Firth

SUSTAINABLE CONCRETE & CONCRETE MASONRY

SUSTAINABILITY – IT'S NOT A LUXURY

The need to create a more sustainable environment through sustainable practices and materials is now a global imperative recognised by governments and corporations alike. Within this, the building industry plays a crucial role. It is vital that we take every opportunity to minimise the impact of materials and construction. At the same time, we must ensure that the energy and resources consumed through the occupancy and ongoing maintenance over the whole life of buildings do not have a negative impact on future generations.

FIRTH – LEADING WITH SUSTAINABILITY

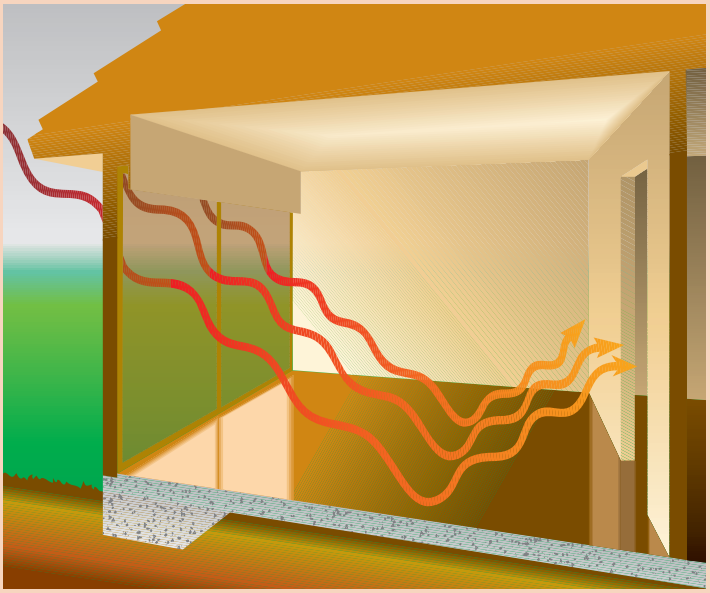
Concrete is a versatile and tremendously durable material made from predominantly natural materials. As New Zealand's largest concrete company and a leader in concrete design and innovation, Firth is committed to sustainability in concrete manufacture and distribution. This includes the recycling of surplus raw ingredients, water and leftover concrete.

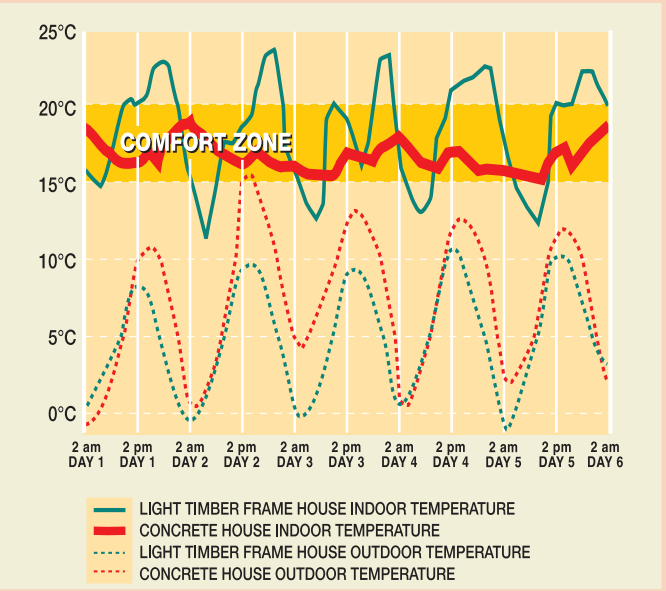
FIRTH CONCRETE AND CONCRETE MASONRY – THE DESIGN DIFFERENCE

Implementing sustainable practices throughout the manufacturing process is only the beginning of the contribution that Firth Concrete and Concrete Masonry makes to long term sustainable building. More far-reaching benefits, including significant energy savings, are achieved through the thermal mass properties of concrete in combination with careful design plus outstanding durability.

GOOD DESIGN WITH FIRTH CONCRETE AND CONCRETE MASONRY

- Capitalises on the principles of thermal mass to reduce energy consumption, whilst minimising interior temperature fluctuations.
- Means that structures remain warm or cool long after heating or air-conditioning has been shut off, reducing the need for additional temperature control.
- Improves acoustic performance by reducing the intrusion of sound from both internal and external sources.





DURABLE FIRTH CONCRETE AND CONCRETE MASONRY

- Results in longer effective occupancy and use.
- Requires less ongoing maintenance throughout building's lifecycle.
- Is inherently fire-resistant, protecting occupants and property.
- Needs less maintenance painting so there is less labour and exposure to volatile organic compounds.
- Is immune to rot and insect attack.

RE-PURPOSING OF FIRTH CONCRETE AND CONCRETE MASONRY BUILDINGS

- Is easily accomplished through refurbishment thanks to the durability and robust nature of concrete.
- Effective 're-purposing' of an existing complete structure provides the greatest recovery of energy and material resources (versus demolition and erection of a completely new building).

DECONSTRUCTION AND RE-USE

- Is possible with concrete and concrete masonry once a building has to come to the end of its economic life.
- Firth encourages the re-use of crushed concrete as base course and the recycling of separated reinforcing steel.

THE FIRTH SUSTAINABILITY LIFECYCLE

FIRTH'S SUSTAINABLE MANUFACTURING PROCESS

Firth has introduced a strict **environmental compliance** programme at all manufacturing sites. This includes a **'Towards Zero Waste' programme.**

Together with the inherently natural nature of concrete, these steps enable us to integrate sustainable practices at every stage of our manufacturing and delivery process.

- **Stone aggregates** used in the manufacturing process are normally quarried close to plants which reduces transportation impacts.
- **Water** is used as a carrier and a curing agent - surplus water from manufacturing is recycled and re-used at most Firth plants.
- Ready-mixed concrete has a 2-hour use-by time, meaning significantly **shorter delivery journeys** (unlike some other materials that are literally hauled the length of the country).
- **Water** used to wash out the ready-mix bowls on Firth Certified Concrete trucks at most building sites is contained and **returned to the plant for recycling.**
- **Aggregates** from left-over wet concrete at many Firth manufacturing plants are **separated and recycled.**
- **Cement** manufacture has been identified as a producer of carbon dioxide, a greenhouse gas. To counter this, NZ cement manufacturers have **reduced energy consumption** and improved energy efficiency at cement plants.

  Steps taken include:
  - introduction of **bio-waste fuels**
  - use of cement kilns to incinerate hydrocarbon wastes at high temperatures which **eliminates dangerous compounds**
  - **use of supplementary by-products** from other industries like fly ash and slag, usually destined for landfills, in the production of cement
- **Leftover wet concrete** that cannot be separated and recycled is formed into large blocks that are used in **rural applications** and to **protect against land erosion.**

For more information on the sustainable use of Firth Certified Concrete and Firth Concrete Masonry, or for a copy of the energy-efficient design guideline handbook 'Designing Comfortable Homes' (EECA/CCANZ-2001), please call Firth on 0800 800 576.

Firth

0800 800 576
www.firth.co.nz

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