

Saving the world, one particleboard at a time

NZ's desperate shortage of Gib has provided a fillip to the saveBOARD business Paul Charteris founded, which uses upcycled packaging waste.

saveBOARD CEO Paul Charteris speaks with Dita De Boni.

Dita De Boni Mon, 14 Nov 2022

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(5)

A global move towards eco-friendly building products, combined with an acute shortage of Gib board in New Zealand, have been dual serendipitous trends bearing down on the business of New Plymouth resident Paul Charteris.

The former engineer bought the IP for creating construction board from difficult-to-recycle packaging – Tetra Paks, soft plastics, coffee cups, and even discarded lottery tickets – from the US just four years ago.

Now, he's negotiating a fourth manufacturing plant – his third in Australia – turning otherwise landfill-bound packaging waste into low carbon construction boards.

While New Zealand's desperate shortage of Gib in the past year or so has provided a fillip to the business – saveBOARDs are now MBIE-approved for use – its main revenue stems from corporates that like the green credentials and circular economy story of the product in their walls, on their ceilings, and used around the exterior of their buildings.

The story of circularity is a slow-dawning one in this part of the world, however. As Charteris observes, in Europe some 20-25% of new builds must now use reused, recycled, or remanufactured components, or finance can not be extended to them. Australia, meanwhile, has ringfenced A\$1 billion towards projects that aid waste minimisation.

"These things are not in New Zealand at the moment, but I can see them coming, whether it is two years or five years," Charteris told *NBR*, foreseeing even stronger demand for his product.

Large building companies are already leading the charge: "We've got a couple of companies here, like Fulton Hogan and Cook Brothers Construction, using our product wherever they can now because it's a great story, and a waste solution that helps them avoid that bad look of having skip bins full of waste on site."



The saveBOARD exposed interior boards.

The products

The beauty of saveBOARD feedstock is that it uses waste that might otherwise lack commodity value, because it combines several different materials.

Most monetisable recycling relies on separating out various materials and requires a 'pure' input of paper, aluminum, or glass for example. But saveBOARD is made from composites that don't require segregation – such as coffee cups, made of plastic, and paper or cartons with aluminium and polymers on them.

The patented technology to create the boards uses only heat, pressure, and time – there is no glue, chemicals, or adhesives used, as the plastic in the waste is the glue.

The finished boards can be Gib-style boards similar to plywood or colourful and textured boards that can be used internally without stopping or papering over; roofing substrate; a rigid air barrier for external use; short-term materials for construction; and ceiling tiles.

Charteris stumbled across the idea four years ago when he was working as an engineering contractor for Fonterra. The dairy giant wanted to do something sustainable with its liquid paperboard, known mainly by its brand name Tetra Pak (similar cartons are also made by Australasian firm SIG).



Fonterra sent Charteris to Des Moines, Iowa, to look at a company called ReWall, which had been recycling beverage cartons into building products including moisture-resistant drywall for 14 years. The New Zealander said he was blown away by the possibilities, wondering to himself before going how it was possible to make a board out of packaging waste without glue or adhesives.

“The engineer in me said ‘how do I join the dots and take the technology back?’,” he said.

Charteris put a pitch together to Fonterra's board to see if the company was interested in funding a business but, after initial interest, it decided the project was not ‘core business’, leaving the engineer to strike out on his own to import the IP, set the project up, find feedstock, and find customers.

In the beginning, around 2018, Fletcher's Gib board was still dominating the market without supply constraints and the push for sustainability was relatively fledgling,

especially in construction. But Charteris soon realised his main market would be corporates wanting to 'do the right thing'.

"We didn't target the Gib board market particularly and thought realistically between 10-15% of our plant capacity might be used in that way, because people use the things they know and buy the brands they trust. We saw our board being more aligned to corporates, where they are trying for a circular solution and trying to solve packaging waste issues with a product they can put back into their buildings."

Investors

Investors were hard to come by in the early days, especially given the price tag to build a factory producing saveBOARD is about \$5 million a pop.

A large investor signed up early to the first factory build had to withdraw as Covid hit: "It was a disappointment, but lockdown gives you time to think and re-strategise," Charteris said.

Through a connection with a company called Closed Loop in Australia, the startup founder was directed to a company called Shred-X, a document destruction company owned by New Zealand's Freightways. An email exchange with Freightways CEO Mark Trougher followed, leading to a meeting between the parties and initial backing with a \$1.1m loan, which was converted into a 22% shareholding November 2021.



Ceiling tiles.

Further capital raising has seen Freightways bump up its holding to almost 36% of Upcycled Building Materials, with interests associated with Charteris owning 18%, Melbourne's Closed Loop Environmental Solutions owing just over 11%, and individuals with six other smaller parcels.

With transport and construction combined accounting for nearly 30% of greenhouse gas emissions in New Zealand, Freightways' Troughear said the company recognised saveBOARD as an opportunity to meet needs at both ends.

“Investing in saveBOARD made sense ... as the perfect complement to our current collection and destruction service offering, creating a circular economy for those collections from right now – not by 2025, or by 2050.”

Meanwhile, Charteris also registered Save Board NZ, a shell company owned half and half by his interests and that of one of the founders of the original American company ReWall, Jan Rayman, and holds the know-how and intellectual property for Asia Pacific.

The reason for this structure was that “if, for example, in the future there was an opportunity in Vietnam, say, but none of the existing shareholders wanted to invest in that, I could find other partners in that country – there’s a lot of good ideas that have been created in the world that have been stopped by boards, and I didn’t want that to happen.”

Feedstock

Cartons – of which in New Zealand about 80% are made by Tetra Pak and SIG – are the key feedstock for saveBOARD. The two companies are not shareholders but do financially support the circularity project.



Feedstock before being made into boards.

There is no national curbside collection of Tetra Pak and other such cartons in New Zealand at present, although they are collected in Auckland where they go into a mixed fibre stream, where their aluminum and polymers aren’t quite voluminous enough to contaminate the other streams. In addition, clean liquid paperboard cartons can also be dropped off at some 40 independent community collection points (or sent there, for the very keen).

The Ministry for the Environment is also investigating a container deposit scheme for this and other material, based on an Australian model.

Most of the Tetra Pak currently used in saveBOARDs comes from Fonterra. The dairy giant exports almost all of its UHT milk and cream in cartons, but where there

are samples, line rejobs, or errors, the packaging is delivered to saveBOARD. The company also gets some cartons back from the company's KickStart joint initiative between Fonterra, Sanitarium, and the Ministry of Social Development, which distributes milk and Weetbix to 1400 schools each weekday morning.

The other 50% of the material production comes from soft plastics recycling collections; paper that can't be included in the paper scheme (such as magazines, which is printed on with plastic) and even cancelled Instant Kiwi tickets.

There is a careful balance to strike between taking enough feedstock and meeting demand for boards, because "we are not a landfill and don't want to end up with a big pile".



saveBOARD CEO Paul Charteris.

But, from an initial three customers, the company now has 20, and is always open to new business opportunities. For example, after a trial using construction waste with Unitec last year, the company now takes construction soft plastic – timber wrap, danger tape, and shrink wrap that comes off materials for example – and turns it into reusable board suitable for short to medium-term use in applications such as formwork, hoardings, protection, and signage on construction sites themselves.

Charteris said saveBOARD employed 10, a number that would double in the next year. It was on track to make between \$1m and \$5m in revenue in the coming financial year, and September 2022 was its first profitable month.

Australia

As well as funding the Te Rapa plant, existing shareholders have plunged more into saveBOARD to see it expand into New South Wales – a project that was met with a further A\$1.74m in funding from the NSW government.

The company has subsequently received a A\$1m grant from the Victoria State Government towards the cost of opening a facility in 2024 and has signed (but not yet announced) a contract with a further Australian state to replicate itself there.

Eventually, the company will be aiming to be running at a production capacity of 200,000 construction boards a year at each plant, although it is making fewer than that at present as it builds demand.



SaveBOARD cladding at the Zero Waste Bistro in New York.

Charteris said it's "a bit scary to think about" the global interest in the technology – groups from South Korea have come to take a look at the saveBOARD Waikato plant, while interest has also been fielded from as far away as Israel, Chile, and the US (where the Iowa company is already operating).

It's a busy life for someone who describes himself as an 'accidental CEO'. Charteris's New Plymouth-based family is already missing him as he has spent weeks in Australia helping bed-in operations there and he said the journey as a founder has seen a loss of the kinds of comforts he enjoyed for many years as a corporate executive, and the additional stress of being everything from bottle washer to business strategist.

"But I believe in what we're doing, and I'm passionate. It's the reason I get out of bed – it's my way of making a difference."

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