THE housewithnonails

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Texts based on interviews and research as well as
various newspaper and magazine articles
published in the 1990s.

housewithnonails

by

Susan Thomas and
Margarete Kraemer

**“Trees became timber,
and timber became beams
as we were building
the house of our dreams.”**

- Jen Roberts

WELCOME TO OUR HOME

The story of our house is an extraordinary one. You could say it starts with cyclone Bola back in 1988, which provided the timber—25 cubic metres of macrocarpa and poplar, plus oak pegs—for what began as our dream house in the country.

It has been a labour of love. All the timber was hand-hewn by my husband, Dewi, in a neighbour's workshop. And yes, there are indeed no nails joining the magnificent timber framing. Hand-crafted following construction methods back to the 10th century, the beams, rafters and braces are carefully interlocked using carpentry techniques and secured by wooden pegs.

While the construction celebrates European traditions, the materials and setting are uniquely “Kiwi”. We borrowed another tradition from rural America: a good old-fashioned community “barn-raising” of the frames in 1992.

In 2017 we decided to offer our house as rustic Bed & Breakfast accommodation and event venue. Since then it has been a joy to welcome visitors from all over the world.

We encourage you to leave your cares behind and replace them with happy memories from your stay.

Jen and Dewi Roberts

BACKDROP

Jen and Dewi were both raised on farms, albeit on opposite sides of the world. Welshman Dewi — pronounced Dowie, Welsh for David— grew up just outside Chester and developed an early appreciation of old solid-wood buildings.

He had worked on New Zealand dairy farms in the 1970s and enjoyed the way of life. He met Jen in the UK where she was completing the customary "Kiwi OE" (overseas experience).

In 1983 they married in New Zealand, and then returned to live in Wales for a year. It was natural given their rural upbringing to want that same wholesome lifestyle for their own children.

The UK timber-framed houses Jen photographed captured their imagination and planted the seeds for their dream. With the arrival of their first child they decided to settle in New Zealand.

They still longed to recapture the ambience of a heritage building in their own home, but it just didn't seem affordable and feasible using contemporary building techniques.

In 1988, Dewi met a man who had built his own home using an American version of the post and beam frame, and suddenly it didn't seem so impossible.

Dewi already had some carpentry skills he developed while making Welsh dressers as a hobby.

Encouraged, Jen and Dewi found an unkempt, quarter-acre plot for sale in Wardville for their own home. They purchased it on Dewi's birthday in 1989.

He continued working on a nearby dairy farm to keep the family afloat financially. Meanwhile, Dewi's growing family provided the final impetus to bravely start his own house.

The charm of old English houses

Jen fell in love with the cosy aura of shelter and permanence in the old rustic houses. They reminded her of how she would carefully wash the home-spun wool jerseys her mother knitted, knowing the time and effort they took to make.

Her mother's quiet industry harked back to a simpler time when you derived everything you needed from the land.

"I remember my first trip to Britain; it was like going back in time. I seemed drawn to photograph these incredibly solid old homes with their thatched roofs, crooked timber, brick, or even mud, lime-washed walls and huge, thick, wooden doors.

There must be something 'olde English' in me, because I loved the little timber porches, the old roses rambling up and over the entrances, the name of each cottage posted on a little board."

Photo by Carolyn Elliott, Waikato Times

A youthful Dewi with Gordon Brouncker in 1999

The trio from 'Post and Beam'

Dewi was delighted with the atmosphere of enduring strength and generous spaces of his home. Gordon Brouncker read a newspaper article about the house and contacted Dewi.

Gordon had worked for four years with a highly respected UK timber frame specialist before moving to New Zealand.

He and Dewi combined their talents trading as 'Post and Beam'. Their shared passion for timber frames attracted Randy Kauffman, a timber miller, originally from Pennsylvania.

Randy brought valuable experience from working with the Mennonite community there as well as his precious collection of 17th and 18th century tools.

They built five houses in and around Matamata including a Tudor-style manor.

In 2020 Gordon was Art Department carpenter for the hit television mini-series—The Luminaries.

He helped to build a movie set depicting Hokitika in the 1860s. The actors said they were amazed at how real it felt.

Before starting to build timber-framed houses Dewi already had some carpentry skills he developed while making Welsh dressers as a hobby. This one now takes pride of place in the kitchen.

BLOWIN' IN THE WIND

It was all very well having a grand vision, but it takes a special resilience and determination to turn it into reality on a tight budget. Ever resourceful, Dewi noted the number of trees brought down by cyclone Bola in 1988. It was green wood but should be more affordable.

He was overwhelmed by the positive response to his advertisement requesting damaged trees. Farmers offered the lumber for free in return for cleaning up the site afterwards. Dewi and his mates set off with their Alaskan chainsaw mill to fell and mill the trees on each property in between milkings.

Two years later they had harvested a stockpile of poplar beams, macrocarpa rafters and eucalyptus flooring. Nothing went to waste. Estimated value: $35,000.

The timber was costly in terms of Dewi's labour, but the couple would never have had sufficient funds to purchase similar sized beams outright.

Arie Kranenburg offered a huge Eucalyptus fastigata at his Lansdowne Road farm. Many people would be more likely to use it for fire wood than construction. The massive five-foot diameter bole yielded seven metres of clear wood before branching. In all, the tree supplied 1,600 metres of flooring 150mm x 35mm.

Cutting logs to lumber in the paddock with an Alaskan chainsaw mill

An Alaskan mill consists of a pair of rails which are attached to the bar of a chainsaw. The distance between the rails and the bar can be adjusted by moving the rails along a post at each end of the mill attachment.

For the first cut, a pair of rails or a plank is usually attached to the log to give the mill attachment a reference surface. Subsequent cuts are made using the surface of the previous cut as the guide.

A special chain is designed to make "rip cuts" rather than the usual type, which is for cross-cutting.

The "kerf'" (the swathe of chewed up wood) of a chainsaw cut is wide relative to that of a band saw mill or circular saw. This is no problem when cutting a single beam or large timber from a log, but would represent significant waste if used to saw many thin boards.

Seasoning the lumber

After milling, the timber is firstly treated for borer. The green wood contains so much water that it is too flexible to withstand the load and stresses applied to a house frame.

Tree sap is the first and heaviest proportion of water lost. Next, remaining water bound within the cells goes, leaving only the stable cellulose structure behind.

Drying the wood too quickly or unevenly may allow the planks to bow, warp or split. Air-drying is not as fast as kiln drying but, if carefully managed, produces quality results.

The planks are stacked on a flat foundation, with cross pieces at right angles to allow the air to circulate. With the pressure evenly distributed extra weight can be added. The stack is shielded from the weather and left to dry until the moisture content is below 10%.

Their next door neighbour, Mrs Helen Ottersen, stepped in to help by providing a shed to dry the massive hoard. It was just one of the many ways local people showed their interest and support, something for which Jen and Dewi are still very grateful.

As the wood dries, it shrinks across the grain creating the minor "checks" and distortions that make it so beautiful.

Cupressus macrocarpa ***(Monterey cypress)***
Brought to New Zealand in the 1860s and planted for shelter. Macrocarpa is highly sought after as a decorative and building timber. It is durable outdoors and can be used without any preservative treatment.

Quercus robur ***(English oak)***
Venerated in European tradition and prized for thousands of years, the first oaks in New Zealand were planted in the Bay of Islands in the 1820s. Wherever there was settlement, oak trees were never long behind. Oaks produce one of the hardest and most durable timbers but take up to 150 years to reach the size needed for construction.

Castanea sativa ***(European chestnut)***
Chestnut is in the same family as beech and oak trees. Chestnut grows faster than oak and is still hard and durable. Fresh sawn, it resembles oak but dry, the colour is creamier or even a strong yellow colour and may have contrasting brown streaks. The grain is open, fairly dense and coarse.

Populus deltoides ***(Eastern cottonwood)***
Fast growing tree growing to more than 40m. It is uniform in texture and usually straight grained. The wood is moderately light in weight, but in wide planks the bending strength and stiffness are similar to pinus radiata. Like pine it is easily treated to protect it from moisture and insects.

Chamaecyparis lawsoniana ***(Port Orford cedar)***
Height to 50m. Has narrow pyramidal shape and usually has branches present near the ground and drooping. It has uniform texture, good machining properties, moderate shrinkage, resistance to warp and decay, lightness and strength, and good paint-holding characteristics.

Platanus x acerifolia ***(London plane)***
Height to 40m. The sapwood is white to light-pinkish tan, while the heartwood is a darker reddish brown. London plane also has very distinct ray flecks present on quarter-sawn surfaces, giving it a freckled appearance. It is prone to rot and insect attack, but it is easy to turn and the pretty grain makes a lovely veneer.

FROM DREAM TO DESIGN

The hours of labour were rewarded when the beams went in one side of the shed, rough-sawn, and out the other planed, sanded and preserved.

There are dramatic differences in the strength and stiffness values of wood from different species of tree.

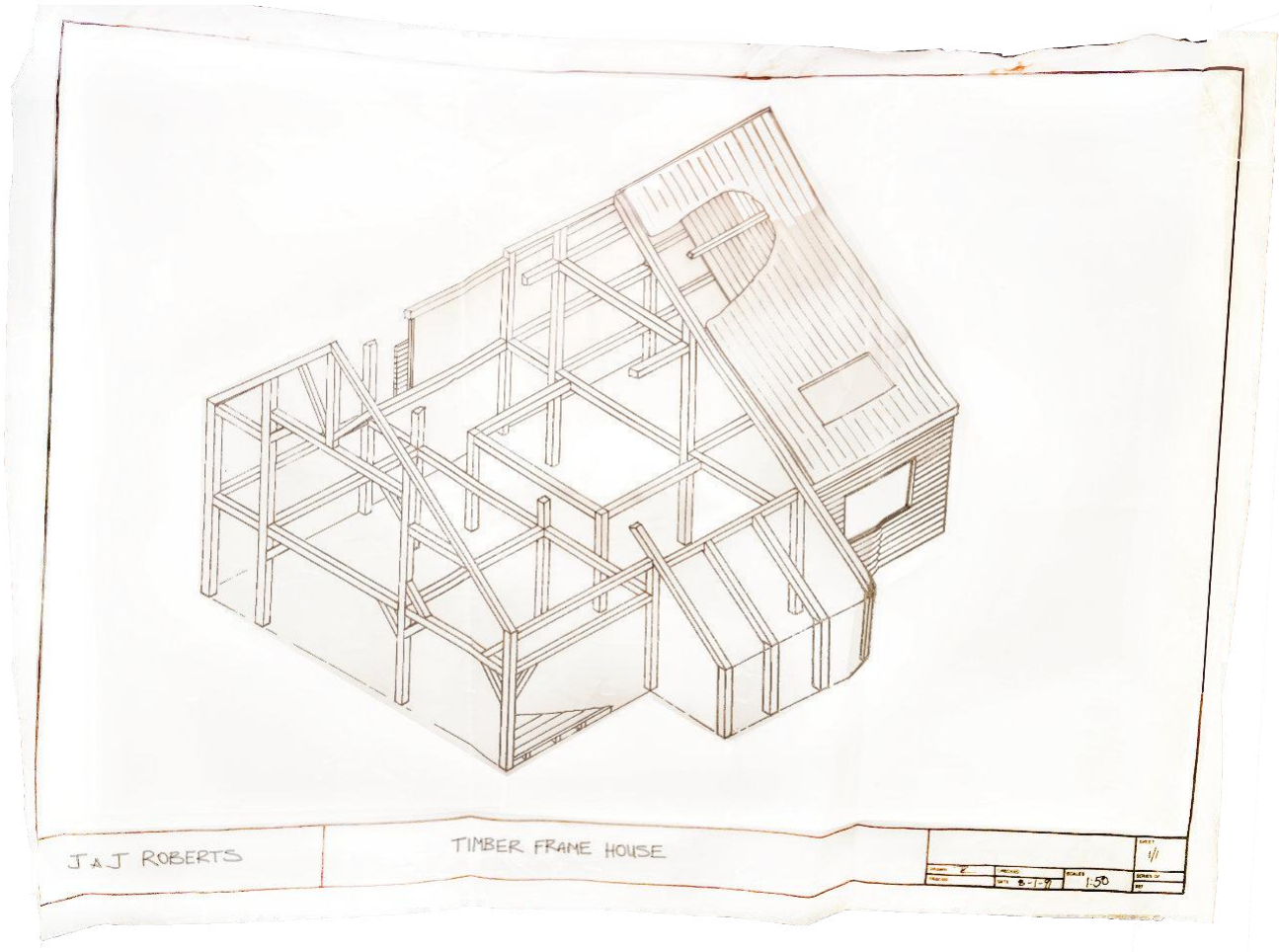
You can't begin to consider timber sizing without a decision about the wood for the frame. For example, a relatively weak species such as cottonwood would be unsuitable for long spans.

Dewi chose poplar from Wardville for the beams and macrocarpa for the rafters. The lawsonia from Okoroire was used for The Wing.

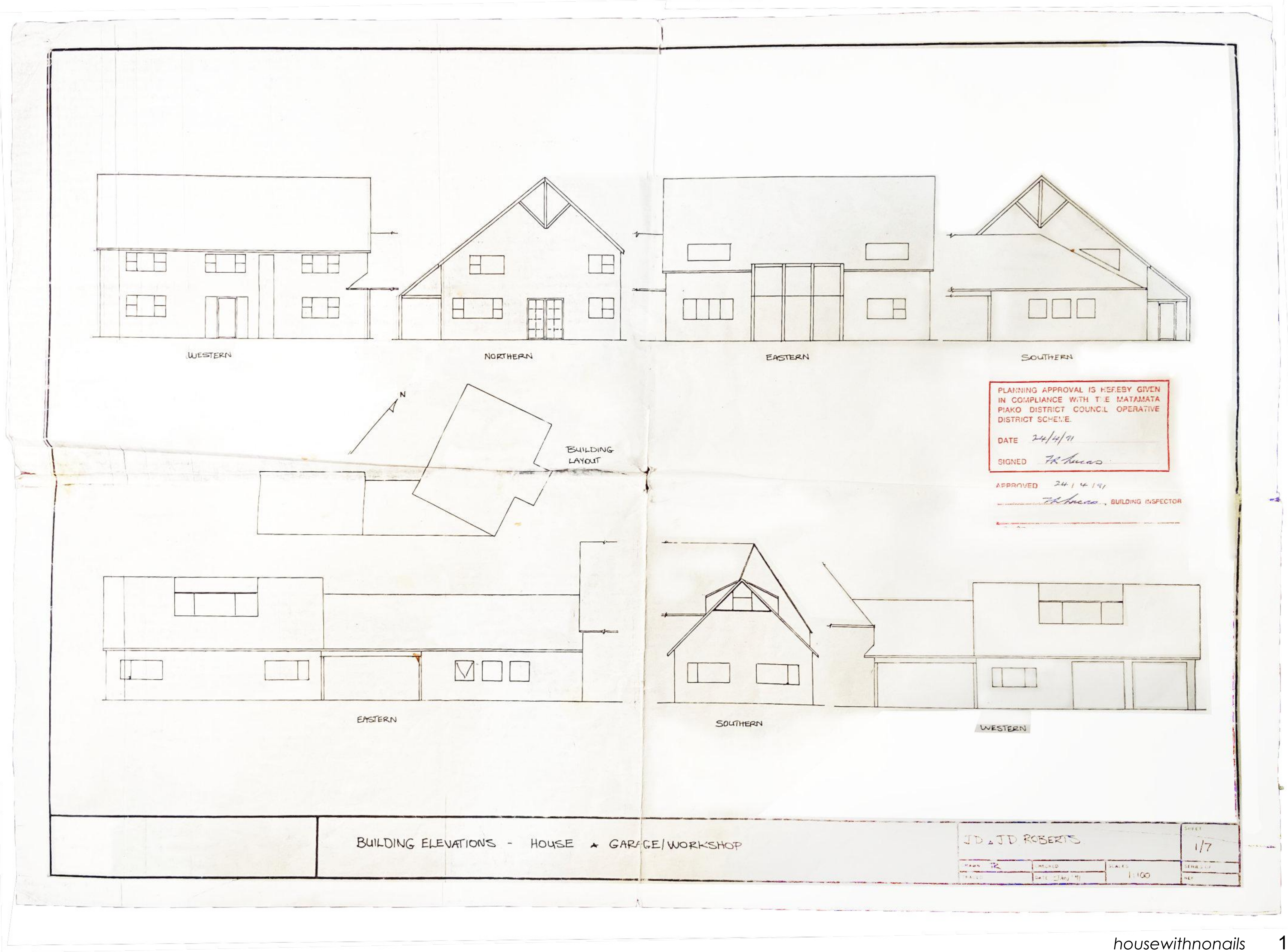
Hundreds of hours of studying the complexities of ancient building methods saw the design begin to take shape.

A Wardville dairy farmer friend, Peter Reid, drafted Dewi's concept into a house plan, and an engineer checked the design for strength.

It was deliberately engineered to outperform the strength and durability required by New Zealand building standards. The design even included a few nuts and bolts to further strengthen the framework.



Isometric view of timber frame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Drawing inspiration from old English timber-framed buildings

With Dewi working on a nearby farm during the day and Jen managing their family, which had grown to four, the evenings were entirely taken up with frame construction.

"We used to have credit and debit days," says Jenny wryly. "A debit day was when we hit a nail with the chainsaw. The results were always disastrous."

Apart from the risk of being hit by a broken chain flying at 200km/h, the down-time and tedium of repairing or replacing the chain was a frustrating setback, especially if it meant having to return to the site another day to finish.

Roman numerals carved into the beams were used to avoid mix-ups.

“All about his boots piles of whittled wood mount up. The scent of eucalyptus rising in the workshop air. He works long into the night.”

- Jen Roberts

Jen and Dewi chose to use the American-style frame because of its simplicity and speed of erection. It had the added benefit of being less weather dependent, as it was possible to work on the bents under cover.

Once the Matamata-Piako District Council gave planning approval, Dewi and Jenny faced the mammoth physical and practical challenges of building the bents from scratch, while juggling their everyday responsibilities.

Joining the massive bents is tricky and requires meticulous planning and execution.

European vs American timber-framed houses

A common stud-frame house uses many standard, readily available cuts of timber, making it ideal for mass production. In contrast the timber-framed house uses fewer, more massive beams.

European post-and-beam houses often buried the posts directly into the ground, or stood them on a beam laid on the ground. As forests were consumed by iron foundries and ship builders, the frame designs used progressively shorter lengths of timber.

The 1666 Fire of London demonstrated the danger of densely packed wooden houses. It is no surprise builders started to use a mix of timber framing with stones and composite wall fillers such as 'mud and daub'.

Colonial America, on the other hand, still had large forests, and the settlers preferred a preassembly technique that reduced the difficulty of fitting the huge beams together. "Bents" were constructed flat on the ground, raised as units, then joined and pegged together.

Testament to the durability of timber framed houses— Chester, where Dewi grew up, retains many of its original wooden framed houses.

With Dewi working on a farm and Jen managing four young children as well as running the household, evenings were dedicated to frame construction.

A crane was hired to haul the bents up into position.


J.Swap

CARVING A PLACE

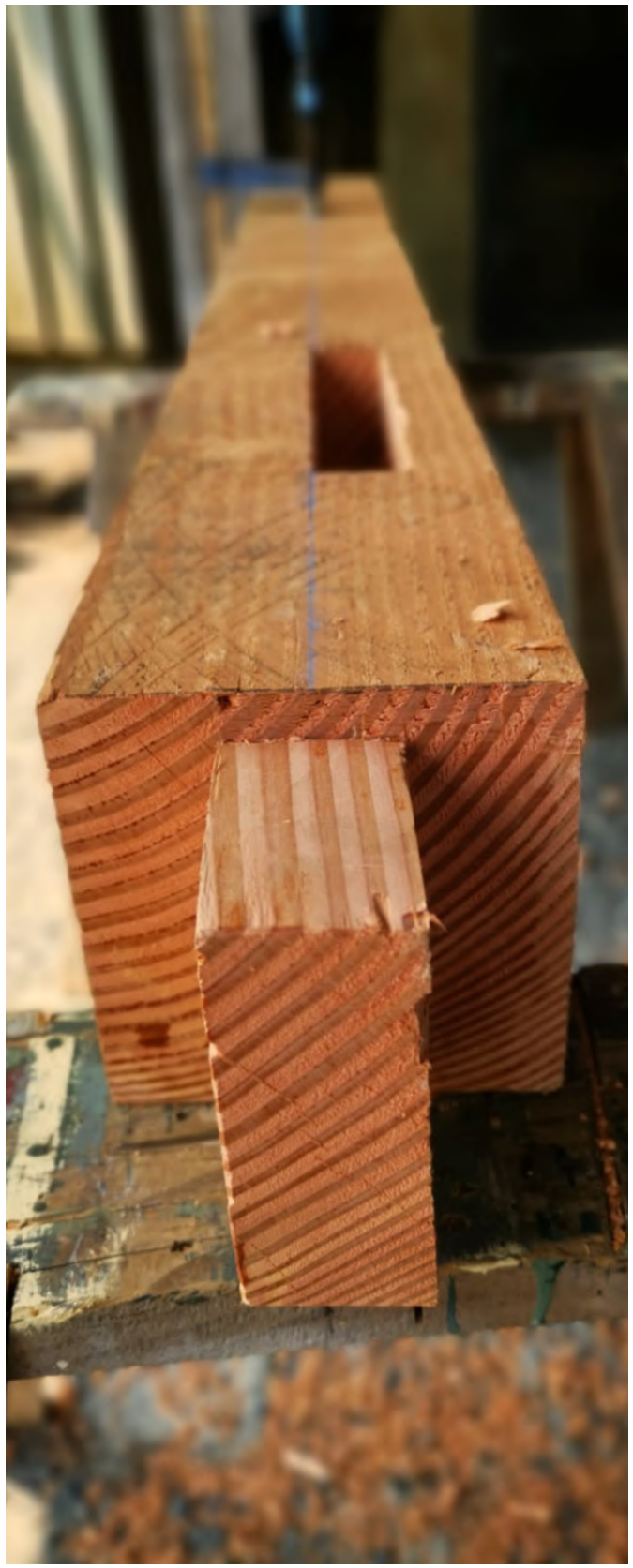
Their house was one of the first New Zealand houses built entirely using the traditional timber framing methods. Armed with mallet and chisel, the men painstakingly shaped each beam and brace.

It took hundreds of mortise and tenon, dovetail, and bird's mouth joints. Templates were used to mark the timber very precisely. Even so, each joint is uniquely shaped to accommodate natural variations in the huge beams.

Some of the beams were so massive that dragging them would have taken Herculean strength. Dewi sensibly improvised with a sturdy old Oxley pram.

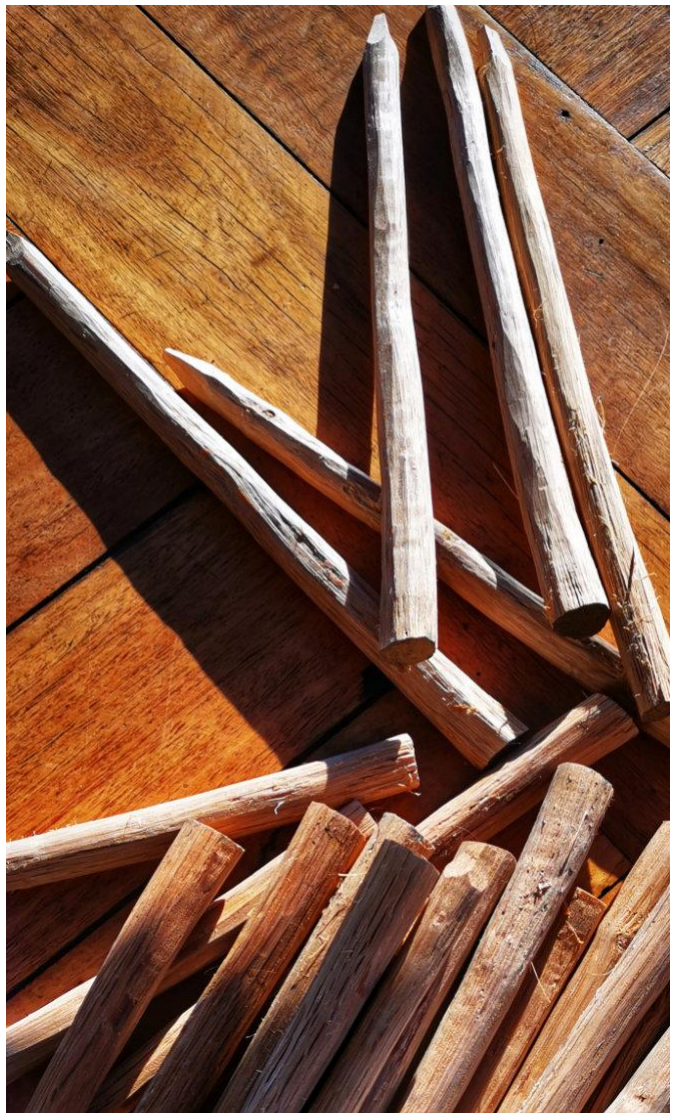
With no load bearing walls, a timber frame house allows more architectural freedom to create multi-level, open plan spaces.

To add a personal signature, the couple enlisted Eric Kirkness to carve "Pen-Saer Loft" in Celtic script into the main beam in the entrance area. In Welsh Pen Saer means Chief or Master builder. There is little doubt mastery was employed in constructing this home.

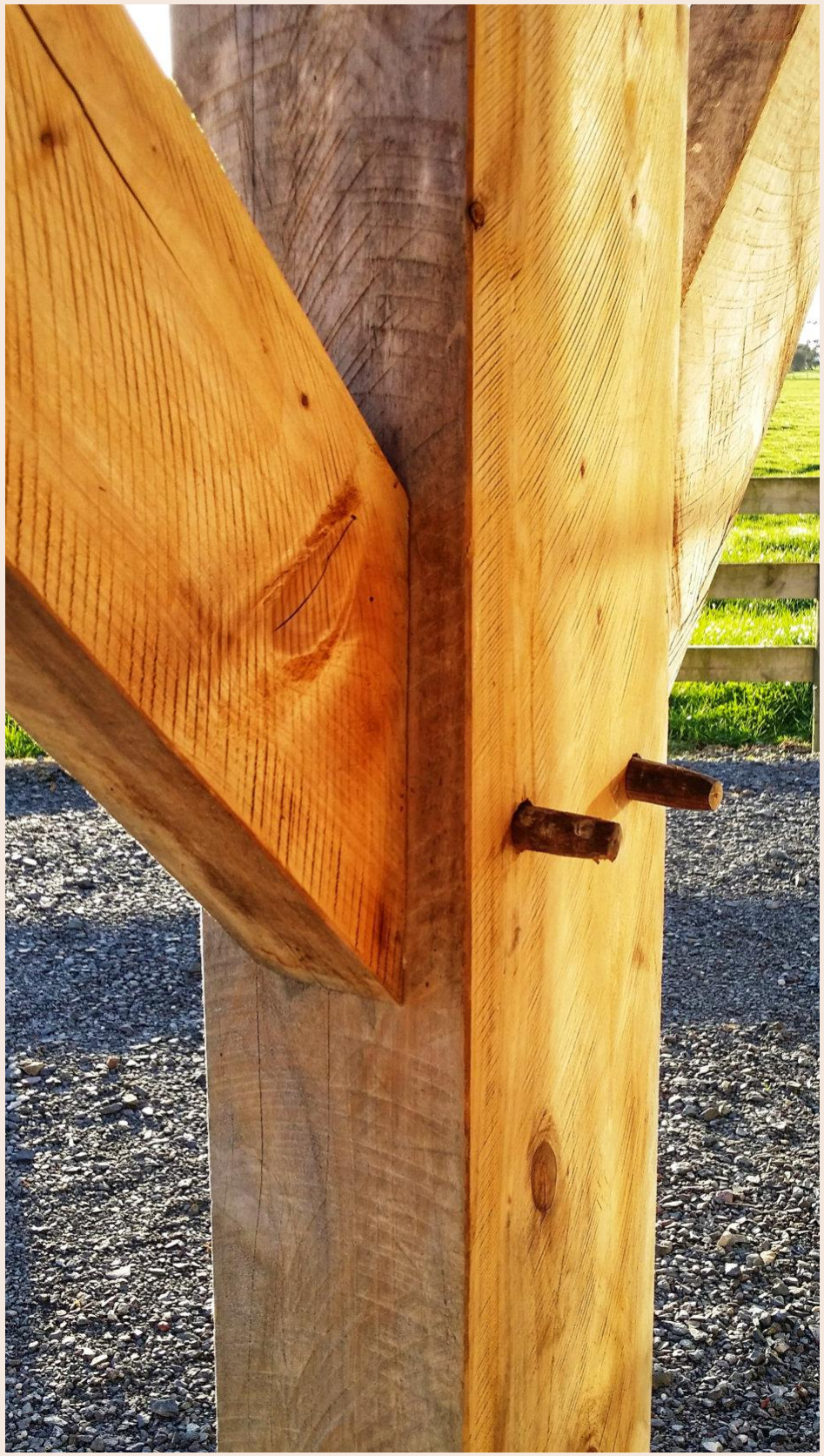


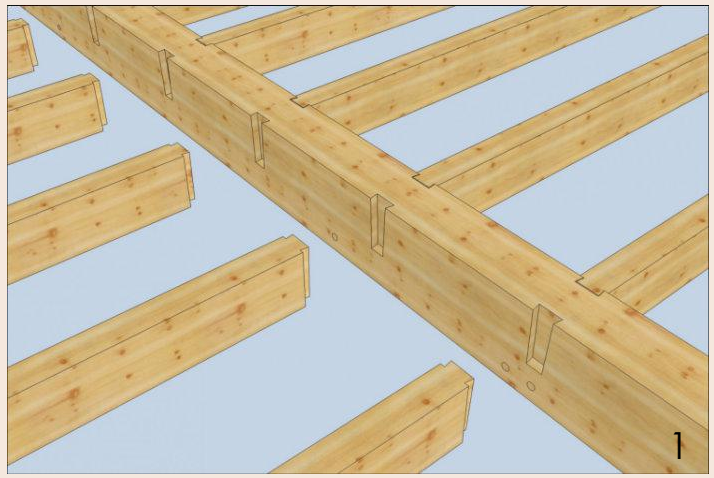
JOINERY

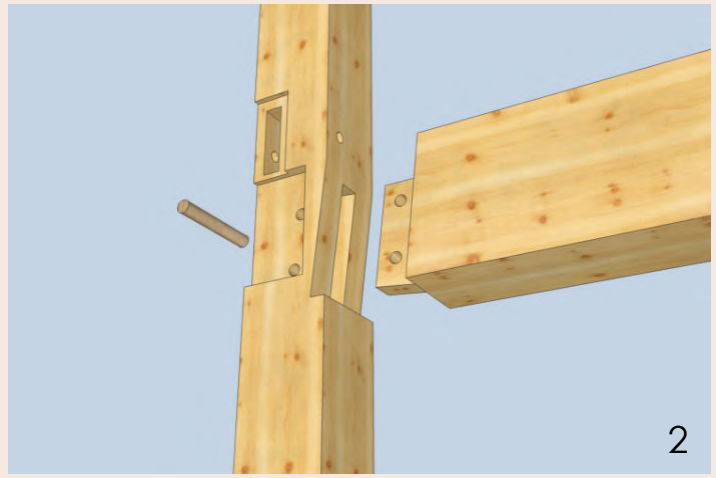
Since he had no local experts to coach him through, Dewi had to teach himself to visualise the frame like a huge 3D jigsaw puzzle. After each piece of wood had been selected it was painstakingly chiselled to fit the ones it would partner with—each joint, a unique custom fit.

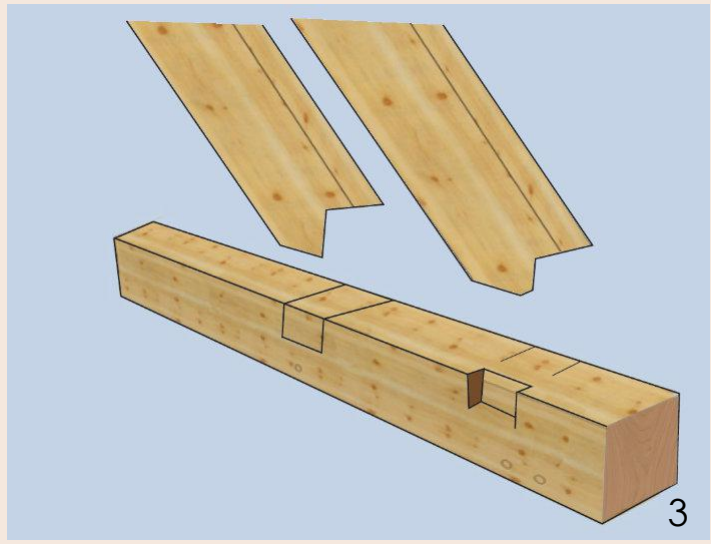


Hammering a dowel into a mortise and tenon joint. Dewi now has a dowel mill but back then each one was hand-carved.









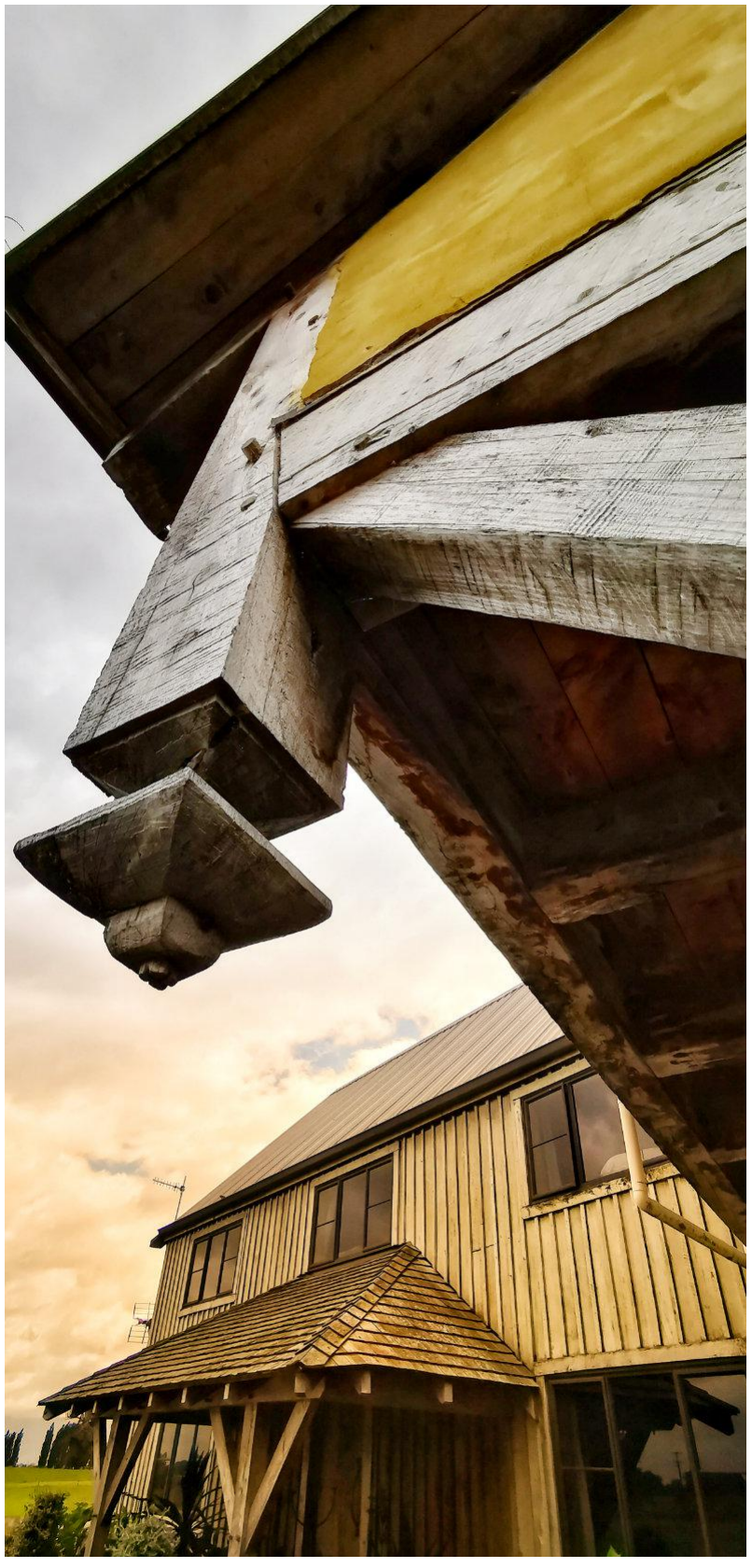
Joining and fastening timber

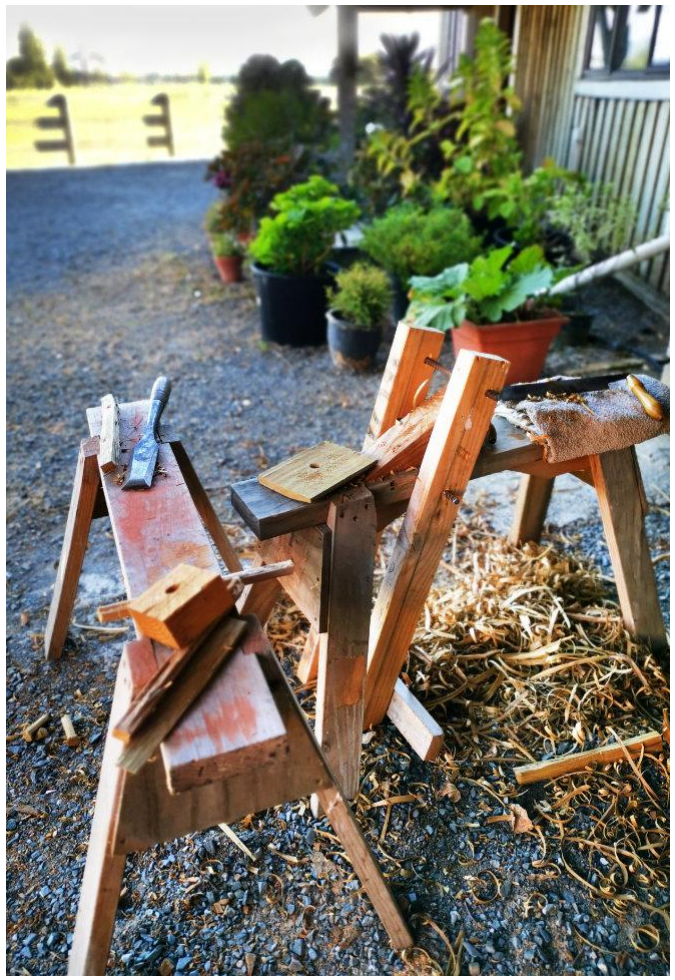
In the past iron was an expensive commodity. The traditional method of holding a frame together instead used the materials at hand: oak pegs.

The holes for the pegs are slightly off centre so the peg pulls the joint in tight. The spring in the peg creates a "living joint", which adjusts as the timber expands and contracts.

Once installed the oak absorbs residual moisture in the beam and swells, wedging each fastener tightly in place. Dewi and Jenny hand-hewed roughly 400 of pegs on site.

1 Dovetail
2 Mortise and tenon
3 Bird beak





Production of the fasteners that keep the joints together: wooden pegs, nowadays hand-shaped on Dewi's dowel mill to show the ancient craft to guests and visitors.

Sound foundations

The foundations have to take account of the soil and climate. Matamata has both silt loam and sandy loam. The latter is more prevalent because of the sand deposited from the Firth of Thames.

This makes really good soil for pasture and growing crops, but clay or silt is hard to compact. If excess moisture freezes, it can crack the foundation. Therefore the footing has to go beyond where frost penetrates.

New Zealand has the added complication of earthquakes and slips, something that building regulations take into account. Matamata is not at particular risk, but even so there will be on average around 30 quakes per year.

Whether you notice a quake depends on three things: where it is centred, the depth, and the magnitude. A 4.5 magnitude quake at 280km depth might be imperceptible, but a shallow quake of 3.8 magnitude could wake you from sleep.

There are a number of reasons why so many ancient timber-framed houses have survived earthquakes. Timber is lighter than steel or masonry, but the key reason for their resilience is the joinery.

The frames are more "ductile", i.e. less likely to overload because the adjacent or nearby joins offer alternate load-paths for the force, thereby preventing collapse.

RAISING HEAVEN AND EARTH

If they had known the scale of what they were attempting, Dewi wonders if they would ever have taken it on.

It had taken four years to reach the point where they were ready to assemble the frame. Even if the measurements were perfect, they knew it might still need last-minute adjustments in order to achieve the fine tolerance required for a perfect fit. It was a nail-biting process.

On 29 January, 1992, Jen and Dewi's family and friends duly arrived for the long-anticipated barn raising event. The local farmers turned up to help, gumboots and all, unsure what exactly was in store.

With the assistance of a 20th-century crane and many pairs of hands the bents were hauled up into position. It was an uplifting experience - the wonderful sense of community and heavenly relief of seeing it slot together without a hitch.

They all celebrated, dancing on the concrete pad beneath the stars with the Kaimai mountain range as shadowy guardian.

Raising the barn

In the American frontier people would congregate from the surrounding parish for the "barn raising".

Using ropes and pullies the men and boys would wrangle the bents into position.

Meanwhile the women would prepare food and drink to sustain them. In celebration and thanks, the work was followed by feasting, music and dancing.

The ceremony, a highlight social event for rural communities, is still celebrated, even today, among the Amish.

The house is clad in poplar weatherboard, which has over time silvered by the sun and rain.

Making pegs in a team. Some 400 would have gone into the frame to secure the joints.


PALFINGER
J.Swap
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MATAMATA

SOURCES AND SERENDIPITY

Fittings were found sometimes by luck and sometimes by design. Dewi's mother sent brass decorations for the rafters. The massive oak front door features antique hinges imported from England and a door knocker from Wales.

The dresser, internal stairs and kitchen units were fashioned from chestnut. Much of the furniture was rescued from local dairy farm sheds and barns.

Each project needed meticulous planning. It was not just the usual plumbing, wiring, insulation, layout, lighting and aesthetics, but also the flexibility to incorporate non-standard or unplanned materials and fittings that might become available.

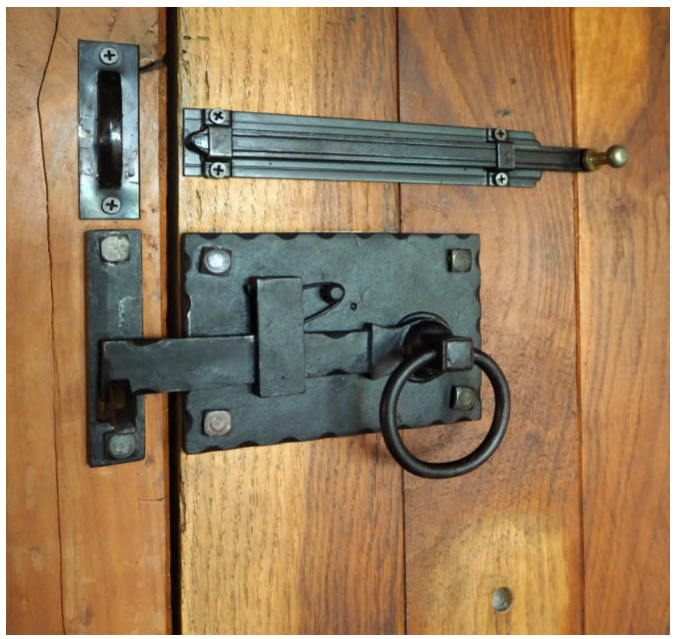
The wall frames were filled with strong, durable, 40mm thick, engineered wood in keeping with fire regulations. This also has the useful property of good acoustic insulation. The rooms do not all conform to conventional squares and rectangles, and the unusual angles provide ideal nooks for storage.

1* Exterior part of *Suffolk style door latch on front door
2 Detail of antique pull handle on front door from foundry in Shrewsbury
3 Welsh door knocker on front door
4 Handmade hinge brought back from Wales made by a family friend
5 Massive oak front door

FIRE AND IRON

They invited a local smith to craft the balustrades and handrails for the stairs and along the balconies upstairs. It was totally in keeping with the romance of artisanal skill—hand tools bending and flattening iron—to create rustic elegance.

The stairs were once a fallen chestnut tree. It is comforting to know that Dewi wasted nothing, and the timber now has a second life.



Suffolk style door latch in The Wing

Front door, inside: hand-forged Suffolk style door latch with gate latch above

FINISHING TOUCHES

Over time Jen and Dewi added comforting, homely touches to the interiors. Dewi cut, planed, shaped and laid 300 pieces for this square-weave, patterned floor.

Local beeswax is a lovely natural way to protect and enhance timber. Of course it is the ‘elbow grease’ that gives the eucalyptus floor such a warm, honey glow.

> **I remember the old limed stone walls we so loved on our travels in France. I appreciated the workmanship and textured ancient look. Lime was made into a grout between the stones, then beaten back with a brush looking centuries old.**
>
> - Jen Roberts

Lime plaster

They always intended to capture the texture of old walls using another traditional craft, lime plastering. Lime plastered walls were delicately tinted with local Waihi clay.

Analysis of historic buildings in England reveals that lime plaster varied a great deal in composition depending on what sands or aggregates were readily available.

Lime was created by burning limestone or chalk in kilns. Jen and Dewi used a putty of the same material (calcium hydroxide) made by slaking lime with a slight excess of water.

They created a pit in their front garden from which they drew their lime. The putty is stored under a film of water because, once exposed to air it "carbonates", a maturing process which continues for months, even years.

The thick base-coat can be reinforced with hairs or fibre. When that has completely dried, a finer setting coat is applied. The result is a wonderful, healthy, breathable surface which has its own built-in light reflecting properties from the calcite crystals that give it strength.

Its ability to remain slightly plastic for an extended time makes it more accommodating of movement and stresses. This makes it ideal for a timber house as it settles over time.

Cut, crushed chalk has a lovely soft texture and serves in place of paint as a safe and simple pigment.

FROM FIREWOOD TO FAB: THE ROOMS

Downstairs

Living room, office/bedroom, kitchen, scullery, storage area, laundry, toilet and shower

First floor

Mezzanine nook, bathroom, guest rooms:
The Wing
The Middle room
The Kingpost room
The Sunny room

Second floor/attic

The Loft


PEN-SAER

THE KITCHEN

Just as Dewi recognised the providence of cyclone Bola, he made the most of local resources that might otherwise have been ignored. A large native totara mantle sits adjacent to an old copper sink set in cement slab benches. Prior to its current incarnation the sink served as a cow trough. Jen loved the patina and found that coarse salt polished it up to its current lustre.

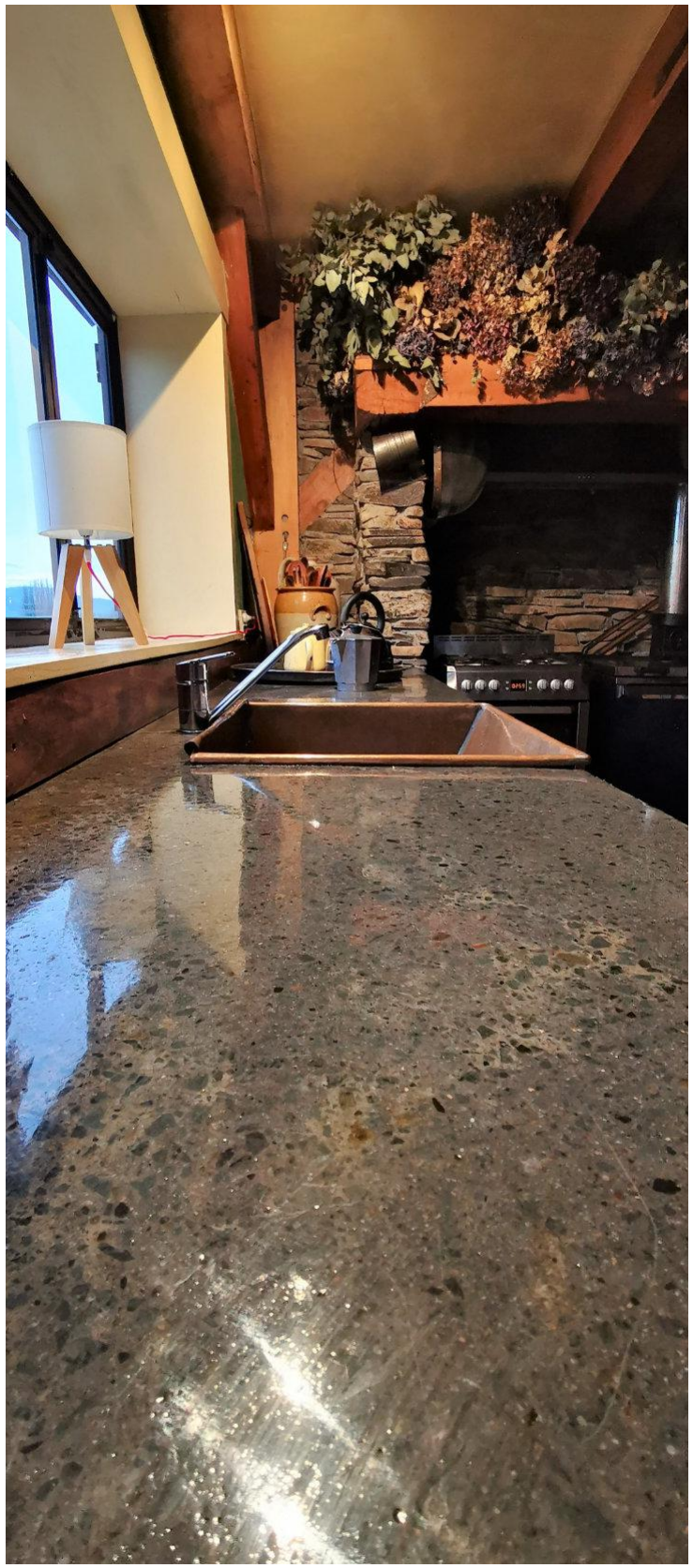
Stone used for the inglenook was sourced from a private quarry in Paeroa. It was also used for the outdoor paving.

Old, reconditioned copper sink, hand-made by a local farmer for his dairy in the cowshed.

In keeping with Dewi's Welsh heritage, a solid fuel cooker nestles in the inglenook. It had been their plan from the start to use local stone for the chimney. They chose basalt, from the hills near Paeroa. The stone provides thermal mass to help the kitchen remain warm and toasty overnight.

Faced with moving the 250kg Bosky solid fuel heater and oven into the kitchen, Dewi drew on the wisdom of the ancients using pipes as improvised rollers to manhandle it into place. It provides hot water using firewood, a cheap and accessible resource in rural areas. An added benefit is reduced condensation, and mould. That's good news for hay fever, asthma and eczema sufferers.

Cast concrete kitchen bench with grey pebbles from a local Dalton's quarry thrown into the wet concrete mix. Dewi smoothened it with a hand grinder and finally applied a marine product used on boats to provide the matt finish that seals the surface so it keeps dry and workable.




GRAND HOTEL

THE BATHROOM

Wet areas are always a challenge as they have to be both practical and beautiful. One day when buying jib they noticed a bath sitting on an adjacent wall. The proprietor had originally stored the bath as a favour, but it was still unclaimed after a decade. It seemed unlikely the owner would return, so for the price of a carton of beer and some enamel resurfacing they now had exactly what they were looking for.

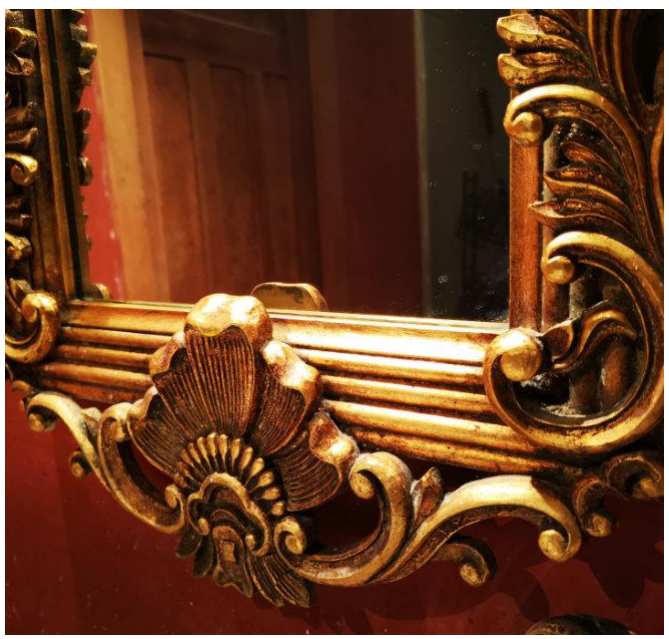
Given that a cast iron bath weighs over 100kg Dewi needed a few extra hands to manouever the bath on his back and lug it onto the first floor!

Thankfully the house frame was engineered to cope, and guests can enjoy the way the tub retains the heat for an extra half an hour compared to a standard acrylic one.

The attractive finish on the bench was created by adding quartz to white cement.

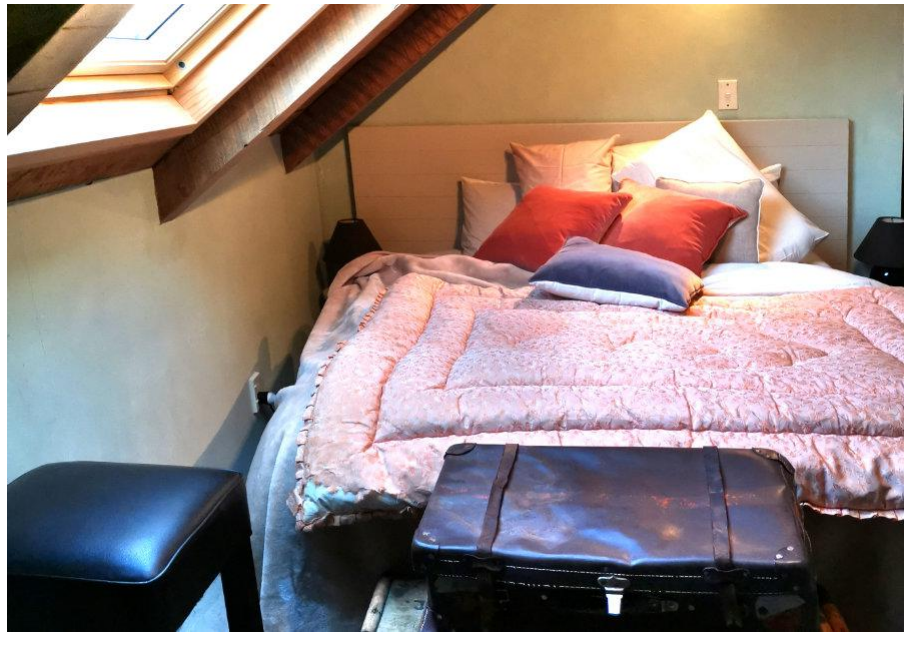
The large, antique bath sits happily with its clawed feet on a floor not of marble but South Island gneiss set in concrete, then polished to a more durable finish.

Copper pipes embedded in the concrete supply cosy heating. The Haast Pass has a richly coloured ancient volcanic gneiss rock. Over milennia seams allowed water to penetrate, oxidising the minerals to attractive rusty tones.



THE MEZZANINE

THE WING



THE MIDDLE ROOM

THE KINGPOST ROOM

The Kingpost room shows off the large cathedral height and dimension of the barn's beam configuration: a large, lofty open space that no other room offers in quite the same way.

THE SUNNY ROOM

THE LOFT

THE OUTDOORS

Jen remembers: “If we wanted to build our home from raw, natural materials sourced locally, we knew we needed to roll up our sleeves and do the hard graft.

We located slabs of stone exposed on a hillside at our friends’ farm at the foot of the Kamai Ranges. We manhandled chunks onto a trailer and carted them back to our section for splitting.”

The house is clad in poplar weatherboard silvered by the sun and rain.

“I love how the moss has gathered now.”

- Jen Roberts

EPILOGUE

Our visitors have come from all over the world, bringing their stories and a wonderful smörgåsbord of personalities to enliven our table.

We hope Pen-Saer's hearth and heart is going to make you, too, feel as cosy and contented as a hen on her eggs.

Sweet dreams and happy memories!

Jen and Dewi Roberts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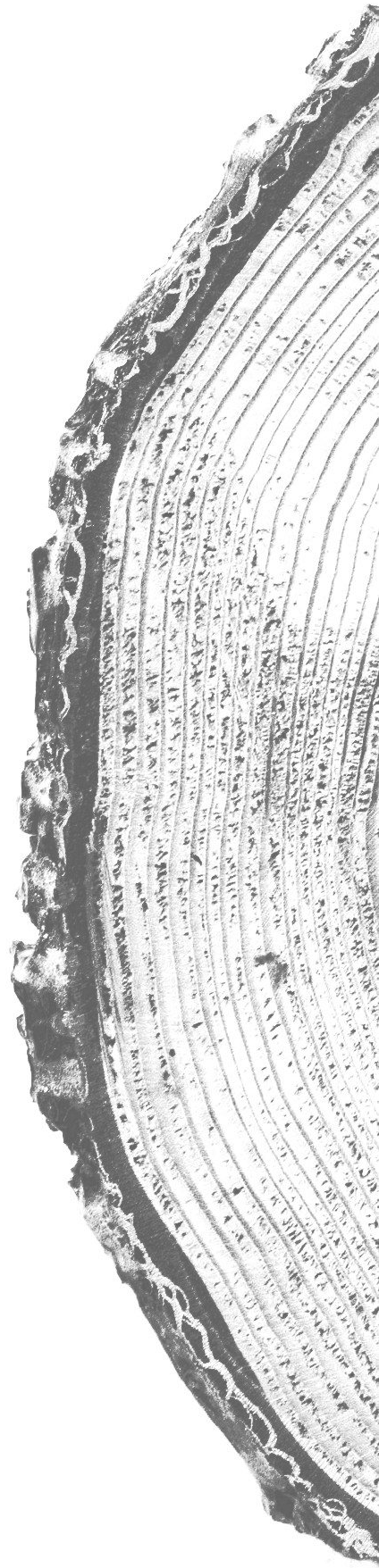
A little slice of the past in rural Waikato



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