

## **WHAT IS A SUSTAINABLE HOME AND HOW CAN IT REDUCE YOUR BILLS BY OVER 90%**

Most homebuyers think long and hard about their budget when they plan to build a new home, but many may not consider other important issues such as the future health of the occupants or how expensive their home will be to run! Energy efficiency, water use and accessibility issues are important items that need to be discussed with your builder from the start.

A sustainable home is not a difficult concept to understand and by adopting a few key elements of solar passive design (being orientation, insulation, thermal mass & ventilation) we can achieve some great results at little or no extra cost, potentially saving hundreds of dollars by reducing our overall energy costs to heat and cool our homes.

**Orientation** – this would be the most important factor when designing a new solar passive home. Room orientation and location of windows are vitally important to enable the home to naturally heat and cool itself –without the costly addition of air-conditioners or heaters. The main living areas should be oriented north to maximise winter sun and minimise summer sun and bedrooms where possible, should be situated on the south side of the home so they can be naturally cooler in summer and warmer in winter. If possible, windows on the east and western sides of the home should be kept to smaller sizes to reduce the effect of direct sun into the home which will create heat in summer. Also overhanging eaves will protect each room from direct sunlight in the summer and still allow natural light into the home during winter.

**Insulation** –Good insulation will also help with heating and cooling by maintaining a more constant temperature inside the home. To achieve this we can install performance glazing (Smart Glass/Low E) to windows and doors and protect large openings by using good window treatments with a pelmet. We also add a higher Ceiling insulation (R4) and Cavity wall insulation (R1.35) included in the walls which can help maintain a constant temperature in your home through summer and winter and further reduce heat entering the home as well as energy escaping the home, saving you further on energy costs.

**Thermal Mass** – In Perth we are in the fortunate position of having a climate that allows us to construct homes that can be heated and cooled naturally. A commonly used construction format is to use brick both internally and externally and have tiled or concrete floors. The thermal mass of these products enables us to regulate variance in temperatures and avoid big swings. With double brick homes, the use of cavity wall insulation included will also provide excellent protection. Another good building system is reverse brick veneer, which has brickwork on the inside to get the benefit of thermal

mass with framed construction on the outside of the building offering protection from the elements.

**Ventilation** – Cross flow ventilation is important and by placing larger windows on the north and smaller windows southern side of the home this will create a natural breeze through the home to keep the home cool in summer. Ceiling fans are a more affordable way to assist in ventilation and provide airflow for both cooling in summer and heating in winter. Your home should be free of any building odours with materials and finishes to contain no VOC's where possible.

These are the main points to consider when designing and building a solar passive/sustainable home however, it is important to remember that a sustainable home has to be affordable - not only to build - but also to live in. It is possible for Perth homes to operate with room temperatures between 18C and 28C all year round without artificial heating or cooling required if you have a solar passive home.

By adding some sustainable features to your project this can assist you in both energy and water saving practices. Some things that should be considered are:

- Solar Hot Water systems
- Photovoltaic solar cells (PV Systems)
- Rainwater Harvesting
- Greywater recycling connections
- Energy Efficient Lighting
- Waterwise Gardens and reticulation
- Efficient Appliances
- Waterwise tapware, showerheads and toilet systems

The best time to think about all these issues is often before you even purchase your property. Speak to us about what is possible and how affordable different options are before getting plans drawn up or committing to a design. By incorporating the four key elements when planning your new home you will achieve a solar passive home providing you with year-long comfort and fantastic savings on your utilities.

Don't forget to BUILD IT THE RIGHT WAY the first time for future comfort and savings!