MINISTRY OF BUSINESS,
INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

Building for Climate Change:

Transforming the Building and Construction Sector to reduce emissions and improve climate resilience

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Photo by Sulthan Auliya

New Zealand Government

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Why is MBIE making changes?

New Zealand is now on the path to a low emission, climate resilient future. The Government has committed to being Carbon Zero by 2050 and has established the Climate Change Commission to support this journey. As the regulator and owner of a number of key areas contributing to climate change, MBIE has a significant role to play in achieving these critical long-term goals. One of these key areas is the Building and Construction Sector ("the Sector").

The world in 2050 after the Building for Climate Change Programme

Our vision is that by 2050 New Zealand's buildings are using as little energy and water as possible. They are warmer, drier and better ventilated, and provide a healthier place for us all to work and live.

The wellbeing of New Zealanders has improved, they're leading healthier lives, and respiratory illnesses from cold and damp houses are uncommon. People also have more money in their pockets due to lower energy bills.

Our infrastructure finds it easier to respond to demand for water, due to our lower use. This means we cope better with water shortages than we have ever done before.

Our energy grid is more renewable, partly due to the efficiencies from the Sector.

Energy efficiency and carbon cost are core considerations when building, and the Sector designs to meet an emissions budget as well as a financial budget. Energy efficiency, climate resilience, carbon literacy, and using energy and carbon modelling tools are an integral part of education throughout the Sector.

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The public knows what to ask for to get increasingly efficient buildings that have a low climate impact.

Reusing buildings and recycling materials is an established part of a Sector that is well on the way to having a fully-fledged circular economy ably supported by local supply chains.

The Government has been the lead in establishing standards for the Sector and in supporting low emission buildings.

The Government and the Sector work hand in hand to make sure communities are aware of climate risks, and understand where buildings need to be located and how they need to be built to best manage the risks.

The Building for Climate Change Programme will help achieve this vision for New Zealand.

Why is the Building and Construction Sector important to climate change?

The Sector is a large contributor to greenhouse gas emissions from:

- using energy in buildings
- producing construction materials, constructing buildings, and the waste from demolished buildings.

A recent piece of research commissioned by the Sector (Thinkstep, 2018) estimated that it contributes around 20% of New Zealand's greenhouse gas emissions, taking into account all the material used by the Sector. In a similar way, the Fifth Assessment Report of the United Nations Intergovernmental Panel on Climate Change (2014) estimated that globally buildings account for 32% of energy use and 19% of energy related emissions.

The above figures clearly show the opportunity for the Sector to help New Zealand reduce greenhouse gas emissions and achieve the goal of net Carbon Zero by 2050.

The climate risks we will be facing in the next 50 or 100 years are not the same risks we faced in the past. One of the key ways of keeping people safe from these risks is having buildings that are designed and built well, and helping people use fewer resources such as water. Just using the current settings for the future won't provide the safety and resilience New Zealanders need. MBIE and the Sector will be working to make sure how we build is up to the task of meeting the climate risks New Zealand will face.

What is MBIE going to do?

We are transforming the Sector to reduce emissions and improve New Zealand's climate resilience.

The Building for Climate Change Programme will deliver settings to drive transformation, provide the tools the Sector needs to meet the new challenges, and establish a system that will deliver lasting change. This will not be a few quick fixes but a 'once in a generation' system change to help deliver the climate change outcomes New Zealand is asking for.

To make this change the environment the Sector operates in needs to shift. We need to change the attitudes and beliefs of those who are making the day to day decisions as well as those of the consumers who drive the Sector's responses.

This is not an easy task and won't be done overnight. It is a challenge that requires bold vision, commitment and perseverance. However, it is key to delivering the climate change results that New Zealand needs.

What outcomes will MBIE and the Sector achieve?

The end goals for MBIE are simple:

- reduce greenhouse gas emissions, and
- improve New Zealand's resilience to climate change.

Delivering these two outcomes drives everything we will be doing to increase the Sector's response to climate change. All initiatives will have a clear and transparent link to show the Sector and the public how they will deliver one or both outcomes.

We have committed to two broad areas of action to support the path to low emissions and a climate resilient future:

- Mitigation
  a. Improving the operational efficiency of buildings which will reduce energy and water use, and improve ventilation and building temperatures. Improved efficiency will lead to lower emissions from buildings.
  b. Reducing the whole of life embodied carbon footprint of buildings which includes greenhouse gas emissions generated from the construction materials, construction process, construction waste disposal, and disposal of the building when it has reached the end of its life.
- Adaptation
  a. Improving the ability of buildings to withstand future climate change events.

These outcomes will help deliver New Zealand's climate change goals and improve the wellbeing of New Zealanders. As well as climate outcomes, improving the energy efficiency of housing means lower electricity bills and more money in the pocket of people who need it. It will also lead to warmer, drier and better ventilated homes, and improved health outcomes.

Working with and talking to others

We will not be able to achieve our goals alone. The Building for Climate Change Programme will work closely with the Sector, other government agencies, iwi, key stakeholders, local government and communities to ensure the Programme's success. This will include making sure the changes to the Sector work in harmony with changes to other areas such as land use and resource management.

We want to be sure New Zealanders understand the goals of the Programme, and that it will achieve its intended outcomes.

This plan cannot succeed without the support of many stakeholders. We will be transparent, and communicate early and often. This will help provide certainty for business planning and encourage innovation and industry leadership.

We will also consult and encourage feedback throughout the Programme.

The work will focus initially on new buildings

The initiatives in this Programme will first focus on new buildings. This focus will allow change in our building stock to occur at a natural rate without any sharp shocks. It's possible that improving the climate efficiency of new buildings will be enough to help New Zealand get on track for the 2050 goals.

While MBIE is not proposing any immediate changes to existing buildings, the transformation of new buildings may need to be supported by changes to existing buildings. The scale and scope of any adjustment to existing buildings will be carefully thought through and thoroughly consulted on to ensure the changes are justified.

Strategic direction – how we are going to create lasting change

To create the transformation needed to meet New Zealand's climate change goals, the Sector needs to adjust how it works and how it thinks. The public and the supply chain that support the Sector have to understand the need for transformation and support the process of change.

The Sector needs the tools, skills and incentives to translate intent into behaviour and also the ongoing support of a regulatory environment that has climate change at its forefront. We need to work with the public and the supply chain that supports the Sector so they understand the new choices they have and the different way of doing things. The Education sector will need to make sure the skills are there to allow the changes to be put into practice.

Raising the bar

We know that the current regulations won't deliver the climate outcomes New Zealand needs: we need to make long term changes to raise the bar for what we build. To make that happen we will be developing a road map for the Building Code. This map will show how the Code will lift over time and how it will support the other significant changes we will be making to the operation of the Sector.

Raising the bar for the Building Code is something we have to do carefully to make sure we maintain the safety of New Zealand's buildings. The work will also look at the costs of these changes to make sure they are worth it for the Sector as well as for New Zealand.

We have already started looking at how the external structure of new buildings can be better designed to keep those that live and work inside warmer in winter and cooler in summer with less heating and cooling.

Creating the framework for change

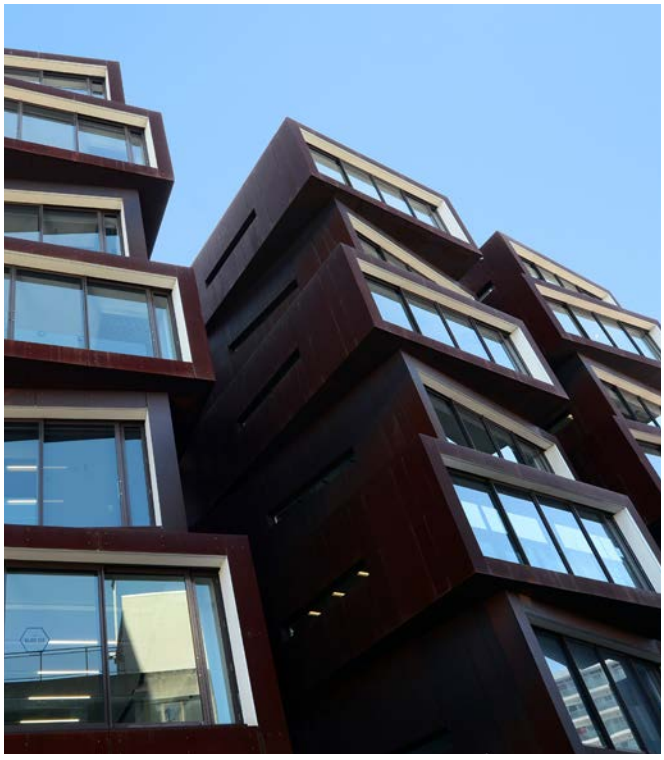
At the heart of the work to create lasting change will be two frameworks that will work together to reduce emissions:

› one focusing on operational efficiency of buildings (using less renewable and non-renewable energy, using less water and improving the air quality and temperature)

› one to reduce the amount of greenhouse gas emissions generated by building materials, construction processes and disposal of materials (known as whole of life embodied carbon).

These frameworks will set out a series of targets that the Sector will have to keep under, and the plan for tightening the targets over time. A group of initiatives will sit under each framework to support the needed change.

The framework for adaptation will link together the work that the Sector can do to improve climate resilience. This work will be much more interlinked with other agencies and less focused on Sector specific targets.



Why we need to set targets

To meet New Zealand's climate change goals we will be setting bold targets. Incremental change is not enough to get New Zealand where it needs to be. Strong action may be unsettling but we need to drive the innovation and action New Zealanders expect to see from the Sector. The targets will focus on delivering ambitious improvements to operational efficiency as well as significantly reducing material and construction emissions.

THE FRAMEWORKS

Transforming operational efficiency

This framework will set upper limits for new buildings to obtain a consent under the Building Act 2004. The framework will set levels of efficiency for:

› energy use, and

› water use.

They will also set defined comfort levels including temperature ranges and air quality that will need to be achieved for consent.

These targets will mean that everyone involved in the design, development and construction of a building will need to keep efficiency at the forefront of their thinking.

As well as direct benefits there will be co-benefits including improved health outcomes and reduced energy bills – both of these are likely to have greater impacts on parts of society that are most in need. This is an area where we will seek significant co-operation and partnership with both the Sector and other government agencies to ensure we deliver these co-benefits.

Reducing whole of life embodied carbon

This framework will set mandatory reporting requirements as well as targets that will need to be kept under to gain consent.

The framework will consider the allowed level of greenhouse gas emissions from:

› the materials used in construction

› the construction process

› disposing of construction waste, and

› disposal of the building at the end of its life.

These targets will provide pressure on the whole supply chain to reduce emissions. They will also be an important driver of change to a culture where climate change considerations are part of day to day business.

This work will create incentives for designers and engineers to look for lower carbon solutions.

Raising public awareness

Another goal of both frameworks will be to improve the public's understanding of why operational efficiency and the embodied carbon of buildings matter. This improved information will help the public understand the climate change costs of the buildings they are living and working in, leading to empowered decision making. Allowing the public to make informed decisions about the buildings they are prepared to live and work in will be a powerful tool for creating lasting change in the way the Sector thinks and operates.

Adaptation – Making New Zealand safer for the future

New Zealand will be facing different challenges to our buildings than were faced 50 or even 10 years ago. We need to make sure that New Zealand's buildings will last and are able to cope with the climate changes we cannot avoid.

Keeping people safe from the likely future effects of climate change means we will be looking at how the Sector can make buildings more resilient to adverse events that might become more common and to new events that might begin to appear. As well as this improved protection we will be considering how to be more efficient in using resources that may become scarcer, such as water. Buildings will also need to remain safe, habitable and at a suitable temperature for periods of time without power in extreme weather events; for example, when utility grid connections may be broken.

MBIE will be working with other government partners on the National Adaptation Plan, a whole of government response on how New Zealand will adapt to climate change risks. The core of the response will be making sure the right buildings are built in the right places. As well as regulatory options, the work will look at what non-regulatory options are likely to help drive more resilience in buildings such as insurance availability, provision of information and incentives.

Making changes in a post covid-19 world

New Zealand's economy has changed since covid-19: it is more fragile, and the Sector has been affected by job losses as well as reduced revenue and cancellation of future work.

MBIE is committed to making sure the Building for Climate Change Programme understands the new Sector and how the changes that are being proposed will affect those within the Sector as well as wider New Zealand. We are committed to improving the recovery of the Sector and supporting its contribution to New Zealand's economy.

Building for climate change goals - Programme overview

Helping New Zealand reach its climate change goals for reducing emissions and improvin g resilience to future climate events

These enhancements will:

- have lasting impact
- be a once in a generation system change not a series of quick fixes
- deliver the Building and Construction Sector's part of the Emissions Reduction Plan
- Deliver the Sector's part of the National Adaptation Plan

Reducing emissions

- Changes to the Building Code to raise minimum requirements
- Enhance the way the system works
  - Set minimum levels of operation efficiency for new buildings
    - Less Energy used
    - Less water used
  - Set limits for the amount of embodied carbon in new buildings
    - More low carbon materials used
    - Less materials used overall
    - Less construction waste

Improving resilience to climate change events

- Changes to the Building Code to raise minimum requirements
- Work with the Sector on the design of the changes to the system
- Integrate with the whole of government National Adaptation Plan

MBIE's committments

- We will consult on the changes and listen to what is said by the public and the Sector
- We will be transparent about the impact of changes on the Sector and consumers
- We will talk to iwi and Maori early and listen to what is important to them
- We will make sure we understand the current economic needs of the sector

Future state:

What will it look like in 2050

New Zealand's buildings are using as little energy and water as possible. They are warmer, drier and better ventilated, and provide a healthier place for us all to work and live.

The wellbeing of New Zealanders has improved, they're leading healthier lives, and respiratory illnesses from cold and damp houses is uncommon. People also have more money in their pockets due to lower energy bills.

Our infrastructure finds it easier to respond to demand for water, due to our lower use. This means we cope better with water shortages than we ever have before.
The efficiencies from the Sector have made it easier for the grid to become more renewable meaning less emissions for the energy we do use.

Energy Efficiency and carbon cost are core considerations for the Sector and designs now meet an emissions budget as well as other regulatory requirements.
Reusing buildings and recycling materials is an established part of a Sector that is well on the way to having a fully-fledged circular economy well supported by local supply chains.