YOU'VE GOT THE POWER TO CREATE AN ENERGY EFFICIENT NEW HOME OR RENOVATION

There's no better time to think about energy efficiency than when you're planning a new home or renovating an existing one. Smart design choices can give you a home that's stylish, healthy and warm, and costs you a lot less to run.

Thinking about the energy efficiency of your home at the design stage means you have the opportunity to sort out the basics that will really make the difference to the overall energy performance of your home.

There are lots of different choices to make when you're building or renovating a home. Energy efficient homes have a combination of features that work together to give you a warm home that uses less energy.

GET THE EXPERTS IN TO HELP

Small design choices can have big impacts on the comfort and running costs of your home. It's not always easy to see how your choices will affect your home's energy efficiency – so you may want to consider getting some specialist advice to help you. This includes industry professionals such as architects and designers who can provide this at the initial design stage.

Home energy rating

An assessment for a home energy rating can also help you to make informed choices about your home's energy efficiency. By modelling your planned home or renovation, an assessor will show you exactly what impact your choices will have on your home's energy efficiency – and what you could do to improve it. You'll also get a star rating that indicates how efficient the home is. For a list of qualified home energy rating assessors, visit the Association of Building Sustainability Assessor's website at **www.absa.net.nz**

Find an Expert

EECA's 'Find an Expert' directory lets you search for products and services around New Zealand relating to building design, energy efficiency and renewable energy options for the household.
Visit www.energywise.govt.nz

EECA Energy Efficiency and Conservation Authority Te Tari Tiaki Pūngao

Department of Building and Housing Te Tari Kaupapa Whare

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KEY FEATURES OF ENERGY EFFICIENT DESIGN

Getting the design of your home right can mean a lot less energy is required to keep it warm, dry and comfortable. Here are some things to think about when you start planning.

Position your house to make the most of the sun – placing living areas and rooms you use a lot on the north-facing side of the house will help achieve greater comfort for less cost. Locating lesser-used rooms like the bathroom, laundry and garage on the south-facing side will act as buffer against heat loss.

Use thermal mass – a concrete floor that is exposed to the sun (e.g. through north-facing windows) will soak up heat during the day and release it again at night. The concrete slab needs to be well insulated to the ground and around its perimeter, and should not be covered on the inside with insulating floor coverings such as carpet.

Install plenty of insulation – under the Building Code all new houses are required to be insulated to a certain level and it's much easier to install insulation as you go, than it is to 'retrofit' an existing building. Ceilings, underfloors and walls all need to be insulated. And when it comes to insulation, it pays to do it well. Check the Building Code to see the minimum requirements for insulation levels and then if you really want to improve your home's warmth and comfort and lower your power bills, consider exceeding the new minimum requirements.

Garages are often uninsulated. If your garage is attached to your house don't forget to ensure insulation is installed in the wall between the adjoining house and the garage.

For a free copy of the Department of Building and Housing's *Your Guide to Smarter Insulation* booklet visit **www.dbh.govt.nz/publications**

Think about direction when choosing window sizes – a lot of heat can be lost through windows, even with double-glazing, if they're not sized properly for the direction they're facing. Ideally, windows should be fairly large on the north facing side of the house, moderately sized on the east and west sides, and small on the south side.

Use good double-glazing with insulated frames – make sure double-glazing is fitted with frames made from an insulating material such as PVC or wood. Aluminium is a common framing material because it is light, durable and low maintenance, however it is a poor insulator and heat is lost through the framework. If aluminium framing is installed, ensure there are 'thermal breaks' which place insulation between the interior and exterior part of the frame. The performance of double-glazing can be enhanced by including an insulating gas filling between the glass layers which stops air currents helping heat escape; or by installing low-emisivity glass which allows light and heat in, but prevents heat from escaping.

Try to create zones – think about the heating requirements for different spaces around your home. By grouping rooms with similar uses and blocking off unheated and heated rooms, you can reduce your overall heating needs and energy use.

CHOOSE EFFICIENT SYSTEMS

Once you've looked at maximizing the energy efficiency of your house through good design, it's time to consider the systems you'll be using. Around 35% of an average home's energy is used for heating, 30% for hot water, and 8% for lighting – so choosing to install energy efficient systems can have a significant impact on your power bill.

Choose a correctly-sized, efficient heating system – it will help keep your home warm and comfortable using less energy. Different types of heating will satisfy different requirements in your home. Some of the most energy efficient and clean heating options are heat pumps, wood burners and wood pellet burners. ENERGYWISE™ action sheet 5 has more information on heating your home.

Choose an efficient hot water system – install an efficient hot water system, including a low-flow shower head. The options include solar water heating and heat pump water heating, which offer lower ongoing running costs. ENERGYWISE™ action sheet 4 has more information on water heating.

Think twice about recessed lighting – recessed lighting reduces the effectiveness of your ceiling insulation because large holes have to be cut through to minimize fire risk. In recent times recessed halogen lighting has been popular, however it is really inefficient. If you select halogen lighting, use high efficiency halogens (IRC types) and fittings that aren't recessed. Other options include recessed lighting where you can insulate right up to the fitting in the ceiling space, or other types of non-recessed fittings that take standard CFL bulbs. If you install halogen spotlights, ensure they are positioned to illuminate the task area, like kitchen bench tops – not the floor.

A lighting designer can help you choose attractive and purpose-fit lighting solutions that cost a lot less to run.

YOU MAY QUALIFY FOR FINANCIAL ASSISTANCE

ENERGYWISE™ funding is now available to low and middle-income earners and landlords, to help improve the energy efficiency of New Zealand houses. This includes a range of measures such as insulation, clean heating systems and solar water heating.

To find out more and whether you could qualify for funding assistance, visit www.energywise.govt.nz/funding-available or call 0800 749 782

FIND OUT MORE

There is plenty of information available to help you make smart choices on energy efficiency when building a new home or undertaking a major renovation – check out these websites:

www.smarterhomes.org.nz

www.energywise.govt.nz

www.ecodesignadvisor.org.nz

www.consumerbuild.org.nz

www.dbh.govt.nz

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For more ways to save energy at home call 0800 749 782 or visit www.energywise.govt.nz