



THE WORLD'S BROADEST RANGE OF LOW-CARBON CONCRETE



BUILDING SOLUTIONS FOR A SUSTAINABLE FUTURE

At Holcim, we're taking responsibility for the impact our products have on the planet. We believe that sustainable living means creating solutions that deliver better outcomes for the environment – supported through data and backed up with science. Low-carbon concrete is just the beginning.

We've pledged to achieve net-zero carbon emissions by 2050, because we want to make a positive contribution to the construction industry. Our growing population means there is an increasing demand for more sustainable construction materials. As a global manufacturer of concrete solutions, we recognised a need to provide a reduced carbon concrete alternative that would help protect our environment for the future.

Greater transparency and accountability around the impact of greenhouse gas emissions are now an expectation from businesses and customers alike. Concrete has been a popular choice of construction material for centuries as it is durable and strong, as well as heat and fire resistant. With Holcim's new ECOPact® range, we include another performance dimension: sustainability.

Building sustainably is a choice you make at every stage of the construction cycle. It's a vision you create not only for yourself, but one to be shared by future generations. The new ECOPact® low-carbon concrete range is driving a greener building future, and demonstrates our ongoing commitment to reducing our industry's carbon footprint.

ECOPact®: Low-Carbon Concrete Made Easy.

"I am proud to introduce ECOPact®, Holcim's new low-carbon concrete backed by third-party verified Environmental Product Declaration data."

George Agriogiannis
CEO Holcim Australia & New Zealand

SUSTAINABLE BUILDING



It is estimated that global cement manufacturing is responsible for about 8% of the world's total CO₂ emissions.¹

The World Green Building Council notes that buildings are currently responsible for 39% of global energy related carbon emissions: 28% from operational emissions, from energy needed to heat, cool and power them, and the remaining 11% from materials and construction.²

By 2030, all new buildings, infrastructure and renovations need to have at least 40% less embodied carbon. By 2050, new buildings, infrastructure and renovations need to be net zero embodied carbon.

As a global leader in innovative and sustainable building solutions, we are on a mission to decarbonise building across the value chain.

Holcim was among the first companies worldwide to have 2030 and 2050 CO₂ reduction targets validated by the Science Based Targets initiative (SBTi).

Today's megatrends include a rise in population and urbanisation as well as improving living standards. The construction sector therefore has an essential role in building a net-zero future that works for people and the planet.

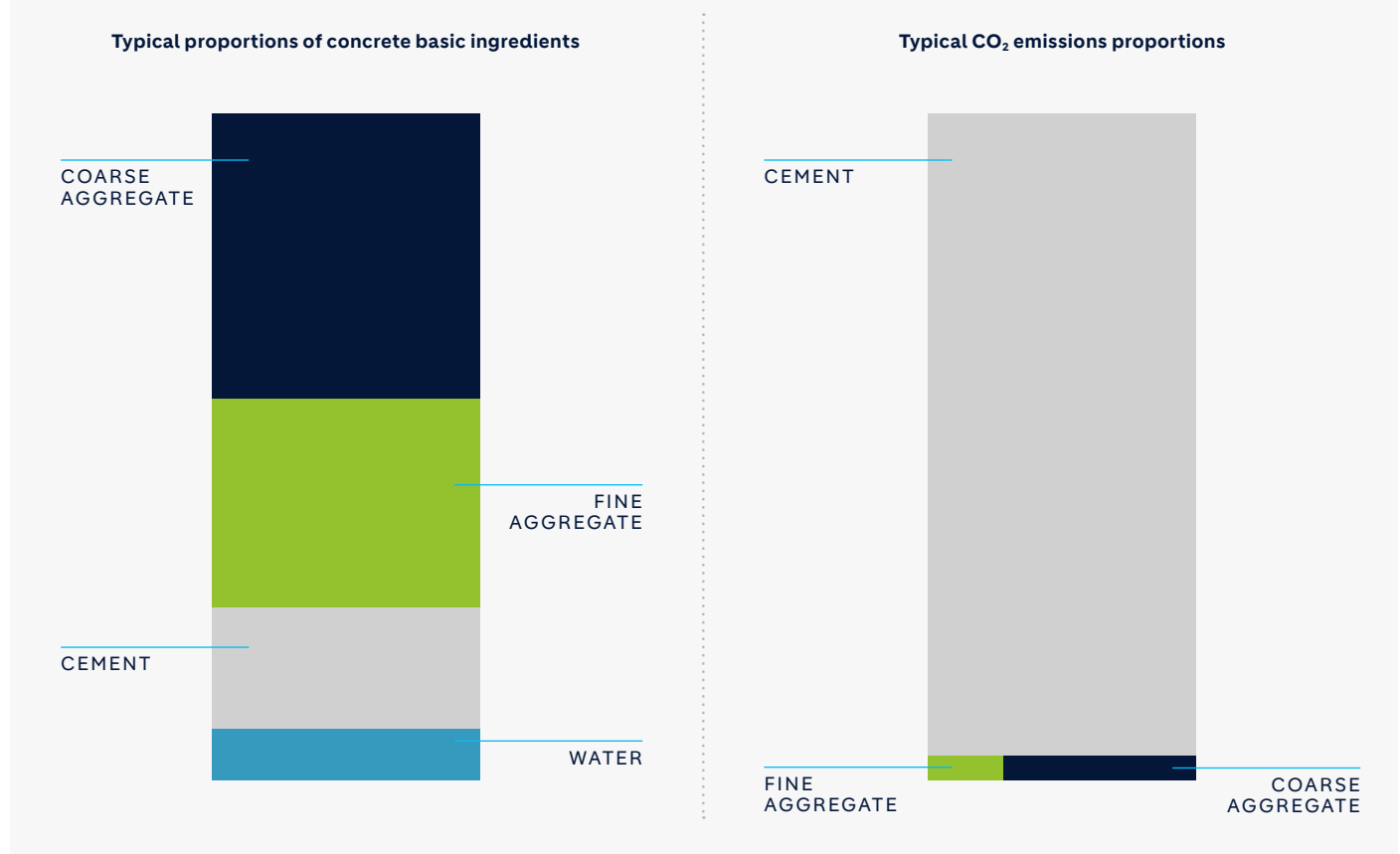
¹<https://www.weforum.org/agenda/2024/09/cement-production-sustainable-concrete-co2-emissions>

²<https://worldgbc.org/article/bringing-embodied-carbon-upfront/>

UNDERSTANDING THE CARBON INTENSITY OF CONCRETE COMPONENTS

Though concrete is commonly made up of just 10–15% cement, cement production typically contributes up to 95% of concrete's embodied carbon. The large carbon footprint of Ordinary Portland cement is due to chemical reactions that occur during production (heating processes).

Figure: Typical concrete ingredients and embodied carbon³



Please note, Admixture technology incorporated as required by the prevailing mix design characteristics.

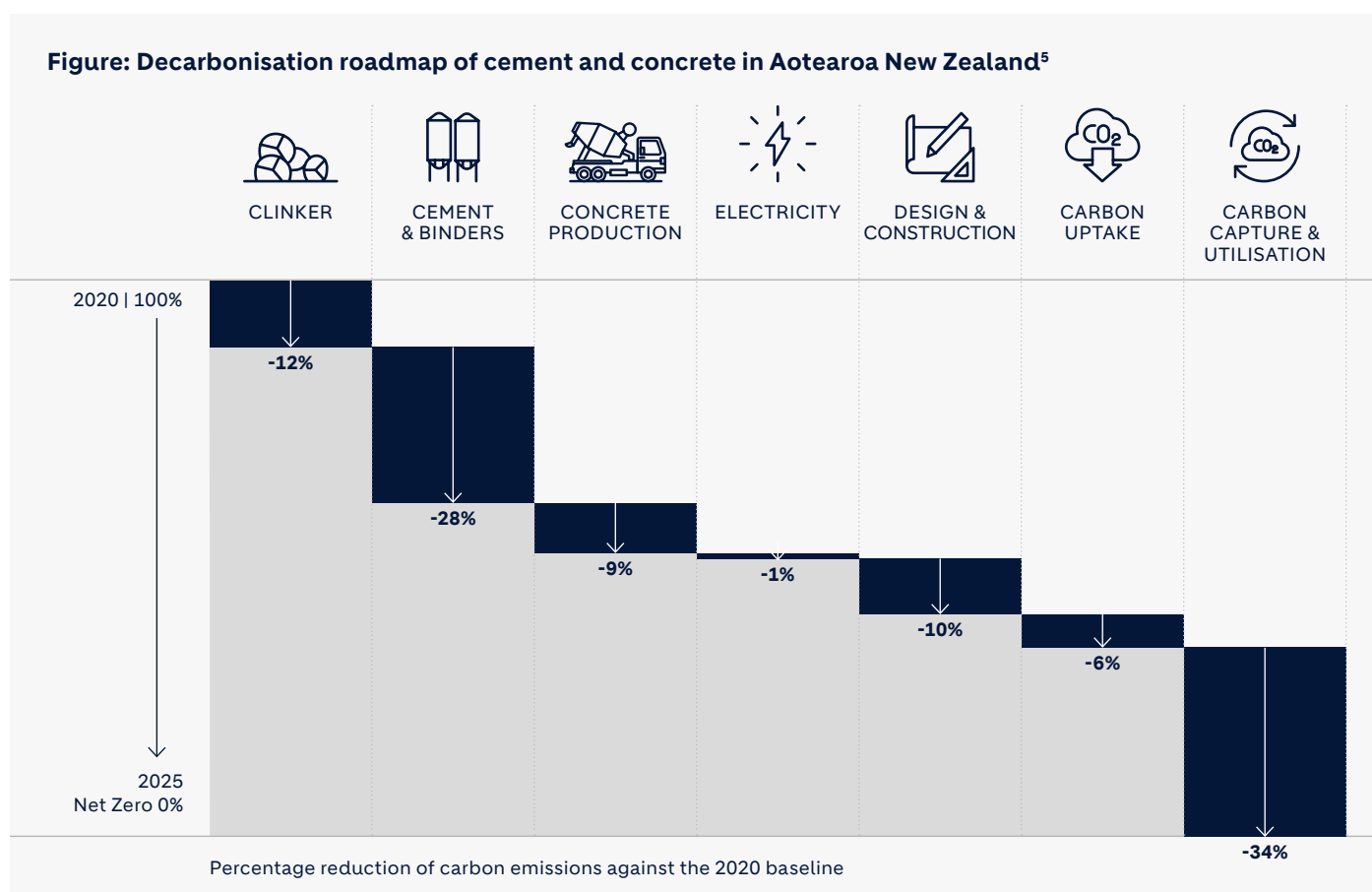
By replacing a proportion of the General Purpose cement content with lower impact cementitious replacements, such as Fly Ash or Slag, the carbon footprint of a standard concrete mix design can be reduced. Globally this is common practice and is a viable and readily available option to decarbonise our ready-mix concrete in New Zealand.

³https://mecla.org.au/wp-content/uploads/2024/09/DCCEEW-Fact-sheet-How-to-implement-LCC_Rev01.pdf

LOW-CARBON CONCRETE WITH SUPPLEMENTARY CEMENTITIOUS MATERIALS

In New Zealand, our sector has been on its own journey to decarbonise, having already delivered an 11% reduction in carbon emissions from concrete between 2005 and 2020 while growing our production by 11%.⁴ We can, and will, do more.

The New Zealand cement and concrete industry roadmap to net zero details a number of key strategies to help reach its 2050 net zero carbon target.



From this roadmap, it is clear that one of the key levers of decarbonising concrete is using less cement, partly by replacing it with Supplementary Cementitious Materials and mineral additions. Globally, the successful incorporation of Supplementary Cementitious Materials within ready-mix concrete has been utilised extensively for decades and is available now for commercial use in New Zealand.

⁴Concrete New Zealand - NZ Concrete Industry Emissions Reduction 2020 https://concretenz.org.nz/page/s_introduction

⁵https://cdn.ymaws.com/concretenz.org.nz/resource/resmgr/docs/cnz/c_roadmap_concrete.pdf



Beneficial use of Supplementary Cementitious Materials in concrete.

Currently, the use of Supplementary Cementitious Materials in New Zealand is very low compared to other countries. It sits at around 2% of total binders in ready-mix concrete.⁶ Supplementary Cementitious Materials can either be incorporated into cement blends or directly into concrete mix designs. The most common Supplementary Cementitious Materials are ground granulated blast furnace slag (GGBFS) from steelmaking, fly ash from coal fired power stations, and silica fume from silicon metal manufacturing.

Holcim has a range of cementitious materials currently available in New Zealand, backed by third-party verified Environmental Product Declarations⁷, that can be incorporated into ECOPact® concrete mix designs to help reduce our carbon impact, including:

- Holcim Ultracem (General Purpose Portland Cement): 862 kg of CO₂ eq / Tonne
- Holcim ECOPlanet® (low-carbon cement): 580 kg CO₂ eq / Tonne
- Holcim ENVIROCore® 100 (Granulated Blast Furnace Slag): 158 kg CO₂ eq / Tonne
- Holcim ENVIROCore 201 (Fly Ash): 87 kg CO₂ eq / Tonne

⁶https://cdn.ymaws.com/concretenz.org.nz/resource/resmgr/docs/cnz/c_roadmap_concrete.pdf

⁷<https://epd-australasia.com/company-epd/holcim-nz-ltd/>

INTRODUCING ECOPACT®: THE WORLD'S BROADEST RANGE OF LOW-CARBON CONCRETE



Developing a more sustainable concrete is a key building block to achieving a sustainable future. We recognise that the time to act is now – and we're proud to rise to this opportunity.

Holcim's ECOPact® low-carbon concrete range is a sustainable construction solution designed to meet the demands of modern construction while reducing environmental impact. With a focus on embodied carbon reduction, environmental transparency, and emissions reduction targets, ECOPact® is setting a new standard for responsible construction materials.

With reduced embodied carbon, ECOPact® is better for the environment. Carbon intensity is reduced by replacing a proportion of cement with alternative materials. This includes beneficial industrial by-products like fly ash, blast furnace slag or silica fume. Optimising the cement content in this way means that ECOPact® concrete mixes have a lower embodied carbon content when compared to Ordinary Portland cement concrete mix designs.⁸ This provides both designers and contractors with easy solutions to achieve lower embodied carbon outcomes in their projects.

The ECOPact® low-carbon concrete range is a unique and versatile solution, and recognition of our commitment to a smarter future. As we continue to establish our position as a global leader in innovative building materials and solutions – we invite you to join us on our journey.

⁸Reduction in embodied carbon in comparison to Australian Life Cycle Inventory (AusLCI) database value for an ordinary portland cement ready-mix concrete (i.e. no innovation or use of Supplementary Cementitious Materials). Link to AusLCI data <https://www.alcas.asn.au/auslci> and AusLCI concrete background report <https://www.auslci.com.au/>

WHAT IS ECOPACT®?

ECOPact® is low-carbon concrete made easy. Combining the very best qualities of conventional concrete, it is available in a variety of strength classes and applications. With reduced embodied carbon, ECOPact® is better for the environment.

ECOPact® is a range of low-carbon concrete, which can reduce the embodied carbon of buildings, homes and infrastructure projects by up to 70%.

Key features of ECOPact®:

- ✓ **Embodied Carbon Reduction**
ECOPact® offers a minimum 30% reduction in embodied carbon compared to Ordinary Portland cement concrete.⁹ This can help reduce the carbon footprint of building and infrastructure construction projects.
- ✓ **Environmental Product Declaration (EPD):**
ECOPact® comes with a third-party verified product-specific EPD registered with EPD Australasia.¹⁰ This declaration provides transparent information about the environmental impact of the concrete, enabling informed decision-making during project planning and design stages.
- ✓ **Science-Based Emissions Reduction Targets**
Holcim has committed to science-based emissions reduction targets for 2030 and 2050, validated by the Science Based Targets initiative (SBTi).¹¹ These targets ensure that Holcim's operations align with international efforts to mitigate climate change, contributing to a more sustainable future.

Why you should choose ECOPact® for your next concrete project?

- Reduce the carbon footprint of your construction
- To protect our environment and build a better future
- To be positioned as an industry leader in the sustainability movement
- Actively contribute to the environmental conversation
- ECOPact® mix designs comply with all applicable NZ Standards, including NZS 3104:2021 Specifications for Concrete Production.

Applications.

Our ECOPact® range has potential to be used in a variety of structural components: from foundations, slabs, columns and beams, to walls, driveways and walkways. Available for most strength classes, ECOPact® can be placed, pumped and finished like conventional concrete.



GENERAL



INFRASTRUCTURE



RESIDENTIAL



COMMERCIAL

⁹Reduction in embodied carbon in comparison to Australian Life Cycle Inventory (AusLCI) database value for an ordinary Portland cement ready-mix concrete (i.e. no innovation or use of Supplementary Cementitious Materials). Link to AusLCI data <https://alcas.asn.au/auslci> and AusLCI concrete background report <https://auslci.com.au/>

¹⁰EPD Australia - <https://epd-australasia.com/>

¹¹Link to SBTi's target dashboard for information regarding Holcim's Targets - <https://sciencebasedtargets.org/companies-taking-action>



STABILISING CRITICAL INFRASTRUCTURE FOR AUCKLAND TRANSPORT

Oakley Creek Slip and Shared Path Remediation.

Holcim has a history of utilising Supplementary Cementitious Materials within New Zealand in a range of applications. One example of this is the Oakley Creek Slip and Shared Path Remediation project for Auckland Transport, where Holcim supplied:

- Approximately 500m³ of concrete, utilising 70% replacement of cement with ground granulated blast-furnace slag (GGBFS), and
- Approximately 2,500m³ of concrete, utilising 50% replacement of cement with GGBFS.

The required project targets included early age strength, concrete bleed under pressure, workability, spread retention, and embodied carbon reductions.

The project required stabilisation of an active landslip in the Oakley Creek Esplanade Reserve which was undermining the shared path and critical infrastructure near Great North Road, Auckland.

Failure of a section of the road would cause major traffic congestion. The aim was to construct an in-ground concrete lattice structure using the diaphragm-wall technique with low strength flowable fill whilst meeting demanding concrete performance and embodied carbon targets.

The main contractor for the project was awarded the Excellence in Product Innovation award by the Civil Contractors New Zealand (CCNZ). Holcim was recognised for their contribution in being the supplier of an innovative and highly technical low-carbon concrete mix for this project.



ECOPACT®

The Low-Carbon Concrete



Find out more about how Holcim is building a sustainable future and how you or your organisation can be involved.

Visit our website www.holcim.co.nz or call us to talk about ECOPact® on **0800 READYMIX (732 396)**.

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