

COMING HOME TO CONCRETE

HOW MODERN CONCRETE CHOICES DELIVER STRENGTH, COMFORT AND BEAUTY



**DVD
ENCLOSED**

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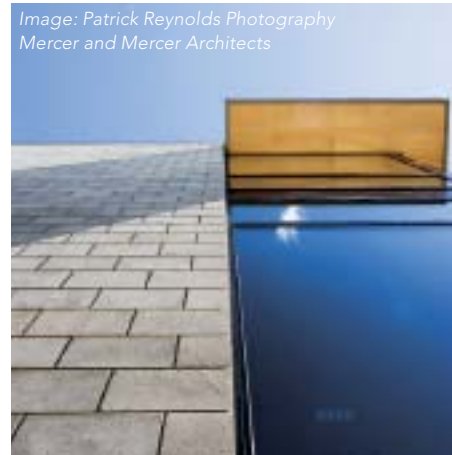
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A MOMENT IN HISTORY



Image: Golden Bay Cement



Image: Litecrete NZ Ltd



GREAT STRENGTH COMBINED WITH GREAT BEAUTY CAN EMERGE FROM EVEN THE WORST OF HUMAN TRAGEDIES.

The people of Napier showed this when they rebuilt their city in the Art Deco and Spanish Mission style following the devastating 1931 earthquake.

The people of Christchurch will also rebuild with strength and vision, using the latest and best materials and design. Concrete in all its many forms will be the foundation and the heart of the majority of both residential and commercial properties that are built in Christchurch and throughout New Zealand in the coming years.

The reason for this is simple: concrete offers strength, comfort and beauty that has no rival in modern construction.

This booklet and the Coming Home to Concrete DVD are designed to help you understand why concrete is the tough, elegant, cost-effective solution to the challenges of building quality homes and businesses in New Zealand.

Rob Gaimster
Chief Executive
Cement & Concrete Association of New Zealand (CCANZ)

DO IT ONCE, DO IT RIGHT

Concrete has been around for over 5,000 years and some of the earliest structures built in concrete – such as the Pantheon in Rome – are still with us today. The past 20 years have seen major developments in concrete that have extended its design potential and given concrete new looks and new textures, while still retaining its unbeatable durability.



Whether you are building your first home or rebuilding a city, the essential starting point is to lay a foundation that will stand the tests of time and nature. Concrete is that foundation, enabling the creation of affordable, comfortable, stylish, durable and energy-efficient homes.

Concrete is no-nonsense. Do it once, do it right and it will look after you for the rest of your life. In this booklet and the Coming Home to Concrete DVD, you'll discover why there really is no substitute for concrete.





"Prior to any concrete being poured on site, the council inspects to make sure the reinforcing is in place and to make sure the waterproof membrane has been put down underneath the slab. The new licensing is ensuring the quality of workmanship. Builders will be held personally responsible for the life of that job."

Jared Torrington, builder.



COMING HOME TO CONCRETE FLOORS

Eight out of 10 new homes in New Zealand have a concrete slab floor. Perhaps that's not surprising. What's harder to explain, given concrete's overwhelming advantages, is why don't 10 out of 10 new homes have a concrete slab floor?

WHY DO 8 OUT OF 10 NEW HOMES HAVE A CONCRETE FLOOR?

- A reinforced concrete slab, designed and constructed with New Zealand made seismic grade reinforcing steel, will offer enhanced performance throughout its life, including during earthquakes.
- Concrete slabs do not require the same extensive site excavation and ground clearance as alternative flooring materials, and

therefore offer advantages in both meeting town planning height restrictions and reducing labour costs.

- Combined with its ability to help reduce a home's heating and cooling requirements, a concrete floor's durability, fire resistance, sound insulation, value for money, and huge variety of decorative finishes are second to none.

This range of benefits, explored throughout this booklet, will see concrete slabs remain the preferred flooring option for new homes across New Zealand.



WHAT DO HOMEOWNERS AND PROFESSIONALS SAY ABOUT CONCRETE FLOORS?

"Having kids, I love concrete floors. It's easy to clean up. On a wet day they can scoot around inside. It's durable. You should have seen the carpet when we moved out of our previous houses!"

Julie Madams, home owner.

"Both Winifred and I suffer from hay fever so we like a low-dust environment. We've got a lovely polished floor. It looks good and it's easy to keep clean."

David Bull, home owner.



"Our house has heating in the concrete slab which we've only put on twice. My mother who was living in my house last year, just kept insisting that the heating was on, even in the winter, because she could feel the heat just radiating out from that concrete."

Michael O'Brien, architect.



"If you combine the properties of both concrete and steel, as you do in a reinforced concrete floor, you get the best of both worlds. It makes the perfect flooring material."

Bruce Robert, Pacific Steel.

CONCRETE FLOOR SLABS – EARTHQUAKE PERFORMANCE

Appropriately designed and constructed reinforced concrete slabs can be expected to perform well during earthquakes. The combination of concrete and steel in a reinforced slab provides the three most important properties for earthquake resistance: stiffness, strength, and ductility.

Offering a further level of reassurance is the fact that the NZ Building Code now stipulates that all new concrete slabs must be reinforced with ductile steel.

Also available are a selection of concrete slab systems, such as 'raft' and 'waffle', that enhance the attributes of reinforced concrete slabs to offer greater certainty during earthquakes.

For best practice advice on concrete slab construction download a free copy of **Residential Concrete Slab-On-Ground Floors** from www.ccanz.org.nz



Image: Peter Fell Limited

THERE'S SO MUCH MORE TO CONCRETE THAN

- Design versatility – for floors, walls, columns, beams and cladding
 - Moulded shapes, textures and patterns
 - Decorative surface finishes (polished, coloured, dyed, etc).
- A range of systems – cast in-situ, precast, tilt-up and concrete masonry
- Suitable for floors, walls, driveways and paths/patios
- Doesn't rot or rust
- Fire resistant
- Landscaping options
- Strength and durability
- Low-maintenance
- Protects against extreme weather (flood and wind resilience)
- Impervious to wilful damage
- Security against intrusion
- Safe in seismic events
- Mass provides thermal comfort (as part of passive solar design)
- Acoustic insulation
- Locally produced
- Cost competitive at time of construction and over life



DURABILITY

Concrete endures and is incredibly long lasting. A well-designed concrete structure can be expected to exceed the minimum servicelife of 50-years as specified in the NZ Building Code.

AFFORDABLE

Cost competitive at construction, the lower ongoing maintenance and energy costs of concrete homes make them truly affordable.

SECURE

Concrete's robustness creates a secure living environment that can resist extreme and unpredictable weather patterns, along with wilful damage.

LOW-MAINTENANCE

Based on the fact that it does not rot, concrete's high resistance to wear means less maintenance, which is of increasing importance as the 'leaky homes' crisis shows no signs of going away.



YOU THINK

SOUND CONTROL

Due to its high-density, concrete offers superior sound proofing compared to lightweight building materials, reducing airborne noise transmission, reducing noise from exterior sources and providing sound separation between adjoining rooms.



LOCALLY PRODUCED

Comprised of cement and reinforcing steel manufactured right here in New Zealand, along with locally sourced aggregate, reinforced concrete is New Zealand made.



*Illustration: Litecrete NZ Ltd
lightweight precast concrete house
designed by MRA Architecture.*

EARTHQUAKE PERFORMANCE

Appropriately designed and built reinforced concrete and concrete masonry homes, with their combination of concrete and steel providing stiffness, strength, and ductility, are ideally suited to New Zealand's seismic conditions.



COMING HOME TO SOMETHING DIFFERENT

There is something solid and reassuring about concrete but it is also a favourite with our leading architects when they seek to create stylish, award-winning homes.

Concrete is a license to get creative, allowing you to do things that just can't be done in a standard timber-framed home.

A polished concrete floor is only one of a huge number of surface finishes that can now be achieved. With the use of treatments such as stains, stamps, stencils, polishing, grinding and the addition of colour pigments and custom aggregate (coloured stone, glass or shell) you are only limited by your imagination when it comes to creating an attractive concrete surface finish.

However, decorative concrete is for much more than just floors.

WHAT ARE SOME EXAMPLES OF CONCRETE'S VERSATILITY?

Versatile concrete elements (columns, beams and walls) can provide the required structural capacity, help define space, and also be used to present a sculptural shape or decorative surface.

This can be achieved because concrete is unique amongst contemporary building materials in that its pre-set plastic state allows it to take the shape of the form into which it is cast.

Intricate off-form shapes, patterns and textures, along with a range of colours and effects, enable concrete to offer almost unlimited aesthetic potential, and for home owners to enjoy true customisation that is as unique and different as they are.



"We have a brushed block wall, we have the polished concrete on the floor, and we also have a stippled finish. One of the beauties of this house is that you can look around the architecture and every wall has a different concrete finish."

Guy Madams, home owner.



"Once the client's awareness of the flexibility of concrete becomes more established, that will enable us as architects to create new and interesting residential forms in New Zealand."

Andrew Simpson, architect.





"This building is going to be here for 200 years. It's certainly been designed for that. That gives some satisfaction because it's durable and other people will come in and enjoy this building into the future."
David Bull, homeowner.



Images: Firth Industries

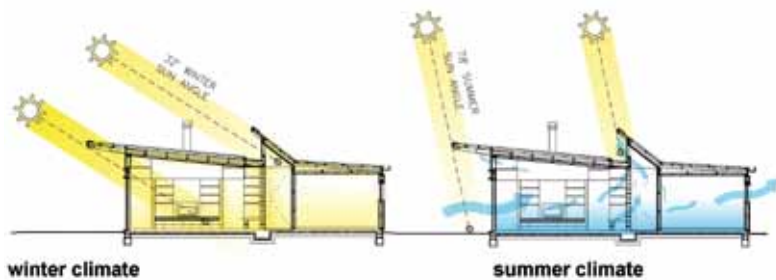


Image: Buck Architects + Associates

COMING HOME TO WARMTH

Concrete provides thermal mass that traps, stores and releases solar energy. As part of a system of design and construction that uses the intelligent application of insulation, glazing, ventilation and building orientation, concrete delivers superb performance.

PASSIVE SOLAR DESIGN: A HARMONIOUS SYSTEM



Done right, you can plug into the sun for power instead of draining your wallet and the national grid.

THERMAL MASS. Use heavyweight materials (mass) to soak up heat from the sun and release it slowly into the house when temperatures drop. A house with appropriate mass will maintain more comfortable temperatures – it will overheat less often and not get as cold overnight.

INSULATE. Use insulation to slow the flow of heat in and out of the house – heat from the sun is used more effectively in houses that are well-insulated, and its windows, doors and other construction joints sealed. Insulation helps to maintain more constant internal temperatures and reduces the need for heating in winter and cooling in summer.

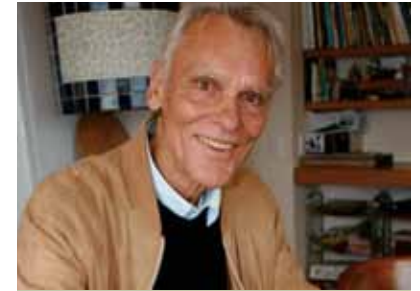
GLAZE. Use glazing to bring heat from the sun into the house – though glass must be selected, placed and sized carefully as it is a poor insulator (windows should be double glazed as a minimum to reduce heat loss).

ORIENTATION. North-facing glass provides the best access to solar gain. It is therefore preferable to orientate the house and its windows with the long axis in the east-west direction.

Anyone interested in gaining a deeper understanding of the use of concrete, its thermal properties or its wider construction and design benefits, can download a free copy of Designing Comfortable Homes from www.ccanz.org.nz.



Image: Cranko Architects



Architect Roger Buck doesn't mince words when it comes to New Zealand's traditionally poor standards of insulation:

"It just seems ridiculous to have all these cold houses in New Zealand when we should use all this free energy that comes from the sun. It's got to have a mechanism that can hold it and then release it later. Wooden houses don't do that. Concrete does. The trick is to get your glazing right, your orientation right and at the very least have a concrete floor."

"People walk in and say: 'You've got no carpet. It must be cold.' That's not actually the case. We've got a naked flame gas fireplace which, along with the concrete, just radiates the heat. Once the concrete is warm, it stays that way. It's a beautiful place to live."

Guy Madams, homeowner.

COMING HOME TO A COMPLETE FINISH



Concrete provides a near complete finish and requires remarkably little maintenance. Houses that need to be painted or re-textured every few years soak up huge amounts of money in contrast to concrete houses that maintain a quality exterior finish for generations.

LEAKY HOMES AND EXTREME WEATHER

It is estimated that more than 80,000 New Zealanders are living in leaky homes. In the greater Auckland region alone, the total number of leaky homes is predicted to reach the 15,000 mark. Concrete does not rot (or rust). That makes it the ideal building material for New Zealand homes as we seek to move on from the leaky homes crisis.

Concrete's robustness under stress is also ideal for resisting the impact of extreme weather conditions, such as flooding and hurricanes, which seem more frequent.

FIRE RESISTANCE

Sprinkler systems remain beyond the reach of most New Zealand home owners, yet house fires appear more common than ever. As a non-combustible material, concrete will preserve life and minimise damage by not burning or producing harmful emissions, while also preventing fire spread.



Images: Litecrete NZ Ltd / Clive White Construction Ltd

COMING HOME TO AN AFFORDABLE FUTURE

Concrete has a strong future in the design and construction of affordable, easy-to-build homes. There are a growing number of design-and-build options being developed right now.

Concrete lends itself to very efficient construction techniques such as entire homes being made from prefabricated panels and concrete masonry. Alternatively, concrete can be used selectively in individual components such as walls, beams, floors, columns, panels and stairs.

Both precast concrete and concrete masonry enable easy, surprisingly quick installation that can transform a building site into a home in record time. This is perfect for getting the job done, particularly during bad weather. Put those benefits together and the cost savings can be significant.

Images: Falcon Construction



"Simplicity of design doesn't limit or restrict the comfort or the functionality of the house. I'm really, really confident that our research work and design concepts will change the way New Zealanders think about residential homes."

Ralf Kessel, CCANZ Architect (EU)

CONCRETE HAS THE ANSWERS

The Cement and Concrete Association of New Zealand (CCANZ) provides answers for homeowners, builders, as well as architects and designers. Just pick up the phone or visit our website because Concrete Has The Answers.

We hope this short introduction has been helpful in giving you a better understanding of concrete. There is so much more to learn about the growing range of choices when building with concrete.

FIND OUT MORE

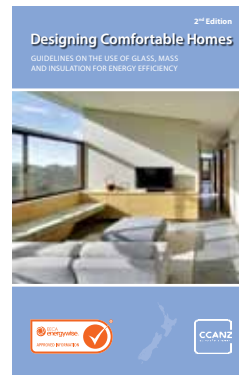
The best next step is to visit the CCANZ website (www.ccanz.org.nz) where you can view the Coming Home to Concrete short-film, and also find an extensive range of information, including these downloadable titles:

DESIGNING COMFORTABLE HOMES

This revised edition, endorsed by the Energy Efficiency and Conservation Authority (EECA), is a guide to the basic principles of passive solar design as a means to ensure homes stay cool in summer and warm in winter.

CCANZ CODE OF PRACTICE FOR WEATHERTIGHT CONCRETE AND CONCRETE MASONRY CONSTRUCTION

Developed by CCANZ in partnership with the wider building industry, this code of practice provides a means of compliance with the NZ Building Code, Clause E2 - External Moisture. It makes concrete easier to use for those wishing to benefit from its weathertight credentials.



RESIDENTIAL CONCRETE SLAB-ON-GROUND FLOORS

This recently updated guide provides advice for builders on producing a quality concrete slab-on-ground. It answers some of the more commonly asked questions and gives good practice information for achieving a residential concrete slab that is built to last.

CONCRETE MAGAZINE

CCANZ's quarterly magazine provides solutions and inspiration for a wide cross-section of building professionals. Architects, engineers, builders and those in the concrete sector turn to Concrete magazine for practical, technical and design information on how to maximise the potential of the world's most widely used construction material.

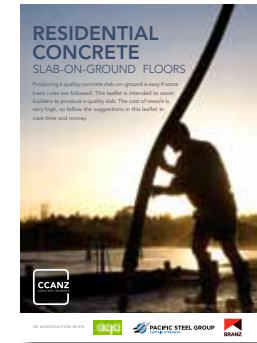




Image: North Face Construction



www.ccanz.org.nz



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