovering Timber-Framed Buildings	218
Hungarian Open-Air Museum	219
Open Timber Roofs	220
William Cooper, Ltd.	222
Buildings of the Old West	224

## MOREOVER... 226

### BOOKS 233

### APPENDIX 241

About the Author	242
Credits	244
And Finally...	246



# INTRODUCTION



**I**N THE SUMMER OF 1973, Bob Easton and I produced the book *Shelter*. It was an oversized compendium of buildings and builders around the world and throughout history, containing over 1000 photographs and 250 drawings. It was about doing things for yourself, and doing so efficiently, ecologically, and artistically. It featured people who had created handbuilt homes, and included buildings not seen anywhere else. The book had a feeling of home, hearth, and ingenuity that seemed to capture the spirit of the times. It was picked up by the countercultural underground, became a hit, and is still in print, some 250,000 copies later.

It's been thirty years since *Shelter*, and although our publishing company has gone on to other projects and subjects since, I've stayed interested in building — shooting photos and interviewing builders wherever I've travelled, and collecting books and data on building. *Home Work* is the

result, a summary of what I've found over three decades, and is a sequel to *Shelter*. It's also a sequel in another sense. By a neat twist of karma, it includes a number of people who were inspired by *Shelter* to build homes, and whose lives were changed accordingly. Over the years, a surprising number of people have told us that it inspired them to build something; it gave them the courage to get started.

It may be obvious that a thread of the '60s runs through *Home Work*. Many of these people were motivated by what happened in the '60s. (I certainly was!) In the spirit of the times, they went out and built homes, and they were successful — here was a part of the '60s that worked. I started building in the '60s because I needed a place to live and could never find a charming old house to buy. I guess it was my fate; if I wanted a good-feeling home I'd have to create it myself. Over the years, I built four homes, always learning on the job, I found the process of building, and the way things were put together,

fascinating, and I've tried to keep this layman's perspective in gathering information for other owner-builders.

Concurrently with learning to build, I started shooting photos of buildings. I took along cameras and a notebook wherever I travelled, and documented small buildings. Invariably the places that appealed to me most turned out to be owner-built. What was I looking for, what caught my eye? Handmade buildings that did one or more of the following:

- showed good craftsmanship
- were practical, simple, economical, useful
- used resources efficiently
- were tuned into the landscape
- were aesthetically pleasing, radiated good vibes
- showed integrity in design and execution
- (and/or) were wildly creative



*Dry rock wall (no mortar),  
Wales, 1987*

*Home Work* is not comprehensive in geography — it's heavy on the West Coast, where we live. Nor does it cover all builders, building techniques, or materials. It's country, not city. We haven't tried to cover everything and everyone. It's rather what I've run across over the years, a diverse bunch of buildings, all assembled with human hands.

It's funny — we live in a world powerfully transformed by a number of factors, primarily the digital revolution, yet houses must still be created by hand — your computer's not going to do it for you. We hope *Home Work* will motivate you, will give you the confidence that you can build something if you work at it. A tip: If you're not sure what to do, start!

*"You never know what's shakin'  
until you give it a shake."*

*-Johnny Adams,  
blues singer*

What if you can't build a home? Even if that's not in the cards, you can use the ideas (and spirit) here to remodel (or decorate) an apartment, to build a studio, barn, treehouse, workshop, window box, sauna, furniture — to create something with your own hands, with your own body.

There was no master plan in assembling this book. We had a ton of accumulated material — photos, interviews, writing — but no idea what the final result would be. So we just started. We put it together a page at a time, a day at a time. As we went along, the book took on a life of its own. A bunch of this material came in while we were in production, and the book continually changed form. After about a year, *Home Work* seemed to have shaped itself — an organic process of sorts.

Now that it's gone off to the printers, and as I'm writing this, I realize that, along with whatever else *Home Work* is, there is within it a

family of builders, a bunch of people around the world with common interests. They're alike in many ways, and they're tuned into many of the same things. Getting them all together in this book allows me to share my discoveries, to show you their work (and to take care of what's become a compulsion to communicate). Hey, look at what these guys have done!

So, dear reader, come join us on another Shelter journey, an odyssey (in retrospect) of the last thirty years, in this scrapbook of builders, dreamers, and doers — a celebration of the human spirit.

*Shelter is more than a roof overhead.*



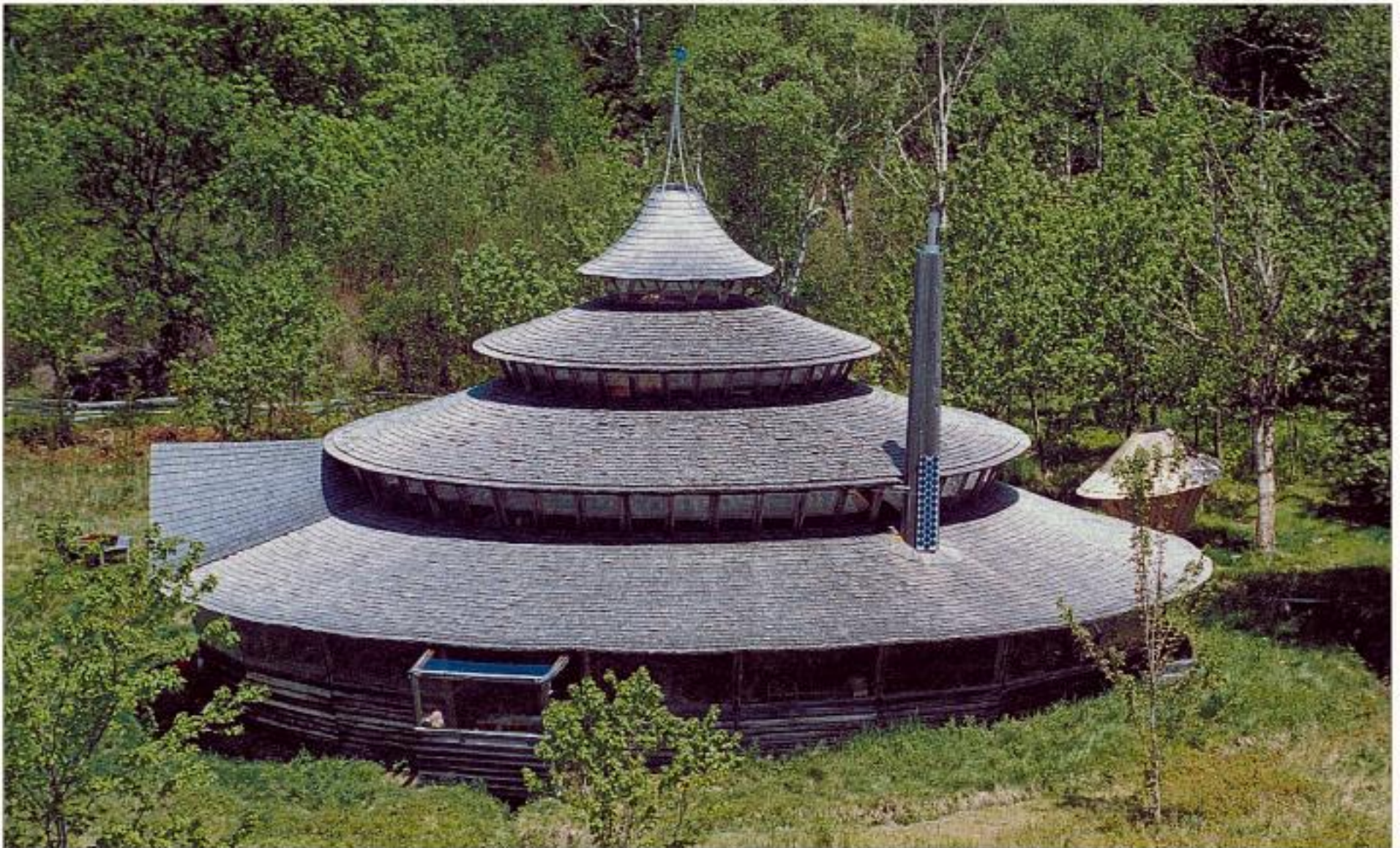


*Kitchen counter tiles made by Andrea*



*Andrea's belly dancing outfits*





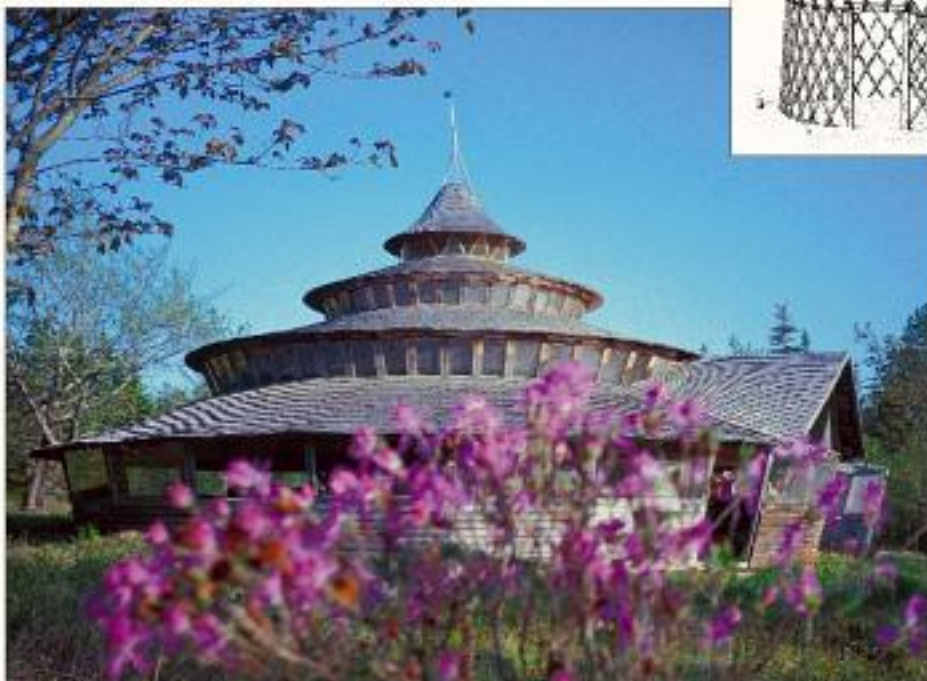
## THE YURTS OF BILL COPERTHWAITE

**B**ILL COPERTHWAITE doesn't have email, doesn't have a phone, and lives in the Maine woods a few miles from the nearest roads. When I visited him in the '70s I walked in a mile or so through the woods. You can also get there by canoe down the coast. My son Peter was with me and we spent a few days there, taking canoe trips in the inlets, and hanging out with Bill and his apprentices. Bill has a Ph.D. in education from Harvard, worked for two years in Mexico with the American Friends Service Committee, designed a traveling museum of Eskimo culture, and has lectured all over the world.

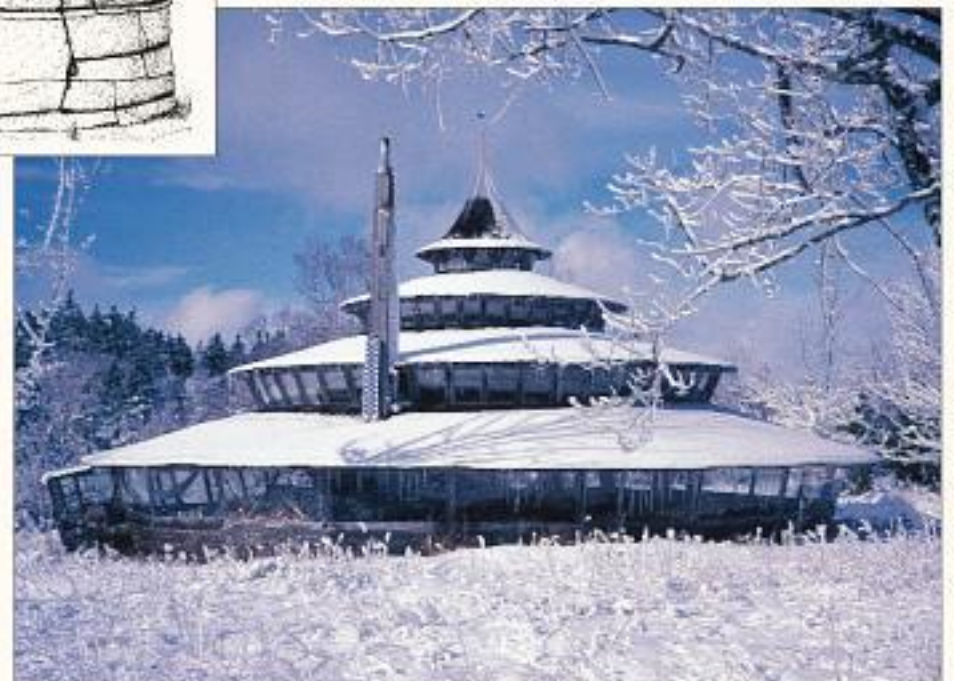
In 1962, while reading a *National Geographic* article, Bill recognized the folk genius in the design of the traditional Mongolian yurt. He found in the

yurt both a rich potential for creative design and an opportunity for developing a simple dwelling that people could build themselves. Bill designed the tapered-wall wooden yurt to enable people to play a larger role in creating their own shelter, using a design that reduces required building skills to a minimum while still producing a beautiful, inexpensive and permanent shelter.

These days Bill conducts workshops, sells yurt plans, designs and consults on yurt projects, and continues his search for ways to simplify life in the 21st century. Chelsea Green has just published Bill's *A Handmade Life — In Search of Simplicity*. To contact Bill, and for web information on his Yurt Foundation, see the next page.



The yurt shown in the three photos on this page is Bill's home in the Maine woods. It is 54' (eaves) in diameter and was designed so it could be built over a period of several years and still provide shelter during the process. It is a tri-centric, or three-ring yurt with 2700 sq. ft. of floor space. You can first build the



16' inner core as a room to move into. In the second stage, you can build the large sheltering roof over a gravel pad, allowing the major cost, floor construction, to be delayed. In the meantime you have a spacious area under roof that can be used for a workshop, greenhouse, garage, or for play.

The standard yurt can be built at 17' (eaves) diameter (and also at 12' and 10'). This is the simplest to build, makes a great cabin for one, or seminar space for 15 people, and can be used as a summer camp or mountain retreat. A circular skylight spreads illumination evenly, and a ring of soft peripheral light enters through the windows under the eaves. People have used these as saunas, guest rooms, and as offices with curving desks.



Guest yurt at The Yurt Foundation, Dickinsons Reach, Maine, 1966



Concentric yurt on Mother Earth News land in North Carolina, 1979

The concentric yurt is 38' (eaves) diameter and is really one yurt inside another. The inner yurt supports the roof of the outer one and reduces materials costs. This concentric way of dividing a circle creates a unique free-flowing space in the outer ring and a secluded feeling in the inner loft yurt. Since the inner yurt is raised a full story, it provides a room underneath that can be used as a bathroom, storage room, pantry, or living room. These yurts have been used all over America as permanent homes, summer homes, and common rooms in communities. It has 1000 sq. ft. of floor space.



Inside a Travel Study Community School yurt in Franklin, N.H., 1968



33' freespan yurt at The Mountain Institute, Cherry Grove, West Virginia, 1991



Helen Nearing's yurt at Harborside, Maine, 1990



First 54' tricentric yurt, at The Mountain Institute, Cherry Grove, W.V., 1976



Plans for the 3 basic yurts shown on these pages are \$25, \$50, and \$75.

CONTACT: The Yurt Foundation,  
Dickinsons Reach,  
Machiasport, ME 04655

WEB INFO on workshops,  
yurt plans, yurt calendars:  
[www.yurtinfo.org/yurtplans.php](http://www.yurtinfo.org/yurtplans.php)

WEB: yurt photos (hundreds of them):  
Go to: [www.google.com](http://www.google.com),  
click on "images,"  
and type in "yurt."





*Some comments by William Coperthwaite  
on his philosophy, background, and work*

**IT IS REPORTED** that I was born in Maine in 1930. For the past 43 years, I have lived in the wilderness on the coast of Maine, seeking to discover simpler and more elegant ways of living that can be of use in building a saner society. This has been my base as I have studied, traveled, and lectured around the world in search of ideas as to how we might live fuller and less exploitative lives. We have a tremendous potential to design a better society, could we but learn to tap that potential. I've come to believe that we can blend the best of age-old folk wisdom with the best of modern knowledge to create a world of incredible beauty — a world of caring, creativity, and joy.

A society that aims for the happiness and fulfillment of the largest possible number of people, and which is concerned for the ecological balance of the planet, will see the necessity, the beauty and the wisdom of living simply. My adult life has been spent seeking out cultures and individuals who have something special to contribute to simpler, saner, more healthful living — be it in the area of child care, gardening, community planning, handcrafts, structures, or design.

My work in designing the modern yurt grew out of this research. The design derives from the blending of the folk genius of inner Asia with modern materials for a structure that is light and strong, inexpensive and easy to build. Since 1964, I have designed and guided the building of some 300 yurts from Alaska to Florida, from Maine to California and in a number of other countries. They vary in size from small play yurts to four-story ones 60 feet in diameter. They are in use as homes, classrooms, mountain retreats, summer homes, and saunas. Using the modern yurt as a symbol of cultural blending, I set up the non-profit Yurt Foundation in 1971 to collect knowledge of simple living around the world.

# HOMES



*"A house is a home when it shelters the body and comforts the soul." -Phillip Moffitt*



## JACK WILLIAMS

**JACK WILLIAMS** built a house in the Northern California woods; it's a dream homestead, built with imagination, integrity, and sweat. The house faces south, looking down on three miles of forested land to the blue Pacific Ocean.

He cut redwood saplings on his property ("... more sapwood than heartwood") for poles. He poured piers 4' on center, connected by a grade beam, and attached the poles to the piers with metal straps. From the ground up to about 24" he built a ferro-cement wall, using about six layers of chicken wire (on the outside of the poles), plastered with sand and concrete. He says if he had it to do over, he'd use expanded metal lath instead of the chicken wire. The poles have held up well, he says, since they're protected from the weather.

Jack was one of the Northern California "off-the-grid" pioneers. For some 20 years now, he's had his electricity coming from 16 solar panels, four of which are devoted to pumping water from a well. He uses a 2000-watt Trace inverter and has three 500-amp-hour forklift batteries (which he bought 16 years ago). For backup during winter months he has a 6500-watt propane generator. He stays in touch with the rest of the world with a cellular phone and a TV satellite dish. Jack has fruit trees and grows vegetables, and these days he's working on a new building with a ferro-cement roof.





Front of house

Rear of house (interior of this wall shown in photo at middle right)



Jack's solar convection fruit dryer. Trays inside black box hold fruit.



Jack bringing trays of dried fruit into the house



Bathtub in adjacent greenhouse



Marley



*Above and below: The house that Kate built.*



*Kate built this couch out of local alder and willow, using nails and grabbers.*



# KATE TODD

*The house Kate now lives in, showing solar collector for outdoor shower and photovoltaic solar panels that charge batteries*



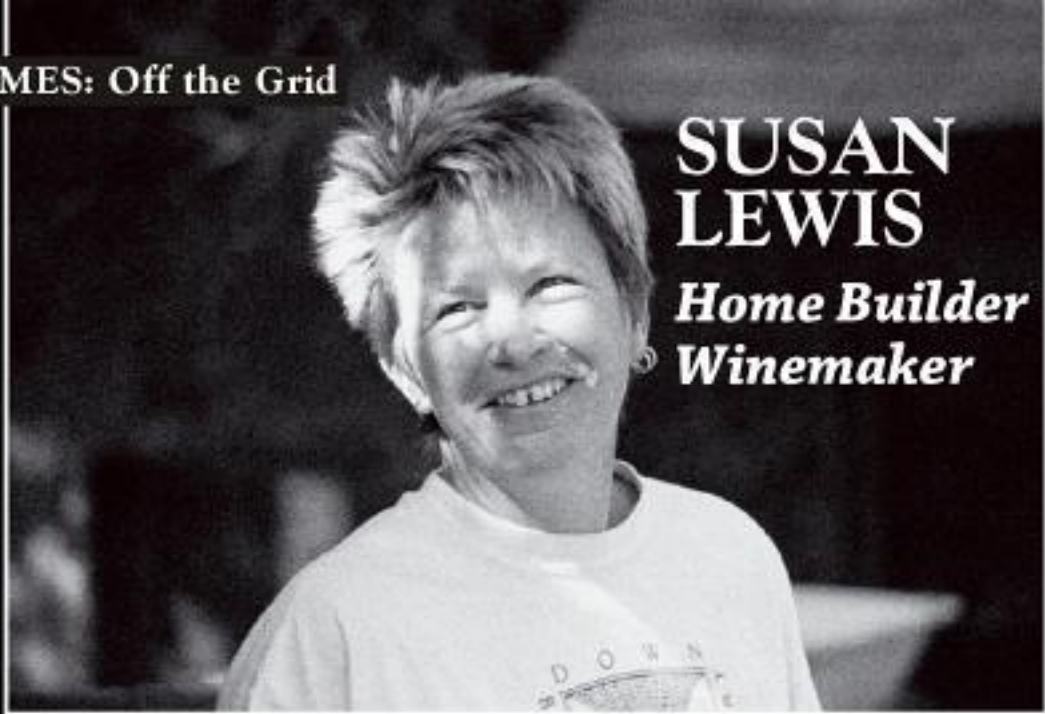


**KATE TODD** built two off-the-grid houses in the Northern California woods in the early '70s. She and her partner started the house (shown in the two photos at top of left page) in Spring of 1972 and moved in that winter (with one wall covered with plastic sheeting). The foundation was concrete piers. The pole frame was spiked to the piers with a vertical piece of 1" galvanized pipe. For the attached greenhouse she poured a perimeter foundation. "I had help from a lot of friends."

Three years later she built the second house (other photos on these two pages) by herself. When her two kids got into their teens, she let them have the second house to themselves. Kate's place is a cozy little wooden house with good vibes and although it may be tiny, it's a real *home*. Both houses have electricity produced in the winter by a Harris-Burkhardt hydroelectric generator, a small-scale pelton wheel powered by water from a 1" pipe directed from an uphill creek. In the summer, electricity is provided

by photovoltaic panels. Both systems charge batteries and Kate runs lights, a coffee grinder, radio, a tape deck and once a week, a vacuum cleaner, the sewing machine and/or a VCR. "The great thing about hydro is it's 24-hours a day." A little electric heater goes on to take any overflow of electricity from the hydro system and avoid overcharging the batteries. Hot water comes from a "Blazing Showers" woodstove coil in winter, and a solar collector for the outdoor shower in summer. Kate also has a productive garden and is a print-maker. She teaches English as a Second Language and travels whenever she can — Nepal, Bali, Italy, Mexico, Cuba, Guatemala . . . . In 1986 she took a hydroelectric generator to Nicaragua and helped set it up to provide an electric light to each of nine houses in a small village cooperative. She drives a 1993 Nissan pickup truck and she and her partner just bought a Toyota Prius hybrid electric car, which gets 55 miles per gallon.





**SUSAN LEWIS**  
*Home Builder  
Winemaker*

In 1974, SUSAN LEWIS AND ROSEMARY WARD built a solar-powered wooden frame house in the hills of Mendocino County, California, using no power tools. "Neither one of us had built anything before but a wobbly bookcase," she says. Susan was inspired by another woman homebuilder, Kate Todd (see p. 34-35). There's a solar panel on the roof that runs lights, a DC refrigerator, TV/VCR, hair dryer, and washing machine. There's a Holly hot water heater unit in the woodstove, an outdoor shower, and a composting toilet. The 120' well is pumped by a 12V DC pump and two solar panels.

There are five acres planted in chardonnay grapes; Susan makes wine and champagne and sells surplus grapes to wineries. She has a '92 John Deere 1070 tractor and an immaculate 1953 Chevy pickup truck. She has 12 chickens, five cats, and a Chesapeake Bay retriever.





## JOHN FOX

JOHN FOX bought 40 acres of forested, steep land in Northern California in 1970 and built his hand-crafted house bit by bit. It's remote: the road ends about 500 feet above the house, and John has a 470'  $\frac{3}{4}$ " cable and a winch that he uses for hauling groceries and supplies to the house. He has gravity-flow water from a creek that powers a Water Watts microhydro turbine for electric power during the wet season, and solar panels for the rest of the year. There are four L-16 deep-cell batteries for storage and a Trace Inverter that converts the DC to AC. There's a Honda generator for backup. The house consists of two seven-sided sections and is dug into the hill. It's light, airy, and colorful, and has the feeling of a treehouse. In the last four years, John's son Heron (shown on the rope swing below, left) has been working with John on construction and gardening.



John's vintage copy of Shelter



## ON THE BEACH

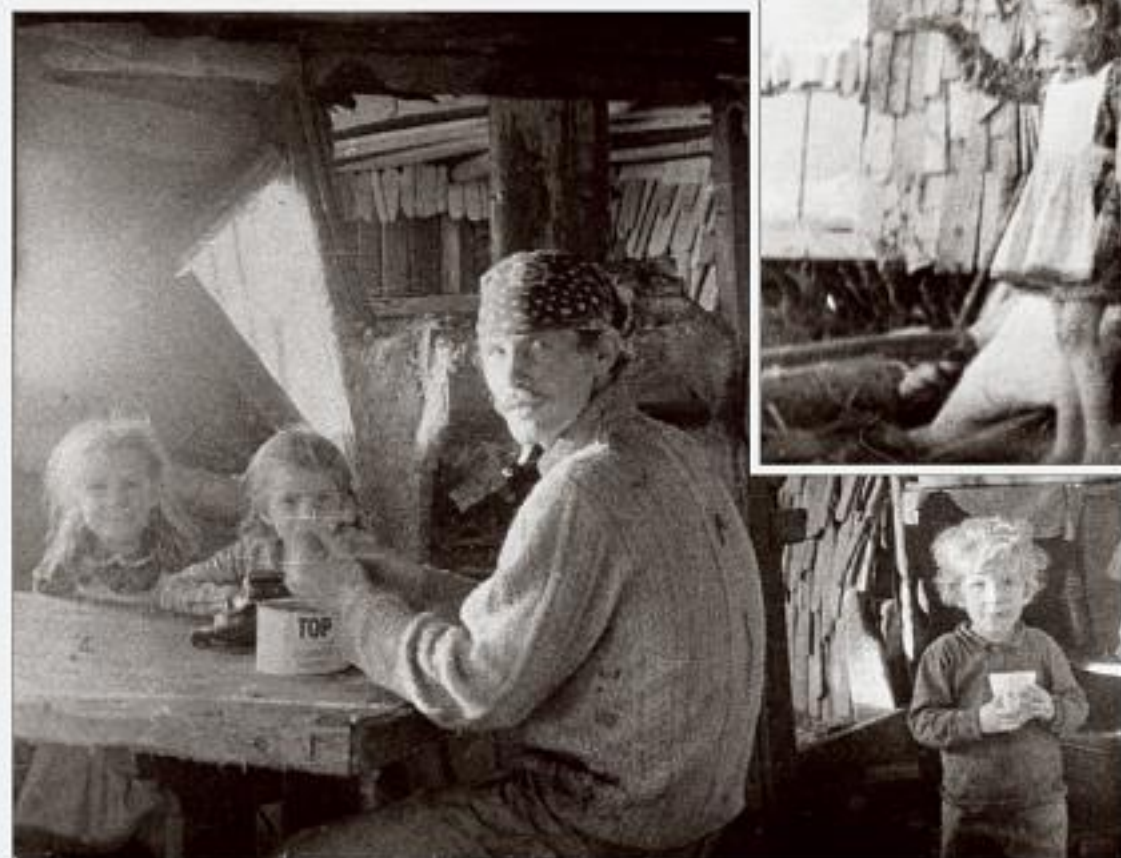
**I**N THE LATE '60s, Karen and Roger Knoebber and their three young children lived for about a year in a driftwood house on a deserted beach north of San Francisco.

*LLOYD: How did you end up doing this?*

*KAREN: We left Berkeley around 1967 and went on the road in a camper. We got as far as Key West and ran out of money. There was a little island called Boca Chita next to Key West that was an abandoned Navy base. It was deserted, so we hauled lumber across from Key West and built a beautiful little*

*breezy (meaning no walls) house. Friends would come out and say, "What a way to live!"*

*They left there after about six months, moved into an abandoned farm house in Maryland for a while, then headed back to California. Once again they were broke, with no money to pay rent.*



*Above right: Karen*

*Above: Karen with Shufina, Khamoor, and Cosmo*

*Left: Roger with Shufina, Khamoor, and Cosmo*

*Looking back, it's hard to believe you could ever do something like this, just an hour away from San Francisco. A home that costs practically nothing. No taxes, building inspectors, electricity, cars, roads. Or look at the photos of '60s New Mexico communes on the next two pages. Are there things like this going on in America now? Could this be the same planet?*



"We heard about this little driftwood community on the beach, and we went out there. There were about eight houses, and they let us live in a tiny little place while we ran up and down the beach collecting driftwood for our house."

*How old were the kids?*

Five, four and two. They were all born in San Francisco.

*How old were you at the time?*

28.

*What were your days like at the beach?*

We'd walk a quarter-mile to get drinking water and we'd walk along the beach picking up firewood. The kids would play on the beach.

*How did you cook?*

On a Coleman stove.

*How about food?*

We ate a lot of mussels, Roger caught fish, there was New Zealand spinach growing nearby. We'd walk into town (about two miles) every two weeks for supplies.

*Why did you leave?*

We got a little money, and our daughters were of school age. Also, the house was perched on shaky cliffs and we worried that it might collapse. And the authorities started showing up and telling people they'd have to leave. They said the place was too notorious.

*Isn't it amazing that you could do something like that?*

Yeah, nowadays you'd get arrested right away. You know, the times were just so different.

*Where did you go?*

We moved to Mendocino. It seems we were constantly building. We lived without electricity or a refrigerator for about ten years.



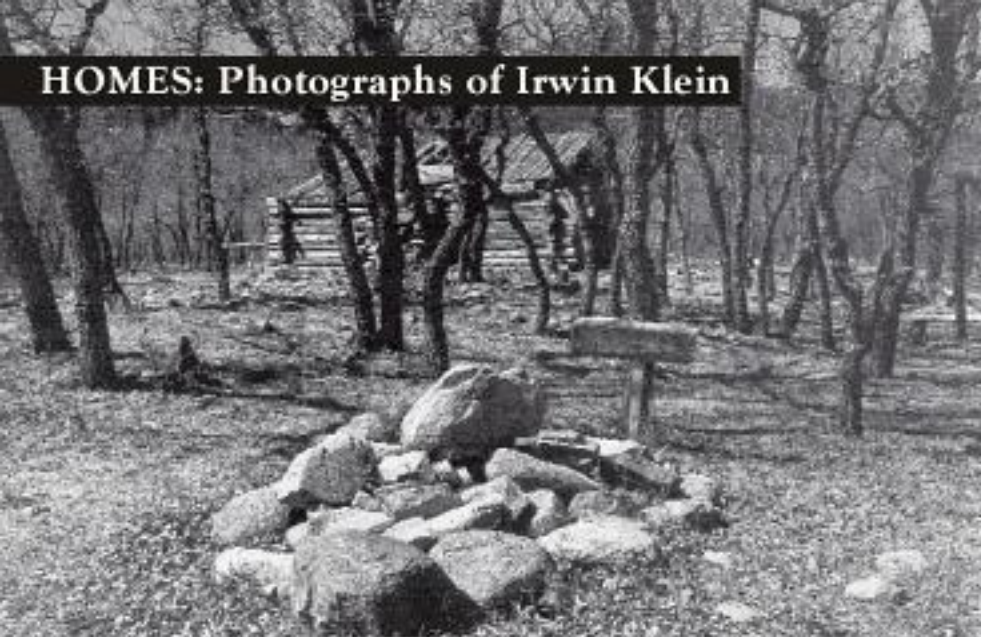
*The sauna*



*All these photos are from Karen's album, which (naturally) has a driftwood cover.*

*Footnote:* By the time the family left, their house was the only one left. All the others had been destroyed either by their owners or the authorities.

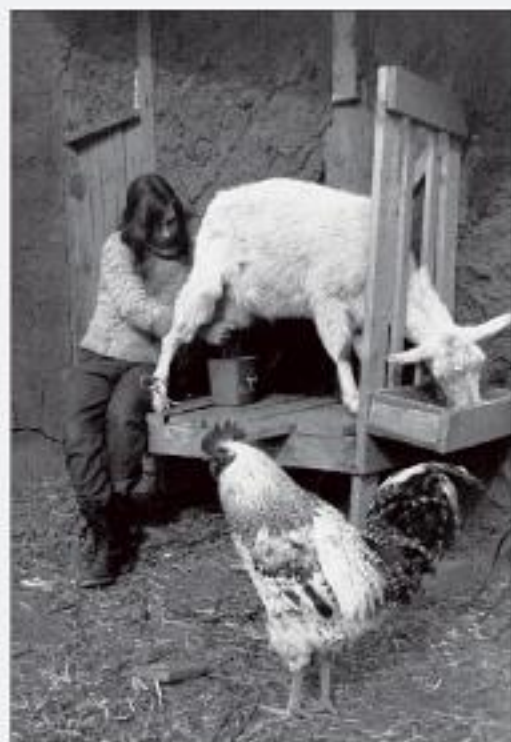
*Update:* Karen now lives in Mendocino County in a house she built herself. Roger has been living in Paris for 20 years. Karen's three kids all live in California and she has six grandchildren. Karen's kids sometimes tell her they would have liked "a little more structure" in their lives.



Cabin in Mora woods



Five Star Commune in Mora



Five Star Commune



Five Star Commune

## THE NEW SETTLERS OF NEW MEXICO

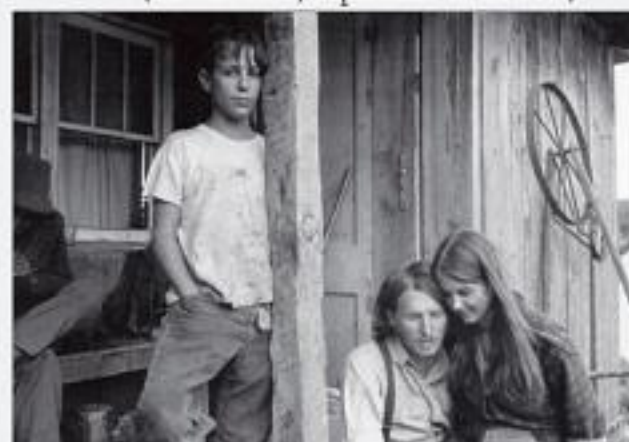
**Irwin Klein**

*During the cultural revolution of the '60s, many young people with inquiring minds and adventurous spirit set out to create new lives in rural areas of America. New Mexico, with its open spaces, cheap land, and sparse population, drew thousands of new settlers. Placitas, Morning Star, New Buffalo, Reality Construction Company, the Lama Foundation, they seem almost unreal looking back 35 years. It was a time of optimism, faith, and yes — drugs — but also a lot of hard work building and repairing adobe houses, raising children, tending animals, and living communally in the psychedelic years.*

*Irwin Klein was a photographer from New York who shot black and white photos with a Leica during five visits of about three months each to New Mexico from 1966–71. He was working on a book he called *The New Settlers of New Mexico*. Irwin died a tragic death in 1974, not coincidentally at a time when the innocence and freedom of the earlier hippie years seemed to have dissipated, and big-city hard drugs and criminal elements had moved in. In the fall of 2002, we were contacted by his brother Alan, who had all Irwin's photos and was (is) looking for a publisher, but more importantly, wanted to share his brother's photographic vision with others. Here are excerpts from the introduction to Irwin's book, along with his beautiful photos. This will bring tears to the eyes of many who were there in those years, a time before the harsh realities of life intruded on youthful idealism and gentle optimism.*



<http://homepage.mac.com/pardass/IRWINKLEIN/INDEX.html>  
(all one line; capitalize as above.)



Alan, Fly and Mickey in Vallecitos

**T**HOUGH SOME photographs were shot on communes, most of them are of people living alone, in couples, families, or small groups in the little Spanish-American towns in the back country. It is sometimes hard to distinguish between a group of friends who share certain resources and spend a lot of time together and a commune, but I think that a commune has to have a sense of consciously shared responsibilities and probably, a certain formal structure. Most of my subjects live in what I would call settlements rather than communes.

Many of these people are children of the urban middle class who have abandoned the drug ghettos of large cities, though some come from rural backgrounds. There are dropouts from the universities and relatively "straight" walks of life and a few old beatniks. As I explored the evolving situations, certain patterns and themes unfolded. There seemed to be a rite of passage from innocence to experience, and a development away from the image of the hippie toward older American archetypes like the pioneer and the independent yeoman farmer.

Some might look upon this as just a photo collection of hippies. While it's true that the pictures reflect the style and decor of a particular moment which is already passing, what interested me more was that the adventure I depict is part of a timeless movement, the perennial attempt of human beings to renew the pattern of their lives. My subjects are trying, with varying degrees of seriousness, to develop a viable way of life outside our urban technological complex, drawing whatever resources they can muster from our common past and disintegrating culture.

My own role was as much that of a participant as an observer. I came to New Mexico with much the same motives as the people I photographed. In almost every case a certain bond of friendship or intimacy was established before I began working. *The New Settlers* is part family album, part document, and part myth. I consider it as much a collective expression as my own work.



Rufus in front of church at Vallecitos



Sandy in her kitchen in El Rito



Vallecitos kids



Wedding at New Buffalo



Peter Van Dresser's cabin in Potrero Canyon



Alan & Mickey at Petreo Canyon



New Buffalo

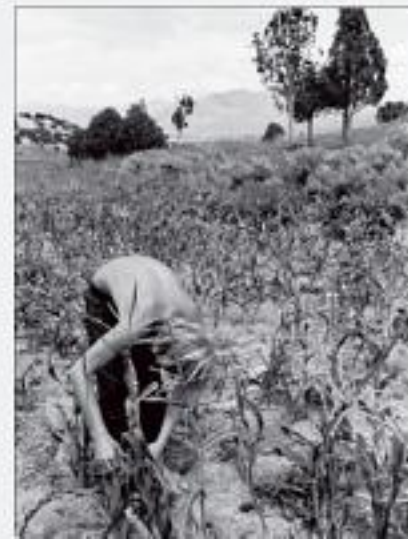


Five Star Commune



Moe and girlfriend at Las Tables

Donna Lyons and Alana at the Seattle Gang house in El Rito





*France*

**FUNKY**



*California*



*Nevada*

“Everything I do gon’ be funky from now on...”  
-Dr. John



*Northern California*



*A small house in the woods in the Pyrenees*

## ARCHILIBRE

### *Countercultural Builders in France*

A FEW YEARS AGO we ran across a great website full of owner-built homes in the French Pyrenees. It looks as if the French have picked up on the spirit of American countercultural builders of the '60s and '70s, and the results are intriguing, especially in their work on zomes. *Vive la France!* On these ten pages are photos taken by webmeister jean soum.

 [www.archilibre.org](http://www.archilibre.org)



*Arnold's hut in the forest with walls of earth and lime and windows from junked cars*



A small double zome used for meditation



Zome in mountains is roofed with 100-year-old slate shingles obtained from abandoned buildings in the area.

IN THE MID-'60s, Steve Baer, a mathematician and inventor living in Albuquerque, NM, designed a series of buildings he called "zomes." Early ones were built at Drop City, the hippie commune in Farasita, Colorado, and Placitas, New Mexico. Baer published *The Dome Cookbook* in 1967, outlining the mathematics and construction of zomes. It was a wonderful, spontaneous publication that sold for \$1 and inspired both Stewart Brand and his *Whole Earth Catalog*, as well as my own venture into the publishing world with *Domebook One* and *Domebook 2*.

Flash forward 35 years to Europe and you discover a bunch of zomes in the Pyrenees with a French twist. Zomes were introduced in France some 20 years ago by Jean Soum, who lives and works in a zome, and who sent us these photos.

Soum and the zome builders added their own interpretations, and formed "Groupe Zomes" to share and exchange information. Hundreds of zomes have been built in the French countryside. They are being used for homes, meditation temples, and meeting halls.

Zome inhabitants report they are seduced by the harmony of these structures and the serenity and energy produced by the shapes. They report using "... small models in glass or rock crystal to increase the energetic potential of the spaces and to harmonize the vibrations of man with cosmos."



Zome with diamond motif in meadow



Fish-eye view of ceiling

Jean Soum's solar-heated zome office shown in photo at left and two below



Interior shows use of different materials: adobe, wood, cordwood, cob; it's insulated with sheep wool, straw, and clay.



North face; main rhombitriacontahedron is clustered with offshoots of the same geometry, producing wave-like effect.



Jean-Michel putting on the last slate shingles



[http://zan.zoom.free.fr/zome\\_planet/z8\\_en.html](http://zan.zoom.free.fr/zome_planet/z8_en.html)

[www.zomeworks.com](http://www.zomeworks.com)

[www.zometool.com](http://www.zometool.com)



Looking up at interior structure of zome shown in background photo

Double zome on mountainside



Zome built on ruins of a barn



Robinson's workshop; he's a carpenter and the large zome gives him space for assembling zome components.



Miguel's cabin with used glass and windows



Bedroom ceiling of house in photo below



Roof framing of circular cabin



Roof thatched with ferns, visible inside

Hand-made solar-heated house on south-facing slope of mountain



*Roof covered with fern thatch*

*These three photos show stages of building an Arigean yurt for a music studio.  
Above: Locust and chestnut branches on posts, hazel branches woven horizontally*



*Small yurt in meadow*



*After plastering walls of above yurt with earth and installing windows, let the music begin!*



*Two different views of yurt with central fireplace*





# HOUSE ON THE ROCKS

Peter Marchand

Photos by Jay Dusard

I NEVER EXPECTED anyone to take my house seriously. It was just a quick fix at a transitional time in my life, a maverick dwelling that I put together with reworked materials and an overworked imagination. But soon after I started building I knew I had something different, something abiding. The project drew inquisitive, contemplative looks from visitors; people with far more house than mine were asking questions. In 700 square feet of shelter built on the rocks, I rediscovered simple, long-forgotten truths.

My house is located in a remote corner of Navajo County, Arizona. This is canyon country, a land of jagged contours and soft, muted colors, where layer upon layer of eroded rock creates a labyrinth of ravines and jumbled boulders. It is a wild and fanciful landscape, with weathered pines and junipers growing out of the shallow soil like forgotten bonsai in groping, conciliatory shapes, toughened by two centuries of wind and little rain.

Before I began building, I spent many days walking the land, getting to know the trees, the cliff rose, the yucca, all the subtleties of that dwarfed and windblown pinion-juniper woodland clinging to the bare bones of the high desert. But it was the rock that was so alluring—so smoothly weathered, so imperturbable, so quieting. I kept returning to a magnificent sandstone outcrop bordered on one side by sculpted rock that would have left Frank Lloyd Wright tear-eyed, wondering all the while how I could incorporate that splendid sandstone into my dwelling. Over the next few

months my vision of a house on the rocks slowly sharpened. Finally, on a chill November morning, I put my coffee down and started building upon a foundation that was set in place 250 million years earlier.

That the sandstone was not level was of little concern to me, for I had seen many an old farmhouse with as much pitch to the floor. Nor was I concerned about the cracks in the rock. I could use the larger fissures to anchor the walls and then employ the natural step along the north edge of the outcrop as a stove hearth. And behind the hearth the artfully sculpted and deeply undercut ledge could jut into the room to become the centerpiece of my house—or at least something to sit on. All I had to do was fashion my walls around what nature had already given me.

So I gathered stone from the land and started work.

One by one I selected rocks, brown on red, red on gray, and scrambled 250 million years of geologic history. I fit them and cemented them, and closed the gaps around the sandstone outcrop. Once I had leveled out the natural footing and anchored planks to the top of the stonework I finished the walls in conventional wood framing—six of them, in an asymmetrical hexagon that fit the slab naturally. I worked alone, with hand tools and native instinct, drawing upon experience I had accumulated from watching other builders and tinkering with my previous homes. It was creative carpentry, to be sure, but out of it emerged an inherent vitality, a soul, expressed in every rock, plank, and pillar.

Slowly the house came together, its walls and gently sloped roof materializing from the remnants of razed buildings, much as new trees sprout from old stumps. I gathered odd construction materials wherever I could, rejecting nothing that might keep weather out or let light in. I watched the classified ads, scoured flea markets, followed demolition crews around. And I found a use for all manner of discards: The framework of a vintage utility trailer braced the corners of my new house; glass from the display counter of an old Navajo trading post made a floor-to-ceiling window; weathered board siding torn off the Arizona Bible Mission graced the walls inside as well as outside. Plywood shipping crates, a used skylight, doors from an old bathhouse: The materials list reads like a collector's guide to junkyard treasures.

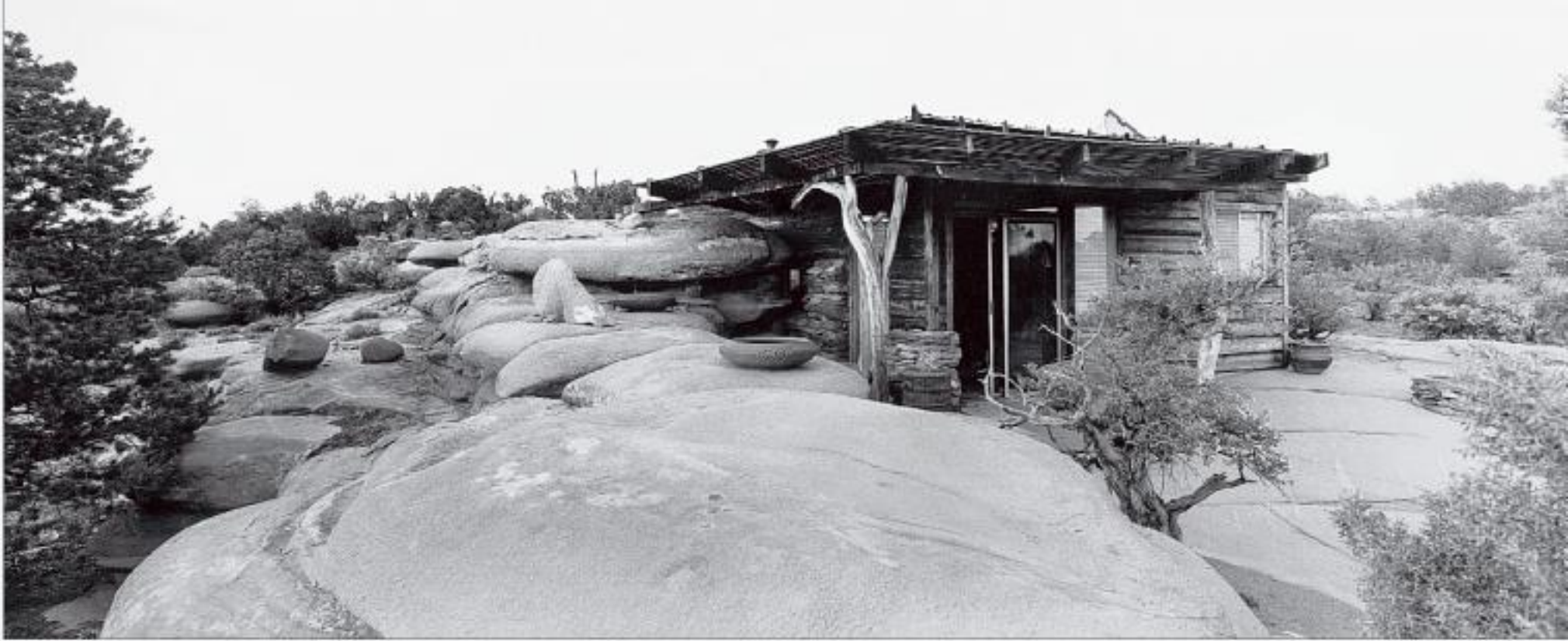
Like the ontogeny of a tree, though, the end result bore little resemblance to the seed. The rough boards fit into the native rock and the house began to grow into something coherent, something extraordinarily pleasing, something that struck a chord with everyone who visited. The natural feel of the interior was both inviting and coddling, the wraparound windows protective but not isolating. The woodwork seemed to radiate warmth from other lives in other places, yet the whole appeared as if it had always stood on that rock. People began to take it seriously.

With the raising of the house something else began to emerge. As I pulled up rocks and sifted through

old boards, I uncovered a new level of contentment with myself and my place in the world. Living here, I take pleasure in the water I have because I harvest and filter it myself. My roof has become my watershed, and in the scant rainfall of the high desert I find ample supply. I store solar electricity by day, eat dinner by candlelight, and have sufficient power in the evening for my computer, music, and lights. I cook and refrigerate with propane, and nothing in my house hums or whirs. I compost organic waste and grow flowers. I heat my shower with the sun, bathe in a warm sauna, and drain wash water to the outside plants. In winter I burn an armload of wood before the sun is up, and another after the sun goes down.

Year after year I have found comfort and inspiration on that rock, participating fully in the details of living, always aware of what is going on in the world around me. I know, simply from my daily routine, how much rain falls from passing storms, what phase the moon is in, how the constellations change with the seasons, when the cicadas emerge and the claret cups bloom, what day the nighthawks arrive in spring, and when the piñon nuts are ripe in the fall. It is a modern, Thoreauvian existence, and it is entirely satisfying.

*Peter Marchand is a field biologist and writer presently studying natural ecosystems at the Catamount Institute on the north slope of Pike's Peak, Colorado. He returns to his home in Arizona whenever he can.*



**O**NE SUMMER MORNING, I woke to find a canyon wren inside my house, perched on a ledge near the stove. Canyon wrens please me to no end with their energetic spirit and unrestrained exuberance for exploration. I have seen them squeeze through the narrowest of rock crevices and disappear into darkness, only to pop out again somewhere nearby with a bold, triumphant chirp. This one had entered my house through a roof overhang, where a board had warped to create a narrow opening. Once it was

between the rafters, the wren found enough space under the insulation to work its way to an unfinished corner of my ceiling. There it dropped into the room and made itself at home.

From plant to rock to windowsills and mantle, it flitted about, probing and exploring as if my house were part of its regular territory. The bird was familiar and comfortable inside, and there was little doubt that it had been here before. I had seen traces of it occasionally in the past — a tiny chestnut

feather on the bureau, a little splash of white on the rock — but until now it had remained more mythical than real. Satisfied after a few minutes of exploration, the wren darted back to its point of entry, scooted under the insulation, and, outside a moment later, dropped past my window with its exultant trademark call. That tacit declaration made it clear that as deeply and inextricably personal as this house is, it is not entirely mine, and never will be.





Left: A view of the living room from the west. The red tile on the floor covers the solar-heated, concrete slab. Above: The wide open spaces are the reason we live in the mountains. Our nearest full-time neighbor is more than six miles away.

Computer-designed overhangs prevent all these windows from overheating the building during the summer.

On the active side, we installed four, 4-by-8-foot solar hot water collectors on the roof. These collectors directly heat a six-inch-thick, concrete, thermal slab on the ground floor. The combination of passive and active solar heating, and super insulation have reduced the amount of wood we burn in our backup heater from five cords per winter to less than one-half cord per winter. We increased the size of our home/office by a factor of four and reduced our wood consumption by a factor of ten, which overall increased performance by forty times.

Besides finally having enough space to not be crowded, the new building is very comfortable — warm in the winter and cool in the summer. We are located at 3,320 feet elevation in the Siskiyou Mountains of southwestern Oregon. It gets cold here in the winter. Nighttime temperatures are often in the teens, and it's not uncommon to have several feet of snow on the ground. Inside the building, it's always cozy. The thermal slab stores enough heat for around four days of continuously cloudy weather. Proof of wintertime performance is that all our dogs and cats prefer to sleep on the solar thermal slab instead of any other place in the house.

During the summer months, when the outside temperature is often in the high 90s, the inside temperature never rises above 76 degrees. We open the many operable windows after sunset and allow the cool mountain air to chill down the house. In the mornings, we simply close the windows and allow the super insulation to keep the house cool during the day.



Richard Perez, Home Power,  
P.O. Box 520, Ashland, OR  
97520, 541-941-9716

richard.perez@homepower.com  
www.homepower.com



Another smaller cabin that houses one of our friends



View from the sunken living room up into the dining area



Kitchen with just about every appliance Karen needs to do her gourmet cooking



Dining area with a table that will seat ten people



Power room, which houses our batteries, inverters, and other renewable energy equipment



One of the three offices at our home. In all, these offices house five of the computers we use to make Home Power magazine.



Efficiency  
is the key to  
unlocking  
the power  
of the sun!



## JOANNE'S HOUSE

**J**OANNE KYGER is my neighbor, a poet, and an elegant lady. Her house, an old cottage she bought in 1970, reflects her travels to various parts of the world and has a wonderful feeling inside. Everywhere you look are things of beauty: a Tibetan tanka, a Balinese painted calendar, lots of paintings, dozens of baskets, healthy green plants, Japanese vases and laquered plates. There's a mirror from Guatemala, the smell of incense, and a bookshelf with hundreds of books. The old water-stained shingles on the roof show through in the living room, and there's a woodstove for heat.

To enter the property you walk through a tunnel in a massive 60-year-old cypress hedge sculpted by Joanne's partner Donald Guravich. In the garden there are places to sit and watch families of quail scurry through, and to look at the different plants and bushes and trees that are all carefully tended. There are also multiple varieties of apples growing, which Donald has grafted onto old trees, and they ripen from August until October.

In a recent magazine article, Joanne was called a "poet's poet," and Penguin has just published her most recent book, a collection titled *As Ever*.



**FRIDAY NIGHT**

In pale blue dusk sky Moon  
 is nice light gold. Oh where  
 are you going  
 my favorite friends in a flock Gold crown  
 song is going north  
 for the summer has different  
 seeds up there up there friend moon  
 is getting larger.

April 26, 1991





*Renée and daughter Felicidad*

RENÉE DOE built this house in a Northern California valley in the early '70s. She and five other families had bought 50 acres on which to build homes and grow vegetables. For building materials they bought two old buildings from the county for \$25 each, as well as a flatbed truck; they tore down the buildings and ended up with a bunch of good quality redwood sheathing, as well as oak flooring. Architect Steve Matson designed the house to Renée's specifications: "I wanted a seven-gables-looking house with steep roof angles, and I told Steve I wanted the pieces of lumber to be small enough for women to lift."



## THE HOUSE THAT RENÉE BUILT



Renée lived in a tent with two of her three kids while she and friend Maggie Cooley worked on the house. "We figured, if you can sew, you can build a house." They started building in July and Renée and kids moved into the house by November, using a wood cookstove for heat and cooking. Windows were salvaged from a dumpster in nearby San Francisco. "We carried water up to the house in buckets, and we dug an outhouse." The kids bathed in the creek. "It was awful; by fall it was freezing cold." I remember seeing the house under construction and thinking how complex it looked, but when it was finished, it all worked out. The kids survived and made it out into the world and Renée and her partner Brent Anderson now live in what turned out to be a cozy home with good vibes.





Alameda Naval Base



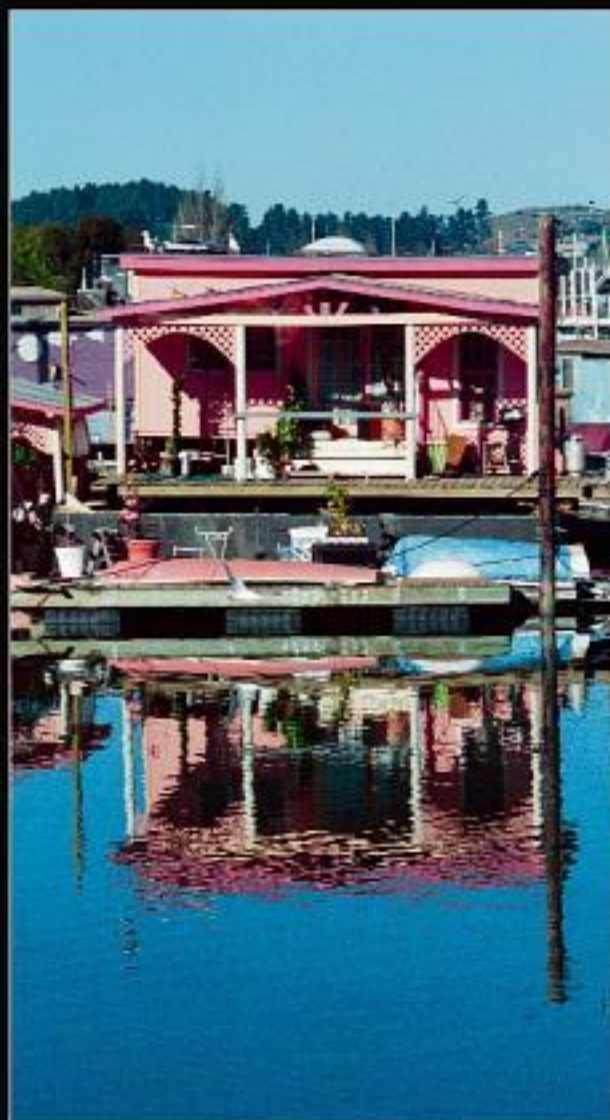
El Cerrito



Berkeley



El Cerrito



Sausalito



Berkeley



San Francisco



San Francisco

# SAN FRANCISCO BAY AREA COLOR



San Francisco



Oakland



Berkeley



Berkeley



San Francisco



San Francisco



Berkeley



Berkeley



San Francisco



San Quentin



San Francisco



San Francisco



San Quentin



Berkeley



San Francisco



Richmond



San Francisco



San Francisco



Oakland



San Francisco



"It ain't what you eat,  
it's the way how you chew it."  
-Little Richard





*Janet Baer in her Sonoma County kitchen*

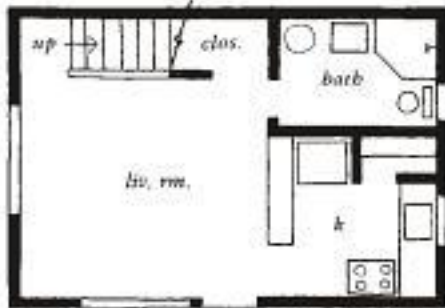
## CALIFORNIA KITCHENS

*Sam and Nidia Birenbaum's kitchen in their beachfront house in Malibu*

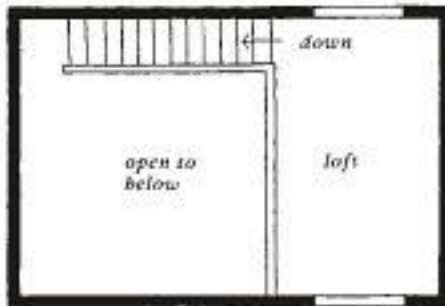


# SALTBOX

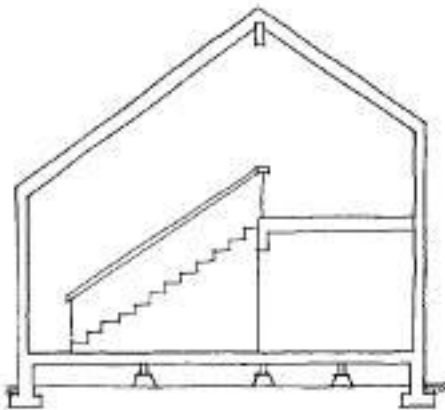
THE SALTBOX SHAPE is generally associated with the New England states and severe winters. Saltbox structures are often oriented with the high side to the south, the low side to the north. This allows winter sun to hit the high side, and snow (a good insulator) to accumulate on the lower, shallower roof to the north. Snow or bales of hay are often banked against the north side in winter for insulation.



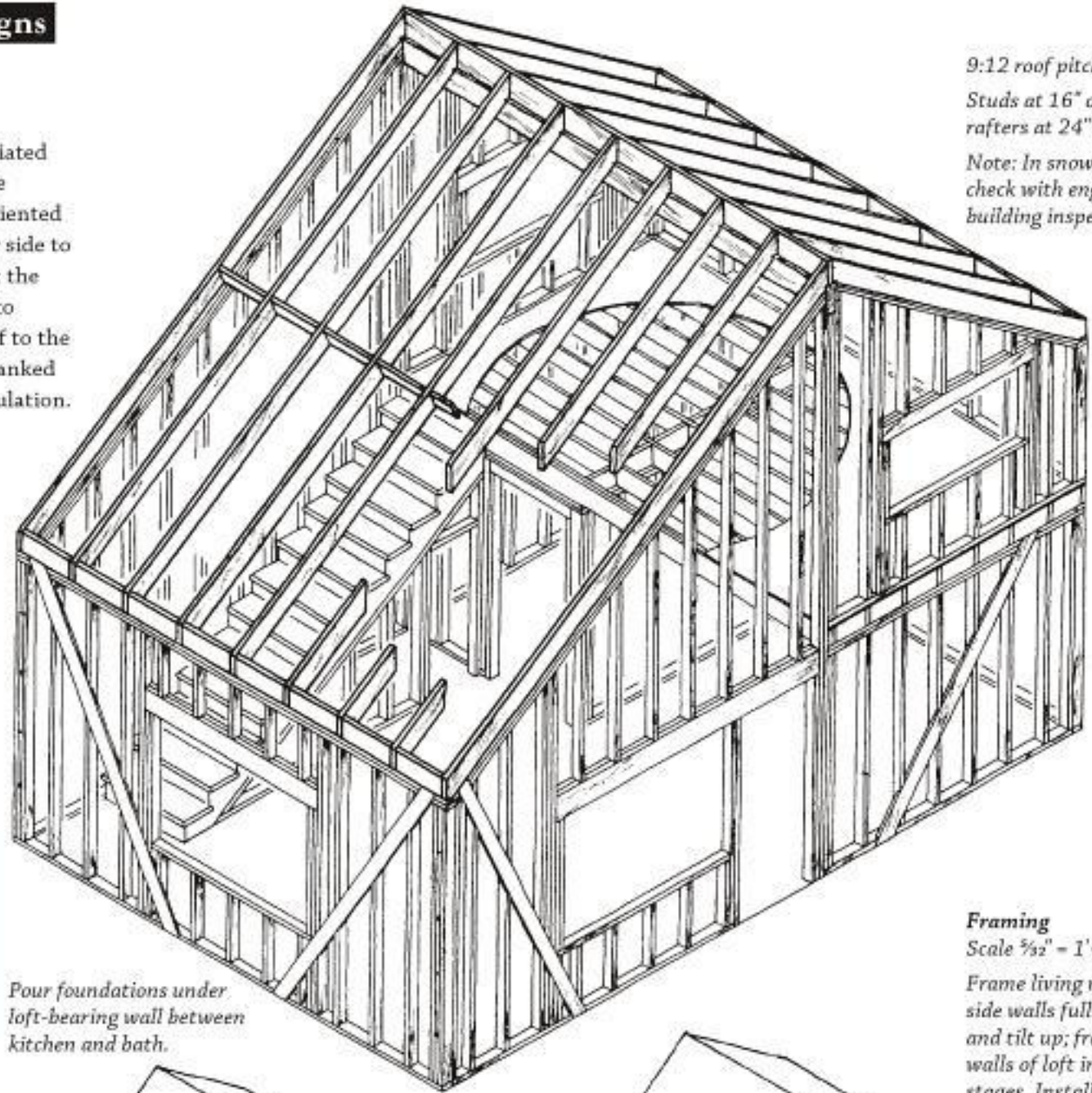
Main floor plan  
Scale 5/64" = 1'-0"



Loft floor plan



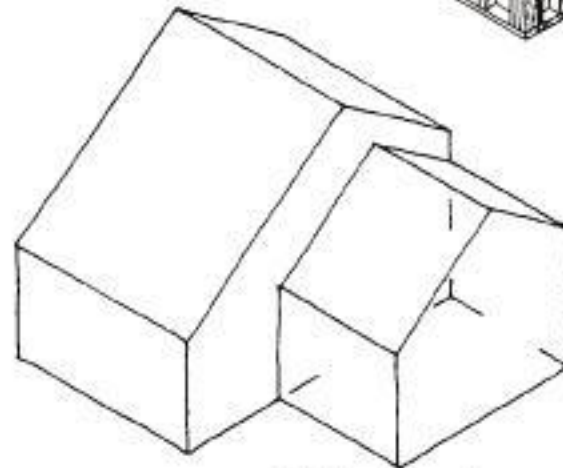
Cross-section



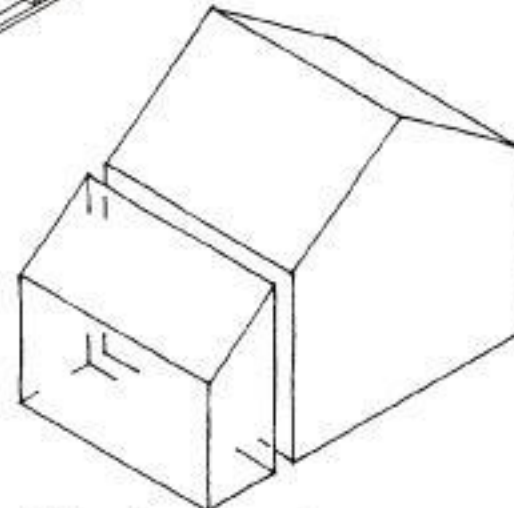
9:12 roof pitch  
Studs at 16" on center;  
rafters at 24" on center  
Note: In snow country,  
check with engineer or  
building inspector.

Pour foundations under  
loft-bearing wall between  
kitchen and bath.

**Framing**  
Scale 5/32" = 1'-0"  
Frame living room  
side walls full height  
and tilt up; frame  
walls of loft in two  
stages. Install  
flooring on loft before  
framing upper walls.  
Alternate framing  
method: Run rafters  
same direction as loft  
floor joists; double  
rafters at ridge.  
Sheath with plywood  
for maximum  
strength.



Addition of smaller  
saltbox shape to original



Saltbox shape was sometimes  
derived by adding shed to gable.



# GAMBREL

**GAMBREL ROOFS** are most often found in the eastern part of the United States and Canada. The word derives from the hock (bent part) of a horse's leg, also called a gambrel. The lower part of the roof is a steep slope, the upper part shallower. The break in roof line allows head room in the loft space, and is useful in barns for hay storage (see page 212 for gambrel barn plans), as well as in homes for rooms above plate level.

*Minimum 4:12 pitch for asphalt shingles*

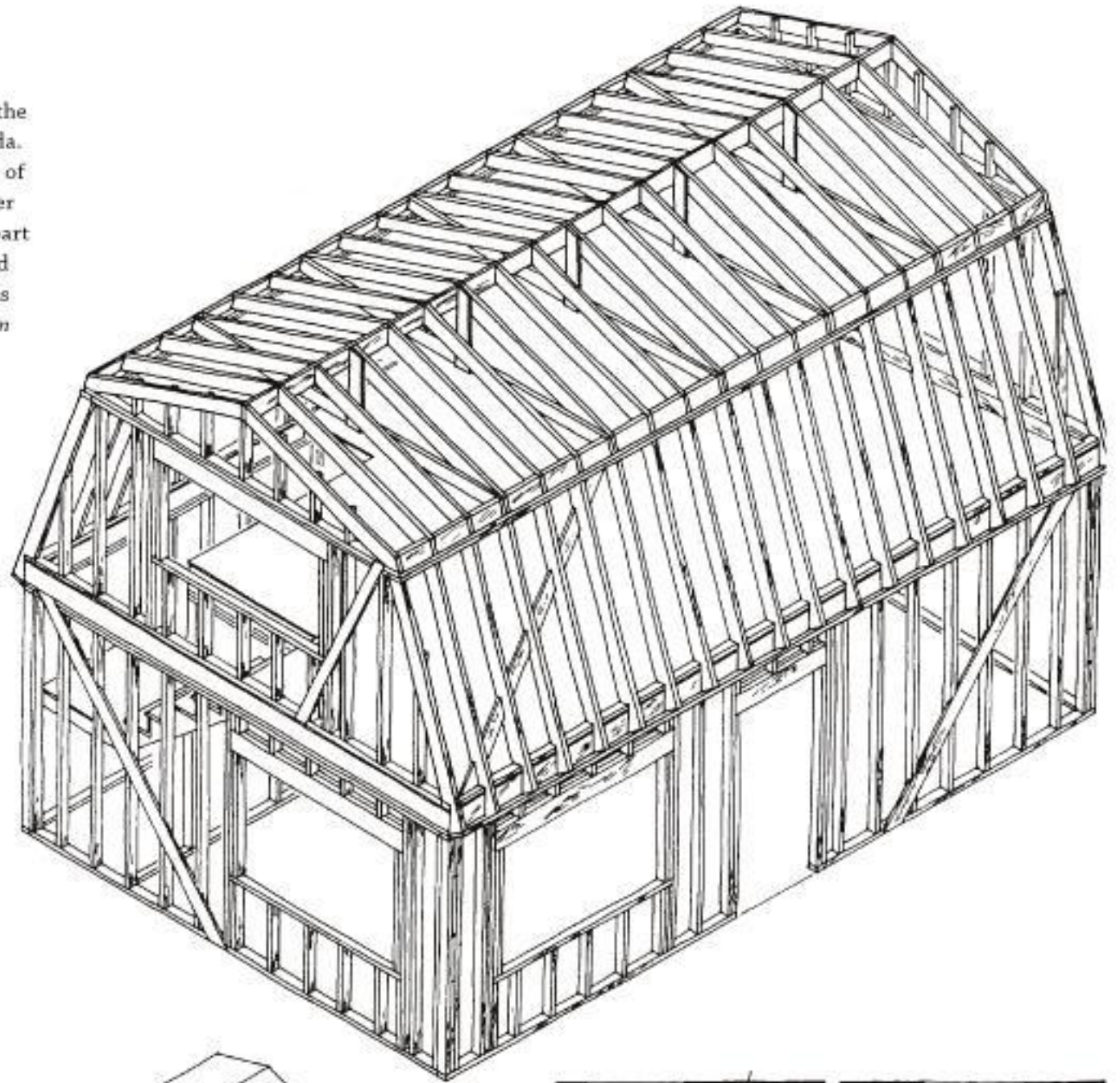
*Cross ties at 4'0" on center*

*Frame main floor walls, install loft floor joists and flooring, then frame loft walls and roof.*

*Studs and rafters at 16" on center*

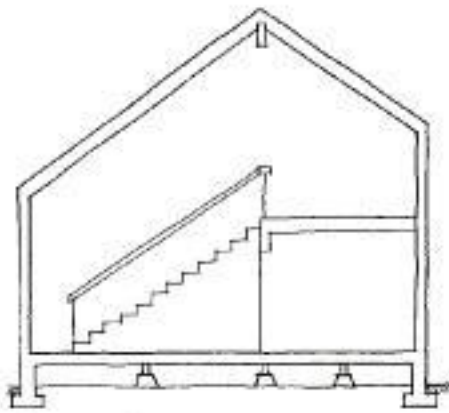
**Framing**

*Scale  $\frac{3}{32}$ " = 1'-0"*

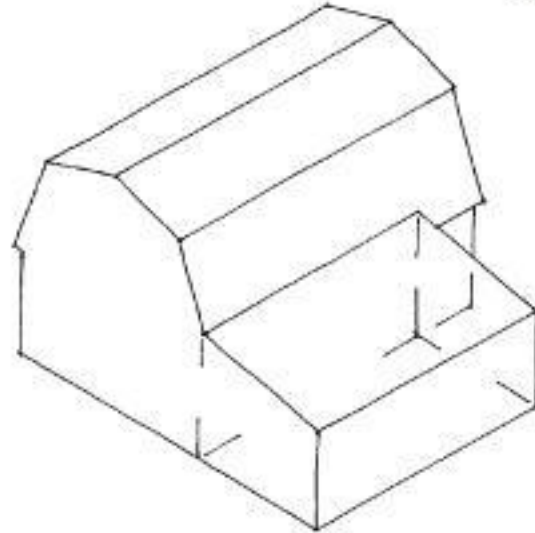


*The best way to realize the pleasure of feeling rich is to live in a smaller house than your means would enable you to have.*

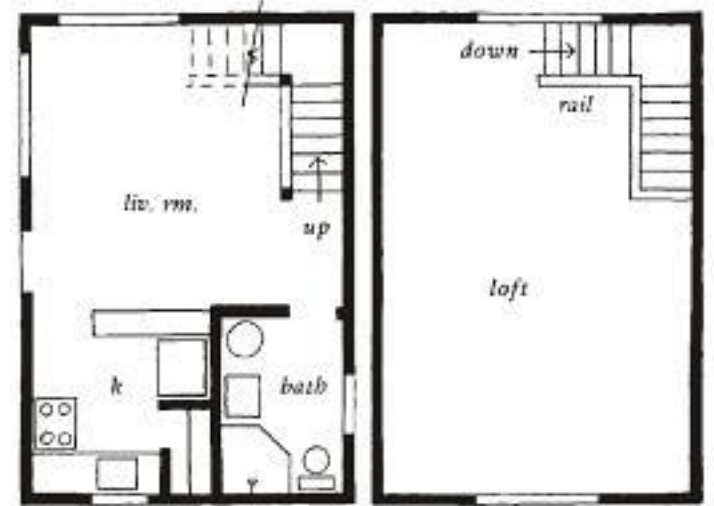
*-Edward Clarke*



*Cross-section*



*Addition of shed off side*

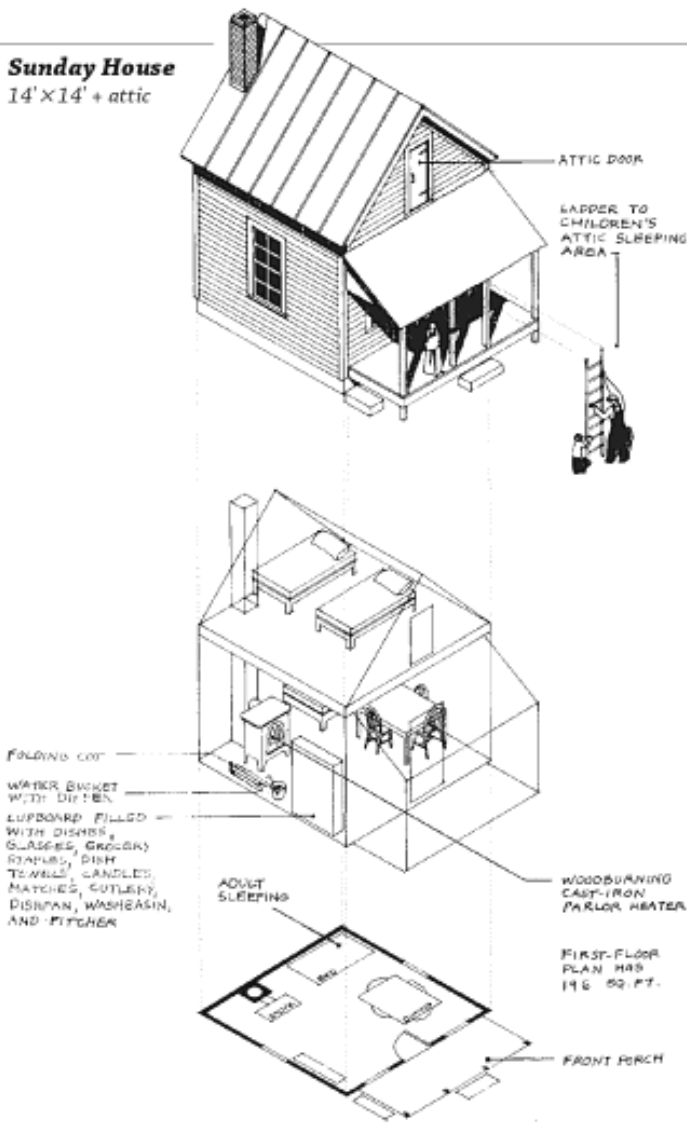


*Main floor plan  
Scale  $\frac{3}{64}$ " = 1'-0"*

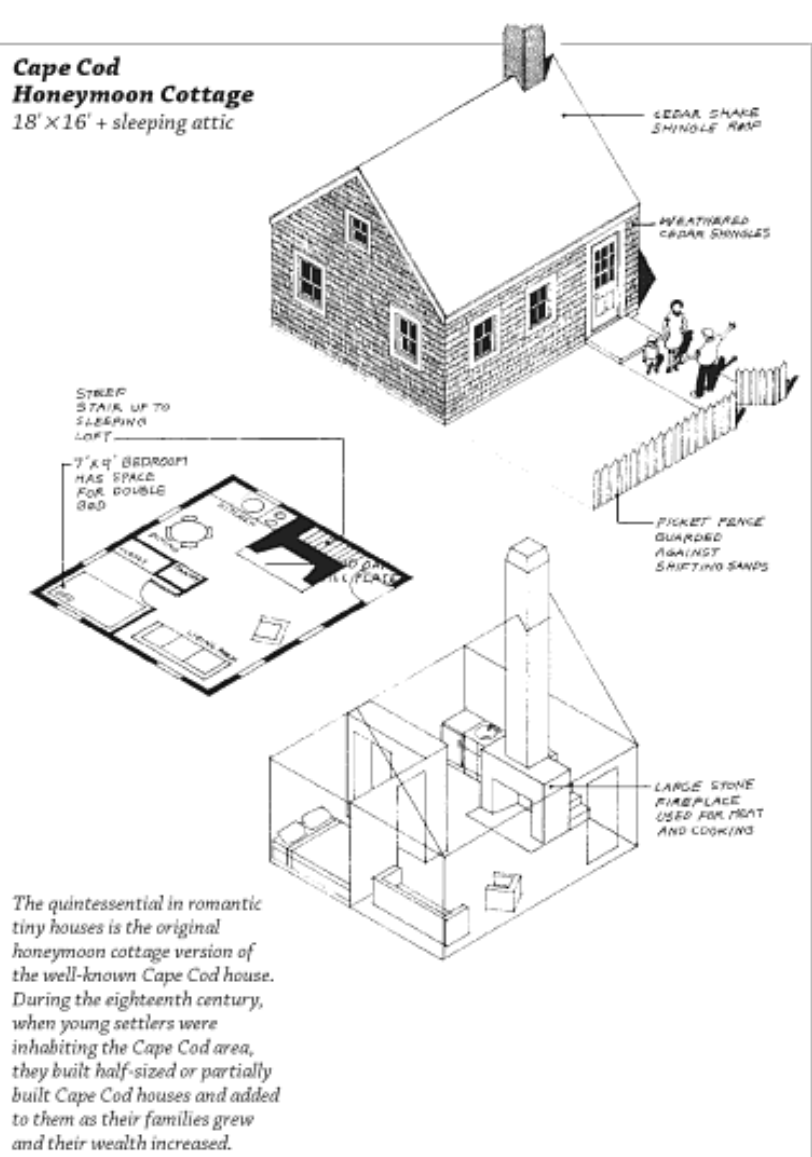
*Loft plan*



**Sunday House**  
14' x 14' + attic

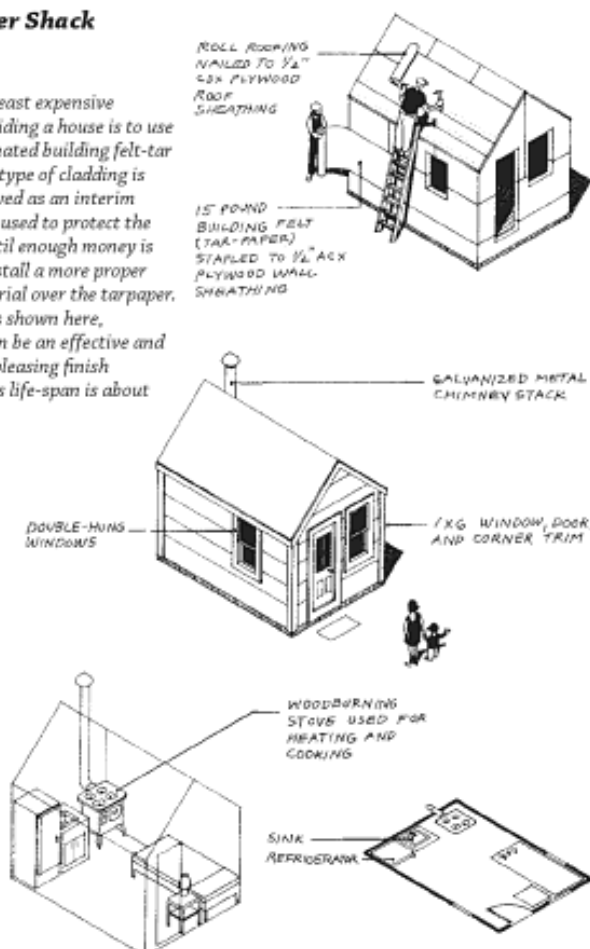


**Cape Cod Honeymoon Cottage**  
18' x 16' + sleeping attic

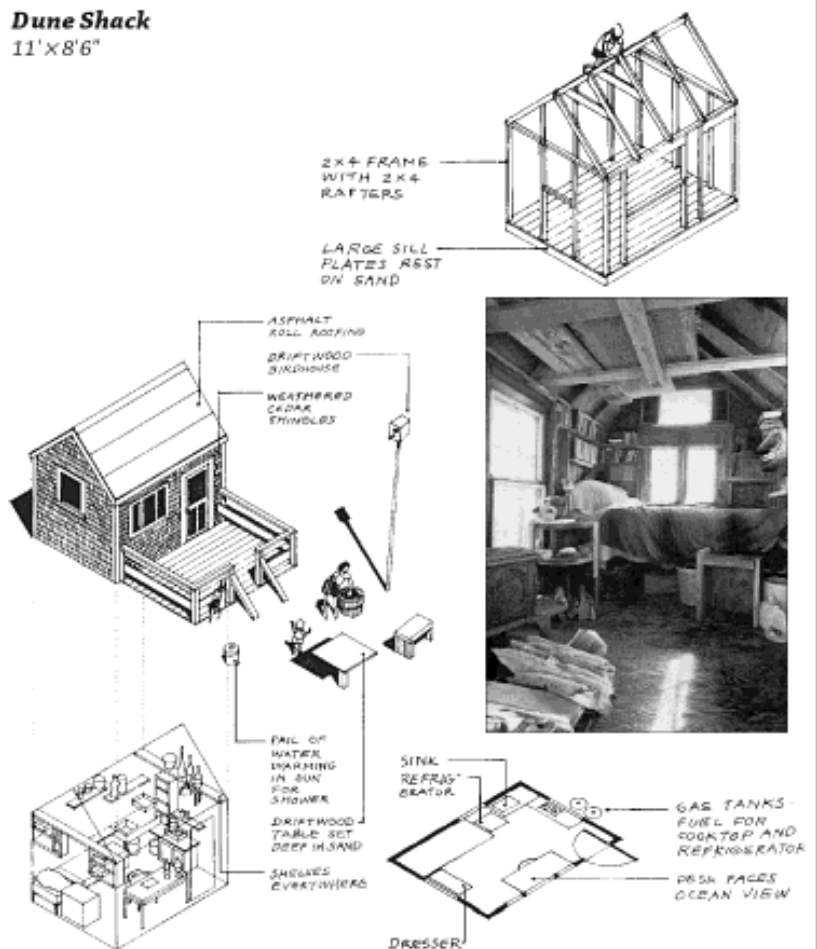


**Tar Paper Shack**  
12' x 8'

By far, the least expensive method of siding a house is to use tar-impregnated building felt-tar paper. This type of cladding is usually viewed as an interim technology, used to protect the building until enough money is raised to install a more proper siding material over the tarpaper. However, as shown here, tarpaper can be an effective and somewhat pleasing finish material. Its life-span is about six years.



**Dune Shack**  
11' x 8'6"





## BOBOLINK *Better Shacks and Bivouacs*



ONE WARM SUMMER AFTERNOON I went out with Bill Castle (see pp. 16–21) to meet his friend Bobolink. Bobolink had bought his piece of land (in northwest New York state) the year before for \$1000. “I gave the lady \$300 and paid off the other \$700 the rest of the year.”

He showed us around the unfinished house, which was cozy and comfortable and then we sat around drinking beer.

“I figured I’d just build a little shack, a place in the country to come back to after travelin’ around . . .”

“What about the building codes?”

“When I started there was no uniform code here, so they never gave me any grief.”

“Did you draw any plans?”

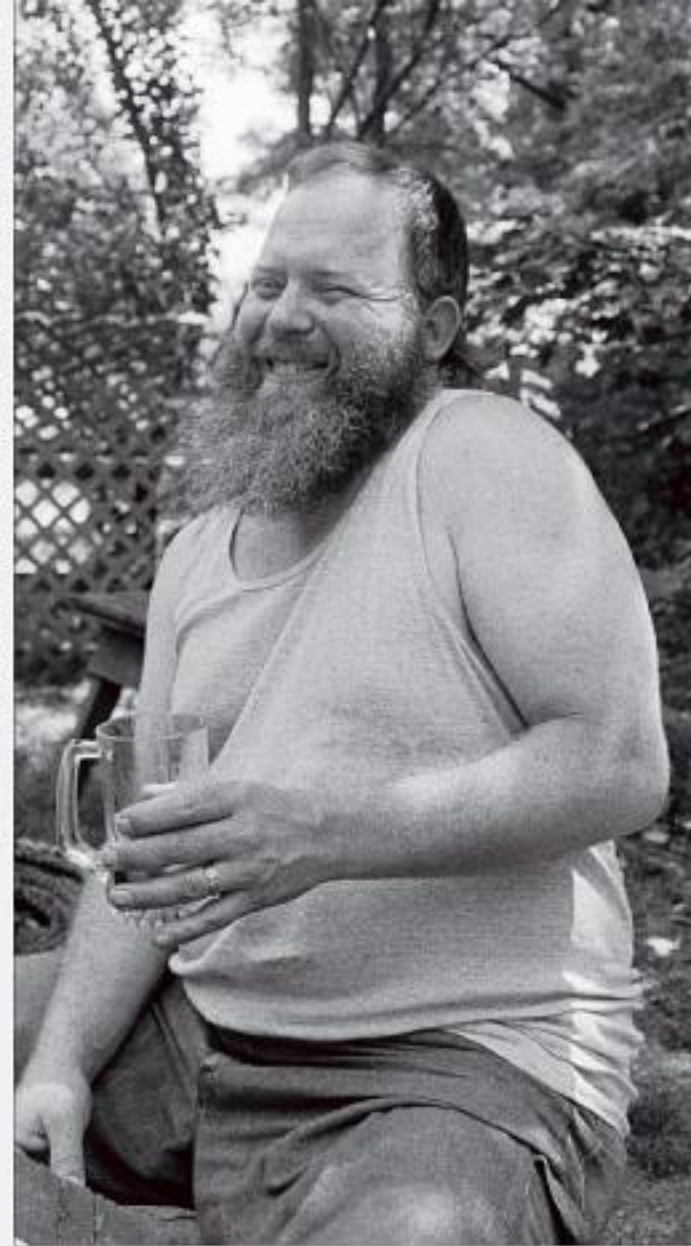
“I just did these sketches, not to scale, of different parts of the room, then taped them together and showed them to my girlfriend.”

“She doesn’t hassle you to get it finished?”

“No. In fact we just tied the knot last Thursday. We’re a perfect team.”

“Well, it looks like you got the hard part done.”

“No, man, the hard part is doin’ anything more. I sit down, kick back and . . . well, it seems too hot today . . . how about a beer?” (laughter)



# NATURAL MATERIALS



**I**N THE EARLY '70s, after building geodesic domes and experimenting with plastic building materials, I came to the conclusion that the less molecular rearranging a particular building material has, the better it feels to be around. The key word is *feels*. Wood, adobe, straw, earth, stone, bamboo – these materials feel good.

There's been a revolution in the use of "natural building materials" in the last 30 years. Builders are choosing materials for sustainability, for less drainage on the earth's resources, for local availability. A number of people have told us that *Shelter*, published in 1973, with its photo of a straw bale barn in Nebraska, and pages on wood, stone, adobe, thatch, and bamboo, had a lot to do with sparking interest in these materials.

By now a lot of construction techniques have been worked out and there is a large network of builders out there, using (and communicating about) natural materials. On the following 23 pages are some examples of people building this way. *Buen trabajo, amigos!*



Ongoing and never-ending remodel of early 1900s adobe ranch/farm house



## BILL & ATHENA STEEN AND THEIR HOUSES OF MUD & STRAW

ON A HOT DAY in late July, 2002, I drove south from Tucson, heading up into the high desert to visit Bill and Athena Steen. Bill and Athena, authors of the *The Straw Bale House* book, a best-seller and precursor of the straw bale building movement, had done an impressive mud/straw/bamboo series of buildings with villagers in Ciudad Obregón, Morelos, Mexico, and I wanted to do a story on it for *Home Work*.

Another reason for the visit was the chance to meet photographer extraordinaire Yoshio Komatsu, author of the stunning book *Living on*

*Earth*, who with his wife Eiko was visiting the Steens at that time.

The Steens live on a 40-acre homestead 70 miles southeast of Tucson (15 miles by crow-flight from Mexico) and at the end of a dirt road. They bought the land in 1985 and Bill converted a run-down shack into what is now a gracious and comfortable hacienda, with adobe walls and floors of Mexican tile. These days Bill and Athena use their homestead to host a series of workshops on straw bale building, natural wall finishes (main ingredient mud), earthen floors, clay ovens, and harvesting and cooking agave and prickly pear.

What I expected was to work with the Steens on their Mexico project, What I didn't expect was such an elegant house, set alongside a creek, in a place with Feng Shui up the kazoo, with good vibes, sights, colors, smells — the essence of wonderful shelter — plus there was a series of experimental earth buildings, each one a delight, and with a variety of textures, colors, and construction innovations.



Kitchen fireplace, handcrafted from molded clay, straw and pumice

Kitchen sitting area, corner seat of adobe, walls painted with homemade casein paints



Athena, Yoshio, and Bill



Woodshed ready for winter. Built on 4"-thick edge-supported structural slab with integral steps



Solar greenhouse brightens and heats house.

several weeks of careful work before it was time to round up our friends, buy some beer and have a raisin' day. That was the first of many parties in our house, the first time it really felt like it was going to be a house, and a hopeful sign of good times to come.

But when it was over there was still a great deal to do before we could move in and it had to be done pretty quickly for we couldn't keep paying rent and making land payments for long before the money ran out. So over the summer we had to close off the upstairs, make a front door, make some windows, get some electricity to the house, do something about water . . . the list seemed endless.

For a water system we had some plastic apple juice barrels, one of which we put on some logs protruding from the second story. The other we kept in the pickup and filled in town or at a local park. Then we could back the truck under the first barrel and fill it from the truck with an electric drill pump, and gravity feed it into the makeshift kitchen. That was fine until the weather got good and cold, five below for days on end; then it froze into a solid block that didn't thaw till spring.

We also had to make a stove to heat the house, and for that we relied on a stove-making book by Ole Wik, who appeared in *Shelter*. It turned out to be an upright 55-gallon drum with a 30-gallon drum inside of it, a downdraft stove with a real personality. We'd load it up with green wood, and it would cook it till it was dry and then burn hot and the stove would gasp for air with an increasingly frantic rhythm until it would blow the top clear across the room, usually in the middle of the night.

Nonetheless it was a good old stove and it kept the house livable until it burned through and we had to make another . . . of a slightly different design.

We decided that we had to move in at the end of September no matter what, so with a stove and a funky water system we threw some plastic over the roof and made a permanent camp. Our plan all along had been to make a big box and then figure out how to live in it. So when we moved in we had no walls to obstruct our thinking. We had no stairs either, not to the basement or the sleeping area on the upper floor. There was plastic in many of the window holes, no real way to bathe, no insulation, and none of a host of other things, but we didn't care. It was our house and we were going to make it work.

We've been here for thirteen years now, and a little bit at a time it's turning into a pretty civilized place. We found a small spring on the hill below the house and corralled it by digging it out and placing a perforated bucket in it surrounded by gravel. We led a pipe out of the bucket into a settling tank and then to a 1000-gallon tank further down the hill. We put a submersible pump in the big tank and that gave us a pressurized water system. So even though the spring is only a couple of gallons a minute, with the

storage tank, we have all the water we can use.

Having a water system encouraged us to think about making a septic tank which we laid up with four-inch concrete blocks plastered with mortar and coated with tar. So now after ten years or so with the composting toilet, which really worked OK, we have a flush toilet and a shower.

Since we found the downstairs a little gloomy with the solid log walls, and were perched on a good solar site, we cut out most of the south wall and built an attached solar greenhouse with a concrete floor. Suddenly it was transformed into a bright and cheerful place that was much easier to heat. And of course there's plenty of room for plants, and that livens up the whole house.

**WE** LITTLE REALIZED when we began here that we were setting into motion a process that would become our whole lives. Our education, skills and thinking have evolved along with the place in a way that causes one thing to lead to another and then another and then another. We've discovered that we can do about anything that we can think of, and anything we don't know is somewhere in the library.

It is somewhat of a paradox that the intent of this consumer society is to make people more and more dependent on the services it provides, which one must submit to wage slavery to pay for, while at the same time the information that makes self-reliance possible is available for free in the library.

From the beginning one of the most basic facts of our lives has been that there isn't much money, so we have constantly had to think of how we could improve our lives without spending any. Naturally we soon became passionate scroungers, to the point even of

going to the ocean and dragging planks out of the surf when we couldn't afford to buy any at the lumber store. Even now when things are pretty squared away and we're no longer really broke, we're still bubbling with subversive glee at being able to build what we want with little regard for the "normal practices" of the main consumer building industry.



Cookie and Rand

Of course there's more to making a place than just building. By now we've beaten back enough of the jungle to have a garden and fruit trees and a fenced area for pigs and chickens, and are about to start on some fish ponds for carp and trout, using the overflow from our springs. We're turning into regular peasants, which is what we always really wanted. It's not a vocation that commands much prestige, and you don't hear a lot about it from the career counselors, but once you learn to think for yourself and do for yourself, it's a lot of fun.

The *Shelter* book meant so much to us that we're glad to share our experiences. The world would be so much better if people would learn to do things for themselves instead of being intimidated by the "professionals," government regulations and the prevailing mindset of our so-called culture into thinking that the only way to have a house is to be a wage slave until you can afford to buy one — a vain hope at today's prices.



Spring-fed, hand-dug, solar-heated swimming pool; greenhouse fiberglass over EMT conduit trusses provides heat.



## SCISSORS TRUSS FRAME

ALL ALONG the main question has always been, how can we improve our lives without spending any money? When the time came to make outbuildings, this question eventually directed my attention to the plentiful supply of small fir poles, commonly called "pecker poles" available in the local forests. I figured that by joining these poles with mortise and tenon joints, I could make a building for practically nothing. So I started with a woodshed and succeeded well enough that I began to see other possibilities.

The accompanying photos show the result of my most recent effort, a 20 x 60 building we call the motor stables. Though tricky to make, these scissors trusses that are the crux of this building use less material than king post trusses and they are quite rigid laterally, so they are easy to raise without damage. This building cost about 100 dollars to get as far as the space sheathing: forty dollars for the concrete in the piers and sixty for most of the poles, from a local firewood yard. The rest of the poles were collected on a permit from Simpson Timber. Once you get to the roof, of course, you have to spend some money. For small buildings like woodsheds I've managed to scrounge enough cedar to do it for free, but usually this isn't possible.

—Rand Loftness



# PHOTOGRAPHERS

KODAK 5095

12



11A

12



# DONKEY TRAIN ACROSS AMERICA



## *The Odyssey of John Stiles* Photos by Janet Holden Ramos



IN THE LATE '80s I heard about a guy travelling across California in covered wagons pulled by donkeys. This I had to see, so I drove up to Santa Rosa and found him by the side of a country road. John Stiles, then 42, and a native of the Ozarks (one of 16 children), had been on the road for about 10 years, and had covered over 10,000 miles.

Stiles had 14 donkeys, 3 mules, 34 chickens, 3 goats, and 9 doves ("for music"). He built his steel-wheeled covered wagons on restored turn-of-the-century frames. He had spent time living with the Amish people in Illinois, learning the arts of self-sufficiency, and there was a definite Amish cast to him, including the beard and the self-discipline.

When he finished his morning chores, we sat in one of the wagons (it was cozy and had shelves lined with books), and talked.

*LLOYD: Do you always walk?*

*JOHN: Never rode a mile in the wagon. I walk behind the mules when I've got the wagons rolling, both to save the animals from the load and to get that special perception you get when you move on foot.*

*You see I get up about the same time everybody else does to go to work. Five o'clock and if it's still dark, I light a candle, read from the good book and prepare myself for the day's journey. Then when it starts getting daylight I bring the animals in and the first five hours I work here in the camp. Then I get out and walk on that pavement with this entourage down the road four or five hours, two miles an hour, eight or ten miles a day and then I take another four or five hours, break it down, take it apart, and put it to rest.*

*People don't believe I live this way. It was a matter of conscience, I wanted to be self-sufficient.*



*Goat leans out to nuzzle John as he tends to one of the donkeys.*



Further explorations in the area led to the discovery of a rich valley to the north, where melting snow from the west side of Steens Mountain meandered 40 miles south to Malheur Lake, producing lush grass — the Blitzen Valley.

French's operation expanded rapidly, as he acquired more land, more cattle — and more horses. With backing from California cattleman Hugh Glen, the French-Glen Livestock Company was formed. Native hay was cut and stacked, fences were built, drainage and irrigation of the valley began, more vaqueros and cowboys were imported, and hundreds of wild horses were captured and broken for freight teams, haying, and — buckerooing.

At its height, French's ranching empire encompassed 200,000 acres and 45,000 head of cattle, one of the mightiest cattle empires west of the Rockies. In the late '70s or early '80s, French built three round barns for breaking horses in winter months. The one shown here is the last, and it's a magnificent building. One hundred feet in diameter, the conical roof is framed with a 35-foot center pole of juniper (about 40" at bottom, tapering to maybe 28" at top), 14 surrounding juniper posts, and then a third wall of posts at the perimeter, about 8' high.

French married Emma, the beautiful daughter of his partner Hugh Glenn. French built her a large, well-furnished "white house," with spectacular views, and the Donner and Blitzen River flowing past the front door. Yet Emma, who was said to be "flirtatious and worldly," left French for the bright lights of big-city San Francisco.

French was a little man with a big moustache, highly efficient in running his ranch and tough in dealing with homesteaders. The day after Christmas, 1897, French got into an fight with homesteader Ed Oliver. Oliver shot him in the head, and Peter French was dead at age 48.



Peter French was not only a skilled rancher. In reclaiming the valley's wetlands for pasture and haying, he also enhanced the habitat for migratory birds, which still arrive in profusion in the spring and fall.

*"[A cowboy's] . . . work started early each morning and lasted past the early dark. Riders had few chores to do at the home ranch; such things were for the cooks, a roustabout, or the newest man on the job. A wrangler arose at dawn and brought the horse herd into a corral. After breakfast the riders went out to pick their mounts for the day. Each one had a string of horses varying from eight to fifteen, depending on how many colts he was breaking. Experienced and regular riders always had to break out a bunch of young horses.*

*The individual rider decided what horse he wanted to ride and roped him, the choice depending on the work to be done that day and the qualities of the horse. If he were to be branding, he would need a horse used to roping; if he were going to ride with other men, he could ride and train a half-broken horse; if he were going to patrol a section of the country alone, he could use an older horse, past its peak for herd work — and safer. He*

*led his chosen mount to the rack where saddles were kept, or to where he had left his saddle along a fence. If he were doing hard riding, he would need another horse by noon.*

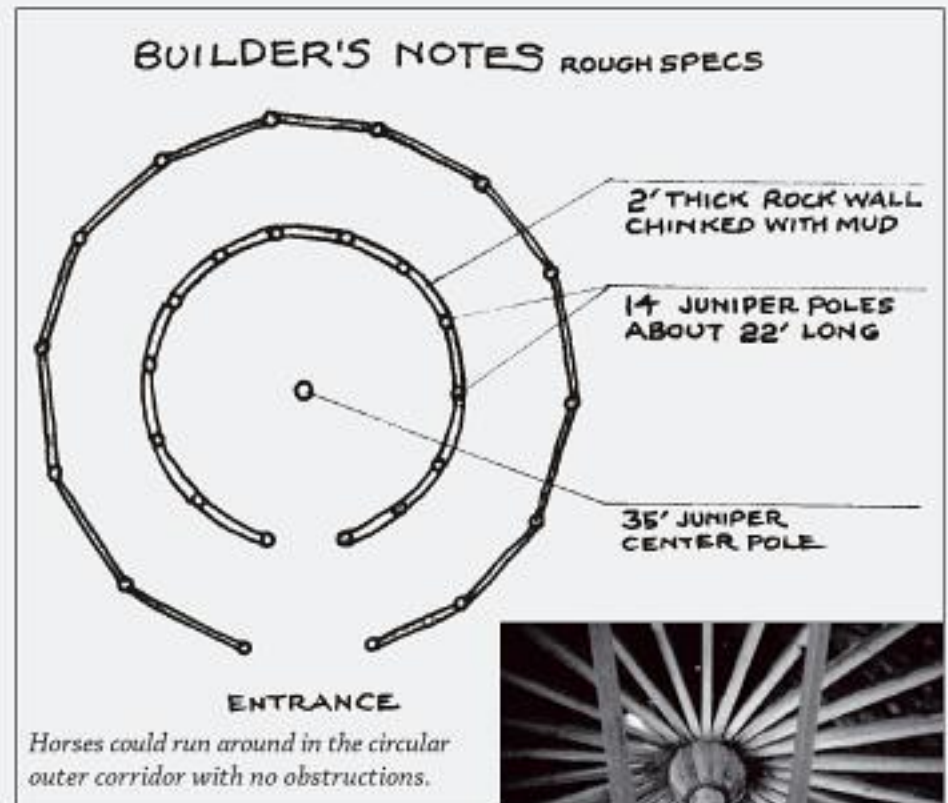
*After Peter French had been in Oregon a few years, he had as good a string of cow horses as existed anywhere. As with cattle, he bred the cow horses up until they were fitted to the job. Old-timers who rode them described the P Ranch saddle band as good-sized for cow horses, with fine life and both strength and durability. Purebred stallions gave the size and speed, and the native cayuse provided the endurance and orneriness. Many of them needed to be broken all over again every morning, when a little bucking was expected by range riders; in fact, a little bucking was the mark of a horse's readiness for the day's work. Normally a cayuse never pitched long, just a few jumps to see, perhaps, if the rider himself were ready for the day's work."*

Cattle Country of Peter French by Giles French, 1964



Fisheye shows roof framing.

Note two different sections of framing.



It all comes together here.



Photo: Joe Van Wormer





## Bedrooms



We all dwell in a house of one room—the world with firmament for its roof—and are sailing the celestial spaces without leaving a track.  
—John Muir

