



BRIEFING FOR INCOMING MINISTERS

DECEMBER 2017



CONTENTS

04

PURPOSE

04

ABOUT CONCRETE

04

ABOUT THE CONCRETE INDUSTRY

05

ABOUT CONCRETE NZ

06

CHALLENGES AND OPPORTUNITIES

06

Auckland Supply Constraints

07

Building Material Quality

08

Concrete Placer Proficiency

09

Concrete Roads

10

KiwiBuild

11

Precast Performance

12

Pro-Wood Government Procurement Strategy

14

CONCLUSION

PURPOSE

This briefing has been prepared by Concrete New Zealand (NZ). Its purpose is to provide relevant Ministers with information on the concrete industry, including an assessment of issues and opportunities for the industry. It is not intended to be a detailed analysis of all policy related issues. We look forward to talking to Ministers on issues of interest to their portfolios, and providing more detailed briefings in time.

ABOUT CONCRETE

Concrete is the pre-eminent global building material for load-bearing structures.

Not all concrete is the same. It is made to exact specifications to suit the site, loading conditions, strength requirements, and aesthetic sought. It is a sophisticated product requiring technical expertise, quality constituent materials and modern machinery to produce. It is sustainable, offering tremendous durability, flexibility and resilience.

ABOUT THE CONCRETE INDUSTRY

The wider concrete industry annually produces and uses about one million tonnes of cement in New Zealand, which equates to around four million cubic metres of concrete for new residential, non-residential, infrastructure and commercial construction.

In total, the direct, indirect and induced economic impact of the cement and concrete industry contributes approximately \$7.5 billion of output across the economy. This activity supports more than 24,000 jobs and creates a value add of about \$2.8 billion¹.

¹ NZIER (2008). *Cement and Concrete Production: Economic Impact Assessment*. (<http://www.sustainableconcrete.org.nz/portals/137/files/NZIER-Cement-&-Concrete-Production-Economic-Impact-Assessment.pdf>)

ABOUT CONCRETE NZ

Concrete NZ is a recently formed association representing interests across the wider concrete industry. Concrete NZ supports industry to position concrete as the resilient construction material of choice for a modern New Zealand. This will be achieved through a consolidated voice that brings confidence, knowledge and leadership to members, industry and regulators.

Founding members include the Cement & Concrete Association of New Zealand (CCANZ), the New Zealand Concrete Masonry Association (NZCMA), the New Zealand Ready Mixed Concrete Association (NZRMCA), Precast New Zealand (PCNZ) and the New Zealand Concrete Society (NZCS).

CHALLENGES & OPPORTUNITIES

New Zealand's construction sector plays a significant role in the economy. It is the fifth largest sector, employs more than 170,000 people and is a \$30 billion plus per year sector². Construction is booming; however there are some significant challenges and opportunities, as summarised on the following pages, for the Government to progress in partnership with the concrete industry.

AUCKLAND SUPPLY CONSTRAINTS

The Auckland construction market is experiencing its strongest growth in 40 years. This has led to substantial pressure on a range of building products, with ready mixed and precast concrete lead times increasing for prime-time bookings. In addition to the level of construction activity in Auckland, other factors contributing to frustrations around ready mixed concrete supply include a truck driver shortage, restrictive supply 'windows' in residential areas, traffic congestion and customer ordering practices. These factors have created a difficult and challenging situation for both suppliers and their customers.

Investment by ready mixed concrete and precast suppliers across Auckland in plant and personnel has been significant recently, and is not considered a factor. Suppliers are also encouraging customers to adopt practices that will enhance accuracy and efficiency in terms of ordering, and go some way to alleviating current frustrations around supply.

Concrete NZ is engaged in dialogue with Auckland Transport to allow concrete trucks access to bus lanes for ready mixed concrete (a perishable product) to be delivered more efficiently. Discussions are also underway with the Auckland Council for restrictive supply 'windows' to be relaxed on residential developments to enable trucks to operate on-site earlier and later in the day. It also remains a source of frustration for the wider haulage industry that drivers are not on Immigration New Zealand's skills shortage list.

Government assistance is sought to progress discussions with Auckland Transport and Auckland Council to enable the concrete industry to better serve the increasing demand for its product across the key Auckland construction market.

² Ministry of Business, Innovation and Employment (December 2016). *Construction Sector Report*. (<http://www.mbie.govt.nz/info-services/business/business-growth-agenda/sectors-reports-series/pdf-image-library/construction-report/construction-report.pdf>)

BUILDING MATERIAL QUALITY

The Ministry of Business, Innovation and Employment (MBIE) is currently considering which building products would warrant independent third-party verification. This work stems from recent concerns around the compliance of building products and materials following moves to cheaper products, mostly from overseas, that often result in lower quality outputs. An example of this is non-compliant plumbing products and glass balustrades.

Aware of the difference between independent *testing* and *verification*, the concrete industry supports the latter for construction materials, and can point to examples of its own, which in turn are audited by independent third parties – Bureau Veritas (New Zealand) Limited and the Joint Accreditation System of Australia and New Zealand (JAS-ANZ).

- Precast NZ's **Plant Certification Program** provides an assertion that components produced by a Certified Plant are supported by a reputable company with suitable facilities, knowledgeable staff and quality assurance programs.
- The NZ Ready Mixed Concrete Association's (NZRMCA) **Plant Audit Scheme** audits Member's ready-mixed concrete plants for the supply of structural concrete compliant with *NZS 3109 Concrete Construction*, *NZS 3104 Specification for Concrete Production*, and the *New Zealand Building Code*.

Furthermore, under the guidance of Concrete NZ, New Zealand cement suppliers are in the process of considering a conformity assessment scheme.

Government can be assured that the concrete industry is committed to maintaining its own successful quality assurance protocols audited by independent third parties.

CONCRETE PLACER PROFICIENCY

The construction workforce covers a wide range of skill levels, including many occupations which typically are sub-contracted on building projects. These often include those who work with concrete.

Many issues with the durability of concrete can be directly related to the proficiency of the concrete placer. Site or project managers cannot assume that concrete placers are experienced and trained in good practice placing and finishing techniques. This is an unregulated area, with no barriers to entry, that is currently accentuated by a significant skills-shortage. A potential consequence of this lack of 'hands-on' expertise and resource availability is that the competency of concrete placers may be poor, which in turn could lead to poor concrete performance in application.

Guidelines and education will assist to enhance understanding of concrete placing and finishing. Many overseas jurisdictions, including North America, have programs to instil knowledge about and the ability to place, consolidate, finish, edge, joint, cure and protect concrete flatwork. There is an opportunity to look at these overseas resources to produce a New Zealand equivalent in conjunction with the NZ Concrete Contractors Association (NZCCA) and MBIE.

The construction industry is currently constrained by a lack of skilled workers. An important mechanism to overcome this is for more people to enrol in a Building and Construction Industry Training Organisation (BCITO) apprentice qualification (i.e. National Certificate). We support the BCITO's suite of concrete based qualifications and are actively involved in maintaining and promoting them to our industry.

Consideration could also be given to the NZCCA requiring members to hold either a BCITO concrete National Certificate or be a Licensed Building Practitioner (LBP), or that MBIE's LBP scheme is expanded to include a Concrete Placing & Finishing Class.

Government, in partnership with industry, should develop resources to support concrete placing and finishing proficiency, and the Licensed Building Practitioner scheme should include a Concrete Placing & Finishing Class.

CONCRETE ROADS

Roading is critical in New Zealand's infrastructure and remains one of the Government's biggest areas of infrastructure expenditure. Billions of dollars will be spent over the next 10 years on state highways.

While concrete road pavements are in widespread use throughout the world, New Zealand pavements are still largely constructed using asphalt (or chip seal) – despite evidence that concrete is cheaper, lasts longer, and offers environmental benefits. It is interesting to note that recent media articles have highlighted the propensity of bitumen based roads to melt, and cause traffic disruption, during high temperatures³.

From an environmental perspective the performance of concrete roads is encouraging. Along with research supporting concrete roads as requiring minimal maintenance and therefore causing less congestion and associated exhaust emissions, concrete roads also enhance the fuel efficiency of heavy vehicles by reducing rolling resistance.

Furthermore, a recent whole-of-life study also identified concrete manufacture as requiring less primary energy, and therefore generating less greenhouse gases, than alternative roading materials⁴. Construction technology has also advanced sufficiently over the past decade to address the issue of surface noise and skid resistance.

Economic consultants *Infometrics* have investigated the high-level case for building concrete roads, and found that in a baseline scenario comparing the economics of asphalt and concrete roads, concrete came in around 25% less expensive over a 30-year life⁵. Building concrete roads could cut hundreds of millions of dollars from the cost of major New Zealand roading projects – money that could be put to good use elsewhere.

Government should require the New Zealand Transport Agency (NZTA) to fund a significant concrete road pavement trial.

3 [Stuff.co.nz \(11 December 2017\) Highway Meltdown: The Bitumen is Bleeding.](https://www.stuff.co.nz/national/99732207/highway-meltdown-the-bitumen-is-bleeding)
<https://www.stuff.co.nz/national/99732207/highway-meltdown-the-bitumen-is-bleeding>

4 [Athena Sustainable Materials Institute for Cement Association of Canada \(2006\). A Life Cycle Perspective on Concrete and Asphalt Roadways: Embodied Primary Energy and Global Warming Potential.](http://www.athenasmi.org/wp-content/uploads/2012/01/Athena_Update_Report_LCA_PCCP_vs_HMA_Final_Document_Sept_2006.pdf) (http://www.athenasmi.org/wp-content/uploads/2012/01/Athena_Update_Report_LCA_PCCP_vs_HMA_Final_Document_Sept_2006.pdf)

5 [Infometrics \(May 2013\). The Case for Concrete Roads.](http://www.goldenbay.co.nz/media/16774/ccanz_infometrics_the_case_for_concrete_roads.pdf)
(http://www.goldenbay.co.nz/media/16774/ccanz_infometrics_the_case_for_concrete_roads.pdf)

KIWIBUILD

Concrete NZ applauds the Government's KiwiBuild policy, and its pledge to deliver 100,000 affordable houses over ten years for first home buyers. That half of these will be built in Auckland, a ten-fold increase (500 to 5,000) in the number of affordable houses being built in Auckland each year, is a sound strategy.

Building survey data from the Building Research Association of New Zealand (BRANZ) continues to show concrete slab-on-ground as the preferred foundation material for residential construction across New Zealand - averaging between 85-90% nationally⁶.

The reasons for this market position are many and varied, and include that as a foundation for residential properties concrete slabs offer affordable durability, fire resistance, earthquake resilience, an array of attractive finishes, as well as contributing to passive solar design. Concrete slab-on-ground can be tailored for the site and customer preference.

Concrete NZ believes that a policy decision to specify timber as the preferred material within KiwiBuild, including any potential Medium Density Housing developments, would have unintended consequences, excluding safer, more cost effective and durable options. See *Pro-Wood Government Procurement Strategy* on pages 12-13.

It is important that first home buyers, given an opportunity to get on the property ladder through KiwiBuild, are not short-changed by mandated construction materials that may not be fit-for-purpose or are of poor quality⁷.

Government should ensure the construction materials for KiwiBuild are selected on their technical, cost, aesthetic and sustainability credentials.

⁶ Cement & Concrete Association of New Zealand (2017). *Market Commentary Report*. Internal report using BRANZ data.

⁷ Radio New Zealand (09 November 2017). *Builders Worried Best Timber Sent Overseas*. <https://www.radionz.co.nz/news/national/343424/where-s-our-timber-for-our-country>

PRECAST PERFORMANCE

There has been scrutiny of the performance of precast concrete floors following the Kaikoura earthquake, and aftershocks that affected the Capital City. We take all safety concerns seriously, and can reassure Government and the public that concrete building products continue to meet New Zealand Building Code requirements.

Wellington City Council ordered invasive testing of 80 buildings after early results from a Government investigation into Statistics House, at CentrePort, revealed that buildings with similar characteristics – four to 15 floors high; with reinforced-concrete structures, particularly precast floors; and built on soft soils – should be prioritised for detailed inspections.

The testing uncovered some damage, but there is no immediate threat to public safety. While discussion continues around the behaviour of precast floor unit (e.g. Hollowcore and Double Tees) seating-points during a seismic event, it must be stressed that this is a design rather than a material issue.

Furthermore, it is possible for existing buildings to be retro-fitted, while a recent amendment to *NZS 3101 Concrete Structures Standard* along with MBIE's proposed ban on loop-bar ('pigtail') connectors has reduced the likelihood of this precast floor issue occurring in new structures.

Moving forward, the concrete industry needs to remain involved in all discussions and any future 'on-the-ground' inspections to ensure available expertise is optimised.

Government can be assured that precast concrete floor design issues identified following the Kaikoura earthquake have been addressed in recent code revisions.

PRO-WOOD GOVERNMENT PROCUREMENT STRATEGY

The Labour Party's *Forestry* policy states that there will be a shift in government procurement to a much stronger orientation towards building in wood. The policy includes requirements that:

- *all government-funded project proposals for new buildings up to 10 storeys high shall require a build-in-wood option at the initial concept / request-for-proposals stage (with indicative sketches and price estimates)*
- *when [Government is] a tenant of the private sector, give preference to new buildings that are constructed out of wood.*

Concrete NZ is concerned that there will be unintended consequences of the Pro-Wood policy, and if implemented it would create instances where the Government's building programme is disadvantaged by excluding safer, more cost efficient, and more durable material options. Furthermore, the policy would create a commercial advantage for one construction material over others.

Concrete NZ believe that materials should be selected on their own technical, cost, aesthetic and sustainability credentials. This is in the public interest. It is entirely wrong to mandate that construction decision makers must consider wood as a structural option. Such arbitrary preferential treatment of one industry over another will lead to perverse outcomes.

Building environment rating tools, such as Green Star, have gained traction over recent years, and offer an objective assessment of the benefits of construction materials.

New Zealand is still grappling with the aftermath of the leaky building crisis, and is, for instance, currently spending millions of dollars repairing damaged schools. In addition, there are countless examples of the fire risk posed by multi-storey timber construction. There have also been questions raised recently from builders about the structural integrity of timber grown and used domestically⁸.

⁸ Radio New Zealand (09 November 2017). *Builders Worried Best Timber Sent Overseas*. <https://www.radionz.co.nz/news/national/343424/where-s-our-timber-for-our-country>

Representing an industry that supports more than 24,000 hard working men and women, Concrete NZ request the government re-consider this policy and the unintended consequences it would have.

Government should operate in the public interest and ensure construction materials are selected on their own technical, cost, aesthetic and sustainability credentials.

CONCLUSION

Concrete NZ's focus in the broader construction environment is to work towards optimising a resilient built environment that benefits all New Zealanders. There is much government can do, in partnership with industry, to ensure New Zealand has quality infrastructure and housing, which is central to ensuring economic success and the welfare of New Zealanders.

Concrete NZ is available to help on any concrete matter, whether it is material, design or structurally related; and looks forward to discussing with Ministers the challenges and opportunities covered in this briefing. 🌀



Rob Gaimster
Concrete NZ CEO

CONCRETE NZ

PO Box 448, Level 4
70 The Terrace
Wellington 6140

P +64 4 499 8820

F +64 4 499 7760

E admin@concretenz.org.nz

W www.concretenz.org.nz