February 2004 ✷ Issue # 2

Natural Living Journal

Creating a sustainable lifestyle one natural step at a time. ✷ On the web: NaturalLifeNetwork.com

Natural Home Tour

Take a tour of this natural home to learn the essentials of site, design, orientation, straw bale construction, solar/wind power integration and green roofing.

Pages 3-5

The Solar Village

The holistic vision of a sustainable community takes shape.

Page 6-7

Contents:

Publisher's Message

Natural Living

You! This is about you! You and I as individuals are the problem. We are the consumers of oil and gas for heating. You and I are the consumers of energy and users of transportation which are causing global warming. We do have a choice. The availability of fossil fuels is limited. Most oil companies like to advertise that we will have sufficient supplies to sustain their growth and profits for the next twenty years. Twenty years, they say, as if that is forever into the future. Why would you build a wind turbine to power 300 houses today when that energy costs an extra quarter? They've built their business plans on the understanding that up until that point extracting the vast reserves in the earth will be relatively inexpensive, ignoring too many high cost wars to protect what remains, or having to pay for environmental cleanup.

What about the following twenty or thirty years while reserves dwindle, supply decreases, and the cost of extraction rises? Who is responsible for the global consequence of the fact that in twenty years, countries like China and India may begin to reach the fossil fuel usage levels of North Americans, and it is looking more and more likely that they will? Global warming will go from being a degree or two on average a decade to what? These changes will cause unimaginable damage. If 30,000 Americans, and 2,000 Ontarians die prematurely from the pollution caused by fossil fuel usage each year now, how many will die in twenty years, every year, all over the world? Who is responsible?

You have a choice. In the next twenty years, for the sake of your children, for your family, for you, for your health, you can make the choices that will change everything. The wealthy few, the billionaires and millionaires have tried to direct our consumer choices through advertising and propaganda in their mass media outlets, and through control of jobs. They fear losing their money, their representation of power. The rest of us, by far the majority, can wrestle that power away by simply choosing to do so. Here is how:

1. **Awareness – understand the root causes of problems and know that nature provides a sustainable answer**
2. **Food – make choices that return this basic need to one that is restorative, by eating organics, limiting meat consumption and picking fresh local produce**
3. **Choice – exercise your power to select that which is sustainable; organics, solar energy, transit…**
4. **Home – transform your home into one that is powered by sunlight, cooled naturally, and made of natural materials**
5. **Creativity – challenge yourself and others to find solutions that solve the root causes; use your imagination, look to nature for ideas**
6. **Transportation – think about where you live, whether you can walk or ride a bike to where you go most often, use public transit and if you must have a car make sure it is efficient with low emissions**
7. **Plan – create a ten year life plan that transforms your lifestyle to one that is sustainable**
8. **Work – work towards a career that supports the transformative process**

John Wilson, Founder of the **Natural Life Network**

Natural Living Journal

John D. Wilson – Editor
Natural Living Journal
Published by World Peace Communications

Our Web Site: www.NaturalLivingNetwork.com
E-Mail: john.wilson@naturallifenetwork.com
Phone: (519) 942-3266

ADVERTISING SALES:
Leigh Geraghty, Advertising Representative, (519) 942-3266, leigh.geraghty@sympatico.ca

CONTRIBUTE:
We are always looking for new, interesting and inspiring stories, pictures, and poetry, about people who are achieving a natural lifestyle. If you would like to contribute an article or story then please send us a note with your idea. Contact John Wilson by email at john.wilson@naturallifenetwork.com

Join us!

NAME

ADDRESS

CITY/STATE/PROVINCE ZIP/ POSTAL CODE COUNTRY

E-MAIL

PHONE

YES! Sign me up for **Natural Living Journal**. Orders must be prepaid. Here is my check/money order in U.S funds (Canadian orders in Canadian funds). Subscriptions/ membership includes shipping, handling and applicable taxes.

$29 – Individual – 1-year subscription and membership, paperless Internet delivery, requires email (12 issues)
$59 – Business – 1-year subscription and membership, paperless internet delivery, requires email, and business directory listing with logo (12 issues)

Membership includes answers to three questions (no more than one per month) through email for a year. To order online by credit card go to www.NaturalLifeNetwork.com.

Send all subscriptions and renewals to payable to **World Peace Communications**.
Mail to:

World Peace Communications
248108 5th Side Rd., RR# 5
Orangeville, ON L9W 2Z2, Canada

Natural Home Tour

Whether you are thinking of renovating your existing home or building a new one, this Natural Home Tour should give you many ideas that you can use. Creating a natural home starts with an understanding of your site. Becoming aware of where the sun rises and sets, how the angle of light changes through the year, how the trees and earth can be used to advantage. This leads to two powerful concepts essential to natural homes. First, by being efficient, not needing as much energy and second, the use of passive solar design techniques. These two are the essentials of creating or renovating your home to become more sustainable. Then, you can think about the construction systems including straw bale, super insulation, rammed earth, earth ship and others. Finally, the way we manage the water and sewage can be addressed by rainwater collection, composting toilet or Living Machines. Let us look at each of these in more detail now.

Site and Orientation

Take a look at everything around your home or site. Take note of the following:

- Use a compass or Global Positioning System (GPS) to understand where north, south, east and west are in relation to your existing home or future home.
- Think about how your location is affected by being in the north/south hemisphere, how far north/south you are, and what these factors mean in terms of your site.
- Be aware of the slope of the land, where trees are located and what type of plants exist on your property.
- Think about how the seasons affect the site.
- Can you increase the amount of sunlight, while blocking the cold winds?
- Don't forget that sunlight needs to be blocked in the summer, so think about a shading system, perhaps a pergola and deciduous trees.

Think about how these elements will affect your home through the seasons. Building or renovating your home to suit the site will mean potentially increasing the insulation especially on the north (south in the southern hemisphere), reducing openings where possible. Knowing which area will bear the brunt of the cold winds allows you to contemplate adjusting the types of spaces that are appropriate for storage, hallways, and utility rooms.

Once you understand where due south is you can focus on allowing as much light as possible in during the winter months, while providing shading for the summer. Aligning the home as close to north/south as possible is important although some variation is acceptable while still maintaining good potential solar access.

Passive Solar Design

The most powerful, most efficient, and smartest design feature you can include in a new home or renovation is passive solar. This technique is all about orientating the home towards sunlight. Allowing the sunlight into the home (from the south in the northern hemisphere and from the north in the southern hemisphere) is where the process starts. This means windows that let light in while insulating as much as possible in order to store heat that is released inside the home. Windows that have high insulation values (higher "R" values), are what you are looking for. Typically this means double glazed windows with a krypton or argon gas filling in order to improve the insulation values. Triple glazed windows are also available that can further improve the insulation values of the windows, although this extra layer of glass reduces the levels of sunlight thus the amount of heat, and in addition, they cost more.

In order to store the heat as much mass, concrete flooring and brick walls for instance, should be located throughout the area where the sunlight penetrates into the home in the winter. The sunlight will penetrate further into the home the closer you are to the poles which will affect the depth of area where mass is required. This mass will effectively store the heat and slowly release it after the sun has set. In order to minimize the heat loss it is important to insulate and prevent leaks that could quickly remove the stored heat. Providing shading for the summer, when the sun is high in the sky is important to minimize the heating effect in the summer.

Construction System

Picking a sustainable construction system requires consideration of insulation levels, building envelope, renewability of materials, cost and other factors. The best system will depend upon local resources for materials, the level of involvement you and volunteers can be expected to provide, and local environment. Some sustainable options to consider:

Super Insulation (R2000) – A Canadian standard that revolves around conventional stick frame construction, high insulation with plastic vapor barrier for sealing, and a mechanical heat recovery ventilator to maintain air quality. These homes are primarily designed for the winter and not the summer.

Earth Ship – Built half in the ground, with used tires, pop cans and stucco, oriented south, and with passive solar heat collection in the floor.

Straw Bale – Post and beam construction with straw bale insulation or load bearing straw bale walls, high insulation, renewable material, breathing walls, flexible design system and easy for do-it-yourself and volunteers to help with construction.

Rammed Earth – Earth filled forms for walls.

Whichever construction system you select, or if you choose to do some hybrid of these, the principles of good site positioning and orientation are critical. Then, designing for efficiency will ensure the renewable energy systems costs are manageable. Finally, all of these systems should be designed and built around the concepts of passive solar heating and the natural air conditioning system described next.

Green Roof: Natural Air Conditioner

Maintaining a cool and comfortable environment in the summer can be a challenge especially with passive solar designed homes that have so many windows for collecting solar heat. Of course the shading systems integral to passive solar design prevents sunlight from directly hitting the interior floor and walls in the summer. However, the heat generated by sunlight hitting the roof, reflecting off outside materials, and being insulated inside the home can slowly heat up any home. In order to maintain a cool temperature in the summer several additional features are key.

The use of a green roof system can reduce the buildup of heat inside the home by up to forty percent. The plants and soil on the roof reduce heating through transpiration. Just imagine the

difference in temperature between a black rooftop or one covered in grass and eight inches of soil. The reduction in heat on the roof is reflected in substantially cooler temperatures in the home. Think how much cooler basements are. Remember the cool layer of air in the deep grass of a meadow?

Related to the green roof cooling system is a "ventilation chimney". In the summer, in order to move the cool air from the basement up into the living areas, a centralized venting skylight, with operating windows, and shading system provides a natural air conditioning system. This concept is hundreds and perhaps thousands of years old. It is still used in the Sahara to keep homes and buildings cool despite the scorching heat. This natural air conditioning system combined with the green roof will ensure that the house will remain cool. The earth ship design take these concepts one step further by constructing the main living quarters partially under ground, with soil and landscape covering the roofing like the green roof.

Renewable Energy Connections

Two options for renewable energy systems exist. **"Off-the-grid"** means having no connections to the conventional electricity grid. In this case the systems must store excess energy created, typically during the day with solar panels, for use during times when large amounts are required. This requirement to store energy for use during times of peak demand means batteries for storage. Of course the main storage system should be the concrete flooring used in the passive solar design for heat. However, in order to store electrical energy batteries, or perhaps in the future fuel cells, will be required. The advantages are that you are not dependent on conventional power providers for any of your needs. In this case you must be essentially 100% renewable although most such configurations include a gas or oil based furnace for heating and cooking.

"Grid-tied" refers to the option you have, in most areas, of connecting your renewable energy generation systems to the electrical grid that runs down your street. In this case you actually connect to your home's conventional standard electrical meter and simply draw additional power when you need it or run the meter backwards when you are generating more than you need. The advantage of this type of system is that you do not require any storage system in the form of batteries or fuel cells. This allows you put all of your investment into renewable energy systems generation. As well, the storage systems typically have to be replaced more frequently than the other system components. The down side is ,of course, that you are dependent on the conventional electricity grid (although a hybrid is possible that would allow you to operate off-the-grid periodically when the power fails). Keep in mind that the electricity grid is supplying you with electrical energy that is likely produced by nuclear, coal, gas or oil, all of which are not sustainable. Of course in most areas it is now possible to purchase "green" energy from your utility to make your grid connection sustainable at an additional cost. Of some benefit in the long run, as more and more people do the same, is that the electrical grid will supply renewable energy from your neighbors who follow your lead in producing electricity using photovoltaic, wind, hydro, or bio-fuels.

Renewable Energy Generation

EFFICIENCY – The most important place to start with renewable energy generation is in a place we often forget to look at first. The first and best place to start is by NOT needing the energy in the first place. This means being as efficient as possible in our requirements for energy. By not needing as much energy the renewable energy generation systems we require will be smaller and less expensive. This is by far the most affordable type of renewable energy system. Optimizing the passive solar heating, green roof air conditioning and using as much natural light during the days as possible should be your highest priority in renewable energy systems. This also means purchasing or replacing appliances with the most efficient appliances, and lights. The idea is first to make efficient use of space, conserve, insulate and automate conservation systems so that as little energy as possible is needed.

PASSIVE SOLAR – Direct heating is the most efficient form of renewable energy heating system. This system allows you to eliminate the requirement for a conventional fossil fuel powered furnace. These systems are non-mechanical so that repairs are rarely required ,further reducing long term operating costs. As well, these systems last a very long time, making them again the most cost effective renewable energy system especially over the long term life of your home.

Green Roof

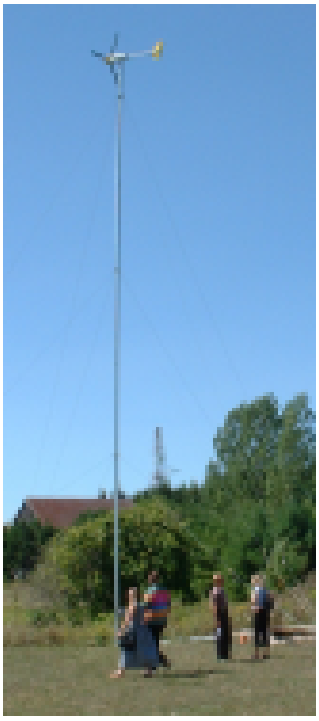
SOLAR WATER HEATER – Direct solar water heating is probably the second best means of efficiently transforming sunlight into energy. A solar hot water heating system consists of solar hot water heating panels that reside outside facing the sun. The panels expose liquid filled tubing that heats up as sunlight hits the surface during the day. The heated liquid then begins to flow upwards in the panel. The heated liquid is then piped into the home where an insulated storage tank stores the heat. This heated water can then be used in radiant floor heating

system. Additionally, the heated water can be used for showers, baths, and sinks.

TURBINES – One of the most economical mechanical means of converting renewable energy sources into electrical energy is a turbine. Renewable energy systems suppliers now have a wide variety of wind or hdyro (water) based turbines for electricity generation. Geothermal turbines that can be driven by the heat from deep within the earth are also available where this resource is abundant and accessible. So, if your site has measurably good wind, hydro or geothermal resources, these simple devices can provide reliable energy both day and night. In order to convert the electrical energy produced by wind, hydro or geothermal turbines, from DC into AC, the type of electricity used in most conventional homes, an "inverter" will be required.

ACTIVE SOLAR – The space and satellite industries many years ago developed a silicon-based system for converting sunlight into electricity. These solar panels consist of thousands of small pieces of silicon embedded in the panels and wired together. These panels are typically called photovoltaic solar panels. Usually they simply are mounted on your roof and point towards the sun. They generate DC electricity that is then transformed into AC electricity in an inverter for use in your home or when connecting to the electricity grid.

INVERTER – The inverter is used to support grid-tie or off-the-grid applications. For off-the-grid applications the inverter can provide a system for managing multiple generators including turbines, photovoltaic generators and interfacing to your home's AC electrical appliances. For grid-tied configurations the inverter is the key device for converting the renewable energy you produce to AC electricity of the same quality as your grid. The inverter is then able to push the electricity you generate into the grid, running your electricity meter backwards. The inverter also provides the critical fail-safe circuitry so that, in the event of power failures on the grid, the system disconnects from the grid protecting utility line workers.



BIO-FUELS – In certain situations heating or electricity generators may be powered by wood, vegetable based oil or other "bio" materials that can be grown, and are thus renewable. These fuels are typically called bio-fuels and are considered renewable since they are grown as an agricultural or forestry products. These systems do, however, typically produce pollutants during the burning processes used to extract the sun's energy captured by the living plants that created them, releasing carbon, and other pollutants. ✸

The Solar Village

Transforming our communities is the great task of our generation so that we can create a sustainable society for our children. For the most part this will mean re-working and redesigning our existing communities around the principles of Natural Living. In order to deal with these changes The Solar Village has two purposes. First, the primary objective of The Solar Village is to establish a model sustainable community that demonstrates that the transformation is workable, affordable and more appealing than our existing communities. Second, to define, develop, refine, and communicate the proven ideas that will inspire existing communities to make the change to sustainability and higher quality lifestyles.

So what is The Solar Village? It is a sustainable community designed around the principles of Natural Living. This means that the priority problems of sustainability are addressed at every level. Community revolves around a need to share, to help each other, and to enjoy and take care of the commons together. As always in the Natural Living process we start with awareness of the natural surroundings. We consider the community food requirements through local organic food stores and community agriculture. We look to make it possible for residents to easily make choices that are sustainable in food , homes, energy, and travel. The homes and condominium residents are designed from the ground up with sustainable materials, for energy efficiency, optimized for passive solar design, natural green roof cooling, and renewable energy generation. The design and integration of community services will inspire from the natural landscaping to the beautiful Living Machines that process sewage waste. Local transportation will revolve around walking and bike paths that lead to local train/subway/bus transit systems. The long term plans for the community will be considered. And finally, the options for working in the community will be made available through local businesses, home office options, and nearby business districts connected by transit systems.

Local Transit and Corner Stores

The central hub of the community will be access to transit systems, retail organic food stores, a café, and other business services. These community commercial buildings will be high density, super efficient, and similar in design to the community housing/condominium complex. For the most part the business owners will live in the community.

Communities spring naturally from place. The village of Hockley, near where I live, has existed for more than two hundred years as a peaceful, beautiful village for all of this time through all of the changes. Central to the village is a small general store.

Recently this very old building was renovated to include a small restaurant and a small beer brewery. The residents now take great pride in this local meeting place. Of course reviving this center has taken some vision and capital for development. As it stands, however, this village is well positioned for the next twenty years of stability.

Sustainable Housing

The natural homes and condominiums that must replace existing housing stock will be designed with efficiency, passive solar, renewable materials, natural cooling and green roofing systems. Each home and condominium complex will include renewable energy generation systems including solar water heaters, active solar (photo voltaic panels, shingles or covering). The energy systems integration investment in the home will work in partnership with the shared community services much as conventional home/electrical grid partnerships work today. These homes will last longer, be healthier for their occupants, and provide higher resale values for their owners. These homes and condominiums will be close to the commercial hub so that most activities are within walking or biking distance. The houses and condominiums will protect each other from the elements, be smart about the summer and winter weather patterns, and provide both privacy and access to community. For more details on the construction techniques to be incorporated read the previous article, *Natural Home Tour*, for details.

Community Spirit

The community will come together near the commercial hub where additional community services will include a theatre/meeting room/gymnasium/swimming pool. These shared community services will be the welcome center for new residents and provide learning facilities that explain the concepts of natural living, efficiency, passive solar design, green roofing and solar/wind energy systems that are incorporated into every aspect of the community. Bringing nature back into close contact with the community will be central to the community center. The condominium corporation will have its offices here where each share holder and community member may get information on every aspect of the organization. Similarly the cooperative organic urban farming, Living Machine water treatment facility, and renewable energy group will have site offices here.

Community Services

The goal will be to produce and manage the waste from industry, business and homeowners locally. These services will be handled by both commercial and cooperative organizations. Every member of the community will equally own the cooperative organizations that provide essential services. These cooperatives will manage the organic farming, waste management, water treatment, and renewable energy services. The homes and condominiums will be owned free-hold by the residents, with shared areas management by the condominium corporation in which each resident will have shares.

For more information contact John Wilson at john.wilson@naturallifenetwork.com or see the presentation material at http://www.NaturalLifeNetwork.com/village/tsv.htm. ✸

Events

Canadian Geographic Kids – Wilson Natural Home featured

Some time between February and March 2004 the series will feature an episode on the Wilson Natural Home. Hear what the Wilson kids have to say about living solar.

April 3, 2004 Halton EcoFest

Drop by our booth to catch up with us on the latest publications, books and videos.

For more information:
Web Site: www.haltonecofest.ca

April 17, 2004: Natural Home Tour and Seminar

Held on location at the Wilson Natural Home, you get a full tour of this amazing, inspiring home, that incorporates straw bale natural insulation, passive solar design, solar & wind power, natural construction materials, no fossil fuel based furnace, and a green roof.

For more information on attending:
Web Site: www.NaturalLifeNetwork.com/learning/
Phone: 519-942-3266
E-Mail: john.wilson@naturallifenetwork.com

April 22, 2004 Earth Day

Look for local festivals and activities in your area. Renew your commitment to the earth.

For more information:
Web Site: www.earthday.net

August 28, 2004: SunFest 2004

Tour a working solar/wind powered home. See the awarding winning Wilson Natural Home. John Wilson will be giving tours. Learn about the amazing green roof, straw bale walls, and passive solar design features. Talk to the experts to find out how you too could be running your meter backwards.

For more information on attending or exhibiting:
Web Site: www.NaturalLifeNetwork.com/sunfest2004/
Phone: 519-942-3266
E-Mail: john.wilson@naturallifenetwork.com

✸

Join Us

Become a part of a community of people around the world dedicated to living in harmony with nature. We've created this network so that we can all share our ideas, experiences and knowledge. The changes we envision are revolutionary; however our goals are to make them the norm. The organization is about the practical, inspiring and real application of living gently on the earth so that our children may enjoy a clean, healthy and productive environment.

The dream, the visions, are the same and yet perhaps broader. Yes, we want happiness, freedom, truth and beauty in our lives but more than that, we want this for our children and their children.

Quality of life matters, so above cost comes quality. It means understanding that less can be more and that doing nothing can do more.

The simple point is that we all can "do" much more – and that means all of us or it won't work. For example:

- Choose or create a home/community that is powered by the sun;
- Grow and eat organic food;
- If you must travel select the most efficient means, walk, bicycle, tele-commute, travel by train, bus, ultra-efficient car, or fly;
- If and when possible, work in nature – grow your own organic food, restore nature around you, put your investments to work for natural living.

What amazes me is that everything we need to live this way exists. The cost over the longer term is less. The results are a happier more healthy self and family.

Member benefits:

- Monthly **Natural Living Journal** full electronic edition.
- E-Mail **Question & Answer** (3 per year, no more than 1 per month.)
- **Directory listing (optional) and Natural Directory.**
- Discounts on some products and services offered by **Natural Life Network**.

Sign-up at:

www.NaturalLifeNetwork.com ✸

Next Issue...

Achieving a Natural Life: Overcoming Common Obstacles

Payback: Looking at the Numbers

For weekly updates, special offers, and additional products and services visit our web site:

www.NaturalLifeNetwork.com

Have a question? Ask us and we'll try and include a response in our next issue of the *Natural Living Journal*. Have an interesting story to tell that relates to natural living?

Contact us any time with your questions, concerns or ideas at:

john.wilson@naturallifenetwork.com
✸