



BUILDING HISTORY

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As with many building inventions, corrugated iron traces its origins back to the coming together of the right raw material, idea and machinery.

Keeping the rain out has always been an important role for roofs. Although reeds, bark and wood have been used since time immemorial, finding a product with a longer life was always going to appeal.

The invention of the 'puddling' process in 1784 by Henry Cort supported the production of large amounts of consistent quality iron. This wrought iron could be rolled, but the flat, thin sheets could not withstand bending. Cast iron sheets with cast rectangular ridges had already been used in buildings, but how could the new material be similarly stiffened?

A corrugating idea

The answer was to corrugate it. Corrugated iron was first patented in 1829, and in 1832 was used in the London Docks for a warehouse 200 feet (61 m) long with a vault of 40 feet (12 m). The corrugations were formed one furrow at a time, requiring much labour and extreme precision to satisfactorily complete a sheet.

The final step in the industrial revolution for roofing was John Spencer's machine. His 'barrel corrugator' (patented in 1844) corrugated the iron by feeding it through a pair of longitudinally grooved rollers. The sheet length was constrained by the width of the roller, but if an arched sheet was desired, it could be bent by a machine with three ridged rollers. Today's 'roll-former' with the ability to make (almost) unlimited lengths of corrugated iron was not fully commercialised until just before World War II.

Steel replaces iron

Just because it was now possible to clad large buildings did not mean the research and development stopped. The

Corrugated iron – practical and decorative

Bessemer Converter (patented in 1856) lowered the price of steel. Developed by Henry Bessemer to build stronger cannons, the converter controlled the carbon in the iron to produce steel. Although the early tests worked well, it took another 20 years to discover (and control) the effect of phosphorous on the steel.

By the late 1880s steel had well and truly replaced iron in 'corrugated iron', but the name remains unchanged to the present day.


Rust protection

Iron rusts, and the thin sheets of corrugated iron could easily develop holes that let in the rain. Although tin had been used since the 16th century to protect iron, the 1837 patent of French chemist Stanilaus Sorel replaced tin with zinc. Zinc produced a hard protective layer that bonded well to the iron. Sorel introduced the term 'galvanise', convinced that the bond between the iron and the zinc was the result of some form of galvanic action.

Dipping the corrugated steel sheet into molten zinc has now been replaced by the continuous rolling process, invented in the 1930s. Even pure zinc has been surpassed, by the aluminium and zinc alloy coating used since 1994 in New Zealand manufactured corrugated iron.

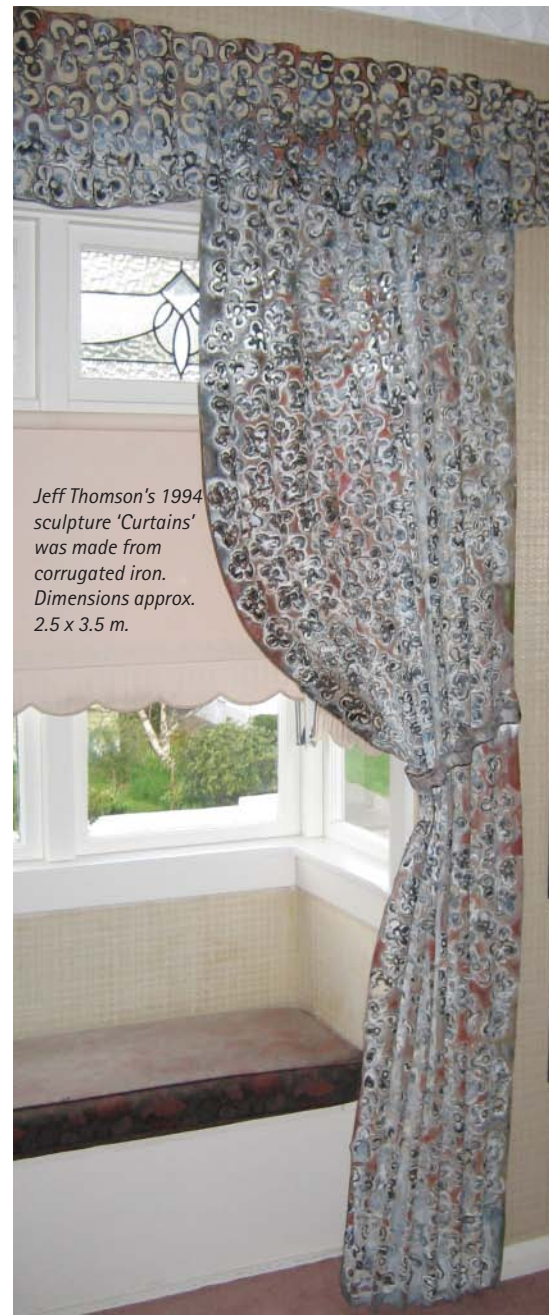
Part of New Zealand life

Corrugated iron was part of New Zealand life from the time of the earliest settlers. The first galvanising and rolling plant was made in 1886 by Samuel Parker at his 'Southern Cross Galvanised Iron Manufacturing Co' in Parnell, Auckland. Until the New Zealand Steel plant at Glenbrook produced coil in 1972, all steel was imported and corrugated in plants around the country.

Modern corrugated iron is manufactured with modern metallurgical skills to provide a product of suitable length, colour, strength and life to meet specific needs – a far cry from the early days of one size for all. 



Old corrugated steel house near Richmond, Tasman.



Jeff Thomson's 1994 sculpture 'Curtains' was made from corrugated iron. Dimensions approx. 2.5 x 3.5 m.