

# ARTISTRY IN TIMBER



L A M I N A T E D  
V E N E E R  
L U M B E R

L V L  
/  
2 0 2 0



*Specify  
with  
confidence*



# CONTENTS

## ABOUT LVL

What is LVL?	8
Sustainability	11
Made in NZ	13
Our History	18

# 1

## PRODUCT INFO

Products	21
Features	26
Advantages	30

# 2

## SOFTWARE SOLUTIONS

About	36
-------	----

# 3

## PROJECTS

Cathedral Grammar Junior School	40
MOTAT Aviation Hall	48
Young Hunter House	56
Christchurch Transitional Cathedral	60
Bairnsdale Library	64
Kaikoura Island Lodge	68
Summerset Retirement Village	74
Gibbon's Family Home	78
Birt's hyFRAME Shed	84
Toyota Showroom & Workshop, Botany	90

# 4

## SERVICES

Support	95
Design Services	96

# 5

The information contained in this document is current as at October 2019 and is based on data available to Futurebuild® LVL at the time of going to print. Futurebuild LVL reserves the right to change the information contained in this document without prior notice. It is your responsibility to ensure that you have the most up to date information available.

You can call toll free on: 0800 808 131 or visit: [www.futurebuild.co.nz](http://www.futurebuild.co.nz) to obtain current information.

Futurebuild LVL has used all reasonable endeavours to ensure the accuracy and reliability of the information contained in this document. However, to the maximum extent permitted by law, Futurebuild LVL assumes no responsibility or liability for any inaccuracies, omissions or errors in this information nor for any actions taken in reliance on this information.

globally,  
and Veneer Lumber  
has been inspiring  
architects, designers,  
and home owners  
for over 100 years.



SPECIFY WITH  
CONFIDENCE

FUTUREBUILD® LVL OFFERS  
THE LARGEST RANGE OF  
LVL PRODUCTS WITHIN  
NEW ZEALAND, WHICH  
CAN BE SEEN IN PROJECTS  
ACROSS AUSTRALASIA.



THE STRUCTURAL PROPERTIES OF FUTUREBUILD® LVL ENABLE A WIDE RANGE OF USES AND DESIGN VERSATILITY, WHICH MEANS IT CAN BE SPECIFIED WITH CONFIDENCE ACROSS A VARIETY OF RESIDENTIAL AND COMMERCIAL APPLICATIONS.



## WHAT IS LVL?

Futurebuild® LVL is an engineered wood product made from multiple layers of wood veneer laminated together under precise factory conditions. Combined using heat and pressure, the result is a solid, consistent material that delivers proven structural reliability along with design versatility.

Each veneer is sonically tested to determine the properties. These layers are laminated together, using different recipes to produce a highly predictable, uniform product. Natural defects such as knots, slope of grain and splits have been dispersed throughout the material or have been removed altogether, significantly enhancing strength and rigidity.

Futurebuild LVL is much less likely than conventional timber products to experience warp, twist, bow or shrink. It also offers a lightweight alternative to hot rolled steel and concrete in structural framing, making it ideal for residential and commercial applications including:

- Ground floor, mid floor and mezzanine floor systems
- Post and beam structures
- Purlins, girts and rafters
- Portal frame construction
- Timber Concrete Composite (TCC) floors

Futurebuild LVL enables specifiers and builders to have the confidence of meeting customer expectations.

WE LIVE IN A TIME  
OF CHANGE AND  
CHALLENGE. THE  
BUILDING INDUSTRY  
NEEDS TO BE  
INNOVATIVE AND  
UTILISE PRODUCTS  
THAT ARE EFFICIENT  
AND SUSTAINABLE.

# SUSTAINABILITY

*As a naturally renewable material, timber typically has one of the lowest carbon footprints of any construction material.*



WITH OUR ENVIRONMENT CHANGING, WE NEED TO EMBRACE ENVIRONMENTALLY FRIENDLY SOLUTIONS.

Research suggests the building industry is responsible for producing almost 35% of New Zealand's CO<sub>2</sub> emissions and 40% of our waste\*. Utilising sustainable practices and resources has to be part of the solution.

Timber is a natural resource to assist sustainable building solutions.

As a naturally renewable material, timber not only has a low carbon footprint but, trees absorb carbon from the atmosphere as they grow.

Building better, more efficient buildings that are sympathetic to and give back to our environment is the future of architecture and building in New Zealand - engineered timber has a massive role to play.

\*Bell, P. 2009. Kiwi Prefab: Prefabricated Housing in New Zealand - An historical and contemporary overview with recommendations for the future, Wellington: Victoria University.



**MADE IN  
NEW ZEALAND**



**MARSDEN POINT  
MILL  
NORTHLAND**

At our plant at Marsden Point in Northland, a precise manufacturing process produces Futurebuild® LVL.

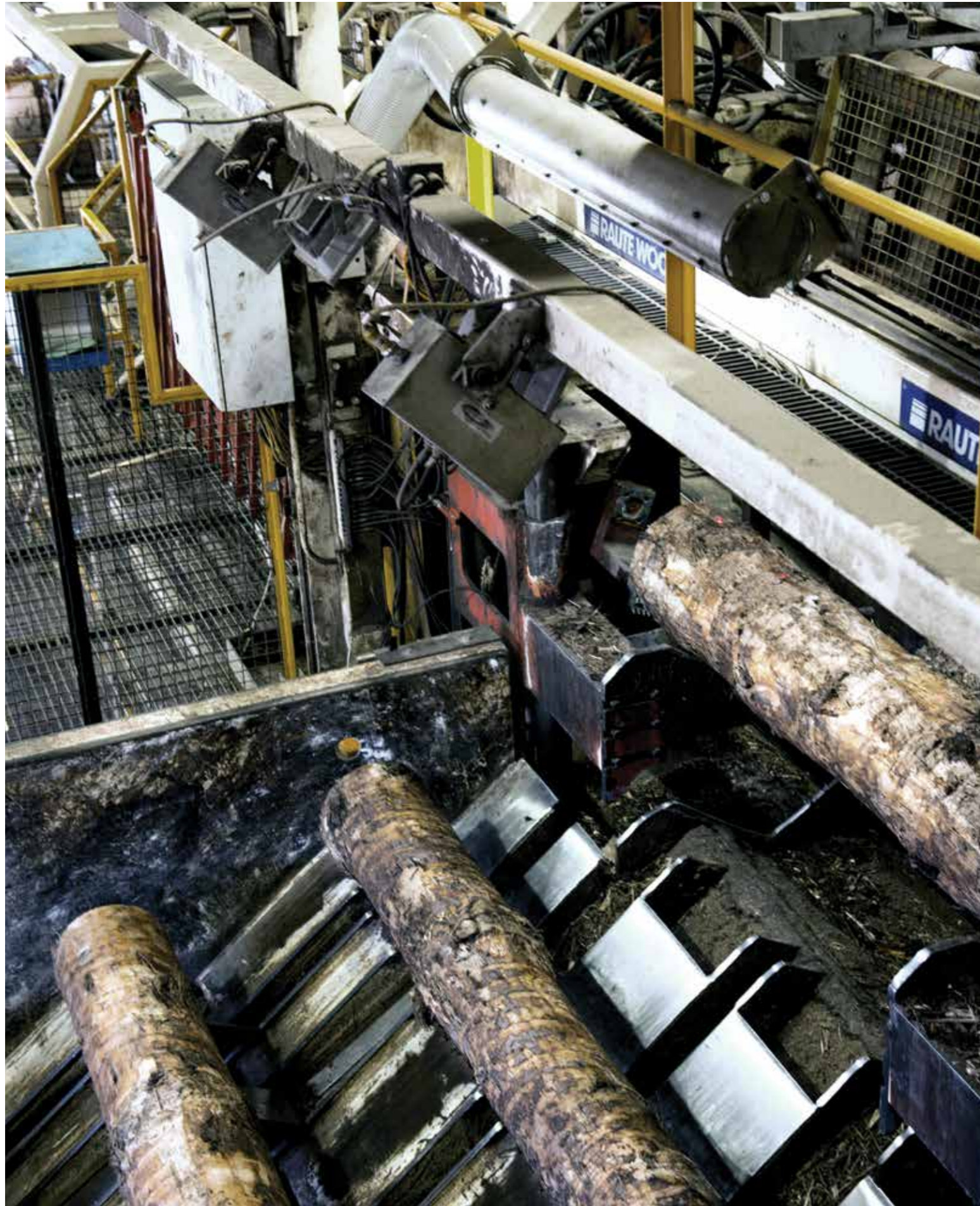
Technology is key in our 30,000 square metre factory, running 24/7, processing hundreds of thousands of logs yearly.





TIMBER PRODUCTS  
HAVE BEEN USED  
IN NEW ZEALAND  
BUILDINGS FOR  
OVER 150 YEARS.

*Government House, Auckland,  
was the first timber mansion of its  
kind in New Zealand, built in 1856.*



## OUR HISTORY

Proud of its Kiwi heritage, Futurebuild® LVL has been inspiring architects, designers, builders and home owners in New Zealand for over 20 years.

We have grown, adapted and developed to become the manufacturer of New Zealand's largest range of LVL products.

Futurebuild LVL is dedicated to fostering the design of timber based solutions for residential, commercial and industrial buildings. Our promise, to offer world class products and support, means we continually test, develop and audit our product and systems to meet or exceed New Zealand's standards.

Our team of architects and engineers work tirelessly to ensure our products are supported by detailed technical knowledge, software and literature.

ARTISTRY IN  
TIMBER

SPECIFY WITH  
CONFIDENCE



*The Futurebuild® LVL range has been developed to ensure you can specify with confidence, time and time again.*

# FUTUREBUILD® LVL RANGE

FUTUREBUILD®  
STRUCTURAL LVL  
**hy  
ONE®**

FUTUREBUILD®  
STRUCTURAL LVL  
**hy  
SPAN®**

FUTUREBUILD®  
STRUCTURAL LVL  
BEAMS  
**hy  
90®**

FUTUREBUILD®  
LVL TRUSS CHORDS  
**hy  
CHORD®**

FUTUREBUILD®  
LVL ENGINEERED  
I-JOISTS  
**hy  
JOIST®**

FUTUREBUILD®  
LVL ENGINEERED  
BOUNDARY JOISTS  
**hy  
BOUND™**



The Futurebuild® LVL range of products is New Zealand's largest range of LVL products, available in a variety of sizes and with different structural properties, so you can find a product to suit your applications. There is a range of solutions for residential and commercial applications – visit our website to find out more information on the best product for your project.

**hyONE®** is the highest stiffness Futurebuild® LVL product. Typically supplied as a nominally 90mm thick product, it is manufactured primarily for long span or highly loaded applications such as lintels or floor beams where large spans or depth restrictions apply.

**hySPAN®** is the most versatile Futurebuild LVL product. It has high structural properties and is available in a large range of sizes and lengths. hySPAN® is typically specified for lintels, rafters and floor joists in residential structures and for structural beams in commercial, rural and industrial construction.

**hy90®** is typically supplied as a nominally 90mm thick LVL product manufactured primarily for lintels or beams to match 90mm wall light timber frames. It has lower structural properties than hySPAN but its thickness offers better member stability when used as long span structural beams or columns. Applications will typically be for load bearing lintels in houses, larger span garage door lintels, and beams where the 90mm width is desired.

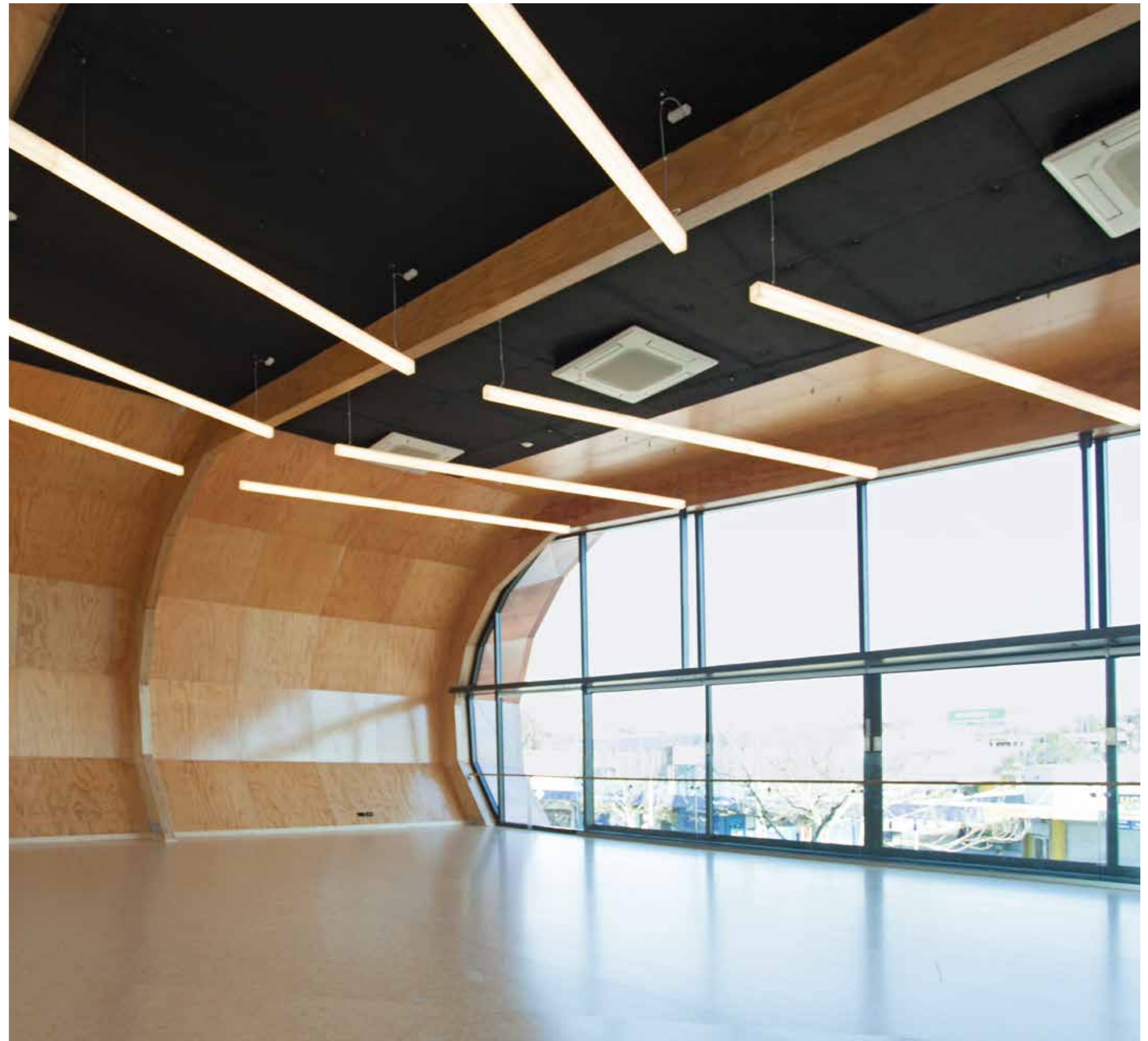


**hyCHORD®** is primarily specified as roof truss chords, but can also be used for lintels, rafters, purlins, floor joists, wall studs or other members where smaller section sizes are required. hyCHORD® is available in smaller 45mm thick section sizes to match ordinary kiln-dried timber. hyCHORD is ideal for truss chords in high load applications, where strength and predictable deflection performance are paramount. With hyCHORD, designers can confidently exploit the strength properties for minimum sections and utilise the predicted deflection performance to apply just the right amount of camber to ensure flat ceilings and no dips or bumps in the roof line.

**hyJOIST®** is an engineered 'I-beam,' utilising LVL flanges and a plywood web. It is ideally suited to floor joist and rafter applications due to its lightweight, straightness and the ability to cut large holes through the web (e.g. for services or ventilation). It is ideal for both residential and commercial construction and is strong, lightweight and easy to install.

**hyBOUND®** is a flooring boundary member, which aids in closing in the floor and the transfer of upper storey loads.

DIFFERENT PRODUCTS  
HAVE DIFFERENT  
PROPERTIES, APPLICATIONS  
AND UNIQUE BENEFITS,  
BUT ALL FUTUREBUILD®  
LVL PRODUCTS SHARE  
SOME COMMON FEATURES.





## FEATURES

### **Type 'A' Marine Bond**

The veneers of Futurebuild® LVL are bonded together using a Type A bond which has known long-term durability in structural applications.

### **E0 Formaldehyde Emissions**

Formaldehyde emissions from the finished product are less than 0.5mg/L – equivalent to E0.

### **Independently Audited**

Futurebuild LVL products and manufacturing processes are independently audited through independent third party laboratory testing on a regular and on-going basis by the Engineered Wood Products Association of Australasia (EWPPA). All structural Futurebuild LVL products are EWPPA certified.

### **Declare - Red List Free**

The Futurebuild LVL range of untreated and H1.2 treated products have Declare Labels and Red List Free accreditation through the International Living Future Institute. Futurebuild LVL products can be used in Living Building Challenge projects.

### **Technical Support and Software**

Phone and email support is available on all Futurebuild LVL products. Our team of highly skilled engineers, building practitioners and business development managers can assist you with specific queries.

We have also developed a comprehensive range of information and free software tools to help specifiers, engineers and builders. Visit our website to download your copies.



DELIVERING STRUCTURAL  
RELIABILITY ALONG WITH  
DESIGN VERSATILITY.

The uniformity of Futurebuild® LVL is the key to its high strength and stiffness properties and its predictable performance. It is the reliability of LVL that makes it a genuine engineering material suitable for high load, large scale building applications.



STRENGTH  
AND  
STIFFNESS



## ADVANTAGES

### The Design Advantage

Futurebuild® LVL is precisely engineered to provide reliable structural performance within a lightweight building framework, enabling many types of buildings to be constructed simply and economically.

### The Lightweight Advantage

Futurebuild LVL is easy to handle and it has a superior strength-to-weight ratio compared with hot rolled steel.

In areas where seismic risk is a key consideration, or foundation soils are poor, lightweight timber structures can have important performance and cost advantages.

The same principle applies to adding new elements to an existing building, where a lightweight timber solution may eliminate the need for strengthening of the existing structure.

### The Familiarity Advantage

Like all wood, LVL is relatively light, easy to handle and easy to work with using every day woodworking tools. Builders are familiar with wood, and can easily work with Futurebuild LVL.

With portal frame buildings, the LVL sections are supplied through a fabricator and ready for immediate erection. These sections can be assembled in full bays on the ground, reducing the amount of work to be done at height, thereby increasing overall productivity and assisting with health and safety compliance.



### The Well-Being Advantage

Research suggests that having exposed wood in workplaces is emotionally beneficial and supports well-being.

In a recent study by Pollinate\*, it was found that workers in environments with exposed wood feel more connected to nature and feel more relaxed and calmer in their workplace. These workers have higher levels of well-being and also take less leave. Wood is also correlated with higher concentration, improved mood and personal productivity.

Futurebuild® LVL is well suited to providing this natural connection in buildings, as the large spans achievable with LVL make it an ideal material for exposed portal frames in commercial and industrial buildings. Our Preliminary Design Service can assist with helping you to find the right materials for your project.

### The Environmental Advantage – 3rd Party Accreditation

The timber used to manufacture the Futurebuild LVL range is sourced from NZ renewable plantation forests.

The Futurebuild LVL Marsden Point mill is Forest Stewardship Council® (FSC®) certified (FSC® C007103) for responsible sourcing of timber and Futurebuild LVL products can be provided with FSC certification (FSC® C007103) upon request.



\*Pollinate. February 2018. Workplaces: Wellness + Wood = Productivity.



PRECISELY  
ENGINEERED

ARTISTRY IN  
TIMBER

SPECIFY WITH  
CONFIDENCE

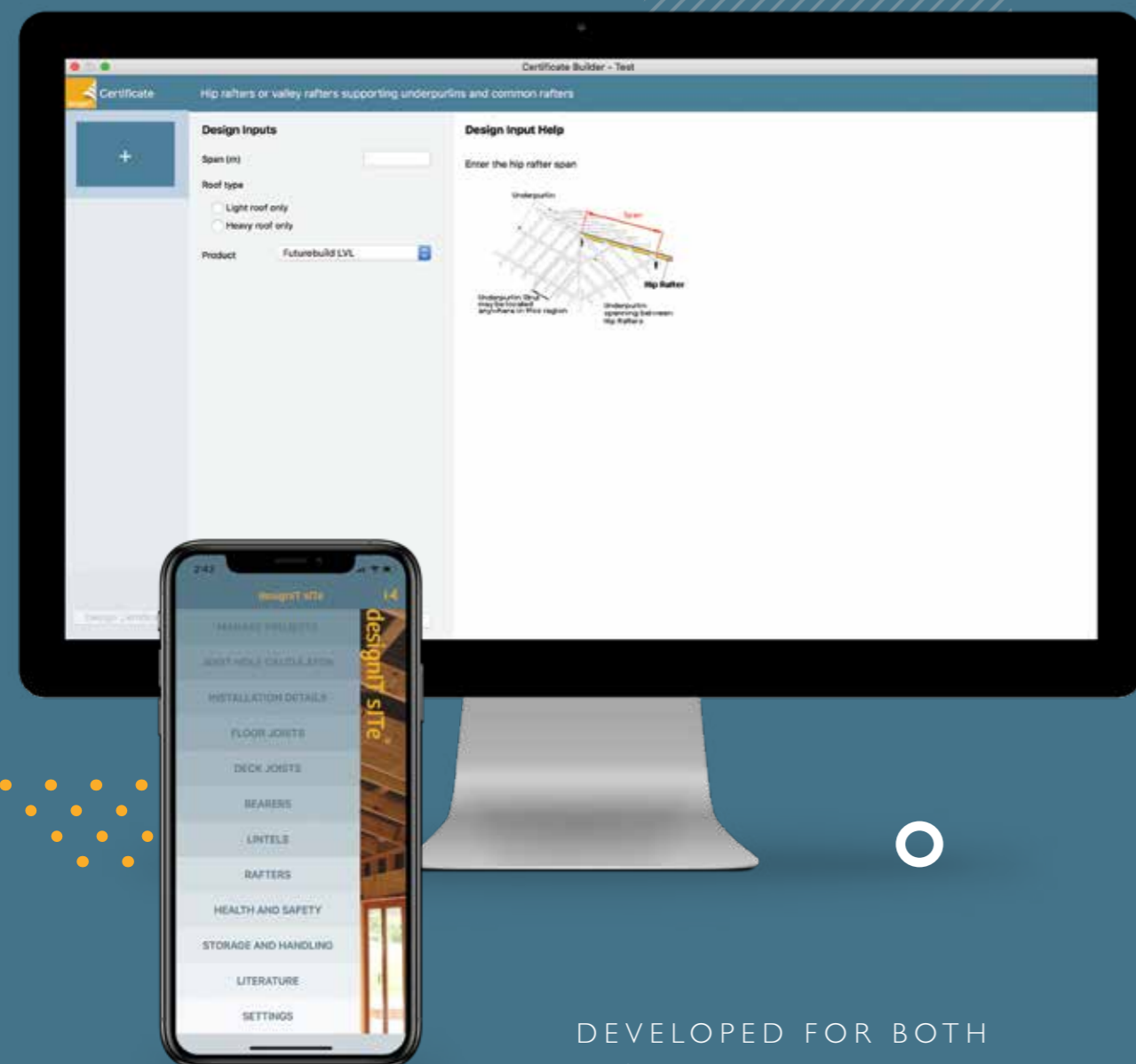


*Delivering  
structural  
and quality.*

FUTUREBUILD®  
LVL IS A LEADER  
IN SPECIFICATION  
SOFTWARE FOR  
ENGINEERED  
WOOD PRODUCTS  
IN AUSTRALASIA.

designIT® computelT®

# SOFTWARE SOLUTIONS



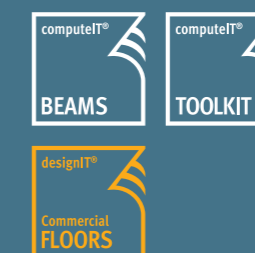
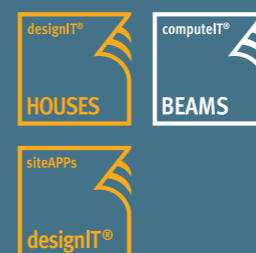
DEVELOPED FOR BOTH  
RESIDENTIAL AND  
COMMERCIAL  
STRUCTURAL SYSTEMS.



The Futurebuild® LVL range of software enables designers and engineers - even those unfamiliar with the specifics of timber design - to produce high quality and reliable specifications using engineered wood products. Within the Futurebuild LVL software website ([www.chhsoftware.co.nz](http://www.chhsoftware.co.nz)), you will find a host of software with free downloads to assist you with the design and construction of timber-based structures using products manufactured and supplied by Futurebuild LVL.

RESIDENTIAL  
BUILDING  
SOFTWARE

COMMERCIAL  
BUILDING  
SOFTWARE



DOWNLOAD TODAY  
[CHHSOFTWARE.CO.NZ](http://CHHSOFTWARE.CO.NZ)



ARTISTRY IN  
TIMBER

SPECIFY WITH  
CONFIDENCE



P ECTS

# CATHEDRAL GRAMMAR JUNIOR SCHOOL

ral citizens  enterprising spirits 

*A Garden School  
in the  
Garden City.*

*"The result of 21st century  
craftsmanship is a complex timber  
building that appears effortless."  
- Andrew Barrie, Architect*

**PROJECT NAME:**  
CATHEDRAL GRAMMAR  
JUNIOR SCHOOL

**ENGINEER:**  
RUAMOKO SOLUTIONS

**ARCHITECT:**  
ANDREW BARRIE LAB AND  
TEZUKA ARCHITECTS

**BUILDER:**  
CONTRACT CONSTRUCTION

**FABRICATOR:**  
TIMBERLAB SOLUTIONS

## PROJECT ONE

Transcending the  
stereotype of a school  
environment.



REPLACING A MUCH-ADMIRED HISTORICAL BUILDING WITH A MODERN INTERPRETATION IS BOTH A HEAVY RESPONSIBILITY AND A RARE OPPORTUNITY.

The ambitious design for a 'garden school' in the Garden City, perfectly suited to its site next to Hagley Park, made extensive use of exposed Futurebuild® LVL timber to create a warm and beautiful interior space, while conveying the reassuring solidity of the structure.

The Cathedral Grammar Junior School transcends stereotypes of a school environment and challenges preconceptions of timber's place in large scale construction. Where the old was revered for its historical significance, the new is remarkable for its engineering innovation, elegance and timelessness.

Cathedral Grammar Junior School is a showcase for timber engineering, sustainability, carpentry and craftsmanship. The building is unique both for its extensive use of timber-to-timber connections and for the sheer scale, degree and detail of prefabrication. Complex layers of fully pre-cut interlocking Futurebuild LVL frames remain exposed as the major architectural feature.

The precise fabrication of Futurebuild LVL, completed by Timberlab Solutions, enabled every timber element to be meticulously designed to ensure structural performance and perfect fit, right down to the smallest hole and rebate. Contract Construction carried out a trial assembly before the frames went into full scale production. All joints were assessed for tightness and accuracy, with the assembly sequence planned so the frames could be put together quickly and accurately. The precision of the completed LVL structure meant even the regular roof timbers could be exactly pre-cut off-site, saving time, money and waste.

*This exceptional building has since won multiple accolades, including the Overall Supreme Award, Commercial Architecture Excellence Award and Highly Commended Engineering Innovation at the 2017 NZ Wood Timber Design Awards.*



# MOTAT AVIATION HALL

Soaring into  
the skies.

---

**PROJECT NAME:**  
MOTAT AVIATION HALL

**ENGINEER:**  
HOLMES CONSULTING  
GROUP

**ARCHITECT:**  
STUDIO PACIFIC  
ARCHITECTURE

**BUILDER:**  
NZ STRONG

**FABRICATOR:**  
CARTERS MANUFACTURING

## PROJECT TWO

✓ *Sustainability  
and architectural  
excellence.*



MOTAT'S GOAL OF SUSTAINABILITY AND ARCHITECTURAL EXCELLENCE WAS ACHIEVED THROUGH INNOVATIVE USE OF FUTUREBUILD LVL.

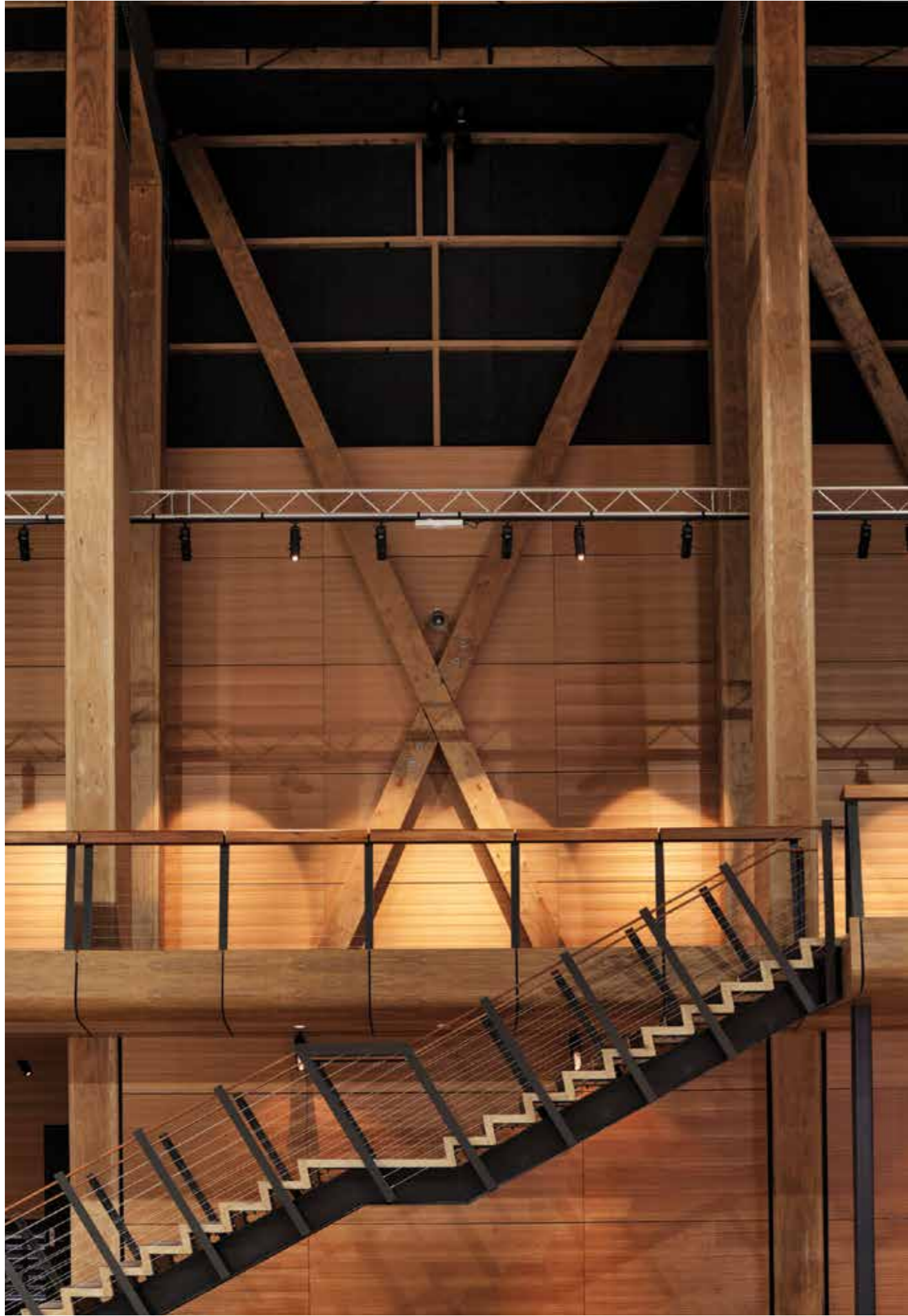
With the strength to compete with steel and the warmth and sustainability of timber, Futurebuild® LVL enabled the engineers, Holmes Consulting Group, to realise Studio Pacific Architecture's vision, delivering a building both pragmatic and beautiful.

In designing a building to reflect New Zealand's proud history of flight and project it into the future, Studio Pacific Architecture literally looked to the skies. The Museum of Transport and Technology's (MOTAT) Aviation Hall soars upwards and out, a huge open space unmarred by support columns, in which unique heritage aircraft are suspended from the ceiling, as if in flight, or parked as if ready to taxi.

At over 2500m<sup>2</sup>, the design for the MOTAT Aviation Hall called for a 42m unsupported span, as well as a 28m x 9m hangar opening so the aircraft could be brought in and out and moved around inside it. It remains the largest clear span LVL portal frame structure in New Zealand. Realising such a feat of design required precision engineering and relied on collaboration between architect, engineer, builder and manufacturer, with the choice of materials critical. Engineer Holmes Consulting Group and architect Studio Pacific Architecture selected Futurebuild LVL and made full use of the expertise and support offered by Futurebuild LVL. This included Preliminary Design support, engineering design tools and fabrication and erection support.

/

*The MOTAT Aviation Hall went on to receive multiple accolades, including Sustainability, Clever Wood Solutions and Highly Commended for Commercial Engineering Excellence, in the 2011 NZ Wood Timber Design Awards.*



# YOUNG HUNTER HOUSE

／ *Post the Christchurch earthquakes, Futurebuild® LVL provides reassurance and warmth to this building, with an exposed LVL structure.*

**PROJECT NAME:**  
YOUNG HUNTER HOUSE

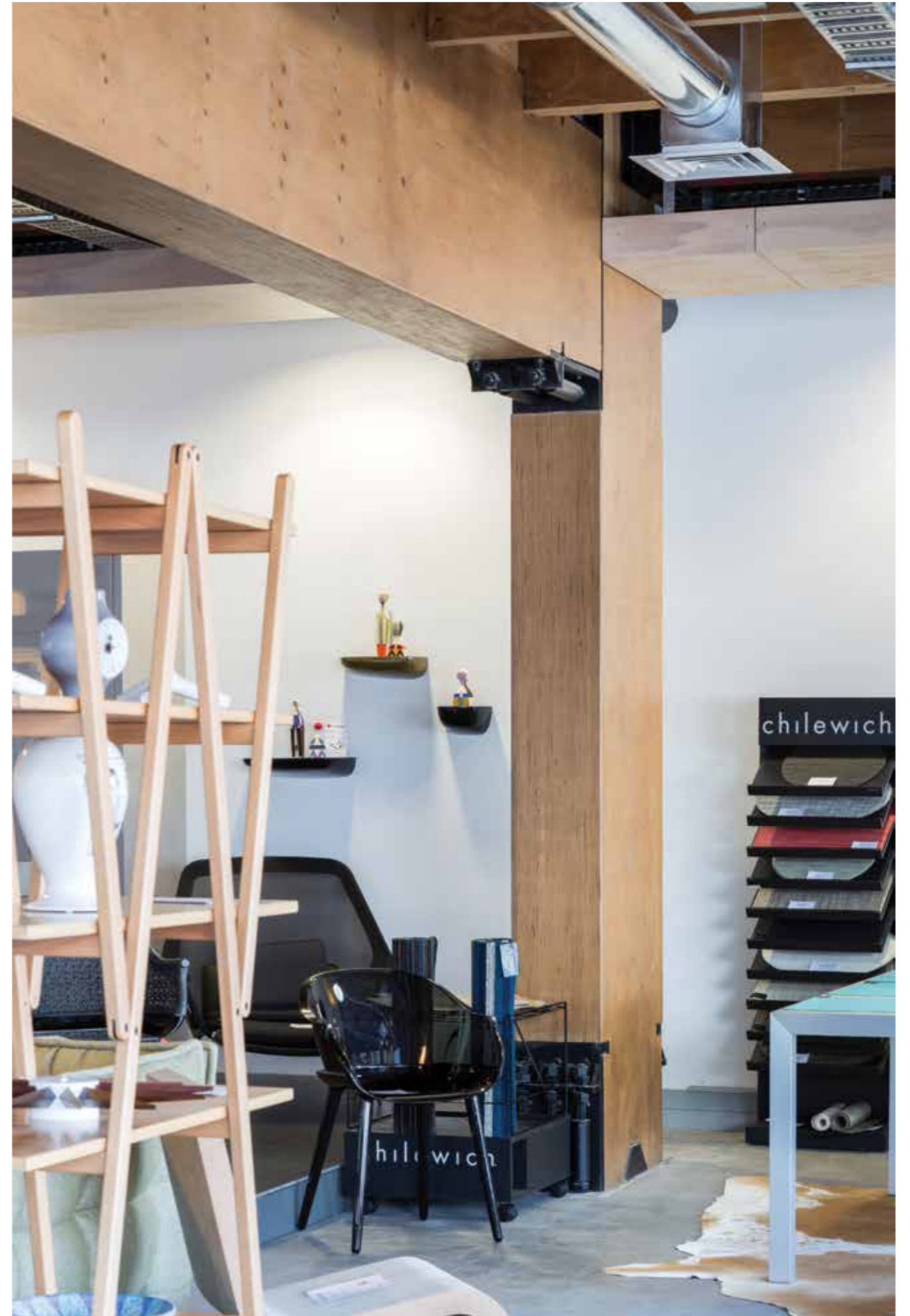
**ENGINEER:**  
KIRK ROBERTS CONSULTING  
ENGINEERS

**ARCHITECT:**  
SHEPPARD & ROUT  
ARCHITECTS

**BUILDER:**  
CONTRACT  
CONSTRUCTION

**FABRICATOR:**  
TIMBERLAB SOLUTIONS

## PROJECT THREE



# CHRISTCHURCH TRANSITIONAL CATHEDRAL

*Rising from  
the rubble.*

**PROJECT NAME:**  
CHRISTCHURCH  
TRANSITIONAL CATHEDRAL

**ENGINEER:**  
HOLMES CONSULTING  
GROUP

**ARCHITECT:**  
SHIGERU BAN

**BUILDER:**  
NAYLOR LOVE

**FABRICATOR:**  
TIMBERLAB SOLUTIONS

## PROJECT FOUR







*“A modern interpretation of traditional design and joinery.”  
- Timberbuilt Solutions*

# BAIRNSDALE LIBRARY

**PROJECT NAME:**  
BAIRNSDALE LIBRARY

**ENGINEER:**  
SEMF PTY LTD

**ARCHITECT:**  
NOW ARCHITECTURE

**BUILDER:**  
BROOKER BUILDERS

**FABRICATOR:**  
TIMBERBUILT SOLUTIONS

## PROJECT FIVE



# KAIKOURA ISLAND LODGE

*Unlocking the  
Benefits of  
Prefabrication.*

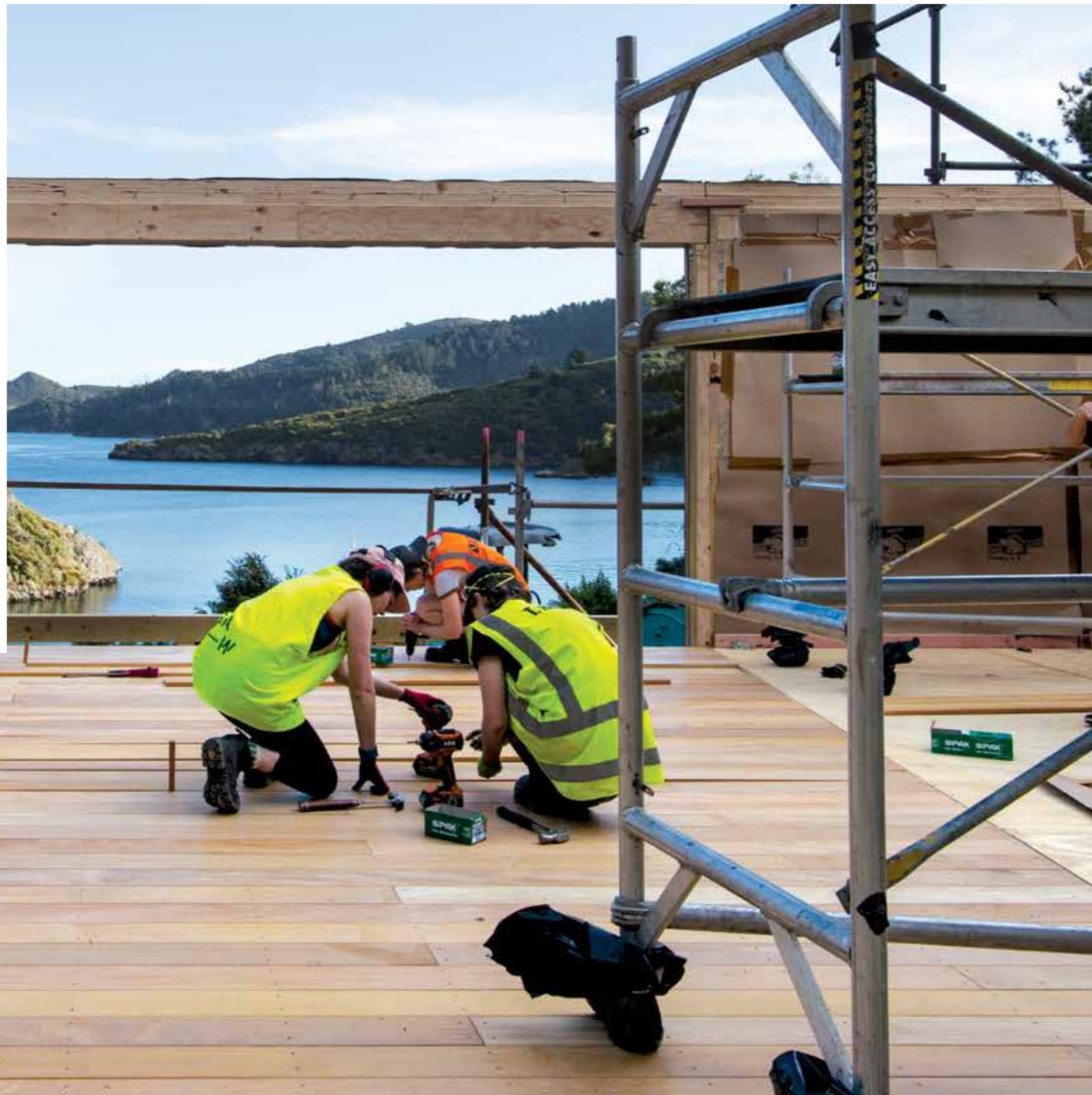
**PROJECT NAME:**  
KAIKOURA ISLAND LODGE

**ENGINEER:**  
THORNE DWYER STRUCTURES

**ARCHITECT:**  
STRACHAN GROUP  
ARCHITECTS

**BUILDER:**  
CRATE INNOVATION AND  
J R HOSKING CARPENTERS  
AND CO.

## PROJECT SIX



The collaboration between Architecture+Women-NZ and Strachan Group Architects (SGA) supported by Futurebuild® LVL was a successful partnership of timber products and great prefabricated design.

The lodge is part of a crown owned scenic reserve and will be used for education and environmental purposes as well as being a source of revenue for the trust. Given the islands remote and hard to access location, the majority of the build was prefabricated in Auckland. As with any design and build, the materials used and the hands using them were crucial. Under the watchful eye of trained craftsmen, architectural graduates (with little experience of construction) were able to prefabricate walls, flooring and roof panels for transportation to the remote island.

The strong and functional nature of Futurebuild LVL meant the prefabricated panelled walls could be put together with ease and without the need for specialist tools.

The setting of the lodge invited the core of the building to match its surrounding. The Futurebuild LVL product range is manufactured in New Zealand from sustainable plantation pine. This kept the carbon footprint low and ensured these engineered wood products met the sustainable vision encompassed in the lodge's design.

The installation of a lodge on to the uninhabited Kaikoura Island off Great Barrier Island has given the scenic reserve and the Motu Kaikoura Trust a new lease of life after an arson attack destroyed the previous lodge in 2014.





**Futurebuild LVL hySPAN® and hyCHORD® were used for the precision and consistency these products are known for. The precise manufacturing of LVL creates a product that is straight, true, strong, and dimensionally stable, and this ensured the build was accurate to the nearest degree - critical in prefabrication construction.**

“We love the fact that LVL is straight and comes in long lengths. With prefab, precision is required so panels, cassettes and cartridges fit together well!” comments Dave Strachan (SGA).

The strong yet lightweight nature of hySPAN® and hyCHORD® were also important to keep the weight of the build to its minimum while still achieving the strength requirements necessary for a very high wind zone. With the need to helicopter the prefabricated cassettes from a barge to the final site, lightweight timber is not just easier to work with, but reduces the weight for transport requirements. Using hyCHORD for studs enabled SGA to increase the stud centres to further keep down the weight of the panels.

The rebuild has been an impressive feat. Not only has it been a feature on the prefabrication scene, it has had personal impacts on the participants involved. As Lynda Simmons from Architecture+Women-NZ comments “it has been an incredible project and the 16 participants have described the 20 weeks as being a life-changing experience”.

A photograph of a construction site for the Summeret Retirement Village. The image shows the wooden skeleton of a building under construction, surrounded by extensive scaffolding. The structure is multi-story, with visible window and door openings. In the background, other buildings and a construction crane are visible under a clear blue sky. The text 'SUMMERSET RETIREMENT VILLAGE' is overlaid in the upper right quadrant.

# **SUMMERSET RETIREMENT VILLAGE**



**PROJECT NAME:**  
SUMMERSET RETIREMENT  
VILLAGE

**ENGINEER:**  
SILVESTER/CLARK  
CONSULTING ENGINEERS

**ARCHITECT:**  
SUMMERSET GROUP HOLDINGS

**BUILDER:**  
SUMMERSET GROUP HOLDINGS

**FABRICATOR:**  
CARTERS MANUFACTURING

## PROJECT SEVEN



The challenge was to provide a lightweight structural floor solution with inherent acoustic and fire properties.

The solution was to use Timber Concrete Composite (TCC) floors which provide the advantages of both LVL beams and a concrete screed/slab, combined using defined connection methods to provide composite action. The use of TCC floors gave Summerset an acoustic and fire rating already incorporated in a structural floor solution. The ability to provide the TCC floor system in prefabricated modules allowed the majority of the fabrication work to be completed off-site. The floors were then delivered by truck in 2.7m wide modules and lifted into place, ready for placement of mesh and concrete screed. The lightweight nature of the TCC floor systems allowed the supporting structure to be completed with Futurebuild® LVL framed walls, in lieu of more expensive support structures.

The project was initially sized and scoped using the Futurebuild LVL Commercial Preliminary Design Service. The engineers at Silvester Clark were able to use the TCC floor design module in computeIT® for beams to optimise a fit for purpose structural solution, using the Futurebuild LVL range of products and available section sizes.





**GIBBON'S  
FAMILY  
HOME**



**PROJECT NAME:**  
GIBBON'S FAMILY HOME

**ENGINEER:**  
EZED LTD

**ARCHITECT:**  
WYATT + GRAY ARCHITECTS

**BUILDER:**  
L JOHNSON CONSTRUCTION

**FABRICATOR:**  
TRUE PANELS

## PROJECT EIGHT



## PRECISE PREFABRICATION

**Simon and Sarah are looking forward to spending many cold Canterbury winters with their family in this very special, warm, dry home.**

On a 9000m<sup>2</sup> site in Ohoka, Christchurch, Simon and Sarah Gibbons' shared vision was to build a cost-effective, efficient, comfortable and dry home for their family. After travelling around Europe, Simon and Sarah realised there was a difference between European and New Zealand homes, predominately with warmth, which sparked an idea between them to prefabricate a certified Passive House in rural Canterbury.

Passive House is a rigorous, voluntary standard for energy efficiency in a building, which is focused on reducing the building's ecological footprint. It results in ultra-low energy buildings that require little energy for space heating or cooling. Simon's aim was to build a home that requires 90% less energy than a conventional build and he engaged a certified Passive House specialist to assist with the project.

Local prefabricated panel manufacturer True Panels was selected to prefabricate the walls.



By prefabricating components of the house, Simon was looking to utilise benefits of speed, accuracy and ultimately, build a quality, warm, dry home. The accuracy and precision of prefabricated building aids in achieving the air tightness required to meet the strict Passive House standards.

"When you talk about prefabricated construction people just think you are building a square box, and that is definitely not the case. You can prefabricate any type of building, any shape or form," comments Simon. Wyatt and Gray Architects were chosen as the designers and the end result was a gable form with large verandas, utilising New Zealand grown, sustainable, engineered wood products such as LVL framing and Plywood.

hyCHORD®, a 45mm thick Futurebuild® LVL product, was chosen for the wall framing due to its strength, stiffness and dimensional stability allowing for precision and accuracy in fabrication, which is paramount in prefabricated solutions.

As Ben Ingledew from True Panels comments, "we use Futurebuild Laminated Veneer Lumber because it's [made from pine] grown in New Zealand, it's accurate, it's straight, it stays straight, and it doesn't suffer under the elements". Precision is key in prefabrication. With hyCHORD framing you have the confidence of knowing that the sizes you are working with, are what they should be. Working with LVL also reduces the need for planing, saving time in the construction process.

The wall sections were assembled at True Panels factory in Amberley. They were delivered via truck and lifted on site into already waiting scaffolding. Efficiencies were seen with the walls up in only two days. Accuracy was critical, as Ben Ingledew comments, "the longest wall was 9 ½ metres long, and it was still within

1-2mm of its desired length." When the frames were dropped in, everything was sitting "nice and neatly" and all it took was a tap of the hammer to get it perfectly in place. Prefabrication also helped to reduce health and safety risks by reducing the work done on-site and bringing it into a controlled factory environment.

Architect Mark Gray also chose hyCHORD framing to help with energy efficiency as he comments, "as much as possible we try to avoid any steel elements within a passive house, because of the potential for thermal bridging the LVL beams have an inherent structural component about them, but are also fairly neutral in terms of thermal bridging."

Utilising engineered wood products, this project was able to achieve the accuracy and quality required, with a renewable resource, to also meet sustainability goals. Futurebuild LVL is a natural choice and has Declare labels identifying it as Red List Free.





**BIRT'S  
hyFRAME  
SHED**

**PROJECT NAME:**  
BIRT'S HYFRAME SHED

**ENGINEER:**  
FUTUREBUILD LVL  
(STANDARD HYFRAME)  
AND MARK MCGREGOR  
CONSULTANTS

**BUILDER:**  
REGAN VIALL BUILDERS

**FABRICATOR:**  
CARTERS MANUFACTURING

## PROJECT NINE



Irene Birt runs a home staging business, working with real estate agents to prepare homes for sale by fitting them out with furniture and furnishings. A successful business like this requires a lot of storage space. At any given point in time Irene can be fitting out over 30 homes and this is where the decision to build a shed came from. For the Birt's, it couldn't just be any shed; it had to be something not just with functionality, but character too. It needed to offer a room to support the demands of Irene's business, and of course, Max's boat!

Irene Birt started her business small, but as it grew, so too did her storage requirements. From one storage unit, to two, onwards to 12 storage units, it became evident that something a lot larger was required. Running a business like this from multiple locations was challenging, time was lost looking for items, items went missing and jobs were made harder than they needed to be.

After looking into commercial sites, Max and Irene decided the best thing for their budget and requirements was, in fact, a shed on their rural property in Karaka. Having looked into tin and steel sheds, Max got talking to the Futurebuild® LVL team and soon realised, a timber-based LVL shed was the way to go.

Max Birt is the owner of Max Birt Sawmills, and for him, timber products offer so much more than their structural properties; "I've been sawmilling all my life and building in timber, it fits that".

*Max Birt describes his wife's business as a "hobby that got out of hand", which is easy to see when you walk around their newly built 970m<sup>2</sup> shed (including mezzanine).*



**Using a hyFRAME® kitset also helped Max's contractors work smarter and faster. The offsite fabricated componentry and kitset construction process ensured accuracy of assembly, reduced build time and minimised the risk of construction errors compared to onsite fabrication of componentry.**

#### **Simple, Easy and Cost-effective**

Max and Irene's shed had some important factors they had to take into consideration - it needed to be simple, easy, cost-effective but strong and reliable. On top of that, the Birt's didn't want a large eyesore on their property; they wanted a building they could be proud of. As a sawmiller and timber merchant, Max knows the benefits of using timber products in construction, and it was an obvious choice to build an LVL timber shed. For their requirements, it made perfect sense to work with the Futurebuild LVL team and use a hyFRAME® portal frame solution.

The Futurebuild® hyFRAME® is a ready-to-order kitset portal frame solution, designed to work with a total build system to produce an LVL timber shed that is strong, reliable and environmentally friendly. Working with a merchant and fabricator, the kitset solution makes the entire process easy, by simplifying the framing components.

After doing a rough sketch of what he was after, the Futurebuild team helped Max to pick the right kitset solution for him. Even better for Max, it simplified the process: "I had so much help from the team, the whole process was pretty painless".

The hyFRAME® kitset is made from Futurebuild® Laminated Veneer Lumber (LVL), which is an engineered wood product that offers many practical advantages.

As a kitset, the hyFRAME® solution had many benefits for the Birt's to take advantage of. For Max, it also came down to the bottom dollar: "from what it is, you would have expected it to cost so much more". The natural characteristics and appearance of timber are ultimately Max and Irene's favourite element of the shed: "we absolutely love it. It's different. It's warm. It's got character". Futurebuild LVL gives the look and warmth of wood, something that gives this shed a unique character and adds a homely element that fits Irene's business. Fabricated offsite, the hyFRAME® roof components were then assembled into bays on the ground and then lifted into place, which also dramatically reduced the amount

of work to be done at height, increasing site productivity. Max was pretty impressed: "we had a crane come in the afternoon, I came home, and there it was, standing up already". These productivity enhancements, coupled with the ease of construction and reduced labour requirements for installation are where the cost efficiencies of LVL structures are realised.

For the builders, working with LVL is easy. hyFRAME® systems are able to be assembled using normal wood working tools they are familiar with, and doesn't require any specialist equipment. Being lightweight, straight and uniform, LVL is the perfect building product for most structural applications.

For the Birt's, the entire process was easy. Futurebuild® LVL offered all the framing components, technical know-how, a Producer Statement for the structure, structural and construction drawings, together with engineering support. This gave Carters, the builder's merchant, an easy opportunity to offer them a complete, customisable building solution. Choosing to work with Futurebuild LVL meant Max and Irene and their contractors were able to utilise technical and engineering support from a team of experts. The only downside, Max is quick to add, is "we now have a lot of very jealous friends."

The hyFRAME® range of kitset solutions are available in pre-designed 12 or 15 metre wide spans in 3.6, 4.2 or 4.8m clear heights with 6 metre bay increments, with set kit-set pricing so it was simple to get what Max was after. The 4.8m range of building solutions now comes with options for mezzanine floor solutions subject to design confirmation.



**TOYOTA  
SHOWROOM  
& WORKSHOP,  
BOTANY**



**PROJECT NAME:**  
TOYOTA SHOWROOM AND  
WORKSHOP, BOTANY

**ENGINEER:**  
BLUEPRINT CONSULTING  
ENGINEERS

**ARCHITECT:**  
WOODHAMS MEIKLE ZHAN  
ARCHITECTS

**BUILDER:**  
SAVORY CONSTRUCTION LTD

**FABRICATOR:**  
TIMBERLAB SOLUTIONS

**PROJECT  
TEN**



ARTISTRY IN  
TIMBER

SPECIFY WITH  
CONFIDENCE



*The extensive range of Futurebuild® LVL products is supported by our experts, extensive literature and services.*





## SUPPORT

### Technical Support

Futurebuild® LVL has a wide range of technical support functions to meet your design, specification and installation needs. Technical support is available in many forms including; comprehensive literature, CAD details, software, on-site apps and toll free calls to engineering support.

### Literature

Visit the document library at: [www.futurebuild.co.nz](http://www.futurebuild.co.nz) for literature including design and installation guides, CAD documents, technical notes and information bulletins.

### Personal Support

To speak to an experienced Timber Engineer or Building Practitioner call us toll free on: 0800 585 244.

Request a visit: One of our team can come to you to discuss projects, present information on our products and offer support. Contact us at: [www.futurebuild.co.nz](http://www.futurebuild.co.nz).

## SERVICES

### Residential Design Service

Make mid-floor and roof specification, supply and installation easier with the Futurebuild® Residential Design Service.

The service provides you with peace of mind by taking away the pressure and risk of designing complicated mid-floors. The Residential Design Service delivers a structurally reliable, New Zealand Building Code compliant system that utilises proven Futurebuild LVL products.

The service works by offering a design or take-off for flooring and/or roofing plans to get your LVL mid-floors and roofing from concept to site as fast and as easily as possible.

Contact the Residential Design Service: [design@futurebuild.co.nz](mailto:design@futurebuild.co.nz).

### Preliminary Design Service

The preliminary design service is staffed by timber design engineers with experience in the design of large-scale commercial and industrial buildings. With links to fabricators, a feasible cost-efficient solution can be provided to suit the design brief, maximising the aesthetic, environmental and structural advantages of LVL building systems.

This obligation-free service is available to engineers, developers and contractors for qualifying projects\* to explore the cost, program and environmental advantages of LVL based systems in portal frame structures, commercial flooring systems, multi-storey buildings and other large building systems.

To speak to one of our engineers regarding an LVL design solution call us toll free on 0800 585 244 or email us at [design@futurebuild.co.nz](mailto:design@futurebuild.co.nz).

\*Subject to qualification by Futurebuild LVL of project type, size, scale, and status.



BEAUTY THE BALANCING ACT OF SUSTAINABLE

L V L  
/  
2 0 2 0

[www.futurebuild.co.nz](http://www.futurebuild.co.nz)

0800 808 131

The information contained in this document is current as at October 2019 and is based on data available to Futurebuild<sup>®</sup> LVL at the time of going to print. Futurebuild LVL reserves the right to change the information contained in this document without prior notice. It is your responsibility to ensure that you have the most up to date information available.

You can call toll free on: 0800 808 131 or visit: [www.futurebuild.co.nz](http://www.futurebuild.co.nz) to obtain current information.

Futurebuild LVL has used all reasonable endeavours to ensure the accuracy and reliability of the information contained in this document. However; to the maximum extent permitted by law, Futurebuild LVL assumes no responsibility or liability for any inaccuracies, omissions or errors in this information nor for any actions taken in reliance on this information.

