Energy saving tips

Before committing to a major "Green "project, there are many things that an existing homeowner can do to reduce energy consumption without spending large sums of money. Many of the steps that can be taken do not require third party assistance but rather can be accomplished by the home owner.

If you are building a new home there are many things that you should consider.

Make your house tighter and take advantage of the sun.

Heat loss in the winter and heat gain in the summer can be reduced by taking the following moves.

For existing homes:

1) Replace the caulking around all windows and doors as needed and take corrective actions to eliminate drafts. This can be done by caulking all openings and weather stripping exterior doors as required. Consulting a local professional is often the best choice when weather-stripping doors.

2) Repair any holes in the sheet rock.

3) Use draperies or window treatments to block the sun in the summer and to block airflow in the winter. When possible install the draperies inside the jams. This will tend to block airflow more effectively.

4) Allow the sun to provide radiant heat during the winter. Nature's source of heat is available free of charge.

5) Electric outlets and wall switches can be a source of air leaks. Insulating all openings can substantially reduce drafts throughout the house. Check with a qualified contractor and or visit a home materials retail outlet for materials and instruction on how to safely do this.

For new homes:

1) The best practices in building science suggest that new homes be built such that exterior walls, ceilings and floors provide for airtight construction, insulation, and moisture management. The importance of windows and doors cannot be overstated when managing moisture, airflow and temperature.

a. Air Sealing - prevents air movement in the wall and from entering the wall. Advanced air sealing practices reduces air infiltration and can significantly cut annual heating costs, reduce cooling cost, improve building durability, while creating a healthier indoor environment. Ask your builder about what measures they are taking to ensure that your home is well sealed. See www. Energystar.gov for some common illustration of air leaks within a home.

b. Moisture management - Though wall systems must be a barrier for air, it must also have the capability to management moisture. The way walls and roofs are built must provide a way for water to drain away from the home. At the same time a wall system must provide a mechanism for water or vapor to dry once it has entered the wall cavity. When building a new home ask your contractor or architect what measures they are taking to protect your home from moisture.

c. Insulation- There are many types of insulation with varying benefits associated with each type. This topic is dealt with specifically in detail in another section of this website dealing with insulation. Become knowledgeable in the various types of insulation and ask your architect, builder, or an insulation specialist for their recommendations.

d. Windows and Doors - A window or a door is essentially a thermal hole in the building envelop. This hole is so substantial that it is estimated that a home may lose as much as 30% of its heating or air conditioning energy through its windows and doors. This loss of energy happens in four principle ways (conduction, radiation, convection, and air leakage).

There are many different types of windows with differing characteristics. Today's windows are constructed with either double or triple pane glass, have Low-E coating (applied on the correct surface based upon climate)and may have low conductance gas fillings between the sealed panes of glass.

The National Fenestration Rating Council provides a common rating system for windows which measures the following: U-Factor - a measure of heat loss, Solar Heat Gain Coefficient - a measure of the rate at which heat passes through a window, UV Protection- the rate at which UV rays are blocked, and Air Leakage- a measure of air tightness.

When selecting windows and doors as part of new construction or renovation, it is suggested that one researches the types of windows available, review the ratings of each window , and consult with their architect and builder.

What about heating and cooling?

In an older home, the type and efficiency of one's heating and cooling systems should be reviewed. An older low efficiency boiler can be not only expensive to run but may also produce more pollutants than necessary.

Check with a qualified local HAVC company and ask them to review the types of high efficiency conventional equipment available with you along with exploring the feasibility of using geothermal technology for heating and cooling.

There will be identifiable savings associated with a heating and cooling system upgrade. Your local HCAV contractor, your architect, and or general contractor will be a good resource in doing a cost benefit analysis.

Another section of this website will provide greater detail on your HVAC options.

Do the little things really matter?

Energy costs are going up almost every day and relief does not seem to be in sight. There are however many things that we can all do that can have a meaningful impact on energy usage. This is true for both the energy used to heat the home as well as the electric used to cool and operate the home.

Before one considers making a large investment in infrastructure such as a new HVAC system, one should first try to make the building envelop as efficient as possible. The actions one takes will potentially impact the type and size of a new HVAC system and /or number photovoltaic panels required to operate a home.

Thus the small things we do will not only save energy and reduce cost immediately, but their total impact may allow you to use a smaller systems when upgrading systems.

But what about electric usage?

The same is true with electric usage however the things we can do to reduce electric usage are many. LIPA via their website **www.lipower.org** is a vast resource of ideas on what can be done to reduce energy consumption.In addition LIPA has programs that help subsidize the purchase of certain equipment such as photovoltaic systems. In general their programs support the use of alternative energy that reduces the amount of energy created from fossil fuel. Please visit their website for more information concerning their various programs. They can also be contacted at 1-800-693-2626.

The installation and residential use of solar electric systems is discussed extensively in another section of this web site.

LIPA created a brochure, "53 Ways to Save Energy and Lower Your Electric Bill" The brochure discusses various ways we can reduce our use of electric. Their suggestions are categorized by the following saving areas. Noted under each category are some of their suggestions.

Lighting - Lighting accounts for about 15% of your lighting bill. By simply changing to the new screw in fluorescent bulbs, you will save 75% compared to the incandescent bulb and find that the bulbs last up to 10times longer. If you prefer incandescent lighting, use energy saver bulbs. Keeping your fixtures clean, downsizing bulbs to what is required, using task lighting where appropriate and using dimmers and electronic controls will have a major impact on you electric bill.
Another section in this website discusses the extensive savings available through the use of electronic / internet based controls of your systems.

Cooling - Air conditioning uses a good deal of electricity yet there are actions you can take that will allow you to reduce energy consumption yet stay comfortable. Your air conditioner should be sized correctly for the job and located on north or east facing walls and out of direct sunlight as much as possible. Also be sure to cool only those rooms that are occupied cool to a comfortable but not cold temperature, (changing the temperature from 73degrees to 78degress can save up to 15% in cooling costs). Check and change or clean your air conditioner filter monthly. Remember, ceiling fans uses about 10% of the electric consumed by an air conditioner so use ceiling fans whenever possible.

Refrigerators and Freezers - Appliances that create heating or cooling are big energy users. Be sure that the doors are tightly shut and check to see whether the door seals need to be cleaned or replaced. Check and clean the condenser coils found at the back or bottom of the appliance. Check the owner's manual for proper maintenance procedures and always unplug the device as recommended as recommended by the manufacturer.

Laundry - You can save energy by only using hot water for heavily soiled loads. Today's detergents are formulated to work just as well with cold water. Also running the washer only with a full load will save energy. The dryer also needs to be maintained by cleaning lint filter after each load. Failure to do so will lengthen drying time and could be a potential fire hazard.

Heating - The proper maintenance of and keeping filters clean is important in maintaining your heating system. Other energy conservation hints ealing with heat loss were covered earlier in this section. It is best that your system be maintained regularly by a qualified local HVAC firm.

Hot Water Usage - The hot water heater is the second largest energy consumer in the house. The savings tips are fairly obvious. When away for more than two days turn down the water temperature. Also older water heaters may benefit by being wrapped with a fiberglass blanket. Also insulate the pipes carrying hot water to reduce heat loss. Flow control devices installed in shower heads and faucets will reduce the amount of hot water used thus saving energy.

Dishwashers - Dishwashers use less water than hand washing dishes thus use your dishwasher. Using it when it is full is most efficient. Never use the rinse and hold setting. Also try opening the washer after the rinse cycle is completed and let the dishes air dry as opposed to using the dry cycle.

Cooking - The microwave oven is an energy efficient alternative to the conventional oven. When using the oven, avoiding "peeking". Each time you open the door the temperature is reduced by as much as 25 degrees. When cooking on the stove top use small pots on small burners and large pots on large burners. Also cook with lids when possible to retain heat. Though often recommended, preheating an oven is not required when cooking time is an hour or more.

Energy Star Appliances - When purchasing new appliances be sure to purchase Energy Star rated appliances. The Energy Star rating is your assurance you are purchasing an appliance that was designed to operate efficiently. Though there might be a higher upfront cost, the energy savings will be substantial. In the case of a refrigerator, an energy efficient model could save up to $1,200 over its lifetime.

Conclusions - There are numerous actions that a homeowner can take to save energy. Many of the actions that one can take can be done by the homeowner while others require the use of a local contractor.

When planning a renovation or building a new home, an architect and or general contractor should be of assistance in minimizing the energy footprint of your home. You the client should engage the professionals you have selected to design and build your home in discussions concerning your energy saving options. The choices you make will allow you to create a home that is both healthier and more energy efficient.