**PURPOSE:** The primary purpose of the Little Eden Project is to develop & demonstrate a practical DIY panelized homebuilding construction system that almost anyone could utilize to self-build & self-finance a small home with minimal assistance. The secondary purpose is to develop a model for a healthy, balanced and sustainable post-economic crisis green lifestyle in an affordable, small footprint solar-powered home on an ecologically managed rural homestead.

**VISION:** A well-designed, easy to self-build, affordable solar home that features a “Do It Yourself with community assistance” panelized & modular construction system that begins with a cabin-sized dwelling but allows for future modules to be added easily for expanded space requirements and/or specialized purposes. The core module is fully self-contained, with mechanical room, bathroom & kitchen, bedroom, living space, south facing solar collector system, rooftop rainwater collection, and other green technology innovations. Each module can be built upon a standardized I-beam frame truss, mobile home frame, or tiny house trailer for ease of transport to a prepared housepad site or assembled onsite like a Deltec Home Kit. The prototype homestead site is a carefully chosen location with a spring-fed fish pond, lower flood plain organic gardening area, and sufficient sunlight & wind to power its renewable energy systems.

Panelized construction allows standardized wall components to be pre-fabricated and inventoried for future construction projects. Panels are easily maneuvered into place for fast assembly with very basic tools & skills. A DIY-friendly building system!
Design Goals for the Little Eden Solar Home Model

While it is too early to actually quantify these design goals, it is probably important to qualify them at this juncture:

1. **Affordability:** a low cost per sqft that will reduce a home mortgage to a more manageable fraction of adjusted gross income, and allow an early payoff to achieve more financial independence and lifestyle flexibility.

2. **DIY Simplicity:** to meet affordability goals the design must support a “Do It Yourself with volunteer assistance” building system that requires only standard tools and basic construction skills.

3. **Modularity:** a design based on standardized wall panels that can be mass produced, inventoried and rapidly deployed into customizable modular structures that can be arranged into multiple functionally & aesthetically satisfying configurations.

4. **Expandability:** a modular design that easily supports the addition of new modules to expand living & storage space as needed.

5. **Transportability:** a transportable design that allows modules to be disconnected, hoisted onto a flatbed, and re-assembled at a new homesite location.

6. **Maintainability:** a low maintenance cost design that creates easy, non-destructive access to all subsystems, including a removable cover chaseways for plumbing, electrical, telecom, LAN, security, low voltage control systems, etc.

7. **Healthy-Built:** minimally toxic materials that won’t impact human or environmental health as the building weatherizes, ages and slowly decays. Homeowner control of indoor air quality is especially important, given an airtight building envelope and direct solar gain heating of internal materials. Therefore, new HRV systems will be utilized.

8. **Superinsulated:** designed for a superinsulated building envelope that minimizes heat loss & drafts, while still supporting indoor air quality control requirements.

9. **Solar Efficiency:** designed to maximally capture ambient solar flux and efficiently convert into usable heat, electricity and illumination. South-facing window glazing chosen for optimal price/performance/maintenance, plus inside installation of insulated curtains for heat loss control. South-facing external surfaces engineered for mounting of various solar devices in customizable configurations. Summer shade roof extension should be removable and changeable for the current homesite latitude.

10. **Smart Grid or Off Grid:** the electrical system must be flexibly designed to support either a Smart Grid connected or totally Off Grid power strategy. Both strategies are valid and the homeowner should be able to choose and later be able to make the alternative choice without undue structural impact. An Off Grid power storage shed should be designed as a standard add-on to house batteries, fuel cells, or other electrical storage subsystems.

11. **Water Management System:** efficient, non-toxic collection, sterilization and storage of rain water, plus option for biofiltration processing of gray water. Low flow faucets, showers, toilets and appliances to maximize water conservation. Recommended biodegradable soaps & detergents for maintaining optimal system performance.

12. **Septic System:** range of alternatives for handling human waste depending upon homesite location, soil perc testing, local ordinances, owner preferences, and evolving technological choices. Home should be designed for easy selection of any alternative and fast, efficient implementation, including composting toilets, biomass processors, and traditional flush systems.
13. **Disaster Resistance**: considerable effort is going into designing structures that could withstand the superstorms that Global Climate Change is creating. Elevating homes on pier foundations, using hurricane ties & specialized connectors, and provisioning for quickly boarding up windows & covering solar collectors during storm events are all part of the design rubric.

14. **Other Innovations**: constant brainstorming about possible improvements to the basic design and acceptance of feedback from homeowners. Actual home performance measurements in the field to ascertain compliance with design parameters. Development of a microprocessor-controlled home control system that can proactively manage home subsystems and give the homeowner realtime and historical performance data.

**Sample Designs:**

A Small Solar Cabin Design using Sketchup CAD Software:
Green Equity Builders Building System

We have been patiently developing this DIY building system, tackling ever more complex design/build construction projects. Here is a simplified, summarized view of our system in action.

**CAD DESIGN:**

The GEB Building System always begins with creating a detailed design using the free CAD program Google Sketchup. Sketchup is very easy to learn to use, it creates detailed 3D designs, it draws on a vast open source component library, and it will help you visualize the details of your creative ideas in 3D space.

**ACQUIRE MATERIALS:**

After you have made a materials list from your Sketchup design, then you must acquire the raw materials for your build. A great place to start is at Habitat for Humanity Restore, and, if you have time, do a little dumpster diving too. Finally, buy the remaining materials at your local building materials supplier.

**MATERIALS HANDLING:**

Make it easy on yourself and move your materials to your woodshop on some sort of materials handling cart. We built ours to be rugged enough to transport finished wall panels that can weigh up to 200 lbs and roof panels that can push 300 lbs. Industrial casters are the best way to go so you can maneuver with ease.

**CUTTING STATION:**

Create a lumber cutting station that makes it easy to trim standard lumber. We recommend a good quality sliding miter saw with an LED alignment light. Fast, accurate cutting is critical to tight construction, and safety is even more important. You can use fence clamps to help keep hands far away from the cutting zone.
ASSEMBLY STATION:

Our building system uses homemade assembly jigs to align pre-cut wood components so they can be screwed together with speed & precision. Our jigs utilize standard metal L brackets that hold each piece of cut wood perpendicular and perfectly placed. We recommend using a quality cordless impact driver to drive self-tapping construction screws into the framing you are assembling. Screws with Torx heads minimize cam out and drive extremely smoothly.

OVERHEAD HANDLING:

Once a panel frame is assembled on a jig, it will need to be lifted, flipped over, and lowered back onto the assembly table so that the flattest side will be up for OSB sheathing attachment. We are currently using a hydraulic engine hoist for this process, but an overhead electric hoist would work too. Otherwise be prepared to lift & rotate 150 lb frames, as well as lower completed frames onto your materials handling cart.

PANEL FABRICATION:

Here is a panel frame under construction that is being flipped over in mid-air with ease.
**COMPLETED PANELS:**

Here are some completed subfloor panels for a pier foundation shed floor project. Finished panels for a larger construction project could be stored in a self storage unit until all the other panelized components are completed and ready for onsite assembly. This allows the GEB Building System to fit into whatever extended timeframe works for you.

**ASSEMBLED PANELS:**

Completed panels can be taken out of storage and assembled onsite very quickly to implement the project design. For a solar cabin, the idea is to erect a dried in cabin shell in less than a week, utilizing a few helpers as needed. The inside of the cabin can be finished over time.

**FINISHED PROJECT:**

Here is a completed project: an Arrow metal utility shed installed on a custom pier foundation.

A solar cabin is just a larger panelized construction project with more panel elements to build & assemble.
Project Coordination: Green Equity Builders

Green Equity Builders (see www.greenequitybuilders.org) will be a startup, non-profit organization that is designed to facilitate the building of affordable green homesteads. Sweat equity ownership, with community building assistance, will be used within a planned eco-friendly homestead design. This "Green Equity Building System" will be designed for working people who want to subscribe to a modest, sustainable, healthy, green lifestyle. We plan to distill what we learn from our R&D into an open source Guide to Affordable Sustainable Living in the 21st Century.

Our open source guide will be a freely distributed knowledgebase of tried & true models and technologies for affordable sustainable living that will include web-based resource links, design, planning & management software, and lots of multimedia presentations that show people things that really work. Our multimedia presentations will demonstrate realistic, workable models that can easily be replicated by anyone with minimal construction skills and access to basic tools.

The Little Eden Development Project will be our first model project, and it will become our test bed for deploying & evaluating new green technologies for use in the real world of sustainable homesteading.

Project Development Partners

At this stage in the project planning cycle, one of the most important decisions is which organizations to attempt to partner with in order to improve the probability of a successful project outcome. Since the outcome needs to include both not-for-profit and commercial components, it is critical to involve a mix of non-profit and commercial organizations in the development process. A restatement of project goals can help clarify the rationalization for partner selection.

Goals:

- Develop an open source green homestead knowledgebase that makes widespread replication of the development model possible, so that many others will implement a green, sustainable lifestyle for themselves.

- Aggregate the skillsets necessary for successful green homestead development: environmental assessment, homestead design & development planning, solar homebuilding assistance, permaculture design & management training, green technologies systems engineering & maintenance, and homestead economics & operational management training.

- Obtain project funding from sources with an on-going interest in supporting the proactive development of The New Green Economy and sustainable Green Jobs with a real future. Assist funding sources with creating appropriate independent funding vehicles that are aimed at long-term financing options for comprehensive sustainable development projects.


With these goals in mind, here are examples of local organizations that we are partnering with and some that might wish to approach for either full partnership or board of advisors inclusion:
Contact Information

Alan McRae: IT systems technician, technology generalist, systems designer/builder, systems designer, researcher, webmaster, and sustainable living activist.

Maggie Barton, MSW: social worker, psychotherapist, artist, craftsperson, writer, and sustainable living activist.

Phone: 540-960-1651       Mobile: 828-226-0136

Email: alan@greenequitybuilders.org and Maggie@greenequitybuilders.org
Project-Related Illustrations

The design goal is an affordable, DIY, small footprint solar home that can be erected from community pre-built wall panels & standardized components, customized in numerous ways, superinsulated, and tricked out with solar PV, solar hot water and other renewable energy subsystems. Also, the unit needs to be expandable via adding additional modules in the future, and it should be movable to a new location like a mobile home. A permanent investment in sustainable living!

Note the similarity to LBEEC’s Orchard House:

Perhaps someone has done some direct gain calculations on Orchard House or gathered other performance data of relevance? How about cost per sqft, labor-hrs to construct, materials cost, etc? This looks like a good, real world starting point for developing a model design.
Assemble indoors onto a steel frame like a mobile home or assemble onsite like a Deltec home kit.

Figure B – Steel Frame Platform

AB Tech’s innovation in their healthy-built home project was to custom fabricate a steel frame on wheels for indoor assembly of the home. In this photo, the two side-by-side frames allowed the front & rear sections of the house to be built adjacent to each other but temporarily disconnected for ease of later transport. The completed home sections will be towed outside, loaded onto a flatbed truck, driven to the homesite, and then lifted into place by crane. By integrating the frame into a house design, the resulting sections could be disassembled and moved again if necessary at a future time.

Integrate Homestead Components into a Sustainable System

Figure C – Homestead Site Systems Plan
Panelized Construction allows for easy mass production & inventorying of standardized panel types for use in assembling modular units indoors or for fast assembly onsite.

Panelized construction methods are a tried & proven technique for fast, efficient homebuilding, and they can empower a community of people to assist each other with ongoing Do It Yourself construction projects. The standardized panels could be built and inventoried during community “panel building parties”, where a potluck gathering in a covered workspace could be dedicated to mass producing panels at several standardized workstations. Various methods of labor accounting could be applied to apportion completed panels to the participants based upon their hourly contribution to the construction effort, and then those panels could be withdrawn from inventory for use in various building projects.
WE'RE MANUFACTURING MONEY, NOT GOODS:

Manufacturing made up the biggest share of the GDP in 1950. By 2008, the financial sector had taken its place.

Gross-Domestic-Product-by-Industry Accounts, 1947-2008, Value Added by Industry as a Percentage of GDP

Bureau of Economic Analysis, U.S. Department of Commerce, April 2009
http://www.bea.gov/industry/gpotables

WE'RE USING UP THE EARTH:

If everyone lived like Americans, we’d need about five Earths.
Living Planet Report 2006, World Wildlife Fund
http://www.panda.org/what_we_do/footprint/one_planet_living/about_opl/solutions

Global ecological footprint, in billions of acres; global population 2008
Data Tables, Global Footprint Network

CALCULATE YOUR OWN ECOLOGICAL FOOTPRINT:
http://sustainability.publicradio.org/consumerconsequences

CALCULATE YOUR OWN CARBON FOOTPRINT:
http://www.nature.org/greenliving/carboncalculator/

Green Building

ABTech Construction Science
Asheville NC's local technical college has an excellent hands-on program for those who wish to get formal training in green building construction science. Previous classes built the Healthy Built Home #1 project which is our featured Model Project in the next section below, and the next class built the Small Leed House solar tiny home. The department's state-of-the-art building methodologies, innovative use of new green building materials, and creative solutions to building problems makes this a first-class hands-on learning environment. see: www.abtech.edu/construction-science/overview

Western North Carolina Green Building Council
A 501C3 non-profit organization whose mission is to promote environmentally sustainable and health conscious building practices through community education. see: http://www.wncgbc.org/

The Natural Home Building Source
Sustainable housing design, passive solar, zero-energy, high thermal mass (HTM™) do-it-yourself solar house plans are featured along with septic system parts and consultation; Infiltrator® chamber leach fields; graywater reuse, greywater recycling systems; Clivus Multrum® and Sun-Mar® waterless composting toilets; Servel® non-electric gas refrigerators; drywell kits for storm water, sewage, washer drainage or erosion sediment control; Kobe® stainless steel hoods; and energy saving products like shade cloth, heat storage tubes, and battery operated flood alarms. see: http://www.thenaturalhome.com/index.html
Homesteading

The Stone Camp: Living Off-Grid in Comfortable Independence

If you are of modest financial means but you desire to live sustainably and closer to Nature, then a good place to draw inspiration from is The Stone Camp homestead in southwestern Pennsylvania. There, Ted & Kathy Carns have patiently crafted a forest homestead for themselves that reflects their Earth stewardship values, social responsibility and versatile creative skills. Learn more about them at their website: http://www.thestonecamp.com.

"Off On Our Own": A green homestead lifestyle rooted in self-sufficiency

Creating your own solar homestead & green lifestyle will not be an overnight project - it will take years of patient, hard work and attentiveness to Nature and appropriate green technologies. Slowing down, tuning in, and learning to see what is needed next and how to build it will transform you into a kind of Green Wizard. Ted Carns, of The Stone Camp, may be the penultimate 21st century Green Wizard & DIY Master Builder.

"Off On Our Own" is the autobiographical story of a caring young couple who began a forest homestead journey together and have matured into role models for the rest of us newbies. Full of real life struggles, heartfelt insights, and brilliant DIY creations, "Off On Our Own" by Ted Carns is a great place to start your own journey back to a saner lifestyle.

Look for it in your local library or, better yet, buy a copy from Teddy and help to support his good works. Order directly from him online at: http://www.thestonecamp.com/about-teds-book--how-to-order.html
## Model Projects

### ASHEVILLE BUNCOMBE TECHNICAL COMMUNITY COLLEGE

#### HEALTHY BUILT HOME #1

AB TECH Construction Management Program is now showing a 25’ x 50’, student built 1250 square feet single story sustainable modular home. The construction principals used received an acknowledgement by the Asheville Meteorological Society for environmental stewardship in 2007. Not yet located on a lot, the home features natural day lighting, regional recycled materials, non-toxic materials, low voltage illumination, flexible rooms and furnishings to reduce costs over the life-cycle of the home. The home will be sold 90% complete with electrical wiring/illumination and plumbing fixtures. Click [HERE](http://renovatetogreen.blogspot.com) for more information.

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### LaShell Family Deltec Home: *The House That Community Built*

Here in the Smoky Mountains of Western North Carolina, community spirit is alive & well and still helping neighbors to build a house they can afford to live in. Relatives, friends, neighbors, colleagues, and church community volunteers all combined with the family & a paid construction advisor to gradually assemble and finish a two story Deltec Home Kit. Like a modern day version of a traditional Amish barn raising, even inexperienced folks lent a hand by doing whatever they could, and many of us stretched a little to learn new, valuable construction skills. Because of Deltec’s factory built, panelized construction system, the pre-cut building components arrive by truck stacked neatly on pallets and ready for fast, efficient assembly. A dried-in structure can be achieved relatively quickly, and inside work like plumbing, electrical, HVAC, drywall, etc can be accomplished as time & money permit. Just one example of the "Green Equity Building System" at work.

see: [http://www.outdoorfun.com/helpbuildadeltec.htm](http://www.outdoorfun.com/helpbuildadeltec.htm)

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### Lebensold Earthship

This passive solar home has hybrid photovoltaic and microhydro power system, grey-water and black-water treatment systems, energy and water efficient appliances, and a tire and earth berm structure. The American Solar Energy Society has featured the home in the national Solar Home Tour 3 years running. Based on the pioneering work of Michael Reynolds, this is a good place to start your learning process.

see: [here](http://www.outdoorfun.com/helpbuildadeltec.htm)

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### Small Leed House

A 276 sqft green built "tiny house" built by construction science students at AB Tech in Asheville NC, lead by, then, department chair Ken Czarnomski. Incorporating many green building innovations, like removable interior wall panels for easy in-wall component servicing, passive solar heating via a miniature Trombe Wall, a green living roof garden, externally accessible utilities closet, and much more, this unique tiny house achieved Leed certification. Note that it was not built on a trailer, so it was placed onsite via a crane.

Worth a look at [here](http://www.outdoorfun.com/helpbuildadeltec.htm)
Open Source Technologies

Open Source Ecology - the Global Village Construction Set

"The Global Village Construction Set (GVCS) is a modular, DIY, low-cost, high-performance platform that allow for the easy fabrication of the 50 different industrial machines that it takes to build a small, sustainable civilization with modern comforts. We're developing open source machines that can be made at a fraction of commercial costs, and sharing our designs for free." Founded by physicist Marcin Jakubowski, OSE is a critical focal point for extending the Open Source Sharing Economy into the construction machinery realm. Learn about the GVCS at http://opensourceecology.org/gvcs and gather your local makers to get creating.

Permaculture

Whole Systems Design

You would be wise to implement Whole Systems permaculture principles on your sustainable homestead. Ben Falk has been developing his resilient farm homestead in Vermont for many years and translating his hands-on experience into books, presentations, and onsite consulting. Learn more at http://www.wholesystemsdesign.com.

Solar Design/Build

BUILD IT SOLAR is one of the best DIY Solar "How To" websites on the internet. You'll see organized links to the solar projects of other diy makers and learn the basics of tapping solar energy at http://www.builditsolar.com. Check it out...

A Sourcebook for Green and Sustainable Building - Passive Solar Guidelines

Solar energy is a radiant heat source that causes natural processes upon which all life depends. Some of the natural processes can be managed through building design in a manner that helps heat and cool the building. The basic natural processes that are used in passive solar energy are the thermal energy flows associated with radiation, conduction, and natural convection.


A Proper Understanding of Convection Improves Passive Solar Design

Radiant sunshine comes into the passive solar home, with the home itself being the solar collector.

- Make the heat move itself to where you want it, when you need it.
- Power a fresh air system to keep you comfortable.
- Make that fresh air warm in the winter and cool in the summer.

see: http://www.earthshelters.com/passive_solar_design.html
Solar Energy Systems

**BUILD IT SOLAR** is one of the best DIY Solar "How To" websites on the internet. You'll see organized links to the solar projects of other diy makers and learn the basics of tapping solar energy at [http://www.builditsolar.com](http://www.builditsolar.com). Check it out...

**Simply Solar**
Scott Davis and his family have created several DIY home solar energy projects and freely share their hands-on, practical knowledge & experience on their website at [http://www.n3fjp.com/solar/BigProject/BigProject.htm](http://www.n3fjp.com/solar/BigProject/BigProject.htm). They also freely share the feedback they receive from other do it yourselves who create their own unique innovations. Unlike some in the DIY community, Scott is willing to go the extra mile to actually scientifically measure the performance of a solar energy system under real world conditions. Anecdotal info on a system doesn't help a serious maker to calculate the probable output of a system design, but Scotts tables & graphs will help you to get predictable results. Thanks Scott!

Sourcing and Vendors

Creating your sustainable solar homestead will be a huge challenge, and one way you can achieve your goals on a limited budget is to purchase needed items from thrift stores like Goodwill. If you are a careful, knowledgeable and patient shopper you can find used but perfectly usable items at Goodwill stores for 10% of their original retail prices. And many of these items will have been Made In America and may be of better quality than the newer cheap stuff in retail stores these days. Buying these items will give them a second life and keep them from ending up in a landfill - very green!

Plus, your purchases at thrift stores like Goodwill help to employ people who really need a job and get a helping hand, job training & other useful services from Goodwill.

Remember that electronic devices that don't work properly when you get them home can usually be returned for store credit during Goodwill's allowed merchandise return period.

See [www.goodwill.org](http://www.goodwill.org)

Habitat ReStore is our favorite source for used tools, building materials, doors & windows, fasteners, appliances, cabling, and more. While there is a large variation in the items found at different stores in various communities, by making it a point to stop at Habitat ReStores when you are traveling, you will quickly identify the best ones to frequent.

Plus, your purchases help to fund Habitat for Humanity's mission to build homes for poor families in need. A definite win-win situation.

See [www.habitat.org/restores](http://www.habitat.org/restores)

Depending upon where you live, there is probably either a Home Depot or a Lowe's within a 30 minute drive from your home. It is difficult to find smaller mom & pop hardware stores and lumber yards with even a small fraction of the building essentials found at these chain hardware stores. And the big guys are open 7 days a week, from morning till night, so if you need it now just check availability on their website then go pick it up.

When buying lumber, take advantage of the fact that you can go to the store and choose your pieces yourself. Wood is never perfectly straight but that doesn't mean that you have to simply accept a home delivery that includes some horribly warped lumber that is practically unusable. So, take your time, go to the store, and select the pieces that will work in your project.

See [www.homedepot.com](http://www.homedepot.com)
Like Home Depot, Lowe’s hardware stores are everywhere, and they have almost everything that you might need for your homestead building projects. Over the years we have practically lived at our local Lowe’s stores, and we make it a point to check their website to see what they have and how it compares with Home Depot.

Note that both Lowe’s and Home Depot let their customers rate on their websites anything that they sell. Be sure to check out those user ratings before you buy something you won’t like.

See [www.lowes.com](http://www.lowes.com)

One of the first issues you will face on your homestead is storage. You will need inexpensive storage units that can keep your landscaping tools, mowers, chain saws, and other gear out of the weather. You will also need to create your woodshop in a utility shed of some sort. Plus, you may want to put up a greenhouse to jumpstart your food growing system. ShelterLogic sells all of these things, plus they sell & support those metal Arrow Utility Sheds.

See [www.shelterlogic.com](http://www.shelterlogic.com)

Designing & building your homestead residence will involve entirely new skills for you to learn & master. One excellent place to start your journey is at Tumbleweed Tiny House Company. Tumbleweed has been involved with the DIY tiny house movement since the beginning, and they have lots excellent resources to help you gain the knowledge & skills that you need. Take one of their 3 day workshops, buy one of their books or DVD’s, check out the variety of tiny houses on their website, and ask them questions on their online forum. They can really help you.

See [www.tumbleweedhouses.com](http://www.tumbleweedhouses.com)

### Sustainable Community

**Community Sustainability Assessment**

The Global Ecovillage Network is developing the concept of sustainability auditing to provide measuring rods for individuals and for existing villages and communities to compare their current status with ideal goals for ecological, social, and spiritual sustainability. In addition, these tools are learning instruments - pointing out actions aspiring individuals and communities can take to become more sustainable. “How sustainable is your present community?”


**E. F. Schumacher Society**

Named after the author of *Small Is Beautiful: Economics As If People Mattered*, this educational non-profit organization is a good place to start your research on practical ways to organize, incorporate, finance and grow your sustainable community. Look here for info on community land trusts, local currencies, microcredit loans, and other tested models.

see: [http://www.smallisbeautiful.org/index.html](http://www.smallisbeautiful.org/index.html)
REASONING: The three-fold explosion of human population in the 20th century necessitated an economically-forced lifestyle transition from small, sustainable, human-sized rural villages into vast, resource consuming, over-sized urban megalopolises with their accompanying large footprint suburban sprawl. As this civilizational model spread around the world, the total global ecological footprint of the human race increased 2-fold, setting in motion the noticeable beginnings of a global greenhouse effect, massive climate change, accelerating natural resource depletion, and growing international economic & political mega-competition. Clearly these trends are not sustainable into the foreseeable future, and significant technological, policy and behavioral changes will be required to steer humanity through the challenges that now lie ahead.

While national & international planners & policymakers wrestle with systemic solutions to these emerging global problems, smaller groups of concerned citizens can begin a more modest effort to develop workable models for post-crisis, ecologically sustainable lifestyles that can symbiotically co-exist with the scattered remnants of the unspoiled natural world. The components for these workable models can be drawn from the most practical & innovative technologies created by the emerging Green Economy, with the goals of simplicity, affordability, maintainability and suitability to long-term ecological sustainability to guide their development. The spin-offs from these development projects could become the basis for many small-scale, green businesses that, in turn, could grow & profit from assisting others with duplicating its desirable results.

Corroborating Statistics

Source: United Nations, Department of Economic and Social Affairs, Population Division (2006). World Urbanization Prospects: The 2005 Revision. New York: United Nations. Between 1950 and 2005 the global urban population has more than tripled to reach 3.15 billion. While urbanization has considerably slowed down in developed countries, the developing
world is where cities are growing the most. It accounted for 68% of the urban population in 2000 and by 2020, 77% of the global urban population is expected to be in developed countries.

According to the National Association of Home Builders, the average home size in the United States was 2,330 square feet in 2004, up from 1,400 square feet in 1970.

The average size of a new home in Q3 2008 was 2,438 square feet, a 9 percent drop from 2,629 square feet in Q2 2008, according to the U.S. Census Bureau.

Likewise, the median size of a new home in the third quarter of 2008 was 2,090 square feet, down from 2,291 in the spring of 2008.

In a sure sign of profligate extravagance, median US home sizes increased while median household size actually decreased: more space for fewer people!
Nationally, the ratio of house price to income increased 58% from 3.3 in 1975 to 5.2 in 2006. The only way this can occur is if 58% more debt is serviced by the same income. 
Source: http://www.irvinehousingblog.com/blog/comments/how-big-was-the-bubble
Anatomy of a Consumer Debt Bubble

Over-leveraged Households

Now that the consumer debt bubble has collapsed, the Old US Economy is going to steadily contract until a New Economy can be jumpstarted and capitalized for renewed growth.