

GROUNDSWELL

A R C H I T E C T S

Groundswell Architects supports both our enduring use of the earth as an integral design element of all building projects and the ground swell of public interest in higher environmental and ecological thinking.

Our buildings are designed from the heart to touch and inspire the human spirit. We strive to make our projects structurally and thermally efficient. We use materials and methods consistent with good ecological practices and seek socially responsible attitudes in choices of contractors and subcontractors.

In our twenty years of business, we have designed and planned over 2,500,000 square feet of new and renovated building space at an estimated construction value of \$125 million.

Design innovations are our hallmark. Our office work has been featured on the Discovery Health Channel, the New England Cable News Network, in "Creating The Not So Big House Book", the New York Times, House Beautiful, Natural Home, Solar Age, Country Journal, and Yankee magazines.

We have been energy consultants for the American Institute of Architects Research Corporation in Washington, D.C., and for the Environmental Conservation Board #5, State of Vermont.

Currently, we are designing and marketing an innovative affordable housing scheme known as Green Ribbon Living. It raises the environmental and ecological bar for the mass housing market and we are optimistic that it will set a fresh trend in how shelter is conceived and constructed.

Groundswell Architects
477 Ten Stones Circle
Charlotte, Vermont 05445
802-425-7717 Office
www.groundswellarchitects.com
ted@groundswellarchitects.com



ARCHITECTURE DESIGNED FROM THE HEART
TO TOUCH AND INSPIRE THE HUMAN SPIRIT

Introduction

We believe that the earth is a fundamental design element. How a building meets the ground is key to the comfort and visual success of the design. Our research and understanding of Living Roofs contributes to our projects in energy savings and aesthetic direction.

We also believe in a current groundswell of public awareness of emerging environmental and ecological thinking. Education is part of our design process, both for ourselves and our clients. We understand that materials, techniques and building systems change constantly and that marked improvements in chemistry and resources are to be noted for inclusion in our work.

We ask tough questions of our clients and work hard to solve budget challenges, especially when looking for alternatives to “business-as-usual” solutions.

Programming

We believe that it is the unique desires, experiences, sites and budgets of our clients that allow us to design the most distinctive and fitting places for them to live and work.

We use a questionnaire to help record and translate the owner’s lifestyle, dreams, and eccentricities into useful information for design purposes. With this information, an accurate program of spaces and their respective characteristics is described. We welcome visual materials, photos, and paraphernalia as necessary to explain ideas.



We also conduct group workshops to explore the Goals, Activities and Places that are key to the successful programming of a residential or commercial facility.

When working with a large group of individuals to build an intentional community, workshops are focused on:

- overall economic, spiritual and architectural goals
- site layout and design
- spaces, equipment and relationships found in a Community Building.

The Family Creative Workshop

This is a specialized workshop for those families wishing to include all members in the design process.

• Programming/ Talking and writing

An activity involving the architect and family members. We brainstorm about Goals (what do we want from this house - nice place to come home to, warm and inviting to visitors, etc.), Activities (what do we need to accommodate - eating, sleeping, music playing, etc.) and Places (rooms and spaces for these activities). Other topics covered: materials and colors, appearance, and noteworthy places we have experienced that might influence the design.

• Modeling/ Drawing and constructing

Using information based on the programming event, this family gathering is used to draw and/or build model rooms, spaces and ideas. This activity is a very broad one useful for getting a feel for the style, shape and delights of the house and site. Cardboard, crayons, pencils and tracing paper are our tools.

• Virtual space tours

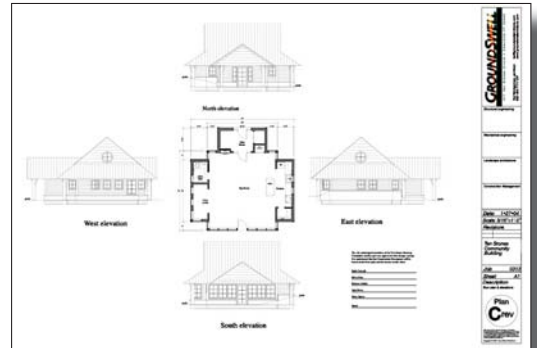
On a 7 foot wide screen projection of the virtual building, we maneuver through rooms and spaces in real time to review and evaluate what works and doesn’t work in the design. Some changes to furnishings, texture, color and shape can be made on the spot.

Design Development

We believe that a significant conceptual direction emerges from programming and creative conversations. With this concept in hand, we begin the design, also using programming, site information, and budget constrains. Our tools are cardboard, tracing paper and virtual modeling. We explore structure, building materials, energy sources, heating, cooling and ventilation during this phase. A first look at a Probable Cost of Construction is determined, to be refined as the project moves along.

Construction Documents (Plans & Specifications)

When the design meets with approval, we complete the construction documents (plans and specifications). We are careful to maintain the conceptual direction during the time these documents are created from the design drawings.



As architects with extensive hands-on building experience, we understand the translation from a CAD document to reality. Our construction documents are known to be accurate, complete and based on practical experience of how things go together in the field.

We enjoy working with contractors and local craftspeople and believe in a team approach to building. The construction can be the most enjoyable part of the work when expectations of the owner, architect and builder are all met.

Services Offered

- Architectural design
- Construction documents & specifications
- Construction project administration
- Pre-design feasibility studies
- Site analysis & land planning
- Facilities programming & review
- Interior design & space planning
- Passive solar engineering
- Energy conservation analysis
- Educational presentations
- Promotional materials preparation
- Desktop publications & graphics

Energy

We believe in using the sun and wind to power our buildings. The future is here and we are still dependent on oil.

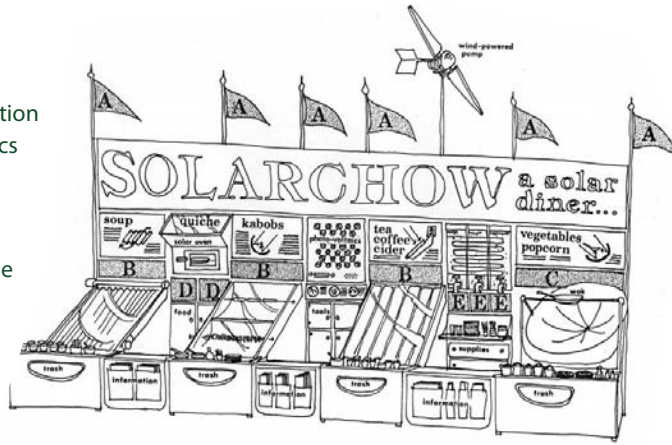
We feel that children (and adults) can benefit from being included in the designing of a home. Understanding how the sun and wind powers their home might be fodder for a science project that monitors and records how well these systems are performing.

Our projects are thermally optimized by careful detailing of the building envelope, incorporating energy conservation techniques and by passive solar engineering.

We encourage commercial clients to enroll in the LEED program for certification of a project as a high level environmental commitment. We encourage residential customers to enroll in the Vermont Built Green Program for certification and to have an energy audit performed by Efficiency Vermont, to assess overall building performance and rating.

Environment & Materials

Our buildings can sit lightly with the earth, surrounded by nature and natural materials and perhaps carbon neutral - meaning that the structure does not add to the global CO₂ problem, exhausts air cleaner than it intakes and produces no long term toxins.



While it is both easy and timely to be "green", our office takes a critical look beneath product claims and company profiles that we do business with. We generally discourage the use of products containing PVC, petroleum and other known chemicals which are either dangerous to life, difficult or impossible to safely dispose of, or do not recycle easily.

We review new "green" products carefully before recommending them for use. Materials and methods consistent with good ecological practices are used while seeking socially responsible contractors, subcontractors and craftspeople to perform work. We understand that affordable, durable alternatives to certain materials are still being developed and benign solutions may not always be affordable or available. We encourage the use of regional, easily

Costs of Construction

To assure a goal of budget responsibility, we generate an Estimate of Probable Cost of Construction once an initial design is complete. This estimate is refined two or three times before construction begins. Keeping costs in line is a constant challenge during the design process and we believe in responsible vigilance.

Contractors

The two most popular approaches to construction of most buildings are by using either a General Contractor or a Construction Manager. We are comfortable with either a bidding or direct selection process.

The General Contractor takes most of the risk, generally billing the owner for all work on the project. The GC then pays the sub contractors and suppliers.

The Construction Manager works directly for the owner. The owner takes most of the risk, paying sub contractors and suppliers directly.

A direct selection process at the beginning of the project greatly simplifies and benefits the cost control. Whereas a bidding process may result in lower pricing, it will require more extensive information to produce equitable results. We are happy to discuss at length the differences in these approaches.

Fees

Each job and client differs in time and scope of work desired. We review the tasks and break down our contract time in a spreadsheet for review by the client.

© 2007 GroundSwell Architects

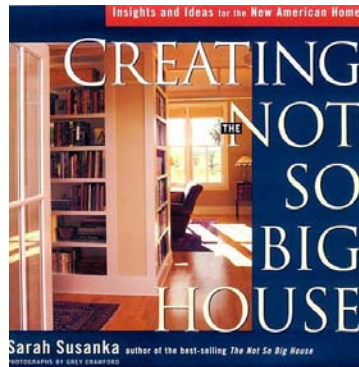
Today's buildings should be flagships of responsible reduction of water, power and fuel consumption.

We enthusiastically specify the following types of systems:

- **Active solar hot water heating** using evacuated tube panels to heat domestic and commercial hot water.
- **Passive solar heating** using building design & window layout to provide supplemental space heating.
- **Photo Voltaic electrical generation** using panels and regulation equipment to provide electricity.



- **Wind electrical generation** using a turbine and regulation equipment to provide electricity. Sizing the equipment to the available wind source is key to economic viability.
- **Ground Water Source Heat Pumps** harvest available energy in water for space heating. Current design & engineering in the NE region has proved cost effective for some applications.
- **Air-to-air Heat Pumps** harvest available energy in ambient air for space heating. Current popular models from Nyle claim to be efficient down to 0° F.



Project Data

Cost: \$200,000 w/lot, 3000sf @ \$43/sf

Project Overview

A private residence in an intentional community, handbuilt by an architect. All lighting, siding, furnishings are custom built.

Site issues

- Care & concern for mature trees
- Least disturbance of root systems
- Screening from community green
- Handicap accessibility
- Low cutoff exterior lighting

Materials & sustainability

- Wood products from replenishable trees
- Cellulose insulation
- Metal roofing
- Recycled windows in garden room & studio
- Stained concrete floors

Foundation system

- Shallow dig: Protection of nearby tree root systems
- Frost protected floating slab in studio
- Full insulation of all concrete walls & slab

Architectural features

- Hand painted "marbled" plywood siding
- View deck with seasonal canvas canopy
- Radiant heated floors on 1st & 2nd levels
- Site cut ash logs used for interior trim
- Wheelchair roll-in shower
- Custom lighting fixtures & furniture

Roof features

- 30 year metal standing seam
- Seasonal canvas entry shelter
- Slide down escape from 2nd floor bdrm
- Summer trellis shading
- SodStairs™ planted garage roof
- Curved plastic glazing in garden room

Garden Room features

- Live 85' white ash tree growing through roof
- Passive solar heat gains with night insulation
- Phase-change thermal storage
- Earth coupled planting beds
- Thermostat controlled ventilation
- 3 season livability

Energy Features

- East, West and North earth berming
- Electronic ballasted high color fluorescent lighting
- Solar domestic hot water preheating
- Air-to-air heat exchange ventilation system
- Programmed setback thermostats on all heating zones

Certifications

VT Energy Investment Corp/ Efficiency VT
 Rated 91.8 / 5 Star Plus ENERGY STAR Home
4th highest rating of over 2000 rated homes
 VT Residential Energy Code

Design and Construction: Groundswell Architects (Ted Montgomery). Client: Sarah, Skye, Rose and Ted Montgomery





Project Data

Location: Charlotte VT
Materials: Copper cladding, Hardie cement singles, Vermont slate, metal roofing

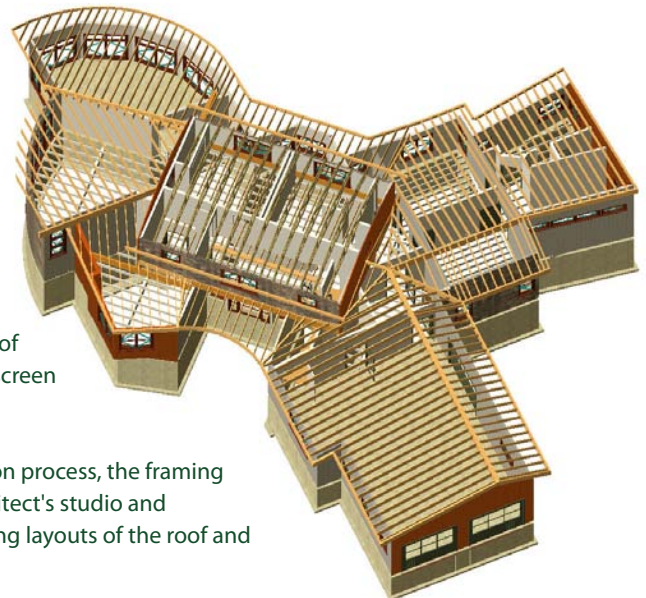
Program Overview

A new home for a family of four, perched on an elevated site overlooking Lake Champlain.
Total heating space: 2700 net sf plus basement and garage.

Design Features

Extensive virtual modeling was used throughout the schematic design process. Regular meetings with the clients were held as an interactive process of reviewing various on-screen options.

During the construction process, the framing crew came to the architect's studio and reviewed virtual framing layouts of the roof and flooring systems.





Program Overview

A super-insulated, passive solar addition to an existing one bedroom home overlooking a four acre private pond in Central Vermont.

Project Data

Cost: \$162,500 w/o land
 Gross Area: 1200 sf
 General Contractor: Alpha Design & Construction
 Spiral stairs: Peter Domenicala
 Solar Hot Water: Vermont Energy
 Library built-in: Union Woodworks
 Landscape: Barbara Weedon

Solar features

The southwest corner of the new construction has been extensively glazed with a low "E" insulated glass to encourage a passive gain. The concrete foundation is coupled to the heated space indirectly. Liquid cooled hot water panels have been added to the south roof to provide the majority of domestic hot water.



Design features

The addition uses the existing exterior "graphics" and shapes to as a genesis for the spirit of the architecture. The old box is expanded and articulated to produce the spatial dynamics found in the new, expansive living area, off which everything revolves. The centerpieces of the new 26' high space are: 1) an all wood spiral staircase, custom built by laminating pieces of butternut together; 2) a built-in library unit, featuring inlaid brass and ebony.

Featured in the July 1981 issue of Country Journal.





Project Data

Location: Central Vermont
Construction: completed 2002
Materials: Cedar clapboards & shingles,
26ga metal roofing, Marvin Windows

Program Overview

A unique passive solar home that uses a floor storage system of concrete blocks to create an air loop for distribution throughout the home.

Design Features

The custom stair railing shown below was computer generated for review by the owners. Construction documents were then created for fabrication.





Program Overview

A super-insulated, passive solar, three bedroom home overlooking Central Vermont.

Project Data

Cost: \$110,000 w/o land
Gross Area: 1600 sf + 225 sf garage
Builder: Alpha Design & Const.

Design features

The home uses a massing concept of two recognizable styles - a rather traditional Greek revival w/clapboarding, and a banded graphic wrap-around package including a pop-out round bedroom deck.

Solar features

A solar "mouth" on the southeast/southwest corner "drinks" in the sun, providing enough annual gain to require less than two cords of hardwood for auxiliary heating.





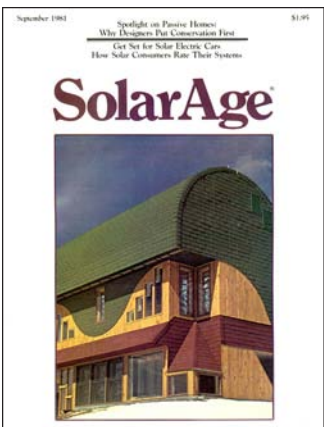
Program Overview

A structure in central Vermont using solar storage, super insulation, passive solar collection, curving forms and whimsy to create a home for family of five. The house has been remodeled twice over a twenty year period, each time advancing the environmental and energy conserving features.



Project Data

Cost: \$800,000 total Completed: Fall 1998
 Builders: Circus Studios, Hoover Austin



Design Features

Set into a hill on the north, the structure uses a curved roof form to facilitate an improved ventilation system by creating a low pressure zone on the north side of the roof. A studio to the east and bedroom to the west on the second floor use the rounded forms, which become dining and music spaces on the first floor.





Program Overview

A home for a family of four with three bedrooms, guest room, den, library, play loft, living/solarium, dining and kitchen spaces.

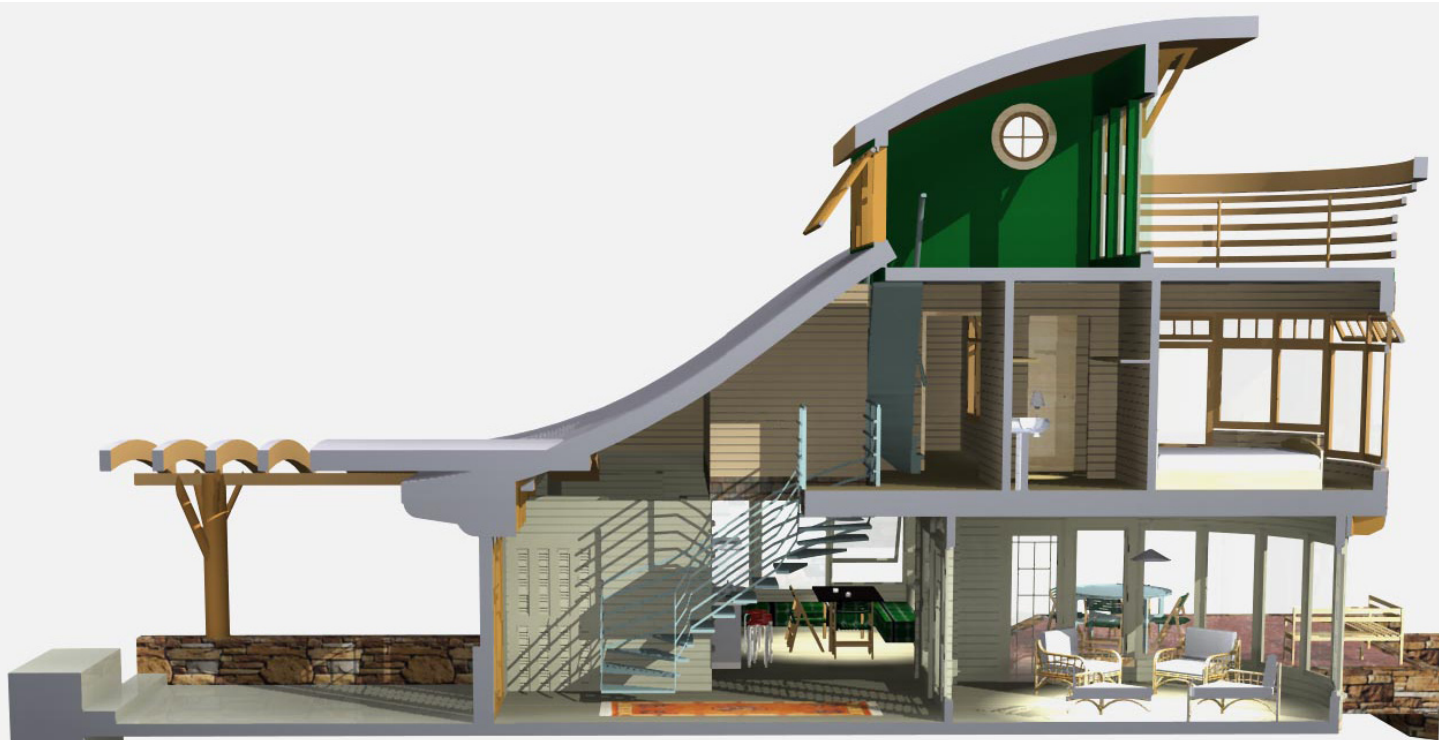
Design Features

Inspired by the view to Camel's Hump (where the couple hiked to become engaged!), the master bedroom, kitchen and dining room celebrate this familiar profile, as does the stone retaining wall. An HRV unit coupled with radiant floor heating provides high levels of human comfort.

Solar features

An active solar system provides up to 50% of annual space heating loads. Photovoltaic panels are to be added in the future, providing 60% of annual electrical requirements.





Program Overview

A rebuilt camp on Lake Champlain for a family of four. It features three bedrooms, an Away room, kitchen/dining, three season porch, widow's balcony and an entertainment patio. The floor plan is open and inviting. The owners landscaping plan includes extensive flowering shrubs.

Design Features

The overall gesture is that of a bird in flight, floating on lake borne breezes. The structure is naturally cooled, using thermal chimneys and cross ventilation. It is earth coupled for thermal heating and cooling. Materials are cedar, natural stone, copper roofing and concrete floors.





Project Data

Location: Burlington VT
Materials: Hardie cement siding, Cultured Stone®, metal roofing

Program Overview

A new home for a family of two, on a waterfront site overlooking Lake Champlain.
Total heated space: 3400 net sf plus garage.

Solar Systems

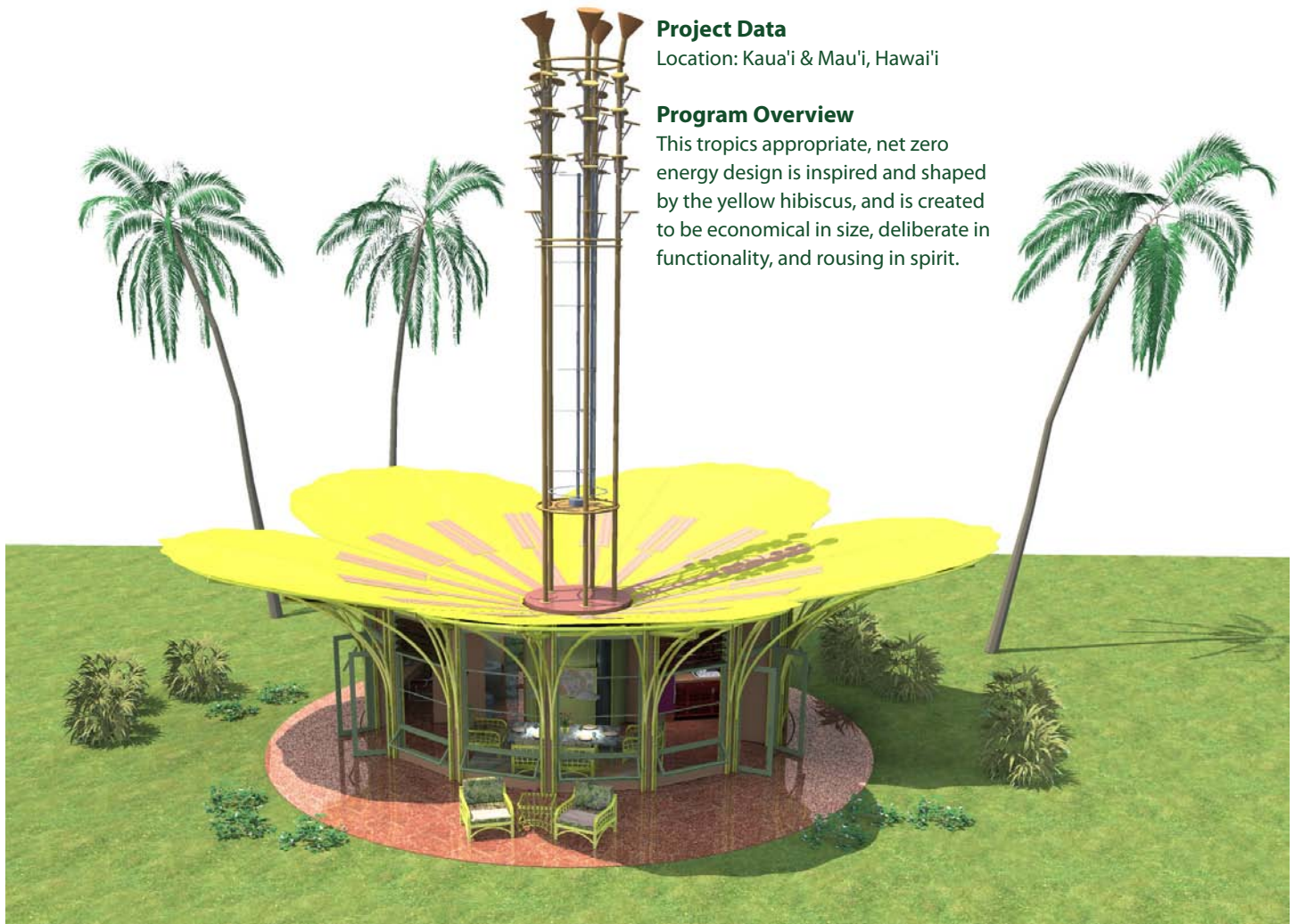
An active solar space heating system and extensive passive solar gains account for 75% of annual heating requirements. Careful and thorough cross ventilation was integrated into the design.

Design Features

A nautical theme provides all major rooms with lake views. Regular workshops with the clients used virtual imagery plus an interactive process to review and modify design options in real time.

Full contextual modeling was presented to the planning commission of Burlington as part of the permitting process.





Project Data

Location: Kaua'i & Mau'i, Hawai'i

Program Overview

This tropics appropriate, net zero energy design is inspired and shaped by the yellow hibiscus, and is created to be economical in size, deliberate in functionality, and rousing in spirit.

Design Features

Using native materials this building brings a new strategy for climate responsive, conscientious, responsible housing for the state of Hawai'i.

The main goal of this project has been to craft a beautiful, inspiring building that lives lightly on the land and requires no of site power, fuel, or water sources.

A new icon of island independence.

Net Zero Energy Building

As a stand alone, off grid solution to living, the Hale Hibiscus requires no external energy sources. The stamen is represented as the energy tower.

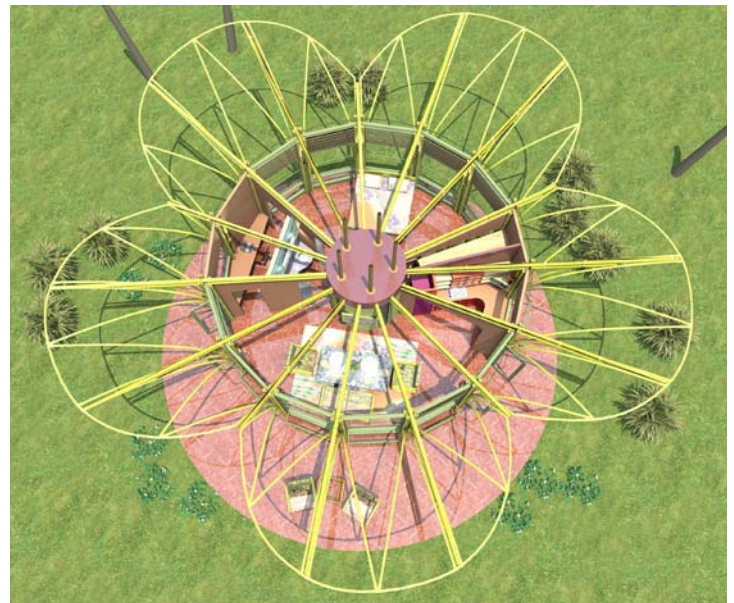
The "stigmas" are communication dishes & vent ports for batteries & toilet

The "anthers" are flat plates for heating domestic hot water:

For generating electrical power, equipment includes a vertical wind turbine and thin film photovoltaic cells (part of fabric petal).

Water Resource

The five fabric petals are sloped to harvest rain water into a common manifold system feeding eight translucent tubes in the middle of the building. These tubes define a shower room and hold over 720 gallons of water, enough for a month of careful and conservative use.



i thank you god for most this amazing day: for the leaping greenly
spirits of trees, and a true blue dream of sky; and for everything which
is natural, which is yes
- e e cummings

Program Overview

A studio for the architect's wife's graphic design business.

The building is portable, sitting on a gravel foundation with frost protection.

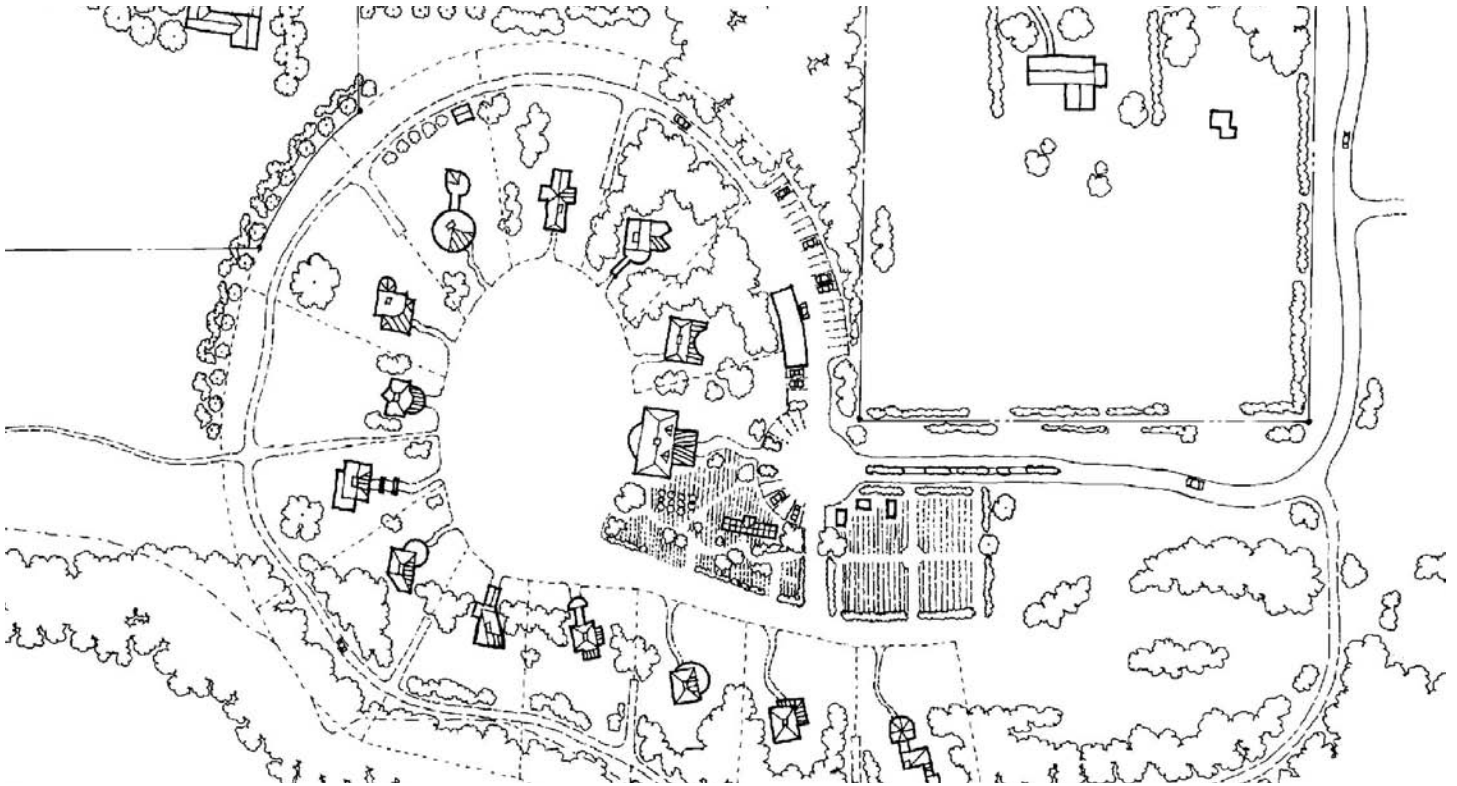
Design Features

Construction is wood framed, with a frost protected floor sitting on a gravel base. The roof is in the shape of a Tulip tree leaf, and covered in copper clad shingles. The flooring is bamboo and desktops are cork. Exterior walls are MDO plywood with bamboo planting rods. The e e cummings poem (above) is mounted on 144 letters under the roof soffit.

Project costs: \$15,000 construction



Design and Construction: Groundswell Architects (Ted Montgomery). Client: Sarah Montgomery Design



Program Overview

An intentional community in Charlotte, Vermont, begun in 1990. Planned to accommodate 16 families in a clustered formation around a common green. Process of design strictly by group consensus. All members own, manage, and determine direction of community.

Project Data

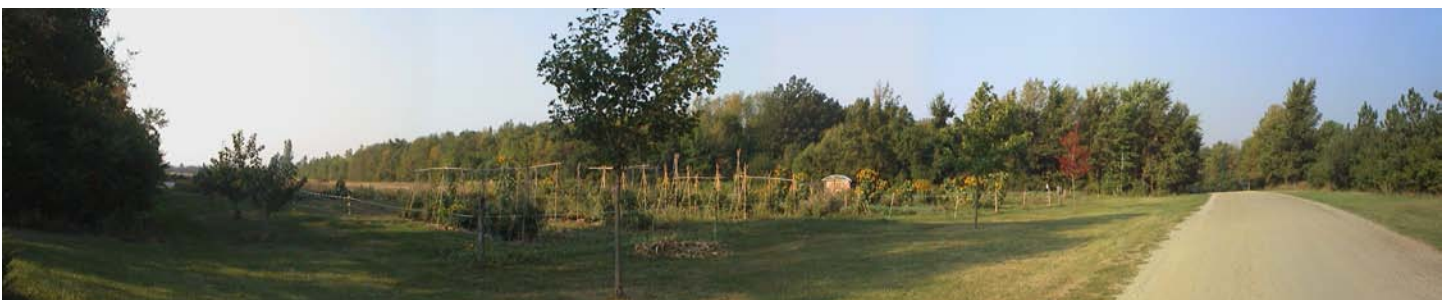
Cost: \$3,500,000
 Design Team: Indiana Architecture & Design, community members
 Client: Ten Stones Community, Charlotte, VT



Design features

Individual homes are designed from Design Criteria developed by the Building Committee. The criteria stresses energy efficiency, sustainability, and appropriate aesthetics.

Planned community gardens, meditation areas, preserved woodlands and meadows, common parking areas, use of gravel roadways/paths, and walking paths are prime program items. An engineered wetland supplements the wastewater system.





Program Overview

A display designed and produced for Shelburne Farms for use in their Farm Barn learning and educational installation. The display spent six months as an installation in the ECHO Science Center in Burlington, Vermont.

Design Features

All visible wood is from harvested lumber within Shelburne Farms. Each of the five "roots" is an interactive children's play area. Actual bark, rough sawn lumber and "tree cookies" (trunk sections) were part of six species (ash, red oak, maple, white pine, cherry and butternut) that comprised the sides of the "trunk". Three take apart benches in the form of a fox, rabbit and deer have been a big hit with the children.

The display in the ECHO Science Center in Burlington VT



B I O G R A P H Y

Ted Montgomery

Born: Richmond, Indiana, 1947
Owner: GroundSwell Architects
Education: Graduated from
University of Cincinnati 1972
Architectural Registration:
State of Vermont 1976

Recent Experience

Indiana Architecture & Design, 1985-2002
Owner, project architect
Local Star, Ltd., Northfield, VT, 1981-1985
Owner, project architect
Circus Studios, Ltd., Waitsfield, VT, 1976-1981
Founding partner, project architect

Positions Held

Housing Supply Goals Task Force,
*Chittenden County Regional Planning
Commission, 2003*
Board Member, Shelburne Historic
Preservation & Review Commission,
Shelburne, VT, 1989-1991
Squad Member (EMT Cert.), Shelburne
Rescue, *Shelburne, VT, 1989-2001*

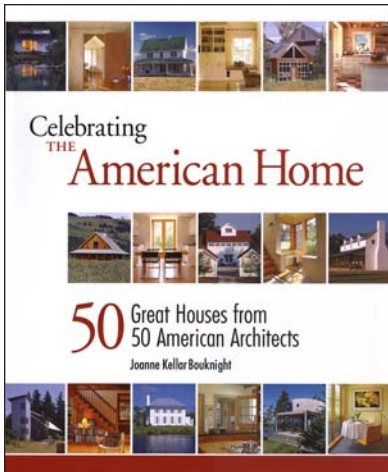


Board Member, Moretown Elementary
School, *Moretown, VT 1982-83, 1985*
Member, Mayor's Task Force on the
Waterfront, *Burlington, VT 1981*
Member, Load Management
Committee, Dept. of Public Service,
State of Vermont 1981-82
Partner, SOLARCHOW Education Project,
Waitsfield, VT 1978-83
Board Member, Solar Association of
Vermont, *Montpelier, VT 1978-82*

Professional Activities

Co-winner, Artgate design competition,
AIA VT, Fall 2005
Adjunct Professor, ArchiCAD software,
University of Vermont, 2004 to present
Instructor, Design & Construction,
Yesterday Building School, Warren, VT,
Summer 2003
Home & Office Openhouse/Montgomery
Home, National Tour of Solar Homes,
sponsored by NESEA (Northeast
Sustainable Energy Association) and ASES
(American Solar Energy Society, October
1997 and October 1998.
Guest Speaker, "Career Day", Champlain
Valley Union High School, Hinesburg,
Vermont, February 1999.
Guest Speaker, "Ten Stones Community
Experience", Unitarian Church (Rev. Gary
Kalwolsky), Burlington, VT, April 1998
Guest Speaker, "Ten Stones Community
Design", Living/Learning Center (Tom
Hudspeth, Professor), University of
Vermont, Burlington, VT, April 1998
Community Workshop, "Straw Bale Tool
Shed", Ten Stones Community, 1997

P U B L I C A T I O N S



CREATING THE NOT SO BIG HOUSE BOOK,
2000, by Sarah Susanka, Taunton Press,
"Playfully Sustainable", pp. 132-141
**CELEBRATING THE AMERICAN HOME
50 Great Houses from 50 American
Architects**, 2005, by Joanne Bouknight,
"Easy on the Earth, Easy on the Eyes", pp.
48-51.
Smart HomeOwner Magazine, March/April
2006, "It Takes an Eco-Village", pp.50-55.
VERMONT MAGAZINE, May/June 2004,
"Living in Art", pp. 93-96.

Inside ART DECO, 2005, by Lucy Rosenfeld,
Schiffer Publishing, pp. 222-225.
GARAGE Reinventing the Place We Park,
2001, by Kira Obolensky, Taunton Press, pp.
97-98
FAMILY HOME IDEA BOOK, 2003, by Julie
Stillman & Jane Gitlin, Taunton Press, pp. 27,
95 & 146.
DECK & PATIO IDEA BOOK, 2003, by Julie
Stillman, Taunton Press, p. 131
INSPIRED HOUSE, December 2004,
"Reclaimed Wood", Taunton Press, p. 52
NATURAL HOME, July/August 1999, "A Sun-
seeking Design", pp. 38-46
AMERICAN WAY (American Airlines),
November 15, 2000, "Trading in the Castle",
pp. 108-112
THE BATHROOM IDEA BOOK, 1999, by
Andrew Wormer, "Lighting, Heating and
Ventilation", p. 150
**THE NEW FLOORING IDEA BOOK/
Creating Style from the Ground Up**, 2001,
"The Green House", pp.116-121
CHARLOTTE NEWS, (*Charlotte, VT*), January
15, 2003, "Ten Stones Founder's Home in
Harmony With Surroundings", pp 16-17.
BURLINGTON FREE PRESS, (*Burlington, VT*),
October 17, 1998, "Architectural Integrity

V I D E O

Discovery Health Channel "The Healthy
Home Show" featuring the Montgomery
House and an interview with Ted
Montgomery, Episode #166, aired during
January and February 2001, produced by
Omni Film Productions
HGTV "Dream Builders" show featuring the
Frost House, Episode 1008
New England Cable News "Dream Home"
show, March 23rd & October 26th, 2003
WCAX Channel 3 "Home Sweet Home"
show June 7, 2001

