

Rt Hon Helen Clark
Prime Minister of New Zealand
Hon Clayton Cosgrove
Minister for Building and Construction



3 May 2007

Frequently Asked Questions

Biggest energy efficiency steps in 30 years

What are the changes?

The changes are the most significant improvement to the energy efficiency of buildings since insulation was made mandatory in 1977. The changes are:

1. requiring better insulation for new homes, usually including double-glazing
2. making it easier to install solar water heating systems
3. improving the efficiency of lighting in new and refitted commercial buildings

Consultation on the following two proposals has just opened:

4. reducing the energy consumption of domestic hot water systems
5. energy efficient design, installation and operation of HVAC (heating, ventilation and air-conditioning) systems in commercial buildings.

Insulation

The Building Code will be amended to make new homes more energy efficient. New homes (and major extensions to existing homes) will need to use about 30 per cent less heating energy to achieve the same indoor temperatures. This will be achieved by requiring better insulation and smarter design.

New Zealand's Building Code is performance-based. No single insulation measure will be mandatory. Homeowners will still have the flexibility to choose the insulation and design features that best suit their needs. Window double-glazing will be necessary in most cases, but it will be possible to retain single-glazed windows in warmer climates, provided attention is given to house orientation, window size and design features.

Existing houses will only be affected if extensions are undertaken. Only the extended area will have to be insulated to the new requirements.

Solar water heating

There are currently no Building Code Compliance Documents for installing solar water heating technology. This means that building consent authorities (local councils) have to examine each project on its own merits, leading to delays and unnecessary costs.

The Department of Building and Housing will publish a new Compliance Document by August 2007 on solar water heating installations. This will lower the cost of installing the technology by as much as 10 per cent or \$500, and will remove an important barrier to its

adoption. Households with the technology can save around \$200 a year, or 50 per cent in water heating costs.

Energy efficient lighting designs in commercial buildings

The Department of Building and Housing will also amend the Compliance Document for lighting in commercial buildings. This will affect new or existing commercial buildings where building work requires a building consent.

It is calculated this will save commercial building owners about \$8m a year (nationwide) in current energy prices. Options to meet the new standards include use of energy efficient lighting systems, use of natural light and design.

The new Compliance document will also be introduced by August 2007.

Why are these changes happening?

There are good reasons to build in smarter ways:

- Increasing energy costs. Electricity costs increased 4.4 % each year between 2000 and 2005.
- Better technology. Some technologies that reduce energy consumption are now cheaper. For example, insulation prices have dropped by up to 15 % in real terms since 1995.
- Government objectives. Improving buildings' energy efficiency will help achieve objectives for reducing energy demand and greenhouse gas emissions.
- Environmental benefits. Improving insulation will reduce heating needs. Reducing solid fuel home heating will support the national environmental standards.

Are buildings really such large consumers of energy?

Residential and commercial buildings consume nearly a quarter of New Zealand's energy, and more than half of the country's electricity consumed is used in buildings in some way.

About \$2.2 billion a year is spent on home electricity. About a third of household energy is used to heat water, one third to heat space, and one third to power household appliances and lights.

In commercial buildings, about one third of the energy consumed is used for lighting, one third for heating and cooling, and one third to power equipment.

How does this announcement fit in with other Government initiatives?

These new measures complement other government work in this area, including the Building Code review, which is scheduled for completion in November 2007, and the draft New Zealand Energy Efficiency and Conservation Strategy

These measures will be introduced ahead of the completion of the current Building Code review, which is also likely to bring additional energy efficiency measures.

What are the major benefits from these new measures?

- Reduced energy use
- Reduction in environmental impacts and in carbon emissions
- Warmer, dryer, healthier homes and workplaces
- Easier access to new and more efficient technologies
- A limit on the non-renewable energy used to heat water

What will it mean for the owners of the thermally efficient new homes?

- Lower energy use, lower power bills, and better temperature control
- Houses will be warmer, drier, and healthier
- Quieter houses because of double-glazing
- Increased capital value and improved ability to sell
- Reduced maintenance because of less condensation on windows

What sort of costs and savings can owners of these new homes expect?

Energy-efficient technologies will be easier to use, the cost of installing solar water-heating systems is expected to drop by up to 10% and water-heating bills will drop by up to 50 per cent.

While these enhancements could cost between \$3000 and \$5000 per new house, there would be lower energy costs over the life of the house, and better temperature control in both hot and cold weather, and healthier living.

The impact on the average new house of these proposals will be:

Location	Average cost of constructing a medium-sized house now	Average additional cost of construction after the changes	Annual saving in energy bills	Return period on investment (in years)
Auckland	\$254,000	+\$3,000 to \$5,000	\$760	7
Wellington	\$253,000	+\$3,000 to \$5,000	\$940	6
Christchurch	\$251,000	+\$3,000 to \$5,000	\$1,340	4
Dunedin	\$250,000	+\$3,000 to \$5,000	\$1,800	3

Will the same rules apply regardless of local climatic conditions?

People in the South Island should be able to get the same level of comfort, health, and efficiency from their homes as those in the North, and vice versa. So, while all new houses will have to meet the same standards for warmth, the way those standards can be achieved may vary, depending on where you live.

When will the insulation changes take effect?

There will be a lead-in period for the thermal insulation methods, including double-glazing, to allow the manufacturing industry to gear up and meet the new requirements. The South Island would see a lead-in time of four months, as double-glazing is already widely used there, so the skills and products are easily available. The Central Plateau of the North Island will also take effect from November. The changes in the rest of the North Island will take effect in 2008 to give time for skills transfer and for manufacturers to catch up with demand.

Will it be compulsory to install solar water heaters?

No. Some areas are not as suitable as others for solar heating due to geography. However, solar water heating is encouraged wherever it is suitable. The new Compliance Document will make it cheaper and easier to install solar hot water – in new houses and in existing houses.

How will the new measures and proposals announced today improve the energy efficiency of commercial buildings?

The changes for commercial buildings around lighting could lead to energy savings for New Zealand of about 104 Gigawatt-Hours (GWh) over a decade.

In addition to that, research indicates that heating, ventilation, and air conditioning (HVAC) systems - which account for up to a third of energy used in commercial buildings - are often not properly set up or maintained, but they can use up to 50 percent less energy when they are.

The proposals will contribute to better energy efficiency in HVAC systems by amending to the Building Code to:

- include HVAC systems in the performance requirements
- introduce performance requirements for maintenance of HVAC systems (including ensuring access for maintenance)
- require metering of electricity and gas consumption of the building

These changes would ensure that HVAC systems are designed to be energy efficient, are properly installed, are easily maintained, and that their energy consumption can be continually monitored. The benefits include lower energy consumption, and an improved indoor environment in commercial buildings.

What is being proposed to improve the energy efficiency of domestic hot water systems in new houses?

This proposal is for new homes to have more energy efficient hot water systems. An efficient hot water system will save homeowners money by lowering power and gas bills.

Under the proposal, this would be achieved in various ways. For example:

- installing low flow shower heads
- insulating/lagging water pipes to minimize heat loss
- minimizing the distance between the hot water source and the outlet
- installing a solar water heating system

These choices could be 'traded off' against an overall energy efficiency target to find the most suitable and economic solution for individual homes.

And for the first time, it is proposed that carbon dioxide emissions will be part of the equation when deciding peoples' choice of hot water system. This is groundbreaking for New Zealand, as it is the first time these emissions could be considered as part of the performance measure in the Building Code or Compliance Documents.

Under these hot water system proposals, homeowners will save 4 gigawatt hours of electricity nationwide per year, or some \$600,000 in power bills in the first year, rising to \$1.2 million by year two, and \$1.8 million in year three and so on.

The country would reduce its annual CO₂ emissions by 1500 tonnes, compounding each year. The return period on investment for the average household would be less than two years.

What are the Building Code and Compliance Documents?

The Building Code sets minimum construction standards for building work.

The New Zealand Building Code sets the standards buildings must achieve but does not prescribe how to do it. Compliance Documents set out one way to design or build to meet the standards.