



**Customwood<sup>®</sup>**  
**MANUFACTURING EXCELLENCE**



**DAIKEN**





# Welcome to Daiken New Zealand

Daiken New Zealand provides the highest quality Medium Density Fibreboard (MDF) to the world. Made from locally sourced Radiata pine, our primary product range, Customwood®, is renowned for its colour, consistent quality and low emissions. This not only makes our product easy to work with, it also ensures optimal finish and long-term results.

When this MDF site in North Canterbury, New Zealand, was commissioned in 1976 as the first MDF plant in the Southern Hemisphere, MDF was a completely new product that presented many engineering challenges. Since then, the operation has been responsible for many world-first breakthroughs in MDF production.

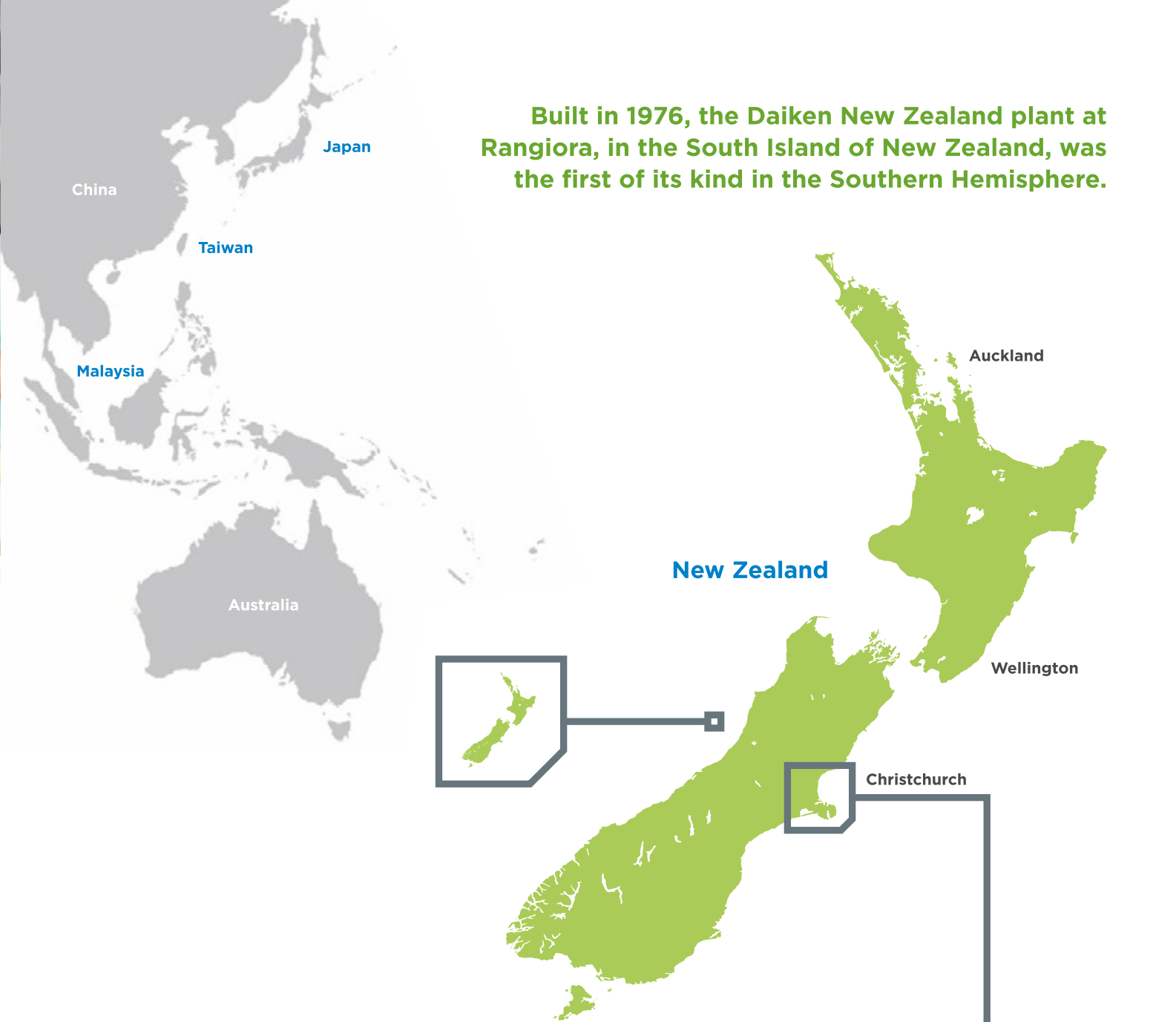
In February 2009, the site became part of the Daiken group, one of Japan's leading building material manufacturers. The depth of experience here has been complemented by the know-how, technical strength and human resources of the Daiken group and we continuously look forward to moving our capability to a higher level as a result. In practical terms this will facilitate the transition to a high quality MDF product that will meet the highest international standards.

To ensure that we can offer customers a competitive product we will be putting increasing resources into optimising uptime, yield, productivity, and of course, quality.



Everyone at Daiken NZ Ltd is focused on customer needs and to securing the highest ranking for growth in customer satisfaction. In order to improve our performance on quality, price and delivery, we look forward to your continued guidance, assistance and encouragement.

## DAIKEN



Built in 1976, the Daiken New Zealand plant at Rangiora, in the South Island of New Zealand, was the first of its kind in the Southern Hemisphere.

### Plant production

	Line 1	Line 2
<b>Year Commissioned</b>	1976	1994
<b>Production Capacity</b>	105,000 m <sup>3</sup> /year	107,000 m <sup>3</sup> /year
<b>Standard Press Thickness</b>	12-30 mm	2.5-9 mm
<b>Standard Press Density</b>	400-730 kg/m <sup>3</sup>	550-800 kg/m <sup>3</sup>



Plant land area: 159 ha | Plant area: 17 ha



**These are the standard specifications of Customwood® MDF. As we may cater for any special specifications, please contact us with details.**

		Medium Density Specification*aa												
Glue Type		U												
Thickness Range (mm)		2.5	2.7	3	4	4.75	5.5	6	7	9	12	15 16 18	21	24 25
Thickness	mm	±0.15								±0.20				
Width	mm	±2.0												
Length	mm	±2.0												
Diagonal Difference	mm	≤3												
Squareness (JIS method)	mm	≤2												
Typical Density	g/cm³	0.790			0.780			0.760	0.725	0.715			0.665	
Density Range	g/cm³	0.735 - 0.890			0.730 - 0.880			0.710 - 0.860	0.675 - 0.825	0.665-0.815			0.615 - 0.765	
Moisture Content	%	6.0-11.0								5.5-9.5				
Bending Strength (MOR)	N/mm²	≥25.0			≥30.0				≥25.0					
Internal Bond (IB)	N/mm²	≥1.0							≥0.7					
Thickness Swelling (20°C, 24hr)	%	≤30	≤30	≤30	≤26	≤24	≤19	≤18	≤18	≤14	≤12	≤10	≤8	≤7
Wood Screw	N	-										≥400		
Formaldehyde Emission (desiccator)	SEO (F★★★★)	mg/L	Average ≤0.3					Maximum ≤0.4						
	EO (F★★★)		Average ≤0.5					Maximum ≤0.7						
	E1		Maximum ≤1.0											

\*These are not guaranteed values but a description of averaged properties.  
The maximum and minimum values will depend on the certifications required for each order.

\*Tested in accordance with JIS A 5905. Emissions tested in accordance with JIS A 1460.

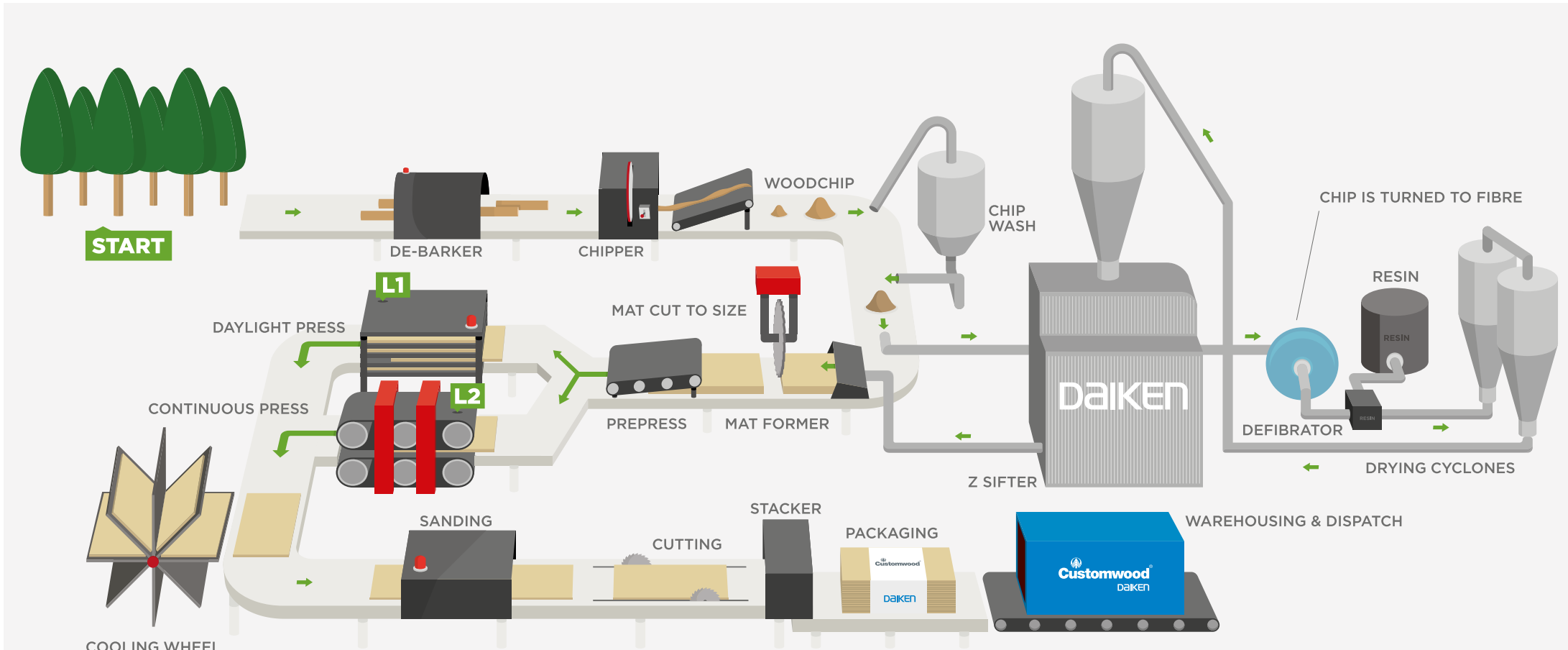


Thickness	Sheets/pack	Width	Length	
			1830	2440
2.5	360	920	○	○
		1220	○	○
2.7	330	920	○	○
		1220	○	○
3	300	920	○	○
		1220	○	○
4	225	920	○	○
		1220	○	○
4.75	190	920	○	○
		1220	○	○
5.5	165	920	○	○
		1220	○	○
6	150	920	○	○
		1220	○	○
7	130	920	○	○
		1220	○	○
9	100	920	○	○
		1220	○	○
12	75	1220	○	○
15	60	1220	○	○
16	58	1220	○	○
18	50	1220	○	○
21	43	1220	○	○
24	38	1220	○	○
25	37	1220	○	○
30	30	1220	○	○

Light Density Specification*									Ultra Light Density Specification*										
U									U										
7	9	12	15	18	21	24	25	30	7	9	12	15	18	21	24	25	30		
±0.20									±0.2									±0.25	
±2.0									±2.0										
±2.0									±2.0										
≤3									≤3										
≤2									≤2										
0.650		0.600							0.550										
0.600-0.700		0.580-0.630							0.400-0.550										
6.0-11.0		5.5-9.5					6.0-10.0		6.0-11.0		5.5-9.5					6.0-10.0			
≥15.0		≥25.0							≥15.0										
≥0.6						≥0.5		≥0.45	≥0.4		≥0.5					≥0.4			
≤18	≤15	≤12	≤11	≤10	≤8	≤7		≤6	≤22	≤20	≤18	≤16	≤14	≤12	≤10		≤8		
-			≥400						-			≥300							
Average ≤0.3    Maximum ≤0.4									Average ≤0.3    Maximum ≤0.4										
Average ≤0.5    Maximum ≤0.7									NA										
Maximum ≤1.0									NA										



# How Customwood® is made



## Manufacturing excellence

Customwood® is highly regarded internationally due to the density and colour uniformity of our product range. This is achieved through innovative production techniques and manufacturing excellence at our North Canterbury plant.

MDF technology developed in the mid-1970s at our Ashley plant has enabled us to process virtually worthless – ‘waste’ wood – into a substitute building material, Customwood®.

Every day we produce over 550 cubic metres of Customwood® on our two production lines. The process starts with the screening and washing of woodchips to eliminate impurities. Woodchips are then heated until soft for refining. The refining process to transform woodchips into wood fibres is thermo-mechanical, so no chemicals are used. Resin and wax are added to the fibres before drying to control moisture. Fibres are formed into mats and pressed with heat and pressure to produce solid fibreboard. The boards are then sanded, cut to size, packed and delivered to customers in New Zealand and all over the world.

To ensure complete traceability, we track each panel as it progresses through production, with an individual job number assigned to each. Every panel is also closely monitored throughout the production process to ensure the highest quality that meets our clients’ expectations.



### Line 1

Year Commissioned	1976
Press Type	Multioopening (Multidaylights)
Production Capacity	105,000 m³/year
Standard Press Thickness	12-30 mm
Standard Press Density	400-730 kg/m³

### Line 2

Year Commissioned	1994
Press Type	Continuous
Production Capacity	107,000 m³/year
Standard Press Thickness	2.5-9 mm
Standard Press Density	550-800 kg/m³

### Made to order

We have an extensive range of products, and can also customise panel size, thickness and density to meet individual requirements.

- *Thickness:* 2.5 mm-30 mm
- *Dimensions:* Various
- *Density:* Ultra Light (less than 550 kg/m³), Light (551kg/m³-650kg/m³), Standard/ Medium (651kg/m³-850kg/m³), High Density (more than 850kg/m³)
- *Emission:* E1, EO, SEO
- *Certifications:* JIS, Carb P2, FSC, ECNZ, EPA TSCA Title VI





## Innovative technology

When the MDF site in North Canterbury was first commissioned in the mid-1970s, MDF was a completely new product that presented many engineering challenges.

Since then, the operation has been responsible for many world-first breakthroughs in MDF production. This includes the introduction of a new blow line resin blending technique in 1976 to produce uniform consistency and colour – a technique that has since become an industry standard.

The plant also pioneered changes to the operation of the press to increase board strength, and later developed ultralite panels in response to demand for an extremely lightweight product with superb machining characteristics. In addition, we are leading the way in our commitment to low emissions – in 2000, the plant was the first facility outside Japan to meet the stringent Japanese Industrial Standard (JIS).

Building on a history of innovation, we continue to perfect the technology required to process an inherently variable natural fibre and turn it into a consistently high quality product. This has not only established Customwood® as a household name, it also enables us to remain at the forefront of our industry, setting the standard for MDF production worldwide.

- 1976** The first MDF comes off the production line
- 1977** Official plant opening by New Zealand Prime Minister Robert Muldoon
- 1985** Carter Holt Harvey (CHH) purchases the plant
- 1994** A second production line was added to focus on the new thinboard
- 2000** The Ashley plant is the first outside Japan to meet new Japanese low formaldehyde emission standards
- 2001** Another first – the development of new ultralite panels for the USA market
- 2009** Daiken Corporation and Itochu Corporation purchase the plant, establishing Daiken New Zealand Limited
- 2014** Z Sifter installed to improve fibre quality and provide a higher premium output.

## Your first choice for healthier interiors

Daiken New Zealand offers the lowest range of formaldehyde-emitting MDF.

Customwood® is made using wood fibres from Radiata Pine, urea formaldehyde (UF) resin and a very small amount of paraffin wax. Formaldehyde is a gas found in the natural environment made up of hydrogen, oxygen and carbon. Formaldehyde occurs as a natural product in most living systems and in the environment, occurring naturally in the air we breathe.

Man-made formaldehyde is no different to naturally occurring formaldehyde. It has been commercially manufactured for more than 100 years, and is part of the adhesives used to manufacture MDF and particleboard. It can also be found in other materials, such as carpets, paints and varnishes. It can be present in food and cooking and used as a disinfectant.

Levels of formaldehyde in outdoor air are generally below 0.001 mg/m<sup>3</sup> in remote areas and below 0.02 mg/m<sup>3</sup> in urban settings. The levels of formaldehyde in the indoor air of houses are typically 0.02–0.06 mg/m<sup>3</sup>. The International Agency for Research on Cancer (IARC) recognises formaldehyde as carcinogenic for humans and the gas has also been identified as an asthma risk.

By working with resin makers, we have developed a range of Customwood® products that meet the exacting Japanese Industrial Standards (JIS) for formaldehyde emissions. The superior grade, F4 Star (also known as Super E0), has formaldehyde levels similar to wood.

Customwood® also complies with the equally rigorous California Air Resources Board (CARB) limits on formaldehyde emissions. This represents a de facto national standard for the US, and the new regulations EPA TSCA Title VI.







## Internationally renowned quality

Daiken New Zealand is committed to a programme of continual quality development and exceeding industry standards.

As part of our comprehensive external and in-house quality programme, our plant and products operate to ISO 9001 quality standards. We monitor, benchmark, and strive to continuously improve our business performance, products, systems and individual performance.

In addition, we employ a strict internal quality programme of 'kaizen' – a Japanese business philosophy of continuous improvement of working practices, and personal efficiency. This has enabled us to maintain an efficient manufacturing operation, transparent operating procedures and a focus on minimising waste, while continually working to move capability to a higher level.

We also believe strongly in open communication, working alongside the market to understand key areas of performance and how these can be improved through innovation. As well as our own stringent quality controls, we are also part of a number of external management programmes to ensure we retain our leadership position in the international MDF industry.

## Sustainability in action

Customwood® meets the world's most stringent environment standards. This means when you specify Customwood®, you can be sure you've made the best choice for the environment too.

### Responsible sourcing

Unlike the vast majority of the world's MDF, Customwood® is made from exotic plantation-grown Radiata Pine trees. These forests are mostly located a short distance from the plant. There is plenty of raw material available because Canterbury's strong north westerly winds and low rainfall mean a lot of the wood is not suitable for timber.

Whenever possible, we source wood harvested from plantations that meet the Forest Stewardship Council's (FSC) stringent environmental, social and economic standards. Product made from this wood carries the FSC certification label. We are also part of Environmental Choice – New Zealand's most trusted multiple criteria environmental labelling programme, which operates to internationally recognised standards and principles. In addition, our environmental management system meets the strict criteria set out in the ISO 14001 certification process.

### Environmental initiatives

We constantly monitor conditions to ensure we are managing our operations in an environmentally responsible manner. We monitor water quality (underground and surface) to ensure our effluent treatment process and discharge methods are non-contaminated. One hundred percent of wastewater is treated and then used for irrigation on farmland.

We also strictly monitor formaldehyde emissions, as well as regularly measuring wood dust. An external authority completes an annual survey of wood dust and formaldehyde. Several initiatives on-site focus on the recycling of cardboard, office paper and containers.

### Supporting our community

We believe in supporting our community by supporting our local economy. We source local materials for our manufacturing plant, provide employment opportunities and hire local contractors where possible. In addition we are members of the Canterbury Employers' Chamber of Commerce – the region's key business network.







# DAIKEN

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