How To Green-up your Home

Useful tips to enhance your personal space and to save money

Content

The House as a System

Any time a home or building is constructed, it's important to understand how the structure works as a complete system. It is much easier to build a green home once familiar with some key principles, such as how heat and cold are transferred and the reasons why moisture and air move throughout our homes. If you properly direct the system that is the structural house, it saves on energy losses through both air leaks and added moisture.

Wait! Before you read any further, make sure you check out the following free video that shows you a very simple DIY method for slashing your power bill to pieces.

Simple DIY Method for Reducing Your Power Bills:

Backyard Revolution

As energy prices start to hurt people all around the world (especially in developed countries like the USA and UK, where more people are dependent on more power) the importance of finding effective ways to reduce energy consumption will only grow in leaps and bounds. What you will learn in this video is useful in understanding how to use green methods in your home to save power.

The Transfer of Heat

To understand heat flows, we have to look at the laws of thermodynamics – that is, thermo (heat) and dynamics (movement), or the study of energy. Science plays a big role in building a home, as well as the more commonly thought of parts like nails, wood and hammers.

There are two laws of thermodynamics:

1) Energy can be changed from one form to another but can never be destroyed. Energy exists in many forms, including solar, chemical and electrical. In fact, the total amount of energy available always stays the same; it just changes to different forms.

2) In all energy exchanges the potential energy of that state will always be less than the initial state. In other words, whenever energy is converted, it gets downgraded in the process. This process is referred to as entropy.

You may be thinking, *what do these laws have to do with me building a house? It's just bricks and mortar.* These laws of science are actually key players in building a home that's as efficient as possible.

A house that is electrically heated is nowhere near as efficient as a home that takes advantage of passive solar design features. Electricity typically comes from fossil fuels such as coal, but a big chunk of this energy ends up getting spent in the transfer or lost in transit, and therefore by the time the usable power is delivered to a house, its energy potential is very low.

Sometimes by the time useful energy reaches a house its net energy is only 15%. Through transportation, refinement, generation, transmission and transformation, the

electricity has lost 85% of the potential energy of the coal used to make it by the time it reaches the end-user. In a world where the supply of fossil fuels is running out faster by the day, finding an alternative is an important reality.

Instead of using fossil fuels (i.e., non-renewable energy), have you ever thought about passive solar design? Solar design uses the power of the sun to create energy and in the process reduces the amount of energy a house will consume. The sun as an energy resource is ever abundant, and most areas in the world have enough sunlight to harness a good amount of energy. Even in areas where the sun does not shine brightly every day, surprisingly there is still enough energy to power homes.

Unlike with electricity conversion in a plant, which has several steps, solar conversion only involves a single process. That is, the sunlight shines through windows in your home and hits an object, from which it is then radiated to our bodies, giving us heat.

People find passive solar design to be a great way to reduce heating and cooling bills and reduce wear and tear on heating and cooling equipment. These techniques are easy to apply when building new because you can control the placement of the home and where you put the windows (north-facing in the southern hemisphere, south-facing in the northern hemisphere). However, if you live in an existing home you can still take advantage of solar energy technologies like energy-efficient windows, solar panels and rainwater catchment.

How Heat Moves

The flow of heat is from hot to cold, and although simple, it's an important concept to understand and put into practice in your home.

As long as there is a difference in temperature, heat will move. Keeping warm air inside the home is imperative to your comfort and to saving you money on utility bills.

There are three ways that heat can be transmitted, and energy movement is always a combination of three movements of energy:

1) Conduction

Heat conducts through solid substances, and to what degree that happens is usually measured in terms of insulation. R-value is a measure of thermal conduction: the higher the number, the greater the resistance to heat flow. This means that heat will move more slowly through the material. Anything that conducts electricity will have a low R-value. Since is important to have good insulation in a home to limit the amount of heat loss, use low-conducting materials.

2) Convection

Convection happens due to density differences between warmer and cooler parts of a fluid. In simple terms, the hotter the fluid, the less dense it is. Hot air rises, and this is why warm air remains in the upper levels of a home while the basement stays cold.

Let's look at your morning coffee as an example. When you blow on it to cool it down, you are pushing the air up and coaxing the heat to rise faster. Convective heat loss occurs between the drink and the air.

It is important to understand convection because, when not controlled, it can result in a cold house and damp house. It's not only utility bills that will skyrocket if your house is too cold, but it will invite dampness, which can lead to mold and mildew.

3) Radiation

Radiation occurs when heat passes from one object to another. For instance, when you stand next to a cold object such as a window, your body radiates heat towards that object, and that is the reason you feel cold. Radiant floor heating is a popular choice for consumers and is one of the most energy-efficient and comfortable methods available. With a forced-air furnace, hotspots are created only in high ceiling areas and where the air directly blows. Elsewhere, radiant heating provides an even temperature throughout the house.

Not only will radiant floor heating increase the comfort levels of a home; it will cut the heating bills of a house more than other traditional heating methods.

Controlling Heat Flow

It is important to build a house in order to keep the cold air outside and the warm air in. Therefore, you need to make sure that you build your home to respond to the environment around you. No matter where you are in the world, you can design your house so that you can control the flow of heat.

When looking at controlling heat flow, insulation is the key element that you need to consider. There are a number of options when it comes to insulation choices, and most are available from a home center store or large hardware retailer. Before going to the store to purchase insulation, it is best that you measure the areas to be insulated beforehand so that you purchase the right amount of material.

Depending on where you live, the amount and R-value of insulation you require will differ. However, remember that the more insulation you have, the warmer and more

comfortable your home will be. The U.S. Department of Energy website has a helpful insulation calculator (www.ornl.gov/~roofs/zip/ziphome.html).

If your home was built before 1981, you will probably need to add insulation, and if you are currently remodeling your home, there is an easy way to do so. When it comes to insulation people tend to know of Pink Batts® but most are unaware that there are other types of insulation. Each type is used for a different purpose and has a different R-value.

Batts are the most common form of insulation available. They come in either fiberglass batts, non-fiberglass batts, or wool and cotton batts and are often described as fluffy blankets of insulation. Batts are easy to install and sit easily in the space between the studs in a wall.

There are three choices with batt insulation: foil-faced, kraft-faced and non-faced. They all have their benefits and limitations. Talk to your local insulation professional about what choice is best for you. As with all insulation choices, there are tradeoffs in terms of performance, cost and the amount of chemicals they contain. Avoid fiberglass batts, if possible, or at least choose formaldehyde-free and make sure the installer knows what he/she is doing.

Loose-fill insulation is another popular insulation choice and, as the name suggests, it's made up of small pieces of insulation, which are blown into place using a special piece of equipment. That makes it a popular choice in small and hard to reach places such as in the attic. Fiberglass and cellulose are the main loose-fill options available. Although both are cost-competitive, cellulose is a better insulator. Cellulose has an R-value of 3.7, whereas fiberglass has an R-value rating of 2.8. If you choose to install loose-fill insulation into the walls, it needs to be held in place with netting, at least while the wall is being completed.

Spray-in insulation is similar to loose-fill insulation. It expands into a foam, filling every possible area even in hard-to-reach places. Spray-in Insulation has high R-values, creates a super insulated area, and is great for sealing tiny gaps. The one downside to spray-in insulation is it's one of the most costly options. However, by spending now, in the future you will be much better off living in a warm and comfortable home.

Rigid foam is a stiff board, and when applied to the outside of a framed wall, it's a great way to keep wall cavities dry and reduce the risk of mold. More expensive than batts and loose-fill, rigid foam has more than double the R-value, making it especially effective where space is limited. If you are remodeling your home and you want to incorporate insulation in that process, consider rigid foam because it is easier to add insulation to the outside of a framed wall. Otherwise you'll be removing a wall, adding batts or loose-fill insulation, and replacing the wall again.

Air Leakage

Leaky building syndrome is an issue affecting homeowners worldwide. Air leaks can be responsible for approximately 25% of the heat loss in a new home and even more in older houses. They can even cause mold and structural deterioration.

To determine whether your home is suffering from air leakage, a blower door test must be performed by an energy auditor or a heating contractor. These tests shouldn't cost you more than a few hundred dollars and are a great way to check if leaky areas must be sealed.

Once you have all air leakage problems sorted out, it is important to have good ventilation. Fresh air needs to be able to come into your home. Mechanical ventilation will control the flow of fresh air in your home and help define the correct pressurization of a house.

Foundation and Framing Essentials

Foundation

The foundation is one of the most important things to take into consideration when building a home; yet, their importance for the efficiency and air quality of a house is often forgotten about. When looking at the foundations of a home, there are three key factors that must be taken into account: resource conservation, energy conservation and moisture control.

Look at the foundation of a house as part of a whole system rather than as just one aspect of home construction. The good performance of a home relies on a good foundation in order to cut down on heavy heating and cooling costs, as well as reduce the likelihood of any moisture and mold problems. The one thing which rings true for all homes is that a foundation should not need to be replaced over its lifetime – in other words, foundations need to be built to last.

In this day and age it is important to build using sustainable building practices. For starters, consider substituting fly ash for cement. There are two main benefits for doing this: using recycled product means you will be stopping the waste from being dumped in landfills, and substituting fly ash actually improves the strength and durability of the concrete. Not all builders know that you can substitute fly ash in concrete so the key is communication. Or, research to find a contractor who has experience working with fly ash.

Another important framing essential that you should be aware of when building your home is that foundations should be insulated. If the foundations of your home are not insulated, you will find that there will be heat loss throughout the home. This includes the foundation walls, crawl space and concrete slabs. It is best to insulate before you lay the foundations down as this will save you considerably in the long run and add value to your home if you ever decide to sell.

It is best to insulate foundations on the outside in order to reduce any risk of condensation and mold development. The best way to do this is to insulate the exterior of the foundation wall by a process referred to as backfilling. Two inches of rigid foam insulation should be used to insulate foundations, but you may need to increase it to three inches if you live in areas which are very cold. Once installed, this insulation will keep your basement at a steady temperature and open up possibilities to use it as an office or as a fun room for the kids to play in.

Seeing as you are insulating foundations, it is also a good idea for you to insulate the slab. It is very important that you insulate slabs if you live in an area where the number of cooling degree days is high. In these instances, this step can cover approximately 15% of the cooling load for the whole home. You can insulate the slab

perimeter (this is a cheaper option), but it's recommended to insulate the entire slab to avoid any heat loss.

Do everything you can to prevent moisture getting into your home, and this means controlling moisture around your foundations as well. Even if your builder uses asphalt-based damp-proofing before backfilling the foundation, it is still not enough to control moisture around foundations entirely. You may wish to discuss with your builder other options such as applying a rubber-based coating over the outside of the foundation wall to help keep your basement warm, dry and mold-free.

Framing

There are a range of materials that you could use for the framing of your home, such as straw bale construction, blocks of aerated concrete and structured insulated panels. There are benefits for using all of these materials, and each one plays a role in sustainable building practices. However, not all of these materials are widely used, and getting ahold of them is often difficult and can be rather expensive process.

Despite the fact that there are a range of materials you can use to build your home, wood is still the most popular choice. In fact, wood is one of the most renewable materials that is used in construction. The one problem with typical house construction is that builders are using too much framing. If builders incorporated advanced framing techniques by using less wood and smarter joints, the amount of wood required to build a typical home would be chopped by at least half, if not more.

When less wood is required, you will be curbing some of the construction waste that gets thrown in landfills every year and cutting down on greenhouse gas emissions. Having a home with less framing will also mean that it is easier to install insulation.

Build with Certified Wood

As of now, global warming is a real threat to our environment, and that's one reason why planting trees in forests is beneficial to both us and the environment. Every year we chop down more than 32 million acres of forest to use the timber, but in the future it is going to be possible to maintain forests that are regularly cut down.

The Forest Stewardship Council (FSC) was founded in 1993 as an international non-profit organization which certifies that wood has been harvested sustainably from forests. It is important that you use timber which has the FSC stamp of approval, which means that the wood that you are using is from organizations that follow responsible forest management standards. Essentially, harvesting this wood did not contribute to deforestation.

There is no difference with wood which is FSC certified than the wood from a clear cut forest apart from the fact that it doesn't contribute to deforestation or global warming. Regardless it's something to think about because the more people that choose to use certified wood, the better it will be for the environment. And it will eventually put a stop to illegal logging practices as well.

FSC certification is the only way to know that the wood that you are using comes from a sustainably harvested forest.

Top Ways to Save on Electricity Bills

Taking stock of your utility bill is one way you can save money, but by following these tips you will also find you are more comfortable in your home while being more energy-efficient.

One way that you can instantly save money is by making sure that every time you leave the room you are turning off the light switch. It seems simple enough, but many people fail to do this simple task and pay the price for leaving the lights on in the next month's power bill.

It is important that you get rid of any incandescent light bulbs that are used for more than two hours at a time and replace them with compact fluorescent light bulbs (CFLs). CFLs only use 25% of the electricity of incandescents, which means a saving of several hundred dollars for the average household every year. They last at least eight times longer, which saves you replacement costs as well.

Turn off the screensaver on your desktop computer or laptop. By doing this you can save upwards of $100 a year. Sure, screensavers look attractive, but the reason they were developed was to prevent screens from burning out. Now that technology has developed far past that stage, they are no longer required. Better yet, to save even more money, I would suggest turning off your computer completely by shutting off the surge protector.

Look at the appliances that you use every day to find easy ways to make your life more energy-efficient. When you replace refrigerators, dishwashers and washing machines, for example, pick a new and more efficient model. Make sure you look at the Energy Star sticker (www.energystar.gov), and find appliances with the lowest yearly operating cost by visiting the U.S. Department of Energy's Energy Efficiency and Renewable Energy website (www.eere.energy.gov/consumer).

There is no rating for ovens and stovetops, but there are a few things you can do to make sure these appliances are running as efficiently as possible. If you are cooking a small meal, it is a good idea that you use a microwave or a toaster oven. And avoid opening the oven door to check on food, which lets heat out and can also interrupt the cooking process, taking longer and producing less tasty results. You can also cook energy smart on the stovetop by matching the size of the pots and pans with the size of the heating element.

Cut down on how much water your shower uses. If you install a low-flow showerhead you can save approximately 4,000 gallons (over 15,000 liters) a year. Apart from saving water, you are saving gas and electricity as well by not having to heat that excess water. This is a project that you can do straight away; all you need to do is go

to your local hardware or home goods store. Due to federal law, all showerheads will be no more than 2.5 gpm, but lower flow amounts are available as well.

Install a programmable thermostat. If you set the thermostat to your daily schedule you can have your home at a comfortable temperature at all times. For instance, you can set the thermostat at a level you are comfortable with for when you first wake up in the morning and also for when you return home in the evening.

Take stock of your appliances to see which ones you really need, and if you can do without them, get rid of them. A lot of the appliances that we now use are for convenience rather than a necessity. Do you really need that spa or that dishwasher that you fill up with only a few dishes a day? Try going without the dishwasher for two weeks, and see how easily you can cope.

Front-loading washing machines are gaining popularity and use much less electricity than standard top-loader models. Another benefit of front loaders is that they use far less soap and spin the water faster with less vibration. If you are thinking about replacing your top-loader washing machine, why not replace it with a more efficient style?

Another way to instantly save money is to hang washing on the line outside or on drying racks rather than placing the clothes in the machine. It requires no energy at all and is a task that can be completed in minutes.

Get rid of appliances that use large amounts of water and cost you a lot of electrical energy to run. These appliances include large aquariums, swimming pools and spas. A heated aquarium uses a lot of energy, mostly for controlling the tank temperature. If you can't fathom the thought of not having fish as pets, then sell the big aquarium and purchase a small glass fish bowl.

It's a great idea to insulate your water heater if it is not already internally insulated with foam. If it's old, it's best to replace it entirely. To find out if your water heater is internally insulated, all you need to do is look at the opening of the water heater where the pipes emerge from the tank. Look at the pipe fitting to see if there is a plastic trim piece around the pipe. If you wrap your heater with a tank wrap, you will save some energy on your monthly utility bill.

Have you thought about installing a solar water heater? If you have some spare income and have real interest in living sustainably then one of these is highly recommended. At approximately $10,000 a pop, however, it is a decision that takes a bit of thought. Solar water heaters are great if you have some wall area or an unshaded roof that faces south as you can reap the benefits for decades. It's important that you speak to your solar expert, who will be able to give you advice on the type and size of solar water heater that you should utilize depending on the size

of your house, the location of your house and the number of people in your household.

If you have a furnace or an air conditioning unit in your home, make sure that you always have clean filters. Change them at least once every month that the system is in use. If these systems are not used so much in the off-season (spring and fall) then you don't need to worry about it then. But if you have really dirty filters, change them more often.

Ventilation is as important in a home as an efficient air conditioner. When you buy a new air conditioner, the Seasonal Energy Efficiency Ratio (SEER) is the ratio of efficiency you need to look for. Choose an air conditioner with the ENERGY STAR label.

Windows and doors are where the majority of heat is lost. This inefficiency adds to your utility bill. Install energy-efficient windows in your home. Double-glazed windows are a popular and great energy-saving option because their inside surface is closer to room temperature. If replacing your windows is not an affordable option, why not add weather-stripping? Don't forget to add it to your doors as well.

There's a lot you can do on your own to decrease energy use, but it never hurts to get a bit of advice from the experts. Through discussing with an expert your home's structure, the appliances you use, and the number of people in the household, you will come to an understanding of how and in what areas you can cut down your energy usage and your monthly power bill. Most top quality energy auditors will spend a few hours with you at your home and go through your entire house including your attic and basement. They should look for air leakage with a blower door test and duct inspection, and they'll use an infrared camera to assess the insulation levels in your home.

Install Solar and Wind Power

Solar and wind power are readily available power sources, and the one reason why everybody is not using them yet is that up until now green energy has been too cost-prohibitive. Until more people choose to use renewable energy, the cost of producing those types of energy will remain high. However, governments worldwide are realizing the benefits of these technologies and thus offering incentives for people who decide to use solar energy and wind power.

The Energy Policy Act makes installing solar and wind power affordable options through the use of tax credits which range from $50 to $2000. Rebates are available as well. There are a range of renewable energy incentive programs available for consumers. The North Carolina Solar Center and the Interstate Renewable Energy Council were key developers of the Database of State Incentives for Renewable Energy (DSIRE); this database describes what resources and incentives are available for Americans who wish to consider renewable energy options.

A great thing about renewable energy is that if you generate enough you can sell it back to the utility company. The 1978 Public Utility Regulatory Policy Act states that if individuals or businesses generate excess amounts of power through renewable energy, the utility company must buy it at wholesale cost.

Solar & Wind Energy Systems

Electricity can be generated from sunlight through the use of the photovoltaic (PV) cell, which converts light energy into electrical energy using the process called the photovoltaic effect. Sunlight hits the PV cell, and the cell then transforms light energy into an electrical signal. The electrical signal is then converted into electrical power. The same principles apply to a small solar power system as to a large scale solar power system.

If you have a large area (more than an acre) of land at your disposal then you may be able to turn that into power too. For people who live in a rural location or on an empty block, wind power is a cost-effective and renewable source of power. Even if you only have minimal natural air movement, your home can at least produce some electricity in a cost-effective manner. Depending how much wind you have on your property you could possibly save 50% to 90% on your electricity bill. Combining wind power with solar power could potentially mean that you never have to pay a power bill ever again.

To measure how much wind power you have available at your home you need to have the correct measuring equipment. Windsocks are available which indicate the

speed of the wind as well. More accurate equipment is available at a science or weather equipment store.

Wind resource maps detail the estimated yearly electricity production available from a wind turbine. These maps are based on an average wind speed, but if you are going to rely fully on wind power, you will want to make sure that you get consistent wind speeds at your location. The Wind Energy Resource Atlas of the United States is available on the Wind Technology Center website (www.nrel.gov/wind). More than likely you will want to have a battery system where you can store the generated power.

Getting Started

If you are concerned about the damage that fossil fuels are doing to the environment and are looking for other options, then solar and wind energy are your best bet. You do not have to fully commit to a wind- or solar-powered system; instead, think about the small changes you can make. For starters, you may want to install solar panels on your roof. There are a range of styles available which fit into nearly any budget.

By combining green-building techniques as well as active solar systems, you can create a home that harnesses as many kilowatts of energy a year as it uses. Yes, you can create a zero-energy home by combining technologies such as solar water collectors and photovoltaic panels.

That said, passive solar design can be just as useful in creating a zero-energy home. Talk to an engineer who will be able to give you the best advice about how you should build your home to take advantage of both the sun and the wind. You need to make sure that your house is orientated in the right position, that your windows are in the right spot, and that you have an appropriate overhang. This can cut heating bills by up to 80%, and the energy costs can be minimized or fully covered by utilizing wind and solar power.

Plumbing Tips to Save Water

If you are looking for ways to save money, consider using less hot water. You'll be paying less on your energy bills because you will not need to pay to heat that extra water.

There are also a number of DIY projects you can complete to reduce water usage.

Faucets

For example, install a low-flow aerator on your faucet. To complete this project follow these steps:

1. Unlock the old aerator.

2. Screw the replacement aerator in. Makes sure it doesn't leak when used; if it does, use pliers to tighten.

After installing a low-flow aerator you may wish to add an on/off lever for it. These are helpful when pouring a glass of water. The biggest benefit of an aerator with a lever is in the bathroom when you require intermittent hot water.

To save on hot water bills it is important that you replace showerheads too:

1. Unscrew the showerhead using pliers.

2. With plumber's tape, wrap the threads of the shower arm clockwise for a few turns.

3. Screw in the new showerhead, and tighten with pliers.

4. Turn the shower on to make sure that there are no leaks.

Toilet

Installing a flush adapter and aqua water-saving system. When the time comes for you to replace your toilet make sure to get a low-flow, dual-flush model.

Anyone can save water by lowering the tank float manually. It's easy to do this; all you need is a screwdriver to turn the adjustment screw to lower the float.

To trick your toilet into using less water, you can also place a soda bottle or brick in the back of the tank. Fill a bottle half to three-quarters full with sand and small

pebbles, top it up with water, and seal the lid. Simply place the bottle in the water tank, and this process can save half a gallon of water per flush.

As well as stopping equipment from using excess water, it is also imperative that you fix leaks; otherwise you are pouring water (and money) down the drain.

Appliances

Did you know that a washing machine uses just as much water as your toilet does? If you use a model that's more efficient, you may be able to cut down how much water you use per load. Front-loading washing machines are a better option when it comes to water efficiency, but do your research as there are some energy-efficient top-loaders as well.

If you do need to use a dishwasher, it is important to pick one with an ENERGY STAR rating. You will find a good range of water-saving models available by most manufacturers. It is also important that you fill the dishwasher to capacity before turning it on; otherwise, you will just be wasting both electricity and water.

Recycle

Greywater is the leftover water from sinks, showers and dishwashers. Consider utilizing greywater for irrigation and to flush the toilet rather than watching it run down the drain. Recycling greywater is a relatively new concept, but there are some plumbing systems that now already incorporate a way of capturing this used water.

The big problem is that most cities do not have building codes to allow the use of greywater. If you are building a home, you should talk to a plumber about pre-plumbing for greywater for when building codes are adapted for it. One of the reasons that there are no building codes for plumbing greywater at the moment is that there is a bit of fear that greywater and toilet water (black water) may get mixed up.

Make Landscaping Even Greener

Good green landscaping is important when you are building an energy-efficient home. There are a number of things that you can do to incorporate plants into the overall design to reduce the need for insulation as well as the flooding from rainwater runoff.

Even the correct placement of trees and shrubs can be the difference that makes a home cool in summer and warm in winter. The U.S. Department of Environmental Protection says that planting trees can cut a home's air conditioning and heating cost by approximately 25%. That's not bad for a tree that stands pretty in the yard too!

Make sure that your landscaping plans take into consideration the way that plants can be used to save on both energy and water. Buy plants that require the least amount of water and little other maintenance, such as fertilization. By no means do these energy and water savings mean that your garden cannot be aesthetically pleasing.

The more lawn that you have the greater dependency you will have on water. The ultimate aim of a green home is the opposite; you want to conserve as much water as you possibly can. There are more options than simply going without a lawn and having a concrete slab as your front yard. For instance, you could plant native plants as they require less water and are tolerant to the environment.

If you still want to have a small lawn on your front yard, that can be accommodated with careful planning. Sprinklers are the biggest waste of water in a garden because the dispersed water only touches the plants rather than the soil where the roots of the plants and flowers are able to properly absorb the moisture. If your plants require that little bit of extra water to remain healthy, consider in-ground irrigation. It uses less water and yields better results. And if you are concerned about wasting water, you may want to place the irrigation system on a timer or rain meter.

Rainwater catchment systems are a way of utilizing what falls from the sky to water your garden. It is actually really easy to make your own rainwater catchment system – all you need to do is place a rain barrel underneath the gutter spout from your home. If you want to get a bit more technical, measure the size of your roof and multiply it by the average yearly rainfall per inch in the area to find out how much rainfall you can gain. Once you have calculated this, you will be pleasantly surprised by with how much water you can feed your garden without ever having to turn that tap on.

Follow these landscaping tips, and combine them with the other advice in this book about framing, insulation, ventilation, electricity savings, plumbing, and solar and

wind energy to build a home that's green from the ground up.

Best of luck with your future projects!

Watch these free videos for more information:

Slash your power bill with your very own home energy system

DIY Dish System

Simple DIY method for generating free electricity

Compact Solar Panel System

Save money by growing an organic veggie garden

Quick Power System