



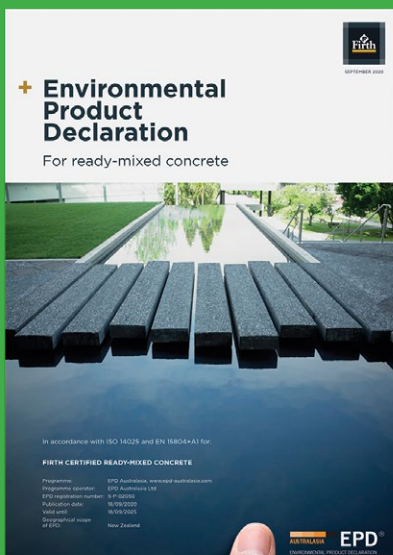
LOW CARBON CONCRETE

CONCRETE WITH SUSTAINABILITY IN MIND



FIRTH LOW CARBON CONCRETE IS BETTER FOR THE ENVIRONMENT WHILE BEING THE SAME QUALITY & STRENGTH AS NORMAL CONCRETE.

Firth's commitment to reduce our environmental impact ensures that all standard concrete has a lower carbon footprint*. This includes using a lower carbon cement made in NZ, with supplementary additives that enhance durability and reduce the level of embodied carbon (EC) in concrete mixes.



Same strength, same performance, proven.

Firth low carbon concrete offers the combination of reduced embodied carbon with the highest quality standards of Firth concrete ensuring strength, performance, appearance, and workability are maintained. Firth's Environmental Product Declaration (EPD) provides transparency through a verified external assessment of Firth's manufacturing processes.

Download at Firth.co.nz

EC RATING

Firth has developed an EC RATING to track the Embodied Carbon reduction of Firth concrete relative to the Infrastructure Sustainability Council (ISC) 2020 baseline* with Firth standard concrete already supplied at a minimum EC10 level - 10-20% carbon reduction.

Embodied Carbon Reduction % per m³ of concrete

-10%

-20%

-30%

-40%

-50%

EC BASELINE

EC10

EC20

EC30

EC40

EC50

	20 MPa	25 MPa	30 MPa	35 MPa	40 MPa	45 MPa	50 MPa
EC BASELINE* kg CO ₂ eq./m ³	284	313	347	391	441	495	550
EC10 CO ₂ reduction 10% to 20%	256	282	312	352	397	446	495
EC20 CO ₂ reduction 20% to 30%	227	250	278	313	353	396	440
EC30 CO ₂ reduction 30% to 40%	199	219	243	274	309	347	385
EC40 CO ₂ reduction 40% to 50%	170	188	208	235	265	297	330
EC50 CO ₂ reduction 50% +	142	157	174	196	221	248	275

YOUR EC20 RATING:

ECOMIX™

30 MPa CO₂ REDUCTION 20%

278
CO₂ kg/m³

Informative only

*The 2020 EC Baseline (ISC) measure has been provided by the Infrastructure Sustainability Council from the Materials Calculator NZ 2.0.

- Firth standard concrete mixes available
- ECOMIX™
- ECOMIX™+
- Performance level currently not achievable

EC RATING CASE STUDY: PROFILE GROUP HAUTAPU FACILITY

Developed and built with sustainability in mind, Building A is the first completed for the on-going Profile Group development campus near Cambridge. Achieving a 5 Green Star Industrial Design rating and targeting a 5 Green Star Built rating, this impressive 49,000m² factory features an industrial floor with Firth low carbon concrete.

Concrete Volume: 4500 m³
Concrete Strength: 35MPa

EC Baseline: 391 kg CO₂ eq. / m³
Firth Concrete: 282 kg CO₂ eq. / m³
EcoMix™ EC20 / 28%



SAVINGS:
490 tonne of CO₂ equivalent



EcoMix™ can reduce carbon intensity between 20-40% against the EC baseline using lower carbon cement made in NZ and supplementary additives that enhance durability of concrete. Firth has developed tools and expertise in designing mixes to support designers and contractors to realise lower carbon results for their project.

APPLICATION

Firth EcoMix™ can be used in a range of structural applications. For more details on product suitability, talk to our local Firth representative to assess the level of CO₂ reduction achievable for your project.



Why choose EcoMix™?



Verified and measurable way to reduce the Embodied Carbon footprint of your project



Recognised and support Greenstar, Homestar and Infrastructure Sustainability Council rating criteria

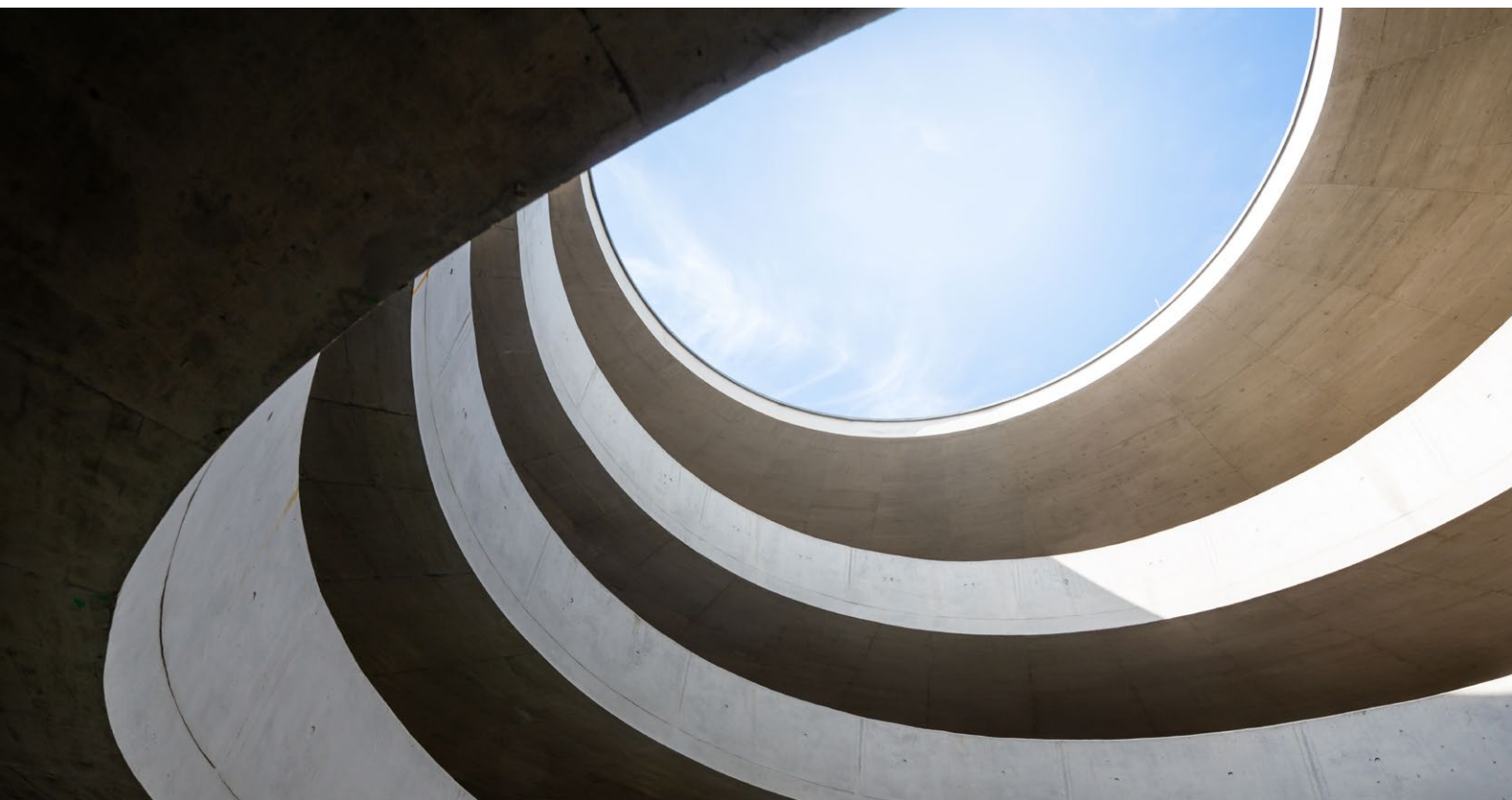


Suitable for multiple mix types, applications and across strength grades between 20 to 50 MPa

EcoMix™ + can reduce carbon intensity over 40% against the EC baseline. Engineered with higher proportion of cement replacement additives, Firth can support designers and contractors to achieve maximum sustainability outcome for their project.

APPLICATION

Firth EcoMix™ + is available in higher strength concrete for a range of structural applications. For more details on product suitability talk to our local Firth representative to assess the CO₂ reduction achievable for your project.



Why choose EcoMix™ +?



Verified and measurable way to reduce the Embodied Carbon footprint of your project



Recognised and support Greenstar, Homestar and Infrastructure Sustainability Council rating criteria



Suitable for multiple mix types, applications and across strength grades between 30 to 50 MPa

EC³

EMBODIED CARBON CONCRETE CALCULATOR

With its new verified Embodied Carbon Concrete Calculator (EC³), Firth can now evaluate and design concrete mixes at a plant specific level to meet a customer's desired Embodied Carbon (EC) anywhere in the country.



EC³ EMBODIED CARBON CONCRETE CALCULATOR

Plant Name	Plant #	Grade	Mix Code
Tokoroa Certified	53	30	AP3019AW

Life Cycle Impact Assessment Indicators

Per 1 m³ of Firth Ready-Mixed Concrete

		TOTAL
Global Warming Potential	kg CO2 eq.	2.60
Ozone Depletion Potential	kg R11 eq.	2.00E-12
Acidification Potential	kg SO2 eq.	0.368
Eutrophication Potential	kg PO4 eq.	0.0869
Photochemical Oxidant Creation Potential	kg C2H4 eq.	0.014975
Abiotic Depletion Potential, Elements	kg Sb eq.	7.26E-06
Abiotic Depletion Potential, Fossil	MJ	1.272
Primary Energy Use, Renewable	MJ	333
Primary Energy Use, Raw Materials	MJ	0
Primary Energy Resource Use, Total	MJ	333
Primary Energy Use, Non-Renewable	MJ	1,345
Primary Energy Use, Non-Renewable, Raw Materials	MJ	0
Primary Energy Use, Non-Renewable, Total	MJ	1,345
Secondary Material Use	kg	2.91
Renewable Secondary Fuel Use	MJ	225
Non-Renewable Secondary Fuel Use	MJ	0
Fresh Water Use	m ³	7.05
Hazardous Waste Disposed	kg	3.39E-06
Non-Hazardous Waste Disposed	kg	149
Radioactive Waste Disposed	kg	0.00136
Components for Reuse	kg	0.008537
Materials for Recycling	kg	0
Material for Energy Recovery	kg	0
Exported Energy, Electrical	MJ	0
Exported Energy, Thermal	MJ	0

EC RATING

Firth EC rating represents a % reduction of CO2 footprint relative to the EC Baseline*

EC10
EC20
EC30
EC40
EC50

EC20

CO₂ REDUCTION: 10-20%

25%

* The 2020 EC Baseline (BSC) measure has been provided by the Infrastructure Sustainability Council from the Miter 10 Calculator V2.0

Developed by

The methodology and assumptions used in the calculator are the same as those described in the Firth Environmental Product Declaration for ready-mix concrete (EPD Registration No: 3-0090). Refer to the EPD for the scope of the assessment. The information covers stages A1 to A3 (in order to go). The information presented represents the best estimate of the environmental footprint of the concrete being calculated. To meet the quality requirements of NZS3124, mix design may vary moderately to ensure accurate control. Small changes in mix design will result in small changes to the calculated environmental footprint. The information is provided in good faith and Firth accepts no liability for its use.

The party verified by



LEARN ABOUT OUR SUSTAINABLE CONCRETE JOURNEY AT [FIRTH.CO.NZ](https://www.firth.co.nz)