

Concrete Bricks - Half the Emissions of Clay Bricks

A desktop analysis of 3rd party verified Environmental Product Declarations (EPDs) has found that concrete bricks can deliver significantly lower carbon emissions than traditional clay alternatives.

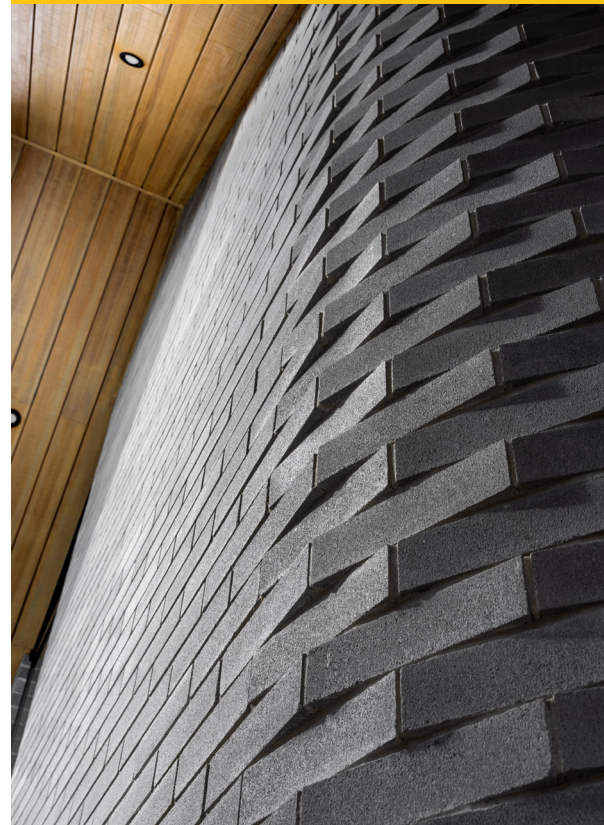
The study compared the embodied carbon associated with the manufacture of concrete bricks produced by a New Zealand supplier with that of fired clay bricks supplied from Australia. The findings show that, on average, concrete bricks generate around half the carbon emissions of clay bricks.

This difference is largely attributable to the manufacturing process. Fired clay bricks require prolonged exposure to very high temperatures, resulting in substantial fuel consumption and higher embodied carbon - typically around 0.5 kg of CO₂ per kilogram of bricks. Concrete bricks, by contrast, are produced using a less energy-intensive process.

Further emissions reductions are also achievable through optimised concrete mix design and the incorporation of recycled materials, strengthening concrete bricks' sustainability credentials.

These findings provide practical, evidence-based insight for designers, specifiers and builders looking to reduce the carbon footprint of construction projects without compromising performance or durability.

All images: Firth Industries.





Country of origin	Type	GWP / tonne (kg CO ₂ eq)				GWP / m ² (kg CO ₂ eq)			
		Manufacture only		incl. Transport ^{1&2}		incl. Transport ^{1&2}			
Supplier / Product		A1 - A3*	Unit	Average	A1 - A3	Average	A1 - A3	Unit	Average
AUSTRALIAN imports									
Austral, Punchbowl - 10 holes	Clay	253	tonne		269		40.40	m ²	
Austral & Nubrik, Wollert - 10 holes	Clay	181	tonne		198		30.70	m ²	
Austral, Golden Grove - 10 holes	Clay	215	tonne		232		33.72	m ²	
Bowral Bricks, Bowral - Hamlet - solid	Clay	288	tonne	203	304	220	33.07	m ²	31
Austral & D. Robertson, Longford - 3 holes	Clay	109	tonne		126		22.28	m ²	
Austral, Rochedale - 10 holes	Clay	184	tonne		201		29.22	m ²	
Austral, Hornsley Park - 10 holes	Clay	193	tonne		209		30.38	m ²	
NEW ZEALAND made (Firth Industries)									
Firth Focus, Natural, Christchurch - solid	Concrete	106	tonne				12.60	m ²	
Firth Focus, Natural, Auckland - solid	Concrete	*	tonne		117		13.94	m ²	
Firth Strata - solid	Concrete	125	tonne				12.60	m ²	
Firth Manorstone, Christchurch - solid	Concrete	73	tonne	109		111	11.45	m ²	13
Firth Manorstone, Auckland - solid	Concrete	*	tonne		84		13.21	m ²	
Firth Devonstone, Christchurch - solid	Concrete	131	tonne				12.93	m ²	
Firth Devonstone, Auckland - solid	Concrete	*	tonne		142		14.92	m ²	

* Source: EPDs: epd-australasia.com

* no manufacture in Auckland - shipped from Christchurch to Auckland

¹ 0.00665 kg CO₂ per tonne per km sea travel to Auckland. Source: ecoinvent.org/database

² 0.01069 kg CO₂ per tonne per diesel truck km. Source: ecoinvent.org/database

NOTE A: considered typical Australian brick dimensions in mm: L 230 x H 76 x D 110

NOTE B: considered typical New Zealand brick dimensions in mm: L 230 x H 95 x D 70