

FURNITURE & CABINETMAKING





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WELCOME

This issue – even more than usual – we’re celebrating the natural beauty of wood. We’ve got beautiful makes in Macassar ebony, cherry, oak, ash, walnut, cedar of Lebanon and many more stunning woods.

We celebrate Wharton Esherick, the American artist who found his creative voice in woodworking and surrounded himself with it – he made nearly everything he needed from wood, and made it beautiful, sculptural and often humorous as well as functional. The museum founded in his former studio and home celebrates its 50th anniversary this year.

Meet Dallas Gara from Calgary, Alberta, who shows off domestic and exotic hardwoods in rocking chairs that are not only functional but works of art in themselves. Melbourne, Australia-based Dom Dudkiewicz took a leap of faith to leave behind a career that wasn’t making him happy and craft a new and sustainable career making furniture.

If sustainability is what drives you, you’ll find plenty of inspiration here. Mitch Peacock makes a beautiful quarter circle box from a lump of wood that had been destined for the log burner, Oli Renison shares how he loves using found objects in his work and you can see sustainable building and design at work in The Balancing Barn, an eco-home in Suffolk. Plus there’s restoration, carving, turning, amazing joints and much more!

‘If it isn’t fun, it isn’t worth doing.’

WHARTON ESHERICK

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For article submissions and editorial enquiries:
E: FCEditorial@thegmcgroup.com

EDITORIAL Karen Scott, Christine Boggis, Jane Roe

E: karens@thegmcgroup.com
T: 01273 477374

DESIGNER Claire Stevens
ADVERTISING Guy Bullock
gmcadvertising@thegmcgroup.com

PUBLISHER Jonathan Grogan
PRODUCTION MANAGER Jim Bulley
T: 01273 402810

MARKETING Anne Guillot
PRINTER Poligrafijas grupa Mukusal, Latvia
DISTRIBUTION Seymour Distribution Ltd
T: 020 7429 4000

Subscription enquiries:
T: +44 (0)1273 488005
E: pubs@thegmcgroup.com

To subscribe online go to:
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COVER IMAGE Dallas Gara by Colleen Gara

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Woodworking is an inherently dangerous pursuit. Readers should not attempt the procedures described herein without seeking training and information on the safe use of tools and machines, and all readers should observe current safety legislation.



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FURNITURE & CABINETMAKING

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EXTENDING DINING TABLE IN MACASSAR EBONY

THOMAS EDDOLLS TACKLES ONE OF THE MOST
CHALLENGING COMMISSIONS OF HIS CAREER WITH
THIS ADAPTABLE TABLE WITH A HIGH GLOSS FINISH



I was approached by a potential client who was looking to have a bespoke dining table made for their home. They had a certain style and look in mind and the table also needed to be able to extend to provide more seating space when necessary. Wow, I thought to myself, what an exciting prospect. But if it was to come off it would entail an incredible amount of work ...

THE DESIGN

The first agreements that needed to be made concerned the table's style and appearance. The brief stipulated a 2m-diameter round table to extend with additional centre leaves on a pedestal base, and the client wanted a dark timber with a high gloss. After working through some design ideas, the form was settled on and, after discussing material choices, I decided to offer Macassar ebony to achieve the look and quality I felt was right for a project like this. We all came into agreement and the commission was on!

I knew from the start this was going to be one of the biggest and most challenging pieces of my career, and as such I needed to plan out the job as well as possible for it to become a reality. I started at the drawing board, setting out plan and elevation line drawings, exploring the design and shapes and concentrating on elements such as foot room underneath the table, aesthetic proportions and physical properties in its extended form.

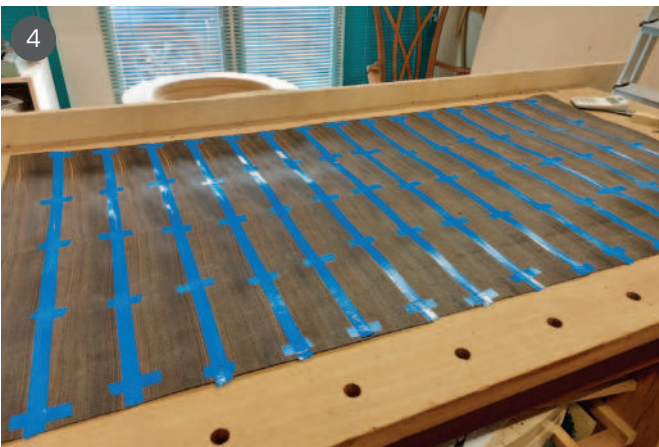
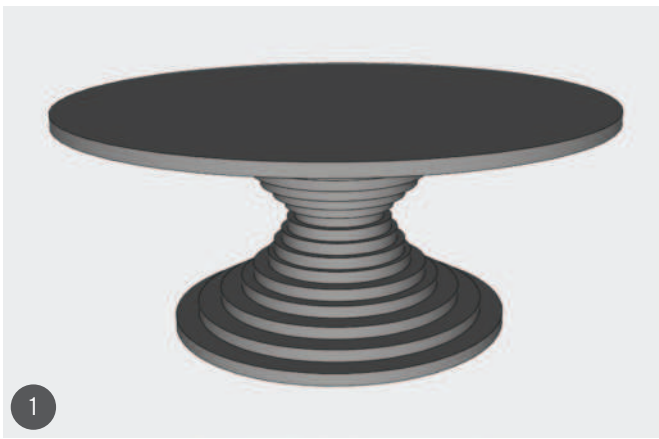
There was quite a lot to think about and, luckily, I have formed lasting relationships with various workshops and makers over the years and as such was able to seek a lot of advice on the project, bouncing ideas off some extremely knowledgeable minds. Ultimately though, the decisions would be down to me. After the line drawings I began to build scale mock-ups to get a truer sense of the overall piece as well as having a computer render produced.

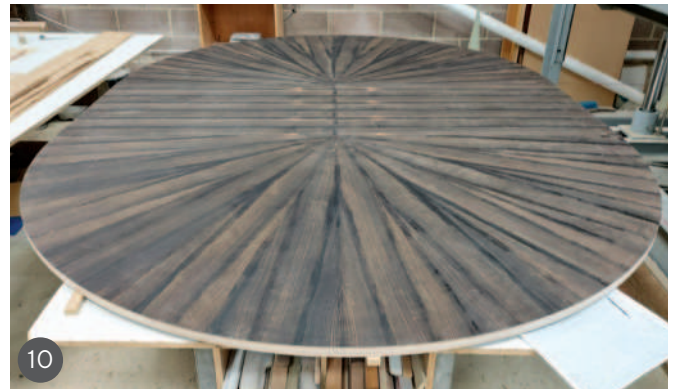
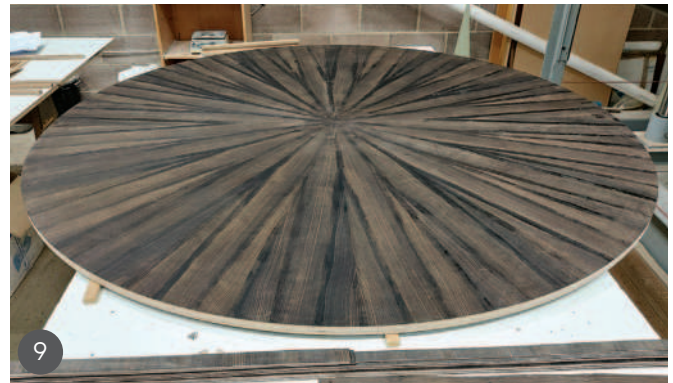
SOURCING THE MATERIALS

With these initial outlines agreed with the client, it was time to source and order the materials for the project. I needed a selection of plys and MDF boards in varying thicknesses for groundworks and substrates, which I ordered from Birmingham's BGN boards. The veneers were sourced from Capital Crispin Veneers, after selecting the required amount from an attractive dark log. The figure was not as stripy as Macassar can often be and would be perfect for the project. With the materials secured, I could begin work.

CNC ELEMENTS

I had realised from the very start that in order to be efficient and productive I would need to sub-contract elements of the job out to experts in their fields. I approached Waywood CNC to shape the 18 base rings and table top ply cores with mating shaped frieze sections to build up the top thickness, which they did effectively and brilliantly, aligning everything with neatly positioned dowel location holes.





1 & 2 A computer render and a scale mock-up of the table 3 The base rings and ply cores were shaped by a CNC specialist
4 & 5 The set-up for veneering the edging strips 6 & 7 The strips were glued and clamped to the base rings in stages
8 All of the strips were now in place on the table base 9 & 10 The extendable table top features a 72-piece Macassar ebony sunburst

When these pieces arrived in the workshop I realised I clearly had my work cut out! This was a very big and intimidating project with a lot of things that could go wrong, so I set about the next tasks with fervent vigour, being meticulous about every stage and process.

EDGE VENEERING THE TABLE BASE

The first part of the making journey was to veneer the edges of the pedestal base rings in preparation for face veneering. The way I set about the task was to veneer up a slip-matched ebony panel on to a 1.5mm aero ply substrate which was balanced veneered. I could then cut this into edging strips for application to the rings. I used a high-strength Titebond adhesive, which gave me the option of flexing the edge lippings around the curve due to the aliphatic resin's 'creep' properties after setting time. This is much preferable to the stiff, highly brittle urea-formaldehyde resins.

After cutting the lengths out I eagerly picked one up and gave it a nonchalant bend and, to my horror, immediately there was a failure. Running through the rest of the strips it was apparent that my first pressing was not going to be a success. What did I do wrong? My substrate was keyed and my vintage veneer press had proven itself true before. The panel size was a tricky span to the plattens and I concluded it was a pressure issue as I had been too cautious about over-tightening a not full platten.

The only option was to set about the process again, but with

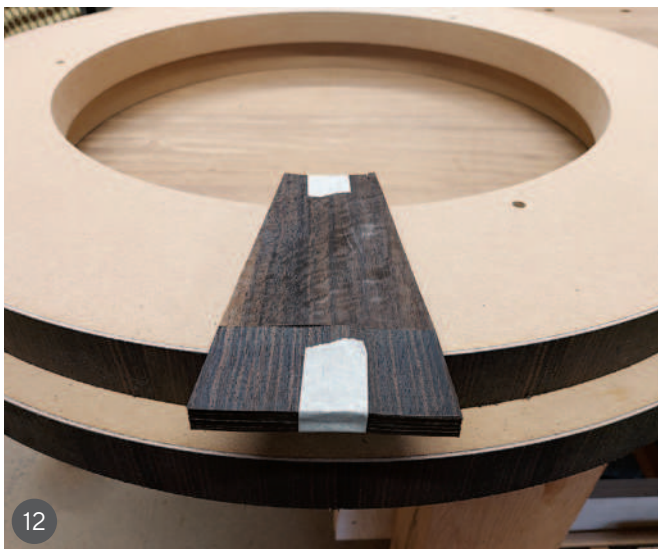
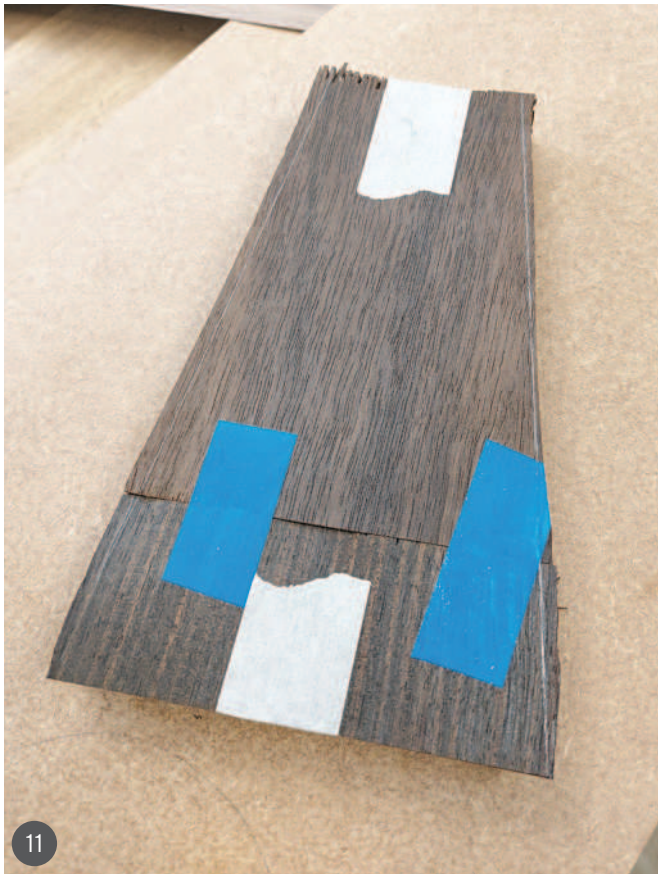
an extra extension on the lever bar applying fullest pressure and added packing pieces over the void areas of the plattens. I left the glue-up overnight.

Removing the works cautiously from the press in the morning, I dropped the panel on the saw and buzzed off a couple of strips. I gave them a gentle bend and then a bit more – they were sound and I was happy enough to skin the works around the base rings.

I did this in staged glue-ups, wrapping lengths around multiple components with wide gauge, heavy-duty band clamps with bendy ply cauls. Once the glue-ups had been through their drying times they were run through the process again, three times on each ring, butt-jointing the mating lippings up to each other with the final tricky length cut dead. Quite a laborious run of works, but satisfying!

THE EXTENDABLE TABLE TOP

Meanwhile, while I had this going on in the shop, I had decided to sub-contract the top veneering out to a high end cabinetmaker's workshop as the sizes involved were right on the fringes of my press's capabilities. The brief was to create a 2m-diameter circular table top in a 72-piece Macassar ebony sunburst. At client meetings we had agreed to keep the top refined but not too busy, so I worked out a segmented arrangement comprising 24 banks of three slip-matched veneers which would then be bookmatched around into a sunburst at the centre.





11 The face veneers for the base were slip-matched in groups of three or four leaves **12 & 13** The veneers were then arranged in the radial pattern and hand-jointed **14** The veneering on the base was now complete **15** The sturdy sub frame was joined to the top ring using the Domino system **16-18** The sub frame needed a telescopic ladder framework to work with the extendable table top **19 & 20** The edge veneers were glued and wrapped in place

For the extensions, the client needed the flexibility of three different sizes so two 600mm-wide centre leaves were made up of end grain bookmatched ebony.

After much consternation as to the substrate for these veneer works we eventually arrived on a 22mm birch ply core for strength, skinned either side with 4mm MDF as face to veneer in order to cut out the slight chance of ply grain telegraphing through the veneers. The works were fully balanced on the underside with a matching sunburst in full ebony to equal any opposed movement. The results were stunning – the cabinetmaker had done a first class job.

FACE-VENEERING THE BASE RINGS

Running along with this, after all of my diligent edge work I then began to face-veneer the base rings. With only a proportion of these faces seen, and in order to preserve the precious ebony, I decided to bolster up the works with a fumed eucalyptus border which would make clean-up and polishing easier.

There was a lot of work to do here so I needed a system. I worked out a formula: the leaves would average at 90mm, so I divided each circumference by 90 and then divided 360° by that number, half that number again to allow for the bisection and

that was the mating angle in degrees.

Normally I hand-shoot veneers, but on this occasion I stacked them up in their groups and routed the joints using a bottom-bearing following cutter, clamping the workpieces in my shooting boards which were used as a straight guide for the router. I then taped up the leaves, all slip-matched in groups of three or four, before bringing them all round into the full radial pattern and hand-jointing any slight angle discrepancy using a straight edge and veneer knife.

Eventually after steadily running the works through the pressing procedures I had my veneered pedestal and I could bring the veneered tops in too.

THE TABLE'S SUB FRAME

With the bulk of the veneering done, my attention now turned to the sub frame. I opted to make it out of Canadian rock maple for strength and rigidity; it would be stained at the polishing stage.

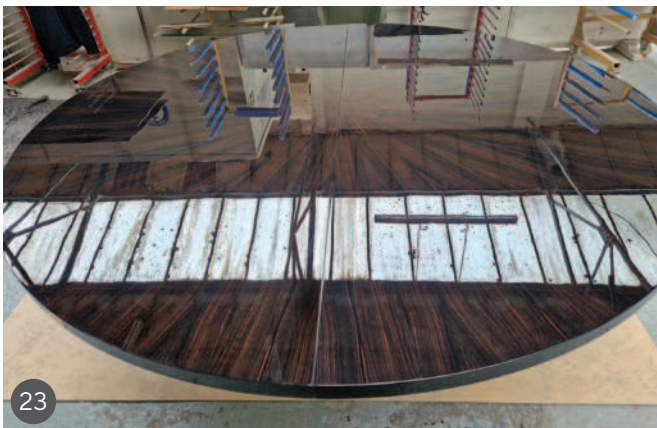
First I machined out the main support limbs, big thick sturdy sections which I grooved to accept the extending sliding frames. Once they were grooved I jointed them on to the top ring with the Domino jointing system, after relieving channels in the ring to accept the sliding frameworks.



21



22



23



24



21 The piece was really starting to come together 22 The final making stage was to tidy up the top frame ring
 23 & 24 The high gloss finish achieved by JMB, the specialist polisher, was worth waiting for
 25 The client finally got the table they had dreamed of!

To get the sub frame to accept a full 3.2m extension I needed to work in a telescopic ladder framework, sliding in a tongue and groove system, all fully in maple, not only being strong but durable in its resistance to friction.

When I was happy with the moving arrangement, it was time to tackle the edge-veneering of the table top.

EDGE-VENEERING THE TABLE TOP

I needed to firstly build up the thickness to the designated 40mm, planting on a 150mm-wide sectional down stand frieze to the underside of the table tops. These had previously been beautifully machined out by Waywood CNC, and after having been veneered were dropped on to their pre-drilled dowel locator holes perfectly before I cauled and clamped them on.

With the edges now built up I could veneer around them using the same system as the base rings. This would leave a small amount of ply end grain exposed, which I eradicated with a 3mm-thick solid ebony string line rebated in to the top and bottom corners of the table tops, finishing off the junction points and providing a solid durable finish. The string lines were carefully glued and wrapped into place with masking tape, butt-jointed at the appropriate veneer joints. When the glues had gone off they were cleaned down to the veneer works. The piece was now really starting to come together.

FINISHING TOUCHES

Having done most of the hard graft, really the last bit of making to do before the extensive clean-up and sending the piece to the polishing firm was to tidy up the top frame ring with ebony veneers, in the channels and the inner circle to make everything visibly acceptable for the client when the table was opened up to accept the extension leaves.

Well, eventually there it all was and it was time for the clean-up. I finished everything down to 240 grit ready for a month-long polishing process. The table was sent off to JMB Polishers, a specialist polishing firm, for an extensive high gloss finish.

After shipping out the parts to the polishing workshop, I had to wait patiently for results, switching my attention to the next flow of projects while the process was underway.

My patience was to be rewarded when, upon visiting the specialist finish shop and putting all the pieces together, after months of hard work we were all rewarded with a glimpse of what we were trying to achieve.

I left it a weekend before final delivery to allow the lacquers to cure a little bit longer, then delivered the piece to the client in sections to be made up again in situ.

Finally the client was able to realise their creative vision for the space and the task was complete!



TRANSMUTATION

GERMÁN PERAIRE EXPLAINS HOW HE CONVERTED A CHERRY LOG INTO A CHEST OF DRAWERS

I'm lucky to have a sawmill at my disposal and sometimes I get to know the trees from which my furniture comes. That gives me a whole new perspective on the process.

The cabinetmaker's work lies in a brief intersection between the long life of a tree and the long life of a piece of furniture. Our role becomes then to simply facilitate a transformation of the tree into a new being with a life of its own, the cabinet. The fact that wood has been a living thing renders a sense of solemnity to every task when we think about it. I try my best to produce furniture in which the trees have their say, in the hope that perceptive users will notice the uniqueness of every individual piece of timber.

THE END OF A CHERRY TREE

The story of this chest of drawers began in 2019 in the Catalan mountains of Montnegre i Corredor. I'm a friend of the forest engineers over there, and they let me know when an interesting log comes up. I was happy to buy some promising cherry logs, about 400mm wide. At the milling stage, I discovered a lovely salmon-pink flamed figure, plus a few knots and greenish shades that would need to be avoided.

In my experience, thinner planks fare better than thicker ones in the drying conditions available to me, so I try to stick to 30mm. This way, they are flexible enough to cup and twist without cracking. If I foresee that I'll need leg parts I'll take one thicker slice. Quartersawing is the best strategy to obtain stable timber but it yields rather narrow planks. At least 20% of those flat-sawn cherry planks was sapwood, so I knew I could get usable planks of about 300mm around the centre of the tree if it was flat-sawn. Having a clear idea of the kind of furniture we'll be making in the future is very advantageous when we make those decisions.

All the lumber was neatly stacked with 20mm battens and left to dry outdoors, protected from rain and sun. The rule of thumb to bring 4/4 lumber from green to air-dry (under 20% moisture content) is about one year maximum, although it depends on many factors. My approach is a patient one, so I'm happy to wait and let the timber do whatever it needs to.

After waiting some 15 months, in September I brought it into the shop. The turn of autumn is when lumber is at its dryest where I am located, and I like to bring it into the workshop before foggy days come along. I try to stock all the wood I'll need through the winter, including purchased dry timber. Furniture-making timber

needs to go down to around 8% moisture content and that can only be achieved indoors. Four months later, the build began.

MAKING THE CARCASS

Beyond the beauty of the timber, some details distinguish this chest of drawers. A cove moulding at the front of the carcass frames the drawer fronts, showing them in relief and allowing us a glimpse at the drawer dovetails. The wedged through tenons at either side of the carcass are not only a decorative detail: they also speak of soundness and thorough craftsmanship. Finally, the walnut base presents some subtle curves and seems slightly separated from the carcass, as if it is floating.

The first step was to spread all the boards and carefully lay out the components. The most interesting grain was saved for the drawer fronts and the top, while some defects were placed at the bottom and inside faces.

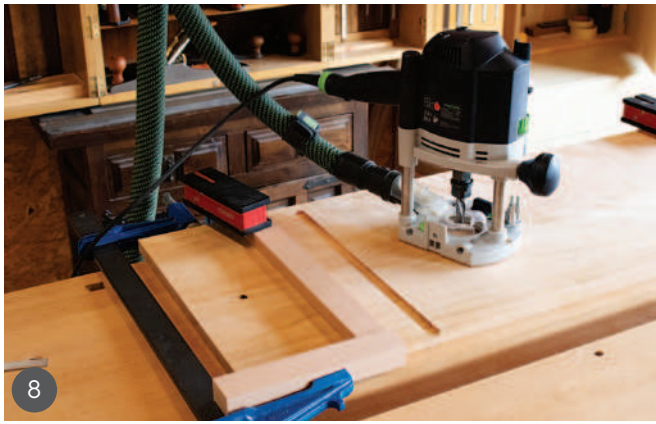
I machined the carcass components a few millimetres oversize and jointed them to achieve the desired width. After a week or two, they had warped somewhat and were ready to be planed and thickened to final dimensions. This ensures stability in the material.

After making sure the edges had no bumps, I paired them and marked with a knife the position of the drawer dividers. This way, both sides of the carcass would be matching mirror images. With that done, the grooves for the drawer runners could be routed. A shop-made square jig is quite useful to guide the router and can be tapped with a small hammer to micro-adjust its position.

Next was dovetailing, which was done in the usual manner except for the mitres. These allow the cove moulding to flow uninterrupted and also conceal the rebates for the cabinet back.

Two dimensions are needed to determine the length of the front rails: the carcass opening, which is transferred from the dovetail baselines, and the depth of the grooves, which is transferred by using a story stick. I wanted some through wedged tenons at the drawer rails to prevent the carcass sides from bowing in the future, but having all of them that way would look too crowded to me. That is why I chose to join the rest of them with dowels. That joint might be regarded as inferior by some, but it is quite strong and Alan Peters used it extensively when through tenons were not an option.





1 Discovering flamed grain at the sawmill 2 Plain-sawn log ready for air drying 3 Through wedged tenons at the carcass side 4 Detail of the cove moulding, walnut stand and the 'floating' carcass 5 Spreading the boards for the component layout 6 Machining to final dimensions after the boards are edge-jointed 7 Marking the rail positions simultaneously at both edges 8 Routing the grooves for drawer rails and runners 9 Dovetail transference to the pin board 10–12 Dovetail baselines determine the length of the rails. The story stick adds the groove depth

Both the through mortises and tenons were marked using only one gauge setting, combining three offset spacers (one representing the distance between tenons and two representing the tenon width). This is a straightforward and precise method. In addition to that, the spacers that represent the tenon width are the stock from which the wedges will be made.

I first drilled the dowel holes on the rails and transferred their locations to the cabinet sides with dowel centres. Making sure all the holes are drilled squarely is essential here.

The drawer runners were individually fitted to each groove at this point and dry-assembled to the front rails with Dominoes. A full web frame was needed to support the upper drawers since they are located side by side.

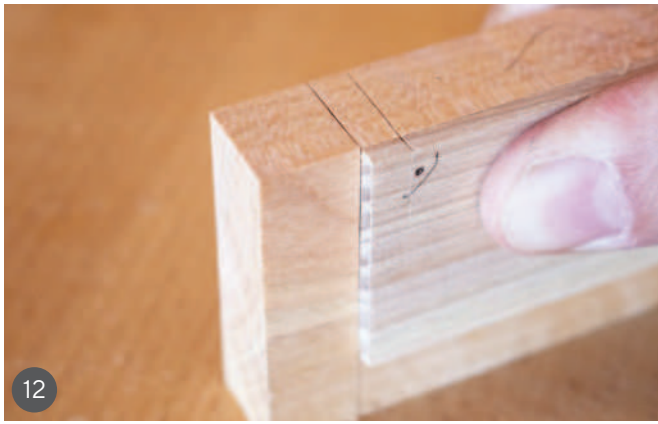
The last step before glue-up was to finish the cove moulding with two coats of oil. It is much easier to do it at this point. Once the glue was set, I installed the runners. These are glued to the front rails and slot-screwed at the back to allow for seasonal movement in this cross-grain situation. The bandsawn recess there is just to use shorter screws.

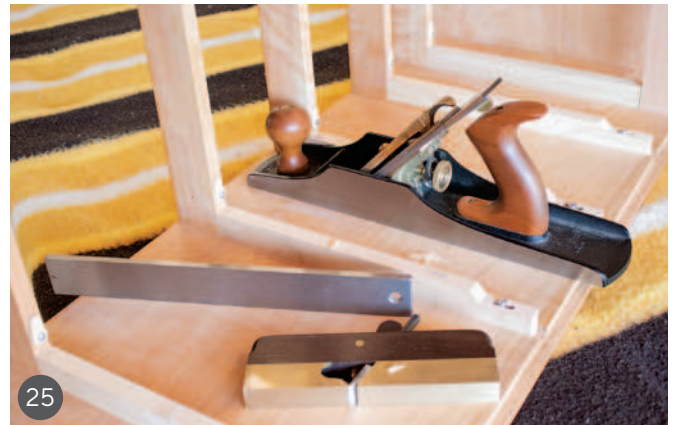
It is a habit of mine to finish the exterior of the piece at this point (with four coats of oil in this case). I also installed the walnut base to protect the interior corners from being chipped.

It is attached with wooden buttons with a tolerance to allow seasonal movement of the carcass within the stable leg frame.

THE DRAWERS

I chose European white ash as a secondary timber for this build. It is hardwearing and its pale tone contrasts nicely with the cherry. The drawers were built with through dovetails in all corners and then veneered with 4mm-thick stock for a strong, durable exterior. This means that it can be refinished numerous times in the future without the risk of wearing out thin veneers. For the drawer bottoms, I used Mediterranean cypress. It has the finest scent I have ever come across! I did my best to achieve an exacting piston fit, all the more important when the drawers are considerably wider than deeper (those are prone to rack and stick). I'm glad to say that they could be opened and closed effortlessly from one side. To achieve this I followed Alan Peters' instructions: while making the drawers I left the carcass aside for a few weeks and just before installing them I checked for bumps. As predicted, the material had distorted slightly. It was easily remedied by flattening the inside surfaces against which the drawers run. A straightedge, jack plane and shoulder plane did splendidly, followed by fine sandpaper and wax.



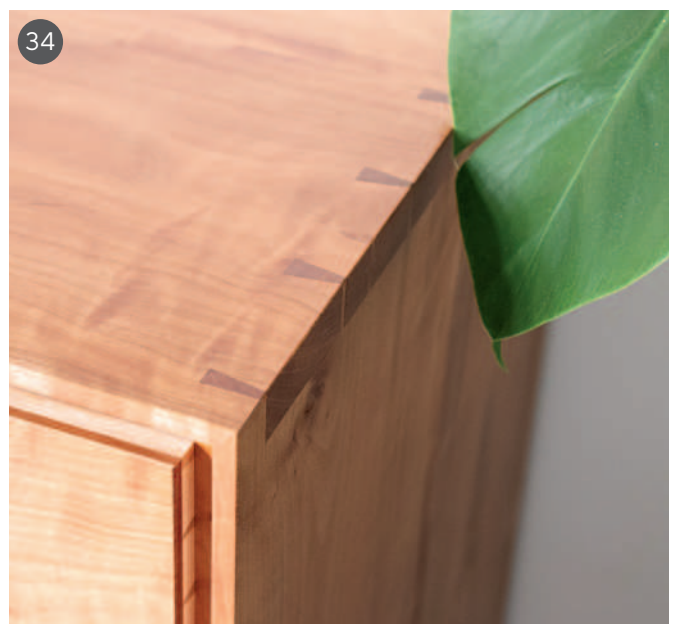


13 Rail ends showing mortise-and-tenon and dowelled joints 14 & 15 One gauge setting and three spacers do the marking 16 Transferring the dowel locations 17 End of a rail showing wedged tenons and Domino connection for the runner 18 The upper drawers require a full web frame 19 The carcass ready for glue-up 20 Runners are glued at the front and slot-screwed at the back 21 Installing the base with buttons 22 The drawer fronts were faced with 4mm-thick cherry 23 & 24 Planing the sides for a piston fit 25 Dressing the inside surfaces

There are some details worth noting about the drawers. To avoid handles obstructing the cherry fronts, I opted to recess a fingerhold on the underside centred on the front edge. As the bottom drawers are very large, I fitted them with quadrant slips and a muntin dividing the bottom in two. This is traditionally used for heavy loads, providing extra strength and preventing saggy bottoms while the sides can remain a mere 8mm thick.

I don't think it was necessary, but I needed an example for my students to examine.

There are two kinds of drawer stops: the closing stops, which align the drawers in the façade, and the less usual opening stops, which prevent the drawer from falling on the floor. The closing stops are inserted with Dominoes at the front rails (mortises were routed to this effect before carcass glue-up).





26 Fingerhold recess in the underneath 27–29 Details of quadrant slips, muntin and split bottom 30 Drawer ‘closing’ stop inserted in Domino mortise 31 Drop-shaped opening stop screwed to the front rail acts against the drawer back 32 & 33 Ebony opening stops act against the upright component 34 & 35 The piece at home, showing early signs of oxidation

The five wider drawers have drop-shaped opening stops that are screwed to the front rails and butt against the drawer backs. They can be pivoted out of the way to remove the drawers. The smaller drawers placed side by side have a different form of opening stop: they feature a wooden peg that protrudes through the drawer side and butts against the vertical divider. This peg is tapered and fits into an equally tapered hole to ensure a positive fit over time while remaining removable. These were made from ebony, but a lighter wood would have been a less conspicuous choice. This method is common in the French tradition.

A YEAR LATER

Cherry is known for becoming more beautiful over time.

Instead of yellowing off as most timbers do, it develops a darker, deeper shade of reddish-brown. Only one year later, the effect of UV oxidation is remarkable and the piece looks even better than at the time it was made.

As often happens with piston-fit drawers, when humid weather came along they swelled slightly. They were far from stuck, but some careful hand planing got them back to that surprisingly slick glide. That is an all too common mistake in seeking the perfect fit, equally commonly omitted in all the textbooks.

The whole build of this chest of drawers was an immensely rewarding experience, and it was fully recorded on video. You can further explore the process through 46 short clips on my Instagram account [@germanperaire](#).

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| Garden Dibber for Planting

Rick Rich shares his 'after-dinner' turning project to make a garden dibber



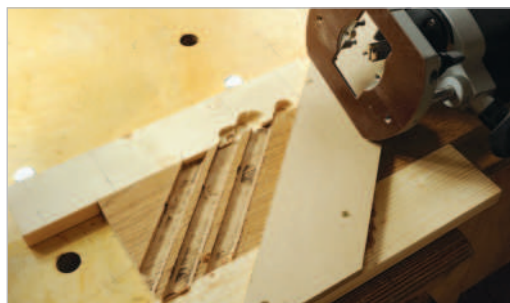
| Fixing a Hole

Kurt Hertzog provides his top tips on how to deal with wood's natural flaws



| How to Cut a Recess for Chuck Jaws

Philip Greenwood looks at fitting chuck jaws



| Routing Problems

We turn to those routing difficulties that keep coming around again and again

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PHOTOGRAPH COLLEEN GARA

ROCKING ALL OVER THE WORLD

INSPIRED BY SAM MALOOF AND HAL TAYLOR, CALGARY, ALBERTA-BASED GEOPHYSICIST **DALLAS GARA** HAS BUILT A FURNITURE BUSINESS BASED ON BEAUTIFULLY CRAFTED ROCKING CHAIRS. HE TALKS TO *F&C*

How did you first get interested in furniture making?

As far back as I can remember I always loved wood: the colours, the grain, the patterns. I found wood to be incredibly beautiful. I had skateboards made of hard maple that were steam-bent into incredible curves and I loved just looking at them. When I grew up, I knew what furnishings I wanted in my home, but I couldn't afford them – so I decided to try and make some myself. At the time, 'rustic' furniture was the in-style and I was able to make some fairly sufficient pieces. In time I was able to build more modern furniture that presented the wood in a more attractive manner. I loved how furniture could display the beauty of wood in the home.

How did you train?

I studied the basics of woodworking on YouTube. I learned some of the fundamentals and important safety measures to take in your shop. After a few years I felt like I had hit a wall and needed to grow. I wanted to change up the style of furniture I was making. So, I enrolled in a rocking chair-making course in Ontario, Canada. This woodworking course changed everything about the pieces I was making and the woods that I was using. So far that has been my only woodworking course.

What was the first project you completed?

A bookshelf – again, out of necessity. I made it out of cedar fence boards with a 10in chop saw and a foldable tablesaw. It is still being used in my home today.

What made you decide to set up your own furniture business?

I kept making furniture for my home and after a while friends began to ask for commissions. Over time I started to buy more tools and more expensive woods. To help pay for it all, I started to do more commission work and also build spec items to sell on my website... and here we are.

How did you start working on commissions?

I found I was getting a lot of requests for pieces to fit a specific niche in a home. For instance, if a client could not find exactly what they were looking for with respect to size, colour or style I could create it. In that case I would be asked to look at a space and consider the style the person was looking for. I would sketch up some ideas and, upon approval of my drawings, I would make the item. I really enjoyed making something specific for a person, but it was difficult because I was making a lot of different items in a lot of different styles. I find that now I try to build pieces that are hard to find or that might be considered functional art, like hand-sculpted heirloom rocking chairs. Today, I am trying to appeal to people who might be interested in having functional woodwork that also has an artistic element.

What inspires you and where do you get your ideas from?

I get a lot of inspiration from other makers, and have been heavily influenced by Sam Maloof and Hal Taylor: their wood selection, designs and creativity are amazing. I have a lot of my own ideas as well. In the past few years I have been able to apply more of my own design ideas to my pieces. That in itself is a huge inspiration. To dream up a shape or joint and actually create it gets me excited to be in the shop.

My parents are a great inspiration. My mom is a talented seamstress with a strong artistic eye and my dad grew up teaching me anything you could imagine, from changing the timing belt in a car to building a skateboard ramp.

Another huge inspiration are people like Ian Abramson from @thebuildwithethan, who take time to interview other woodworkers and share connections, and Marc Spagnuolo, The Wood Whisperer, who has taught me many valuable techniques. These people inspire me to share my knowledge and teach others. I wouldn't be where I am today without them.

Is there an ethos or a guiding principle behind your style?

Soft flowing lines, maybe something that resembles the Fibonacci sequence where the shapes are proportional, natural and pleasing to the eye. I strive for balance. I attempt to make every curve melt into another. I like an even combination of strength in construction and simplicity in appearance. As Sam Maloof once said, I hope to make the wood speak for itself. I want to highlight the beauty of the wood and accent it with a delicate style. I hope my pieces make people wonder how it was constructed. I remember the first time I saw a Sam Maloof rocker it was not obvious how it was made. That was very intriguing to me. I like making complex joints that offer lasting utility but are also beautiful to look at.

Tell us about how you work and what tools you like to use.

I love creating new joinery. A lot of my joint design cannot be created with standard tools. I will often use a router and a custom-made jig. It's the only way I can get the perfect angle, depth and shape of the pieces to be joined. I will also employ my dado set and a custom sled. I feel that rabbit joints are mechanically strong so I use them as often as possible.

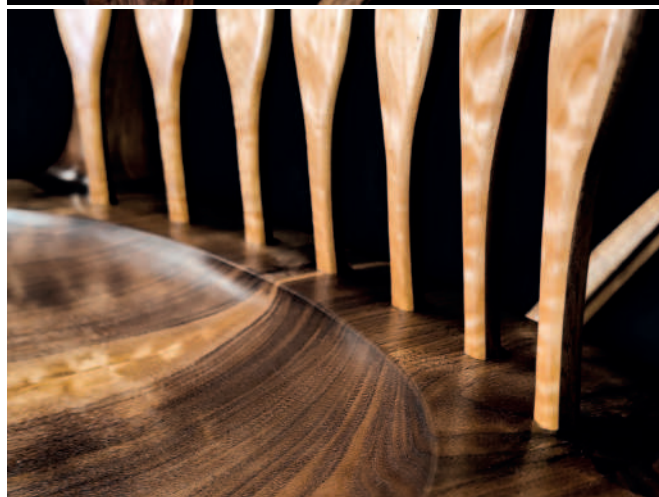
One of the most important additions to my tool set was the Kutzall discs, dishes and ball nose burrs. These are tools used for carving wood. They are capable of delicate shaping and major wood removal. They are integral to the shapes I create. I use these on almost everything I build, similar to the Festool RO90 and RO150 sanders. They are very important in my shop: the RO mode simulates a grinder and has revolutionised my shaping ability. I am starting to use hand tools more often. I really like shaping with rasps where a power tool cannot reach. I also find hand planes can be a very effective way to refine a joint to get it as tight as possible.

Are there any you avoid?

CNCs, simply because I can't afford one! I avoid chop saws because it's hard to get a perfectly square cut. When I make joints, no gap is acceptable. I don't avoid hand tools, I just need to get better at using them. I think makers who use hand tools are on another level – I aspire to be at such a level one day. I love my sanders for shaping but I have learned to be very careful with them. Sanders do not tend to create flat square surfaces like a hand plane, so you can end up rounding a piece or a joint and ruining it.

You have a particular focus on rocking chairs – what drew you to them and what do you like most about making them?

I love sitting in a rocking chair. I find it incredibly relaxing. It positions my body in a healthy posture. What drew me to rockers was the fact that it was not obvious to me how they were created. I remember seeing a Sam Maloof rocker and I couldn't figure out how the joints were made to be so tight and yet surrounded by curves. There were curves from the front, the side and the top. Shapes that seemed completely unimaginable and somehow all the joints were square and tight. Once I learned the secret, I loved it even more because it was genius. Overall, I love the complexity of a rocking chair, the beauty of the finished product and the feel of getting to sit in one.



PHOTOGRAPHS UNLESS STATED DALLAS GARA

What are the biggest challenges in making rocking chairs?

Rocking chairs have been made for hundreds of years so it's difficult to be original in design. Makers like Sam Maloof and Hal Taylor created beautiful chairs and it can be challenging to find your own unique voice in this space.

As for the physical creation of a rocker, there are many challenges. Like a regular chair, there are many dimensions that need to be exact and once you start the basic assembly, you quickly lose frame of reference. For example, when you attach the two back legs, are the joints exact and do the two legs sit at exactly the same angle? For all the following joints to fit perfectly, the angles from one side to the next need to be symmetrical. So initial joint accuracy can really affect the rest of the joinery and the final outcome.

Weight has to be distributed perfectly. I like a chair, without a person in it, to sit at about 13 degrees relative to the ground. If a headrest or seat is too heavy it will sit too far back or too far forward. The rockers need to be perfectly flat and symmetrical to obtain good oscillation. The back braces need to be strong but also flexible. They need to bend to the shape of a person's body but be strong enough to tolerate constant flexion. The chair needs to be beautiful but comfortable. The shapes need to contour to a person's body but also look nice and adhere to construction that will last for decades.

Another challenge is that the materials to create a rocker can be quite costly. For instance, like Hal Taylor, I prefer my seats to be made of two pieces of wood. Sam Maloof used five. For that reason, you need a piece of very beautiful wood, usually figured, that is about 11in wide and 46in long. Where I live, that is hard to find. Once you have achieved all of that, your design needs to be unique and inspiring. So many elements need to be perfect to create a rocking chair.

Do you have any advice for *F&C* readers who might like to try making rocking chairs?

I highly recommend trying it. It's one of the greater challenges in woodworking because so many elements need to be precise. It involves a great number of different techniques that can be applied to many other projects. Because of the complexity it also affords the ability to be creative. A rocking chair is also a piece of furniture you can interact with. You sit in it, you relax in it, you touch it, it's an extremely live piece of furniture that looks beautiful and is highly functional in a home.

Tell us about your workshop – what is the set-up, how long have you been there and will you be staying?

My shop is a 22 x 24ft garage. It's cold in the winter and hot in the summer. A good portion of the space is consumed by my collection of figured and rare woods. The rest is filled with tools and ongoing projects. My work space is tight, I have had people say: 'I cannot believe you make this stuff in here.' But it works. It's cost effective and very easy to access in a 10-second walk from my back door. I have a 16in jointer-planer combo, essential for rockers in my opinion. I have a 14in and a 22in bandsaw, both of which I use often. I have a 12in chop saw for rough cuts, a SawStop tablesaw for safety and a collection of custom sleds. I have two dust collectors and a 25in drum sander. I have three table routers and a bench with a granite top. You just can't beat

granite for flatness! I have a large collection of Festool sanders, routers and joiners. I have a large collection of grinders adorned with Kutzall dishes and discs for shaping my projects. I have several Rubbermaid tubs full of custom-made jigs to complement my routers. Papers and books are all over the place with sketches and designs of what I have made or dream of making some day. I often send pictures of my sketches to people who want to try out a design I made. I have a radio for inspiration and various snacks hidden throughout the shop. Would I like more space? Yes, but for now, I am happy. I get to do what I love to do.

How does your design process work?

I usually sketch a design first. I do my best to draw what I am thinking about. It's rough, but sufficient. I will then start to build and as I progress the shapes might change. If I feel a little more curve is necessary here or there, I let it happen. Once I am finished with that piece, I will take what I love about it and put it into the next piece. That's how my rockers have evolved: I take the elements I like to each following piece and slowly my own designs have evolved. Some clients do provide sketches. If that is the case, I do my best to honour what they are looking for and try to adhere to that design, even if it is nearly impossible.

Which woods do you most like working with?

I use hardwoods, domestic and exotic. I really like walnut and cherry – they are forgiving and beautiful, not oily or waxy. They cut and glue easily and are kind on tools. I spend a lot of time searching for figured woods like walnut and cherry. I search all over Canada and the US. Recently I found a wood store in my city that has an unbelievable selection of wood called @woodcache. They make incredible furniture and also get some of the nicest wood I have ever seen. I was able to buy some amazing ziricote, wenge, figured maple and almost an entire lift of curly walnut. A life-changing discovery.

Do you work with other materials as well as wood?

Not very often, although I did make an epoxy and cottonwood rocker a few years ago. The final product was amazing. I really liked how it turned out, but it was very difficult to make. I made a huge mess in my shop and it took me about twice as long to complete and about three times the cost of a regular rocker. I generally stick to wood.

What sort of finishes do you prefer?

I prefer to use what is called Maloof Mix: thirds of boiled linseed oil, tung oil and General Finishes Arm-R-Seal. You wipe the oil on and let it sit for about 15 minutes, depending on the heat of your shop. You then wipe it off very thoroughly. I will repeat this process two or three times, depending on the wood.

What is your favourite project you have worked on?

I absolutely love building rocking chairs. I love designing them. I love laying the templates out on the wood to extract the most beautiful colour and figure. I love carving the joints and intersections and shaping each piece to fit a person's body. The final products are beautiful and interactive. It's truly the piece that I am most comfortable building.





What is the most challenging project you have worked on?

In 2021 I built a curly cherry desk. It was heavily sculpted to be smooth and curvy. The client wanted dual drawers on each side, which made it very difficult to engineer and be sufficiently sturdy. I was able to build an internal skeleton that did the job. The desk was meant to be used on each side, so the computer cables needed to go somewhere. The top of the desk had to be dynamic to allow for expansion and contraction. I ended up making the top outside edges static and the middle disconnected and floating. The cables would go through a gap in the middle of the top and the movement would also occur in this gap. This desk took me over a year to build. It stretched my abilities to the max. I was really pleased with the end result. I feel like it was one of the more beautiful things I have ever made and I have never seen another desk like it.

Do you prefer working commissioned work or your own collection?

I like doing commissions because it has the potential to push me outside my comfort zone and try new things. It can be fun and challenging to bring a person's idea to reality. It's also nice to know you have a buyer for a piece. One tough aspect, however, is the extra time needed to design and engineer what they are looking for. It is easier to build something you have built before because you already know how to do it. It is also a bit harder because you are more prone to making mistakes on something you have never made before, and it could also cost you more than expected.

In contrast, I really like building things that I dream up or have made before. There is a comfort in being able to work at your own pace and make any changes you want. You can be a little more artistic and even experiment. So, there are pros and cons to each. In an ideal world I would build whatever I wanted and put it in a gallery and wait for it to sell. However, for that I think you need to be a more well-known artist and have your pieces sought after.

What proportion of your business is commission-based?

At the moment I would say that half of what I do is commission-based. How long that will last will likely depend on my day job. Working a full-time day job doesn't leave a lot of time for woodworking. I feel that if I continue my day job, I would like to do less commission work. I say this because commission work allows for less experimenting. It is my goal in the coming years to define my personal style a lot more. To do that I need to be able to spend more time with my own designs and ideas. If something happened and my day job was no longer a part of my life, I would have more time to make my own designs and take on more commission work. Plus, to survive as a woodworker I think it's necessary to take on commission work for a more solid and consistent income.

How do you go about working on commissions?

I usually start by having the client sketch what they want or send a picture showing generally what they are hoping for. I ask about the space they want to fill. I ask about colours that would be complementary in their home and try to get a sense of what style they like. Once I get that basic information, I will draw up some sketches and go back and forth with them to get the item settled upon. I will send pictures of pieces I have made in the past to give them a sense of what different woods will be like with respect to final colour.

Some clients just want to see the piece when it's completed and others want updates as I build the item. It can be stressful – you want so badly to make the customer happy. For that reason, it's so nice to sell a piece that is already made, the customer can see it and touch it and know exactly what they are getting. When you deliver a piece, you are always wondering, do they really love it?

You also teach – tell us a bit about that please.

In my day job as a geophysicist, I have had the opportunity to work with summer students and also with people outside of my



discipline. I have had the opportunity to mentor students and share my knowledge with them. I have also built several 'lunch and learn' presentations where I get to introduce those outside of my discipline to what geophysics is. I really enjoy this. When I became a woodworker, I found I really liked explaining things to others. I would show them in person or email instructions and photos, but with the pandemic, I decided to start a YouTube channel. My videos show various techniques or tools: how I made certain joinery or how I finish a piece. Unfortunately, with a full-time job and my own woodworking projects, it's hard to find time to film, edit and post videos. I hope to make more time for this in future.

What do you like best: teaching or building furniture?

I really like explaining things. I like to draw images to explain what I am trying to teach. I find it very effective. When I was learning about woodworking I watched a lot of YouTube videos and I found them very helpful. In some instances, however, I did find that some crucial steps might be left out and I wouldn't fully understand a process. It has been my goal with my videos to be very thorough and precise. I have gotten some really great feedback that supports that effort. I hope to continue and get better and share more of my learnings.

What are you working on now and next?

Currently I am working on four rocking chairs, six walnut bar stools and two small walnut boxes. Two of the rockers will be made of walnut and are prototypes. One is a more simplistic design I hope to one day sell templates for, but I need to perfect it first. The other two are going to be made of cherry and walnut and are similar to designs I have made in the past. I just drew up a fifth rocker as well – I wasn't going to start it, but I am too excited and I don't think I can wait! It is going to be made of ziricote, which is very difficult to work with because it is waxy and very hard to find. It also costs about CA\$90 a board foot, so you can't afford to make any mistakes.

Where do you see your work going in the future?

Reality is no fun to talk about. In my wildest dreams I would become known for making chairs. I love building them. I love sitting in a comfortable chair at the end of a day and I simply love designing them. Woodworking is very difficult to make a living at. You have to work very hard and be able to build a lot of different pieces to stay busy and earn an income. There are those, however, that have become known for their work and it is considered art. They are able to charge a premium because their work is considered an heirloom item; their creations are not only functional but also pieces of art. That would be my dream. Professionally built rockers that are sought after for their comfort and artistic value, and a YouTube channel teaching other woodworkers how to make them.

Has the Covid-19 pandemic affected your business?

I felt lucky that my business wasn't affected too much by Covid. I like to keep a good inventory of wood in my shop and wasn't able to go to wood stores as often. I received more requests for work, as I think people were at home more and looking to add functionality to their spaces. I also started to post more videos on YouTube. Being at home more meant I was able to dedicate extra time to filming and editing. Overall, I feel very fortunate to have had limited impact compared to so many others.

What do you do when you're not working?

I do my full-time day job in geophysics. It is a difficult and challenging occupation, but I truly love it. I work all day and woodwork in my evenings and weekends. I also dabble in kickboxing, playing the guitar, kayaking, riding bike trials, fishing, drawing, spending time with family, friends, my wife and my dogs – I have a lot of energy!

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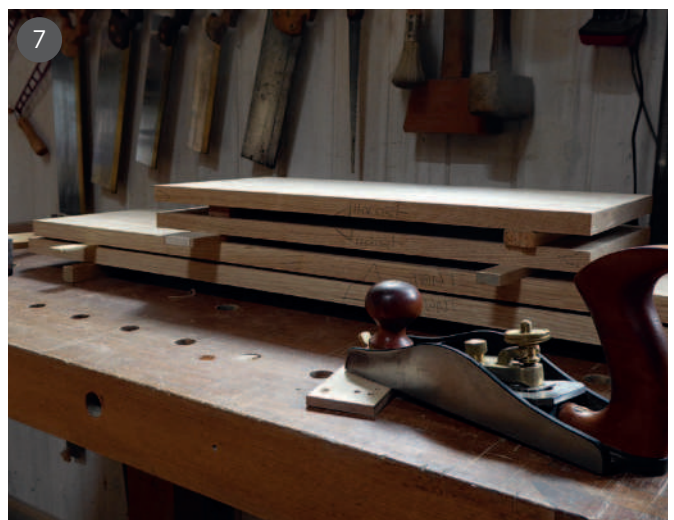


OAK WALL CUPBOARD

ISRAEL MARTIN DESCRIBES HOW HE USED HAND TOOLS
TO MAKE WALL STORAGE FOR HIS KITCHEN

I built this cupboard four years ago to use in my own kitchen. I didn't need a fancy piece, just a simple and useful one. I chose oak for the carcass and a cherry offcut to make the middle drawer. I made the carcass with through dovetails and dados for the thinner divisions. I added two front stiles to match the thickness of the carcass sides, and joined them with mortise and tenons. I used Danish oil and wax to finish the piece.







1 The timber in the workshop, ready to start the job 2 Sawing the wood to length 3 Most of the pieces cut to length
4 Planing a reference face 5 Planing a reference edge 6 Planing the parallel face to the reference face 7 The carcass pieces before joinery
8 Making the rebate to then make the tails 9 Sawing the tails 10 Working the shoulders of the tails 11 Transferring the tails to get the pins

DIMENSIONING THE WOOD BY HAND

Starting a project by hand means a lot of preparation work. I like to make the pieces for the carcass first, then start working on the carcass joinery and then prepare the rest of the pieces. That way I don't get too bored of hand planing. First I cut the boards to length, then make one reference face and a reference edge. Once I have the references I use the cutting gauge to mark the opposite face and edge and plane them to the knife line. Then with the square I mark the length and hand plane it to the line. I do that for every piece of wood that I'm going to use in the piece I'm working on.

CARCASS JOINERY

When I'm working with long pieces I like to make a rebate at the end of the boards, and then make the tails. The rebate allows me to better place the piece in order to transfer the tails to get the pins. I cut the tails to the line because whatever I make here is what I will transfer to the other board. Then when I have to cut the tails, I cut into the waste and trim the pins with the chisel to the line, test fit and work on them until I have a nice fit.

For the divisions I decided to work with thinner pieces, and joined them with simple dados, making the piece a little lighter. To match the thickness of the divisions with the carcass sides, I used thicker stiles and joined them with mortise and tenons, and also glued them to the thinner divisions.

DOORS

When making doors, I prepare the rails and stiles first, then work on the joinery and then the panels. The joinery was haunched mortise and tenons.

I started by making all the marks for the mortises and tenons and after that I made the grooves for the panels on all of the pieces. Then to make the mortises I used the hand drill to make holes so that I can work on the mortises with the chisels, instead of working directly with mortise chisels. I find this way faster. Then I worked on the tenons, first with the saw and then trimmed the tenon thickness with the router plane, to the knife lines.

The panels are bevelled and fit tight into the grooves. I took care to make sure the panels were tight enough at the top and bottom ends so when the wood shrinks they don't get too loose.





12 Test fit of the dovetails 13 Rebate for division and the mortise for the stile 14 The stile and divisions 15 Making the grooves for the panels 16 Detail of the haunch that will cover the groove 17 Detail of the mortise fit 18 The bevelled panel 19 Testing the door before glue-up 20 Gluing up the doors 21 The shelves in place 22 The ebony door pull 23 The drawer dovetails and ebony drawer pull

Then I glued them, and at the end I cut the 'horns' that prevent cracking the wood while working on the mortises or fitting the joinery. I planed and adjusted the door in place and added the hinges.

SHELVES AND DRAWERS

I used thin shelves to reduce the weight of the piece. And because the shelves were so light I used old brass screws with drop-shaped heads as pins to hold them. With a gauge I made a recess in the shelves so that the screws aren't seen.

For the drawer, I used a cherry offcut for the front and maple offcuts for the sides and back. I used quartersawn pine for the drawer bottom. The drawer and door pulls were made out of ebony. The result was a simple piece with just the drawer front and the pulls as small decorative details.





SOFA BACK RESTORATION

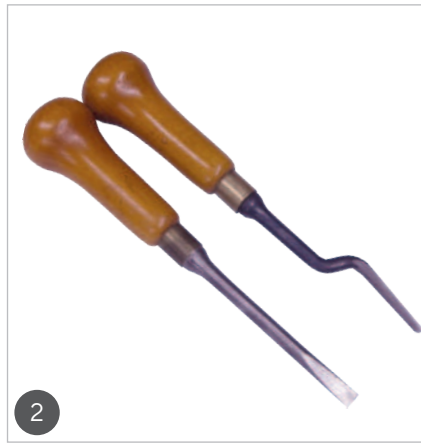
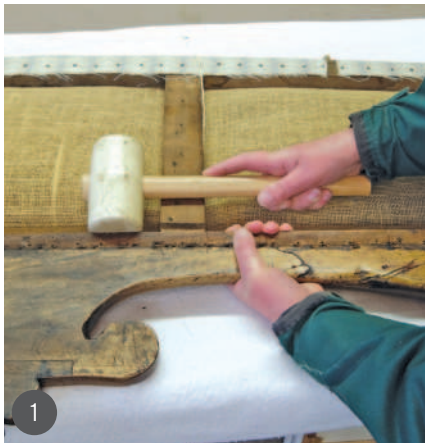
LOUISE BIGGS TACKLES A CHALLENGING REPAIR ON AN UPHOLSTERED SOFA

My clients contacted me about their sofa, which had a very unstable back. There was a visible break in the top rail, but something more than just that was causing the problem. I released the two screws which held the back in place to find that the back cover would need to be removed to find out what was going on with the joints. Once that was done it was evident that to make a strong, effective repair there was no option but to remove the upholstery from the front.

ASSESSING THE DAMAGE

- The top rail had broken at the point where one of the uprights was joined (A & B).
- The same side of the top rail had previously suffered an extensive break.
- The four vertical rails were all loose in the top and bottom rails.
- The front bottom edge which forms the rebate to which the upholstery is attached was badly cracked and broken (C).
- The sofa back was held in place with locating dowels across the bottom edge and two screws through each end into the arms.





PHOTOGRAPHS BY LOUISE BIGGS

STAGES OF RESTORATION

1 The braid and back cover were carefully removed using an upholstery ripping chisel and mallet. The upholstery on the front was peeled back, releasing what was necessary to reveal the joints. The top rail was knocked off the uprights using a rubber mallet while supporting the break, before removing the four uprights.

2 These upholstery ripping chisels are made specifically for removing traditional tacked upholstery. They are designed to get under the tack head to ease the tack out of the timber without damaging the fabric, calico or hessian used in traditional upholstery. They are best used with the grain, which releases the tack from the timber without causing any further damage. Two versions are available: straight or cranked, with two handle shapes, London-style (bulged to help prevent damage to hands) as shown, or the Osborne Amber pattern.

3 The old glue was removed from both sections of the top rail using a chisel, being careful not to remove any timber. At the feathered edges of the break the glue was gently warmed with hot water to prevent breaking the thin timber. At the same time the mortise and tenon joints were cleaned up.

4 When the old glue was removed the break came tightly together. The break was glued with hide glue and clamped, making sure to keep the bottom edge straight. To help with keeping the top rail straight, one half was clamped to a waste board and the other section glued and brought into position before being clamped in both directions.

5 A rebate was cut on both sides of the bottom edge, into which the upholstery was tacked. On the front rebate there was extensive breakout either end of the rail and at the point where the break had occurred. After assessing all of the broken areas I decided to inset sections

of timber across the mortise and other areas, which would create a stronger end result.

6 The positions of the mortises were transferred on to the back rebate using a square before a dovetail cutter in a hand-held router was used to cut out a rebate, extending past the damage. The rebate was cut up to the bead on the bottom edge of the show wood. This created an angle up under the show wood which would help to lock the inset timber in place. As in step 7, once these rebates were cut out the top rail was supported on a piece of waste board.

7 With two breaks on the same side, the top rail had been severely weakened, the infill section of timber was therefore cut across both breaks, repairing the rebate and strengthening the rail at the same time. The ends of the rebate, initially cut with the router, were squared up using a chisel while keeping the angle to further lock the new section in place.



8 Pieces of old mahogany were initially cut and planed slightly wider and longer than the required size to allow for the angles to be cut. The angles on the end were cut using a dovetail saw. The top edge was planed to the corresponding angle to achieve a tight fit when installed on the top rail.

9 Once all the pieces were fitted they were glued and clamped in place with the support board still behind to keep the rail straight, with newspaper placed between the rail and board to prevent them sticking together. Once dry, the pieces were planed back level to the surrounding timber.

10 On the other end of the rail there was just a small section broken out due to the upholstery tacks. With a mortise so close to the end, this area was also shaped to a curve to match the arm. The small

piece of infill timber was cut with two angles using a dovetail saw, which locked the piece in place and would prevent it twisting off. The angles were trimmed using a chisel for a tight fit.

11 Small diameter holes were drilled at opposing angles through the breaks and the new pieces of timber and small dowels glued and inserted. Although glued and repaired, with two breaks so close together the top rail would still be susceptible to further damage and the dowels added just a bit more security.

12 Using a square the positions of the mortises were transferred back from the back rebate and the thickness marked with a mortise gauge. A chisel and mallet were used to re-cut the mortise through the timber infills, with the uprights being test-fitted.

13 A trial fit was carried out and clamped to check that everything came back together correctly. The uprights and top rail were then glued in place. Before knocking the frame apart, measurements had been taken across the diagonals. Adjusting the clamps as required, the frame was pulled so that the diagonals matched the measurements, ensuring that the back frame would fit back in place.

14 The repairs around the breaks were stained and polished to match before being waxed. The upholstery was then reinstated on the front, and the back cover and braids replaced.

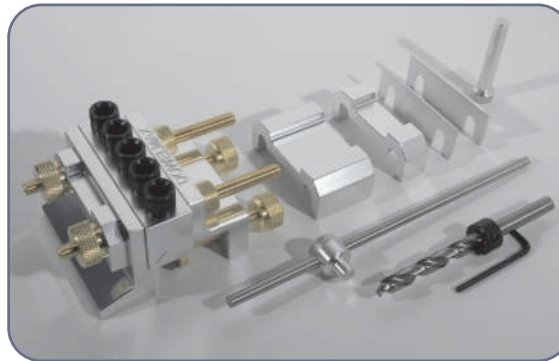
15 Finally, the back was fitted into position on the sofa and the screws inserted. The whole assembly was stable and, with the steps taken, should be strong enough to resume daily use of the sofa.

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QUADRANT BOX

MITCH PEACOCK MAKES A QUARTER CIRCLE BOX FROM FIREWOOD

When thinking of ways to use small amounts of wood, whether offcuts from a large project or interestingly figured pieces that I've acquired, boxes are often the first options that come to mind. Indeed, I rarely purchase wood specifically for boxes, yet I've made many over the years.

Boxes are also great for practising new techniques or polishing up old ones, and for trying things out in preparation for future builds. On this occasion, I was contemplating ways to safely bend spalted wood, which often fails due to its reduced strength.

MATERIALS

1 A short section of a partly spalted ash quarter log provided all the solid wood needed for this 200mm radius quadrant box. What would otherwise have been destined for the log burner was hand-milled into blanks from which to cut the straight sides, laminations for the curved side, and the decorative fan for the top. The base and sub-top were made from MDF.

PREPARATION

2 The quarter log was initially broken down into two boards, which were each flattened and prepared to maximum thickness at the bench.





PHOTOGRAPHS BY MITCH PEACOCK

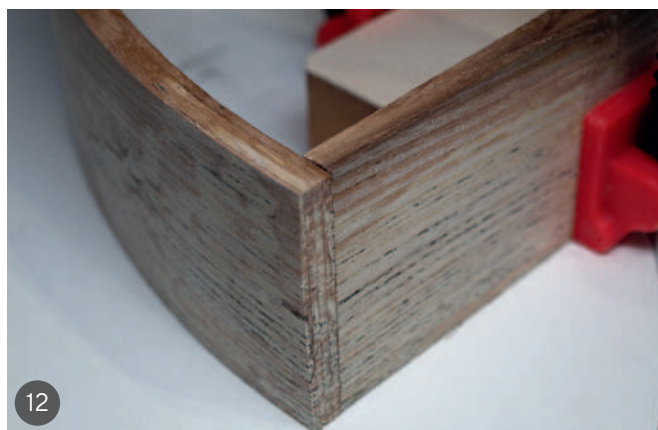
3 Before breaking down further, these boards were squared all round. This provided the best guide for sizing the final components, and surfaces that could be easily marked for accurate hand-sawing.

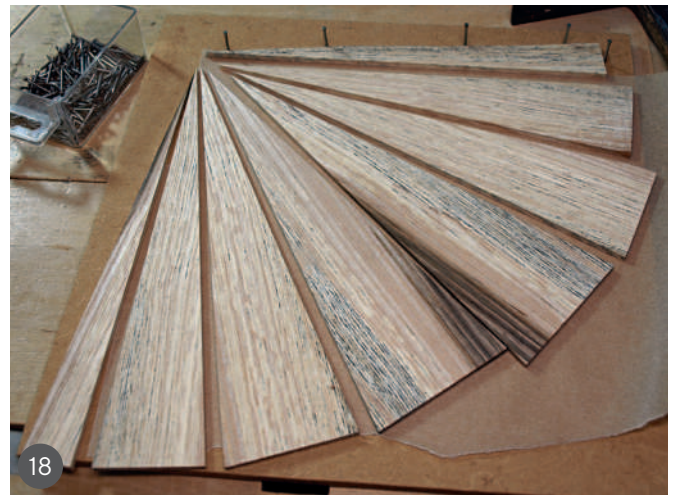
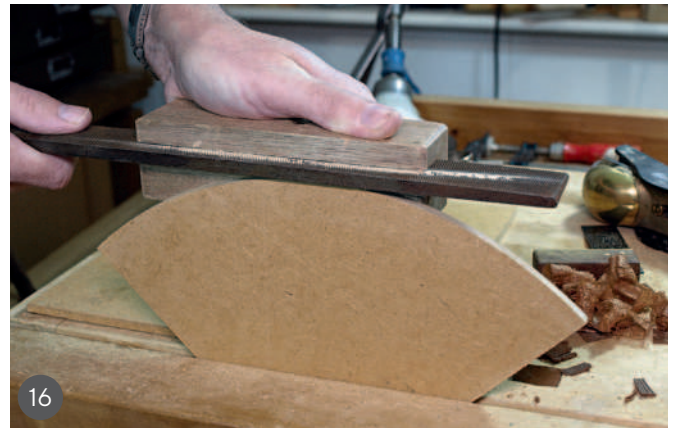
4 I knew that steam bending the spalted ash would almost certainly fail; I've had previous experience with the same material, and you don't forget spectacular failures! My hope was that thin strips could be gently persuaded to conform to

the curve I wanted, and so several were ripped from one of the boards and the saw marks planed off.

5 With the strip length known, I began making a bending form, starting with laying out a section of a circle on some chipboard.

6 The section was copied to more chipboard and MDF pieces, which were glued together and planed to a smooth curve, about three-eighths of a circle in length.





7 In order to bend and clamp the laminated curve when glued, angled notches were sawn into the rear of the bending form. These would allow clamp faces to be parallel, and not slide loose, when tightened.

8 I glued and screwed the bending form to a base to help align the strips during lamination. With the benefit of hindsight, just screwing it on would have been better, allowing it to be used later for truing up the edges and ends of the laminated curve.

9 Pre-bending individual strips in advance of laminating isn't new, but rather than the usual steam-box softening idea, I chose to use direct heat from an iron. I reasoned that softer areas of spalting become too fragile during extended exposure to steam, and that direct heat alone, or with water wiped on immediately before, would reduce failure. Whether the reasoning was right or not, the result was that all the strips were successfully pre-bent to a point where they could be bent en masse to the curve I wanted.

10 After gluing and 24 hours in clamps, the lamination remained curved as desired.

11 The edges of the curve were trued up so that it would lay flat and square on the bench.

12 In preparation for joints, the ends of the curved side were shot square using a block plane and a shooting board.

13 All the sides were joined with through dovetails, using the 'tails first' approach and ensuring the final straight side had tails at each end.

14 Transferring tail layout from a straight side to the curved side was easy, once a suitable way of holding the pieces aligned was worked out.

15 Once glued, the pins and tails were flushed to the sides, and the surfaces smoothed.

16 I chose to fit a very simple inset base and sub-top, both scribed from the inside of the assembled box body. The base was filed to a press fit, and the sub-top to a sliding fit.

17 The base was glued in flush, and covered in a self-adhesive baize.

18 The remaining material was sawn and planed into pie-slices to cover the top. The pieces were glued together and held with pins, with waxed paper above and below, and weighted down flat until cured.



19 The top was scraped clean of glue ...

20 ... and then sized to fit the box. As you can see, there wasn't much waste left.

21 The bottom of the box and the underside of the lid were lined with more baize.

22 The finished box, with three coats of shellac, and waxed on the outside.

IN CONCLUSION

As hoped, I'm now more confident of successfully creating curves from spalted wood, but I've also ended up with a lovely little box.



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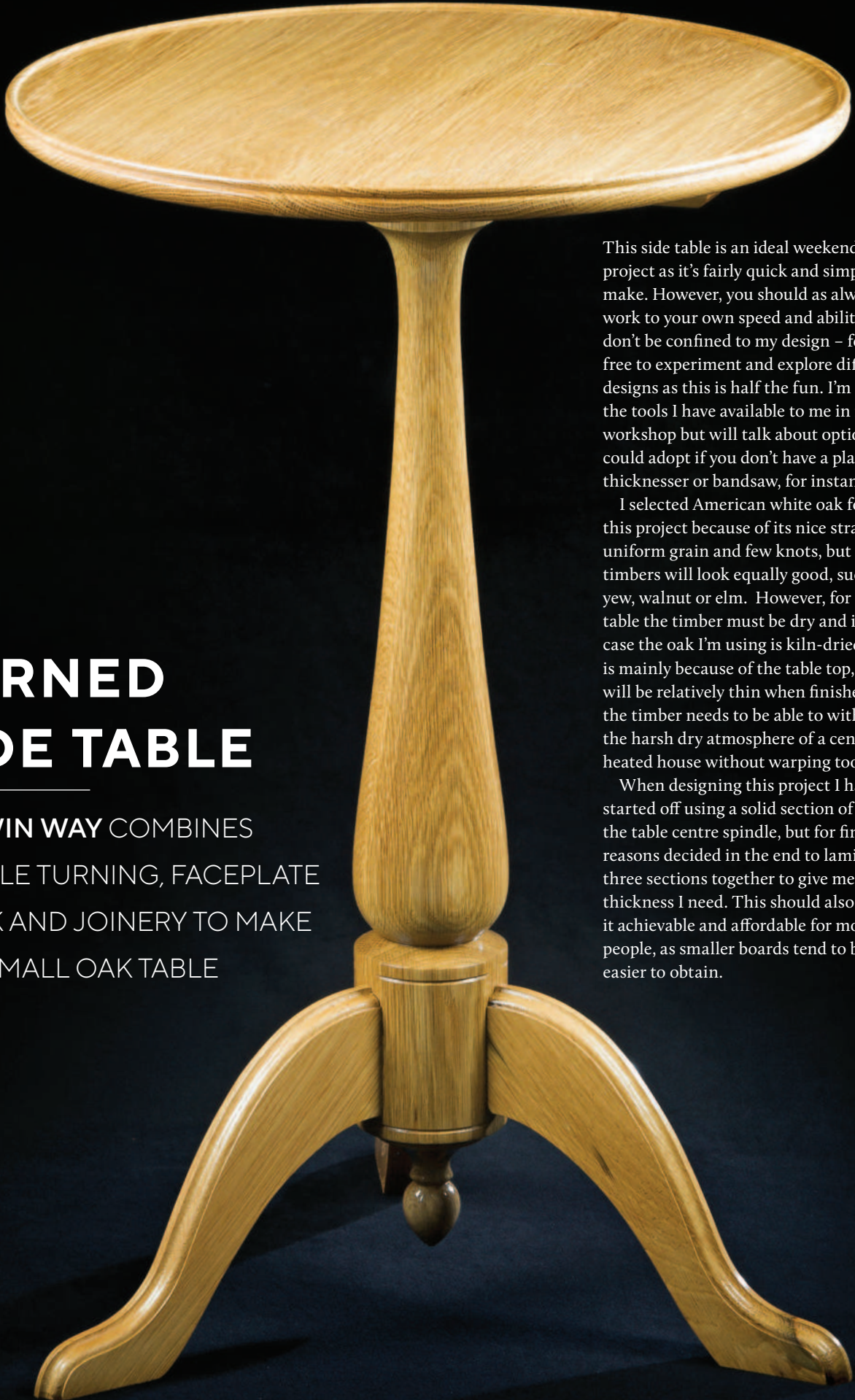
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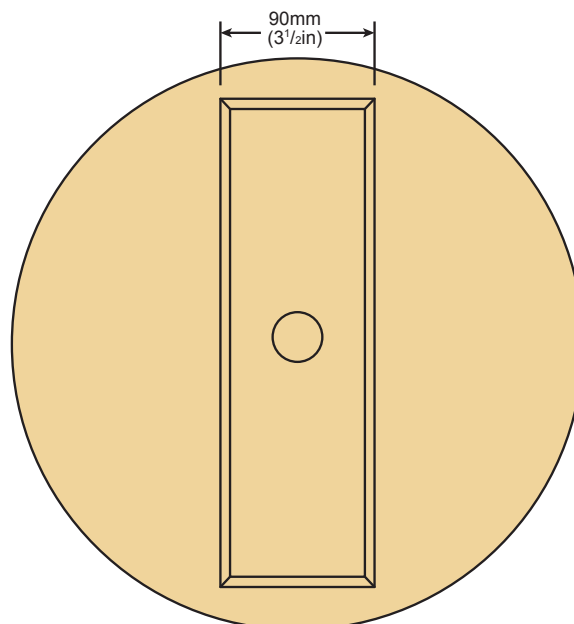
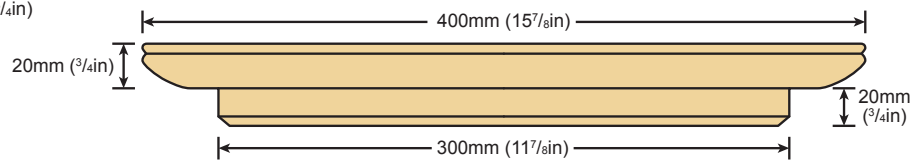
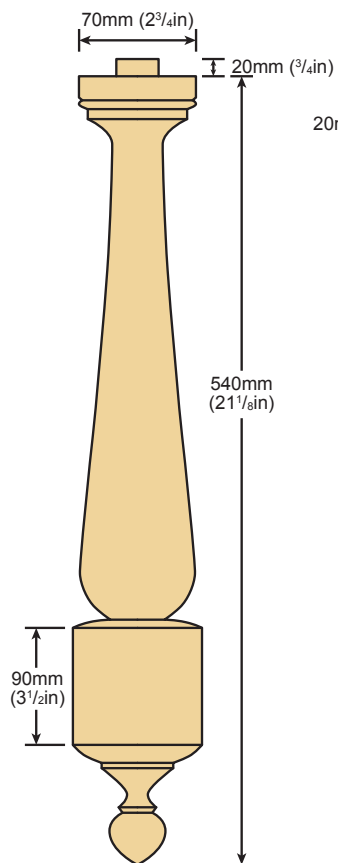
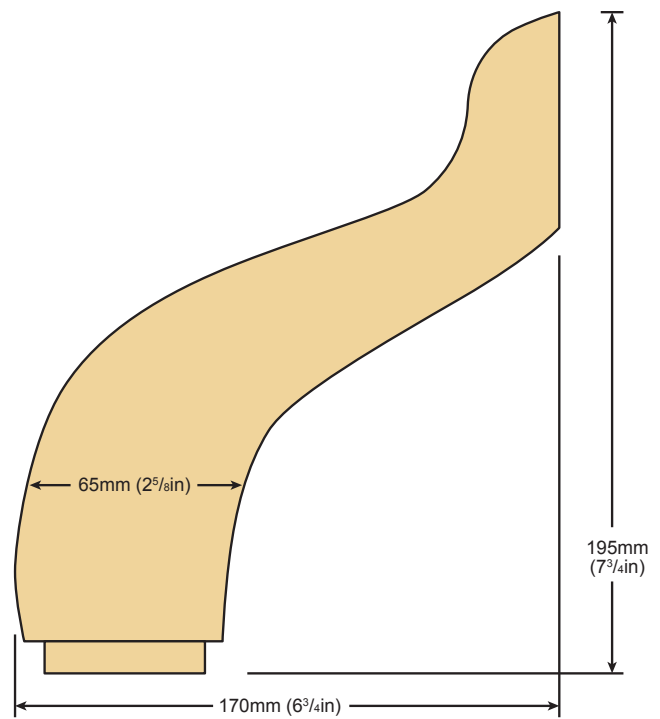
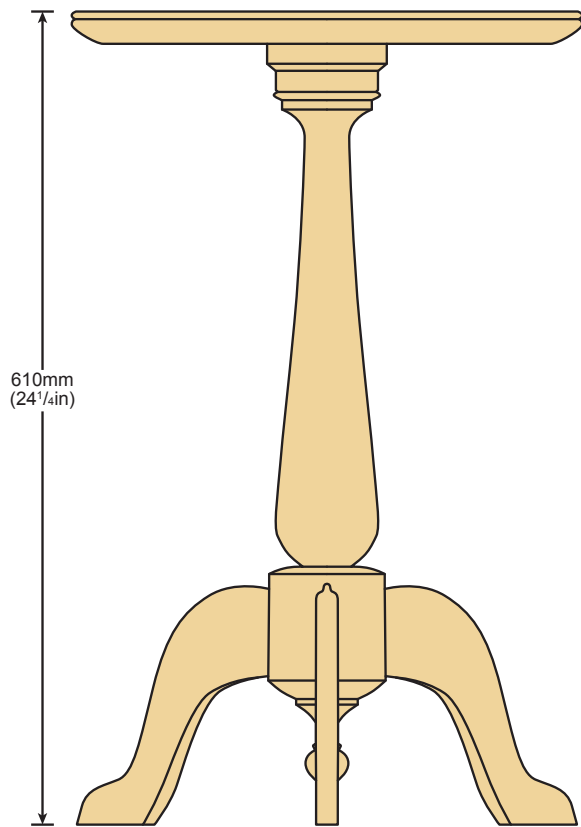
TURNED SIDE TABLE

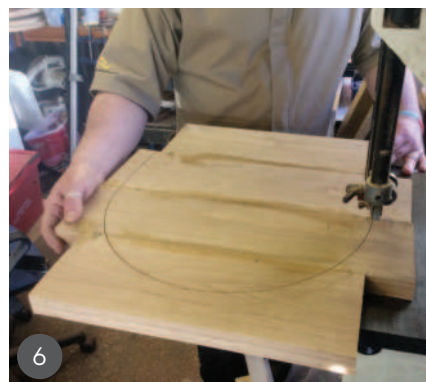
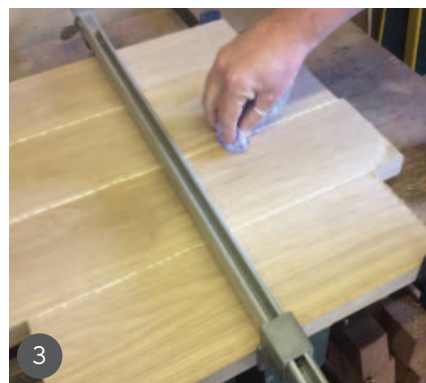
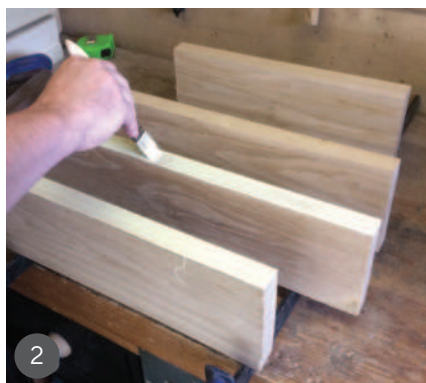
COLWIN WAY COMBINES
SPINDLE TURNING, FACEPLATE
WORK AND JOINERY TO MAKE
THIS SMALL OAK TABLE

This side table is an ideal weekend project as it's fairly quick and simple to make. However, you should as always work to your own speed and ability, and don't be confined to my design – feel free to experiment and explore different designs as this is half the fun. I'm using the tools I have available to me in my workshop but will talk about options you could adopt if you don't have a planer thicknesser or bandsaw, for instance.

I selected American white oak for this project because of its nice straight uniform grain and few knots, but many timbers will look equally good, such as yew, walnut or elm. However, for this table the timber must be dry and in this case the oak I'm using is kiln-dried. This is mainly because of the table top, which will be relatively thin when finished so the timber needs to be able to withstand the harsh dry atmosphere of a central heated house without warping too much.

When designing this project I had started off using a solid section of oak for the table centre spindle, but for financial reasons decided in the end to laminate three sections together to give me the thickness I need. This should also make it achievable and affordable for most people, as smaller boards tend to be easier to obtain.





PHOTOGRAPHS BY COLWIN WAY

YOU WILL NEED

- Sash clamps
- G clamps
- PVA glue
- 40mm Forstner bit
- Callipers
- Dividers
- 8mm lip and spur bit
- Square
- 6mm bowl gouge
- 10mm bowl gouge
- 30mm skew chisel
- Sanding bobbin
- Router
- Chamfer router cutter
- Ogee router cutter
- Straight flute router cutter
- Rule
- 6mm MDF for template
- 8mm flat mortise chisel
- 20mm flat mortise chisel
- Abrasive 100-400 grit

PREPARING THE TIMBER

1 I prefer to buy rough-sawn timber and prepare it myself, however if you don't have access to a planer or thicknesser, most timber yards offer a planing service. I've already surface-planed one face of my boards and am now thicknessing down to

my desired thickness. After planing and thicknessing, true the edges to the faces to make sure the boards are perfectly at 90° to the face. This is absolutely key when gluing up several boards together to keep them flat.

2 When everything has been prepared and the edges are true you can start the gluing-up process. First, however, dry-fit everything together and adjust any clamps ready at the right position to start clamping – this will save time and mess when the timber is covered in glue. Paint the glue on to the edges, wiping off any excess as you go, then lay the boards down and position them together. Tighten your sash clamps slowly, doing a turn on each to avoid slipping. Keep an eye on the boards to make sure they stay flush.

3 To prevent the boards bowing or cupping I always add a clamp or two on the opposite side to the main clamps. When you're happy with the joints and the glue is evenly seeping from the joints, clean up with warm water and a rag. It's easier to do this at this stage rather than when the glue is dry.

4 Here you can see the centre spindle of the table all glued up together with plenty of G clamps giving a good even pressure. All of the glued sections now need to be left overnight to properly set before removing the clamps. I've used a good quality PVA glue as I find it easy to apply and wipe clean during the gluing operation.

5 Once the glue has set you can remove all the clamps and prepare the sections for the lathe. First, set the bandsaw to remove the corners from the centre spindle, which will make roughing down much easier, however this step can be skipped if you want to and just means that you have a little bit more to do on the lathe.

6 Next we move on to the table top itself. Using a set of dividers, mark a circle to 400mm (this is 5mm smaller than the max swing on my lathe). Use a bandsaw to cut out the circle, keeping close to the scribed line. Note the bandsaw guides are down close to the timber. This does two things: it keeps the blade guide close to the working area and supporting the blade, but most importantly it keeps any unused area of the blade covered. If you



don't own or have access to a bandsaw then a jigsaw will work perfectly well.

TURNING THE MAIN SPINDLE

7 Now let's start turning! Mount the table spindle to the lathe using a four-prong drive and a revolving tailstock centre. You can clearly see here the eight-sided section we prepared earlier, the toolrest is positioned overhanging one side and just below centre point.

8 To rough down long sections without a double-stem toolrest, overhang one side of the timber by about 25mm and rough down to a cylinder before moving the toolrest along, making sure you turn the lathe off when doing so.

9 One of the first jobs when turning the spindle is to make the tenon that will be used to fix to the table top. This needs to be a good fit, so drilling a tester hole in a scrap piece of timber is recommended. Using a set of callipers, adjust them to fit over the Forstner bit you're using, then in turn size the first 5mm of your tenon. When you get this first section fitting well you can continue to size the rest of the tenon. This gives a bit of room for error and a second

chance, just in case you take a bit too much off the diameter on your first attempt.

10 You can now carry on and turn the rest of your spindle. Here you can see me turning the detail on the bottom of the spindle. The large flat area is for adding the mortises later and the measurements for all of these sections can be found on the line drawings. The drawings are there for you to copy if you want to but try to put your own stamp on the design somewhere, even if it's just a slight change to a bead or cove.

11 The spindle is now ready for sanding. Work through the grades 100-400, stopping periodically to check, and hand-sand with the grain. Always be sure to remove the toolrest when sanding to keep your fingers from being pinched.

PREPARING AND CUTTING THE MORTISE

12 Draw a straight line in preparation for marking out the mortise positions. Most lathes have an indexing feature of some sort which we're going to use here. Indexing works by dividing the positions you can stop the lathe into 36 points and



we're going to divide these 36 points into three positions, which simply means multiples of 12. Start at an index point and lock the lathe, use the toolrest to draw a straight line along the point you're going to cut your mortise. Now count 12 positions and draw another line then another 12 positions and a third line, another 12 positions which should take you back to the start.

13 Now the spindle has been indexed we can decide how wide to cut our mortise. I'm going for 55mm wide, which will match the width of the tenon on our legs. Plot the width on to the spindle with a pencil line.



14 Now we're going to cut our mortises into the table spindle. If you have a mortiser this job will be a lot easier, however I don't so I'm going to have to adapt the task to my tools. I'm using a V block made from a piece of scrap wood big enough to take the spindle. Carefully position the spindle so the first indexed mark is facing directly upright and, using the 55mm pencil marks you've added earlier and the indexed line, start drilling a series of 8mm holes using a lip and spur bit. Set the drill stop to a depth of 25mm.

15 Repeat the drilling process on all of the mortise positions before returning the spindle to the lathe. It's important to keep the drill holes close together when drilling the mortise, as this will help when removing the waste with a chisel. Lock your lathe in position and take small cuts with a sharp chisel to open the tenon to a constant 8mm clean mortise, then put aside until the legs have been made and the mortise properly sized.



THE TABLE TOP

16 I've prepared a rectangular piece of timber to act as a brace for the underside of the table, this brace will also house the 40mm hole for the spindle tenon. Find the centre with a square and marking gauge then mark with a bradawl.

17 Using the marked centre, drill a hole at 40mm diameter all the way through the brace. Support the brace with a piece of scrap wood and, if needed, use a clamp to hold the piece tightly down to the pillar drill bed.

18 Here you can see how the brace will work across the grain of the table top to help keep the timber flat. The brace will be drilled and screwed into the underside of the table and not glued. Leave the brace to one side and let's start turning the table top.

19 The prepared table top blank starts off at 30mm thick, giving me plenty of timber to secure with a faceplate. I'm



going to use this method to attach the timber to the lathe to flatten off one surface, checking with a rule before sanding and sealing. This face is going to end up as the underside of the table and it's where we will attach the brace, so being flat is very important. Before taking the blank off the lathe, mark a small centre point with a pencil. This will help when reattaching the faceplate in order to turn the top of the table.

20 Now turn the top over and reattach the faceplate to this clean and dead flat surface. You want to be able to conceal any fixings marks with the brace when you take the faceplate off, so ensure your faceplate fixing positions are within its width. Start by truing up the blank with a 6mm bowl gouge, dropping the handle low to give a clean finish.

21 I've left a lot of waste wood to clean off this surface as the timber started off at 30mm thick and I want it about 20mm, but this will also give me the opportunity



20



21



22



23



24



25

to turn out the faceplate screw holes that will be in this face. I also want to include some sort of lip to the outside edge of the table top to stop things rolling off, as you can see by this picture. Most of the turning work here is done with a 10mm bowl gouge, but to flatten off, I find a wide skew and gentle scrape works really well on the side grain of this oak.

MAKING THE LEGS

22 Prepare the oak to 20mm and make a template out of 6mm MDF, meaning you can repeat the profile. Draw around the template with the grain running down the length. When all three have been marked, cut out.

23 Before we put any moulding on the legs, ensure they are sanded smooth. Use a sanding bobbin held in a pillar drill. Clamp pieces of scrap wood to the drill table to elevate the legs.

24 I used three router cutters on the table. The chamfer cutter (left) was used

to chamfer the edge of the brace, the ogee moulding cutter (centre) was used to put a decorative edge on the legs and the 12mm straight flute cutter (right) was used to cut the tenons on the legs with the aid of a router sled.

25 Here you can see the finished legs, note that the tenons have also been cut 5mm in from the top and bottom of the leg. Test the legs in the mortise and tweak to make them fit well before gluing.

ASSEMBLY

26 To assemble the table, drill and countersink the brace in four positions 25mm in from each corner, then screw to the table top. After dry-fitting each leg, glue the mortise and slot in the tenoned legs. Lie the table top face down on to the bench and glue the mortise before offering in the tenon. Leave it in this position for the glue to dry overnight. Use a hard wax oil to coat the table to ensure the surface will withstand hot cups of tea and wine stains.



26

DESIGNS, DETAILS AND THE SHED OF DREAMS

WITH ECLECTIC TOUCHES, RECLAIMED MATERIALS AND UNLIMITED INSPIRATION, IT'S NO WONDER **OLI RENISON**'S BLACKTEAONESUGAR BRAND OF FURNITURE IS CATCHING THE EYES OF CLIENTS AND EVEN THE JUDGES OF CHANNEL 4'S SHED OF THE YEAR COMPETITION

'I can honestly say I didn't sit down and plan to call my business Blackteaonesugar – it's a silly name, quite frankly,' admits Oli Renison, the Leamington Spa, Warwickshire-based furniture maker whose Shed of Dreams nearly won Channel 4's *Amazing Spaces: Shed of the Year* competition in 2016. 'The name came about when I was a technician and instructor on the City & Guilds furniture-making course at my local college. I was really into photography and video and took great pleasure in producing short promotional films for the course, which would be added to our YouTube channel.'

Oli would spend a full week preparing and filming students' end-of-year exhibitions, complete with Go-Pro time-lapses of the exhibitions' opening nights with hundreds of visitors milling among the pieces. He says: 'I had often noticed in TV or video credits that so many film production companies had unusual, random names that were interesting and amusing. I thought it would be cool to have my own mock production company name for my credits and, being a dedicated tea drinker, my tea preparation of choice – black with one sugar – seemed a suitably silly name. After using this name for a few years on these videos, when I came to set my business up, it seemed natural to use it there too.'

He adds: 'I didn't really want to be called my name and then "furniture" stuck on the end, as it felt like a lot of makers do that, and I wanted to move away from the traditional. I liked the idea that my business name wouldn't immediately reveal what I did, perhaps promoting curiosity from outside your usual audience. That's not advice you hear on the first day of business school, I'm fairly sure! I've had the odd moments of regret with the name, and it's usually when I have to say it out loud across a busy builders' merchant trade counter! I've also been asked if I run a café. It's times like that when I wonder if I should have a more conventional name, but most of my customers love it and, importantly, people seem to remember it.'

SEARCHING FOR A PATH

Although he enjoyed building things like skateboard ramps and pallet furniture when he was growing up, Oli wasn't a born furniture maker. 'I fell into so-called proper furniture making more by luck than judgement,' he says. 'I had trouble finding direction as a teenager. I tried various avenues such as car mechanics and Art & Design courses and had several jobs, none of which piqued my interest. My Mum sent me to see a career analyst in Manchester, who gave me lots of psychometric tests and questions and then suggested suitable career paths. I scored highly in practical, creative and problem-solving tests, so using my hands, being creative and making things featured heavily in the recommendations. By chance, there turned out to be a two-year City & Guilds furniture-making course right at my local college, and it seemed to be an obvious choice for me to try.'

Oli loved the course, which was 'absolutely chock-full of useful experience in every area of furniture making'. 'We had a legendary technician called Tom Trinder who really was the font of all knowledge for wood machining. Such a clever man,' he says. 'Little did I know that 20 years later I'd be in that same role. The course itself was heavily centred on mastering the essentials, but there was always room for creative design input, which I was really taken by.' After he completed the course he spent some time building kitchens, then spent four years at Bucks College in High Wycombe. He graduated with a degree in Furniture Design and Craftsmanship, a now defunct course known by its students as Fine Craft. 'I felt like I had found my niche at uni,' says Oli. 'The constant challenges creatively, practically and academically kept my mind busy and content. It was such a rewarding time, all-consuming and difficult to leave behind when the time eventually came.'

After his degree, Oli tried his hand at antique reproduction, high-end bench joinery, working for a couple of bespoke furniture makers and even building narrowboat interiors.



Horses
crossing
at speed



He spent two years as a maker for Robin Furlong Furniture in the Cotswolds, and says: 'I learnt an enormous amount on the job, making one-off pieces to very high standards. It seemed like every piece we made would present some technical challenges that we had to overcome and the value of this time working for Robin and his influence is still with me now.'

He went on to spend 10 years working as a technician and instructor on the City & Guilds furniture-making course that started his own career journey, and made commissions during his spare time.

But in 2018 college-wide funding cuts meant he was offered voluntary redundancy, which gave him 'the shove I needed to overcome my inherent lack of self-confidence'. 'I proceeded to go on a somewhat frightening, but ultimately exciting tool shopping spree, ordering lots of hand and power tools to get me started on my way,' Oli recalls. 'I was lucky enough to be able to take a space in a workshop, sharing with a colleague from the college who was also working for himself as a maker. I had a few little commissions in the pipeline and tried to put the word out that I was available. Things went well and I started to find my feet somewhat. That was mid-2018, and I haven't stopped yet.'

FOUND MATERIALS

Oli made his first piece of furniture long before he set foot on his first training course. 'As a teenager I really enjoyed rummaging around scrapyards, finding parts for my old motorbikes and my Mini,' he recalls. 'I came across these beautiful seats from some

old car, and along with some creative use of pallet wood, I made myself some seating for my bedroom. I've been interested in using found objects ever since. I think the kids call it "upcycling" these days!'

He still takes a great deal of inspiration from the materials themselves. 'My time spent using recycled materials as a teenager has given me a desire to utilise and take cues from the unwanted, weathered and textured. Mostly though, I just love materials and processes and I love to play around trying new-to-me techniques and see what I can do with them,' he says. 'I seem to get most of my ideas when I can't sleep, which is a blessing and a curse. I've taken to setting up a little memo app on my phone so I can purge my idea while it's fresh and try to get on with the business of a good night's sleep.'

Found objects were part of what made Oli's Shed of Dreams so striking in the 2016 Shed of the Year competition – notably an oculus or porthole made from an old washing machine door. His partner introduced him to 'the wonders of allotment sheds' in 2015, as she had a plot with a little shed on it. 'We would enjoy drinks, food and fires and many evenings down there,' he recalls. 'I felt I just had to be a part of the shed thing and was really keen to build one of my own, having only ever built relatively small things and never actually a thing that you could go inside! I had limited interest in growing vegetables if I'm honest, but a strong desire to design and build my own shed.'

Hunting for inspiration, he discovered an American designer who had created a boat-building shelter using curved, laminated



arch sections, and thought this would make a striking structure. With half term approaching and the college workshop available, he jumped at the opportunity. Without having fully planned it out, he started building the shed, working out roughly what looked right in terms of scale and bearing in mind rules about sheds made by the allotment committee. 'I laid down MDF on the floor and drew out my large curves, which would become the main shape and assembly method for the structure,' says Oli. 'It was these curves that I bent two layers of larch around, each set locked in place by blocks screwed between them. It's a clever method of laminating fewer layers without going near any glue.'

'It proved a really challenging build to do completely on my own, but I had to as I only had those two weeks to build it up in the large workshops, taking it back down before the students returned. The shed turned out really nicely and was a really quirky structure.' Friends goaded him into entering George Clarke's Channel 4 TV show *Amazing Spaces: Shed of the Year*. 'It was a surreal experience having a film crew come and film me and my shed at the allotments, along with Will Hardie, the master carpenter who features on most of George Clarke's *Amazing Spaces* shows,' he recalls. 'My shed ended up making it to the finals and I had to go and appear in the filming for the show. I was elated to win my category of Summerhouse, but the overall Shed of the Year win was taken by an absolutely wonderful build called The West Wing, and well deserved I thought.'

It was only months later, when the programme aired, that Oli realised how close he had come to winning the contest. 'The

judges ended up deliberating over just two final sheds on the table, one of which was mine,' he says. 'It was an amazing experience and I went on to build another shed after that in a beautiful spot right on the river, in which recycled materials feature heavily.'

FAITHFUL IN SMALL DETAILS

'My ethos is about honesty and attention to detail,' says Oli. 'Honesty of materials, construction and attention to the small details. I used to make mix tapes for friends back when cassettes were a thing. I'd slave over my music selection and get everything right, coherent and flowing. I'd cut up photos and make collages for the covers of the blank tapes, and write all the track listings out in the sleeve in my most artistic handwriting. I remember a friend saying to me after I presented him with a tape that I was "faithful in small details". What he said has stuck with me as a guiding principle ever since, and I place a lot of emphasis on details in whatever I make. If you get the details right and somebody notices those details, loves and appreciates them, I think you've nailed it. There is nothing as satisfying as handing over a piece to someone who loves it and notices every little detail you've lavished upon it.'

Oli has been sharing the same workshop with a fellow furniture designer and maker and a talented carver, mainly of wooden birds, since he launched his business in 2018. Between them they 'pretty much have all bases covered' in terms of tools, and often share with each other, occasionally clubbing together to buy bigger items. 'The workshop itself is well placed on a busy road through

Warwick, so we actually get quite a lot of custom from people who've seen us passing by,' he says. 'So many workshops are tucked away in the middle of nowhere, which can be lovely and peaceful, but having passing trade is a benefit for us.'

In spite of its great location the workshop does limit some of Oli's work as he doesn't have the outdoor space to pre-build big pieces, which has restricted his ability to explore outdoor structures more. 'I also have a strong desire to set up a small CNC router station and produce repeat batch creations which I can sell as bread and butter items, but space is too limited. For now though, it suits me well and, most importantly, the people I share with are good people,' he says.

Oli doesn't have a preference for hand tools over power tools and enjoys trying out new things. He particularly loves his Japanese saws and angle grinder. His favourite wood to work with is oak. 'It's just so rich in texture and you can do so much with it. The end-grain can be just stunning and it's a detail I've enjoyed picking up on in several pieces. You can tint it by fuming, you can blacken it with flames and brush out the grain to reveal fantastic texture, you can steam and curve it, you can bleach it or fill the grain with contrasting colours. All sorts,' he says. 'It's just a beautiful material. I also love to work with birch plywood. It's so crisp-looking, pale and modern and the edges are really stunning and can be used to great effect to create detail and texture, in stark contrast to the surface faces.' He is drawn to finishes that are sympathetic to the material and easy to apply. 'A finish will absolutely transform how a piece looks, but I'm afraid I'm very much influenced by ease and speed of application,' he says. 'My go-to finish has always been oil. It's beautiful and really enriches the grain and texture without looking unnatural and plastic, which many lacquers can. I've moved away from Danish oil type finishes lately and more towards hard wax oils such as Osmo. They really give a great and durable finish without me spending months applying them.'

As well as trying out different tools, Oli loves exploring processes and has tried his hand at jewellery, silversmithing, welding and fabrication, photography and concrete casting. 'I really like the feeling I get from exploring materials and techniques and how I'm back to square one in terms of knowledge again. Learning to use a new material and process is always a fascination for me.'

CREATIVE SOLUTIONS

He currently works about 95% on commission, but hopes to return to making small batches of simple but special items to sell in local shops and galleries, such as lighting, small furniture and deli-boards, something he used to do before he ran his own business. 'I enjoy working on commissions,' he says. 'The challenge of finding creative solutions within a client's parameters, whether that be size, budget, aesthetics or materials, can be quite rewarding when you get a positive outcome and the client loves the result.' While he would love to create his own collection, his eye so far has been on the bottom line. 'It can be daunting to devote your time to things that are not directly going to support you,' he says.

His commissioning process is conversational and very much client-led, with customers taking him through what they want before he produces drawings, CAD designs and sometimes scale

models. He also takes photos during the making process so clients can see how he is getting on. 'Importantly, they can also tell me if they are not entirely happy with a particular element,' he says. 'Once the piece is ready, although they've seen much of the process of making, I find the complete finished item is still a thing of delight for them. The involvement they have in the whole process goes a long way into creating that feeling.'

One of his most challenging projects has been a steam-bent laminated console table he embarked upon after being given a day of steam-bending teaching with the Charlie Whinney Studio in the Lake District as a present. 'I have always had an interest in steam bending but not actually employed it much,' says Oli. 'It was such an enjoyable day and my understanding of the technique was expanded so that I was really keen to bring it into a commission as soon as I could. The table I designed used a split-bend technique, where a piece is bandsawn to a stop, steamed, and then each section is bent to a different curve.'

'For a number of reasons, what I was trying to do was just not working, so the challenge was realising my design but changing tack with my technique. I ended up using thick laminations which I steamed and pre-bent before laminating, allowing me to create the shapes that I wanted. The whole table was then a series of learning curves, figuring out each stage as I went with very little or no room for error. The challenging nature of the piece made its successful outcome all the more sweet. I am always my harshest critic, so I know that if I really love a piece, and I do love this one, then I must have done OK.'

He is currently working on a project for a former student who has set up a successful furniture business. 'I have done this quite a few times now with various companies, and it's great to have that as a sideline,' says Oli. 'It takes some of the pressure off, as I get told exactly what to make, and it just feels different to the day-to-day stuff. After that I'm back into a one-off birch plywood home office and desk where I get to flex some creative muscles and create something really special and unusual, and after that some bookcases. I have a few interesting things on the horizon.'

Looking forward, Oli would like to move towards more commercial work, working for businesses rather than individual homes. 'I'll always do both, but often, at least in my area of the country, domestic clients want simple built-in furniture, whereas companies who commission me are after things that are a bit more interesting, challenging and unusual, which I enjoy.' After an initial slowdown when the Covid-19 pandemic hit in 2020 – an anxious time for anyone self-employed – Oli found that interest in his business was growing. 'This led to a healthy inpouring of work and it's not really slowed down since,' he says. 'With the increase in people working from home, I think that long term it will be good for me as people move to redesign their spaces.'

When he's not working he tries to switch off with a number of outdoor pursuits including mountain biking, kayaking, custom motorcycles, paddleboarding 'and generally any way that I can explore and see places', he says. 'I'm also lucky in the sense that creating things is not only a huge driver for me in my spare time, but it also obviously helps with my work output too.'

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PIERCED PANEL

CARVER **JOHAN ROUDY** EXPLAINS
HOW HE MADE THIS DECORATIVE
PANEL IN CHERRY WOOD

This pierced panel was designed for a small organ. The purpose was to hide the upper part of the pipes. The style of the leaves and the type of wood, cherry, were chosen to match the old music stand that was going to be used with the organ.

Used like an appliqué or hung to decorate a frame, a pierced relief can be a very effective ornament. First, it offers the opportunity to undercut from the back at the end of the carving process, which really makes it stand out. Second, the design is cut directly on a board, saving the time and effort usually spent routing and cleaning the background on a typical relief carving.

I used wooden pegs on a clamp workbench to secure the carving while I was working. Another good option would be to glue the cutout on to a larger plywood board with a sheet of newspaper in between. The carving could be carefully removed from the board before the undercutting stage by sliding a chisel between the wood and the board.

Cherry is a nice looking wood, ranging from light blonde to red in colour. It is fine-grained and can hold details well, but can be quite tricky to work with. It doesn't really like to be carved against the grain. Even when using a deep gouge, you might have to carve both sides of the groove in opposite directions to get a clean surface.

The triangle is about 600mm wide and 350mm high, but a 600 x 250mm, 18-22mm-thick board should be large enough to realise the project with very little scrap. Draw the general shape on the board, with the grain running horizontally, and the offcut on the bottom left-hand corner should be big enough to be glued and to complete the lower point of the triangle on the right side.

The design is composed of three main features: the main or concave leaves, the secondary or convex leaves, and the fruits or seedpods.

YOU WILL NEED

Tools:

- Scrollsaw

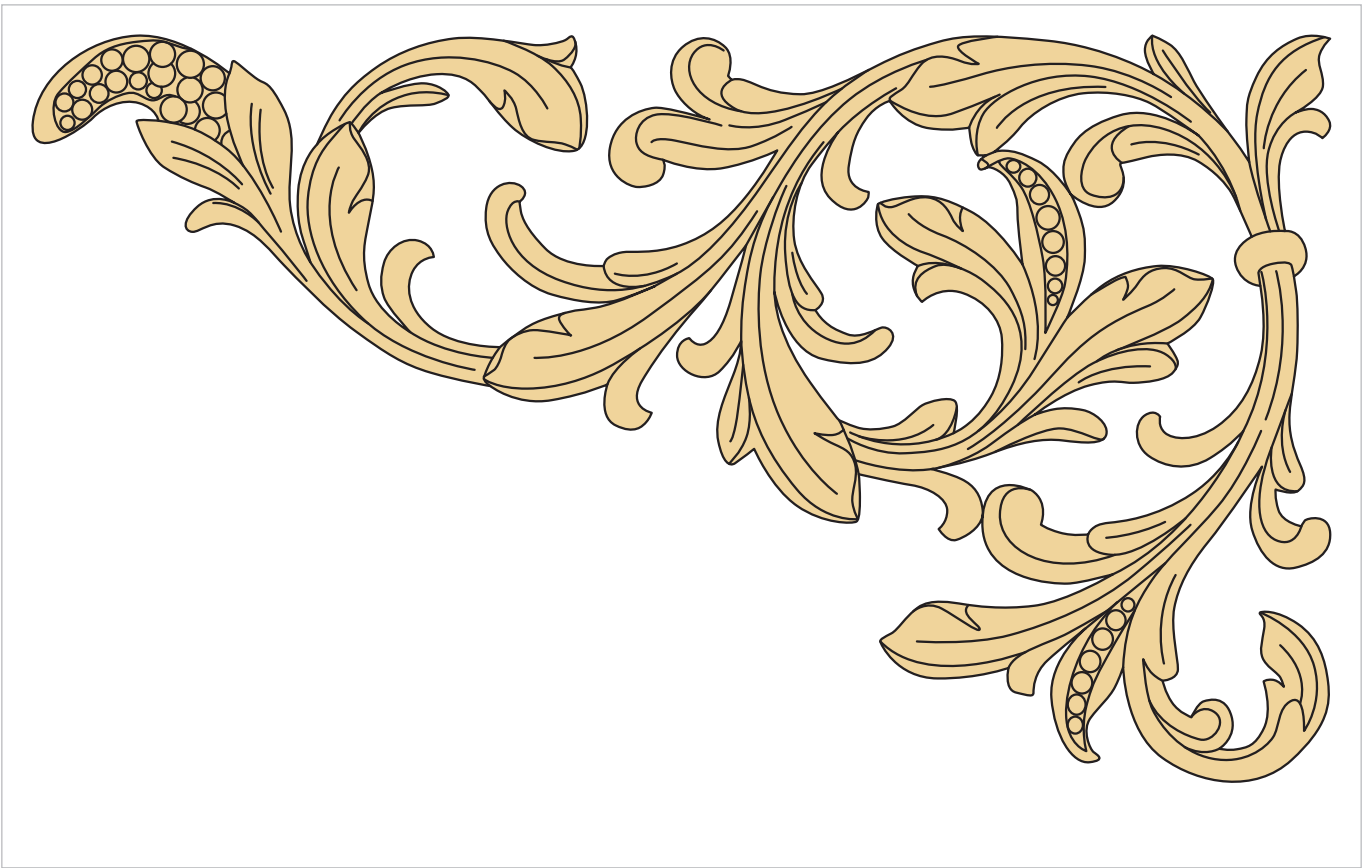
- 12mm V-tool
- Flat gouge
- No.5, 8mm gouge
- No.5, 16mm gouge
- No.6, 12mm gouge
- No.6, 16mm gouge
- No.6, 25mm gouge
- No.8, 10mm gouge
- No.8, 12mm gouge
- No.8, 25mm gouge
- No.9, 8mm gouge

Wood:

Cherry – 600 x 250 x 22mm

CARVING THE PANEL

1 Trace the pattern on the wooden board using tracing paper or carbon paper. Then, with a scrollsaw, carefully cut the shape out from the board. You can simplify the leaves' shapes, but be sure to cut close to the line in tight areas within the pattern. The red circles in the photograph show the areas on the carving where I left some wood uncut. This is to avoid breakage in the most fragile parts of the carving.

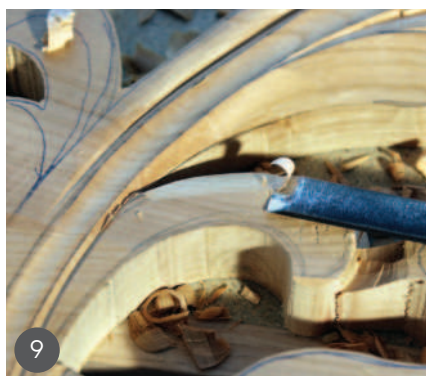




2 Next, separate the panel's layers by removing some wood where the stem is covered by a leaf and either side of the 'tie'. Start carving the wood far enough away to let the stem come down progressively and to avoid any bumpy effect on the wood.

3 Now let's shape the main leaves. Using the No.8, 25mm gouge, carve a groove running along the leaf in the pattern. Complete the groove on its narrow part with the No.8, 10mm gouge.

4 Soften the angle left by the groove on the side of the leaf with a flat gouge. You can even round the outside edge a little bit on some of the leaves.



5 Use a flat gouge to mark the separation with the secondary lobe by an angled cut and shape the back of the leaf by reducing the wood in a steep angle.

6 Now, redraw the tip of the leaf and set it in with the No.8, 25mm gouge. Then, using the No.5, 16mm gouge, stab the small lobe halfway to the main leaf and complete the leaf with the No.6, 16mm gouge, removing the waste along the drawing towards the stab cut.

7 The secondary leaves – or lobes – in the pattern may be turned upwards or downwards. Give an angle to the upward leaves with the No.6, 25mm gouge.

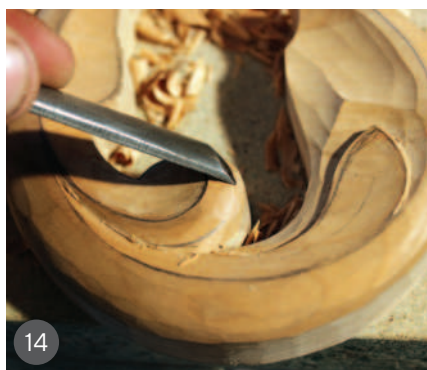


8 Redraw the leaf outline on to the wood, then reshape it and carve the back of it with a flat gouge towards the main leaf.

9 Separate the downward leaves from the stem using the V-tool. Cut deeper at the junction with the stem using a gouge matching the curve, and round the back towards the side with a flat gouge.

10 Lower the tip of the leaf and round it as well, with the No.6, 16mm or the No.5, 16mm gouge. The definitive shape of the leaf will be achieved with the undercutting of the pattern.

11 Some of the secondary leaves are divided into two lobes: upwards and



downwards. Separate them from the stem with the V-tool and shape the upwards lobe before moving on to the downwards lobe. The other one is twisting, halfway between an upwards and a downwards leaf. Carve it deep enough to give the leaves the effect of some movement.

12 If most leaves have their back slightly curved, the last leaf on the lower right corner is more rounded. Mark the edge of the adjacent leaf with the V-tool, and stab the separation between the seed pod and the lower leaf with a flat gouge.

13 Begin to shape the seed pod with a flat gouge: round the edges and lower the tip.

Then round the back of the leaf with the No.6, 16mm or the No.5, 16mm gouge.

14 This last type of twisting leaf needs to be lowered quite deeply at the tip. Carve the hollow first with the No.6, 16mm gouge, redraw the circle and then carve the back with the No.5, 16mm gouge following the line.

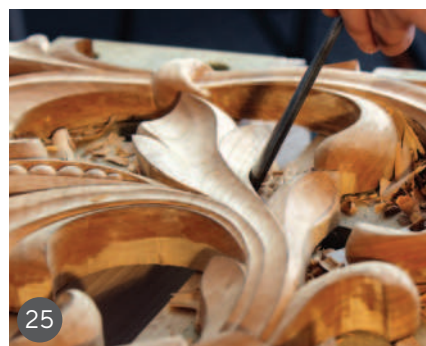
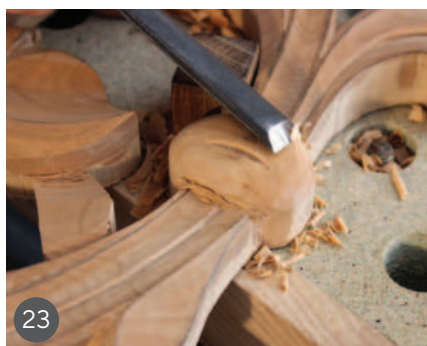
15 Shape the secondary lobes like the previous ones. Carve the end of the leaf deeper than the main leaves and use the No.9, 8mm gouge to carve a groove below the lobe, melting with the side.

16 Complete the shape of the leaf and the lower lobe, giving it a bigger angle.

17 Shape the other closed seed pod like the first one, rounding the edges, but keep more wood at the tip to let it show above the leaf nearby. Draw the slot that will show the seeds.

18 Use the No.5, 8mm gouge to set in the first seed. Then, use the No.9, 8mm gouge to carve a hollow from the base of the slot to the first seed. Switch back to the No.5, 8mm to start to set in the next seed and remove the waste around and between the seeds.

19 Keep on clearing around the seeds one after the other, and use the same gouge to round them, along and across the grain.



20 Carve a hollow with the No.8, 12mm gouge at the tip to twist it. Clean the slot edges and carve a hollow along the slot with the No.5, 16mm gouge. Repeat on the other pod.

21 Move to the open seed pod. Separate the seeds area from the leaves with the V-tool and shape the leaves using the No.6, 25mm gouge. Just like the other pods, shape it roughly by rounding the edges and lowering the tip.

22 Progressively set in and clear the seeds, starting from the top and middle of the grape. Use No.5, 8mm, No. 6, 12mm and No.8, 12mm gouges to vary the sizes of the seeds.

23 Mark the place where the stem should meet the tie with the V-tool and round its edges using the No.5, 16mm gouge.

24 Use the No.9, 8mm gouge to dig the lower part from both sides and clean this area by extending the stem. The tie should meet the sides of the stem a few millimetres below the carved grooves on the work. Complete the tie by rounding the sides with the No.6, 16mm gouge, slightly deeper on the top.

25 Draw the veins on the main and secondary leaves with the V-tool. Undercut all around the carving at an angle about 20°. Choose the appropriate sweep for each part – a little flatter on

the convex parts and a little deeper on the concave parts.

26 Reverse the carving on a piece of cloth to avoid damaging it and complete the undercutting from the underside. Use the V-tool or a small U-shaped gouge to remove some wood where two leaves meet and remove the waste with a flat gouge until you meet the cuts you made from the top. You can clamp lightly on a high point to secure the carving.

27 A panel like this can be easily applied to a piece of furniture to add decoration. Here you can see the finished panel in place on the organ.

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The charm of monotony

DI A VICELLI'S DECKCHAIR AND MATCHING TABLE PROVE THAT REPETITIVE VENEERED CURVES CAN MAKE A SUCCESSFUL DESIGN

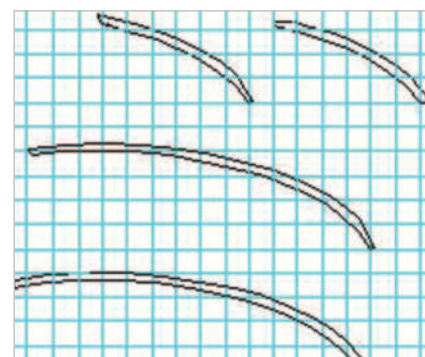
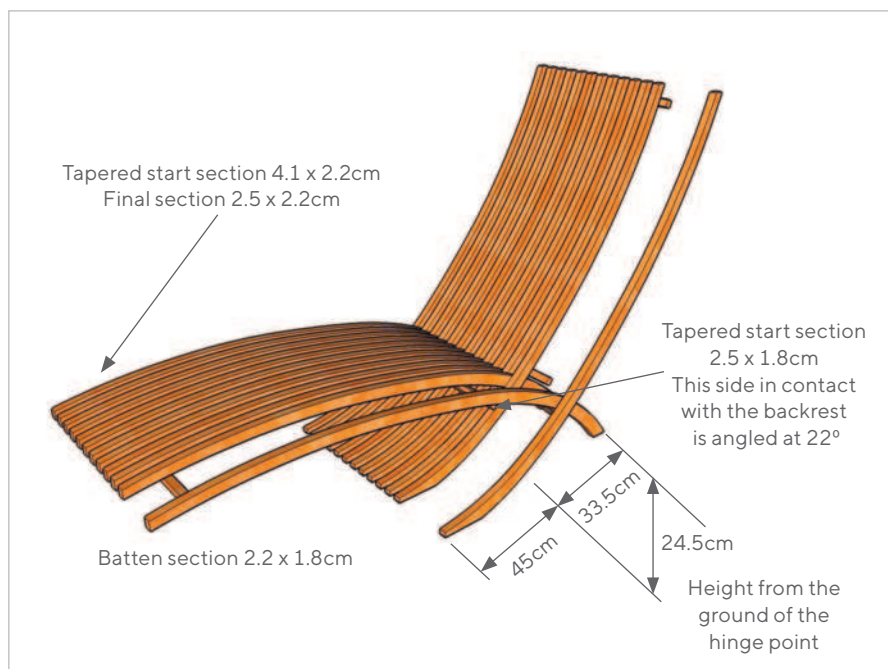
Many of us furniture makers are fascinated by curves. Unfortunately for us, however, our chosen material is not inclined to be bent without losing its shape and no one today would think of cutting a curved component of generous dimensions from solid wood, due to the waste and weakening of the structure.

Solid wood bending techniques are very interesting as well as the forms that can be achieved using them, but they are not easily applicable to a project like this one, due to the difficulty (if not impossibility) of creating a number of large identical pieces. The design of this project and its success largely depends on the monotonous repetition of the

lines. To produce the components of the deckchair and the table I adopted the only possible technique: lamination. Bending 3mm- or 4mm-thick wooden pieces is relatively easy and the shape is maintained by gluing the pieces so they can't slide over each other.

The design of the deckchair and table is based on a product by the Swedish company BergaForm, which produces quality furniture, updating traditional Scandinavian designs to today's trends. I chose oak veneer with a nominal thickness of 4mm; the wood's neutrality works very well with the classic and at the same time modern lines of this type of furniture.



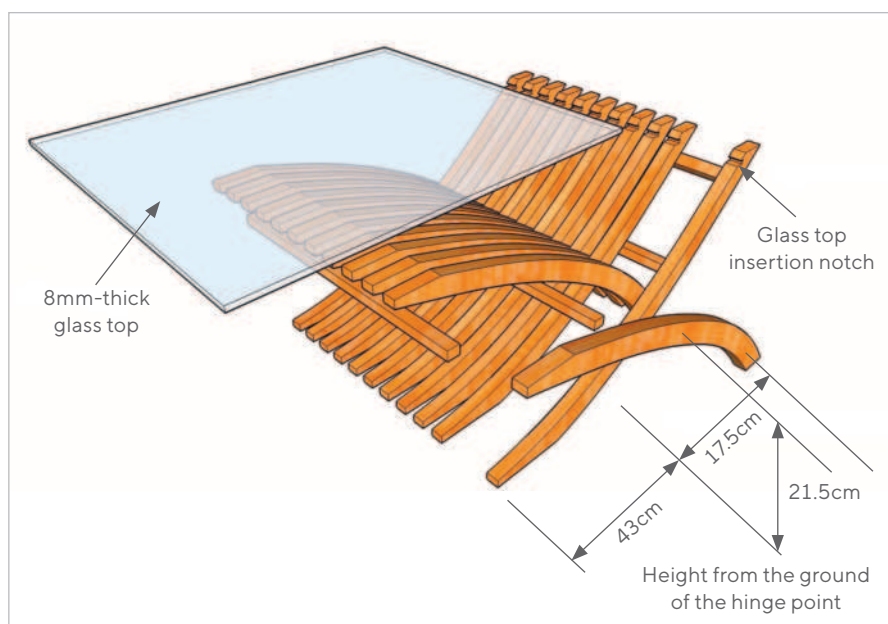


One square = 10cm

PREPARING THE MATERIAL

The large amount of veneer required for this project was very difficult to select and so the packs of four sheets each were cut and trimmed to minimise waste. Given the average length of the packs of 280cm and the consequent difficulty in handling them, the veneers were first cut to length with a handsaw, to a generous length over the curve by 100mm, and then straightened when laid on the bench.

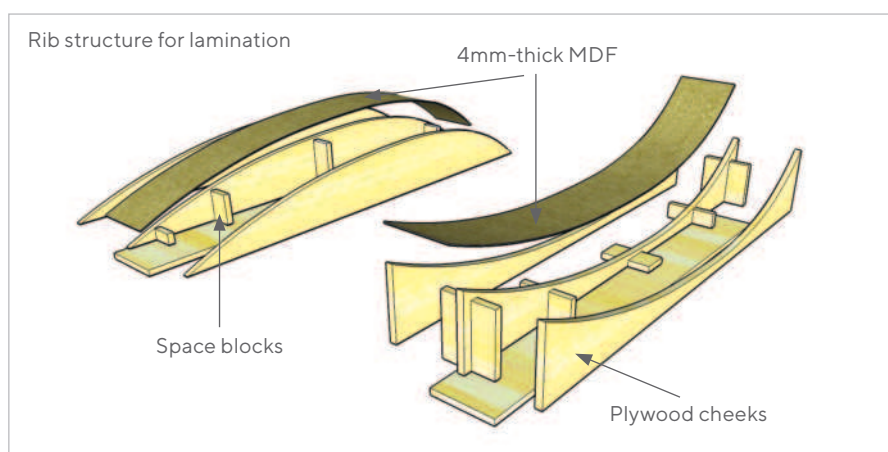
The edge of the cut was uneven so I straightened the longer pieces using the surface planer (planing it all the way up the piece at the same time). The circular saw was used in the same way on the shorter pieces.



FORM AND COUNTERFORM

With these types of lamination, regardless of the type of press used (vacuum, hydraulic or clamp), you must be able to glue the various sheets to the desired curvature on the form. In this case it was also necessary to build the counterform relying on the clamp press. Building the form can be a simple or difficult process depending on the tools you have available; for me, using the flexible ruler certainly made things much easier. Before starting the construction, it's essential to check the curve of the form against the one obtained at the end by lamination. For a lamination like this one, a straightening of about 2-4mm will occur so the arch form must be more than that.

With the drawing in hand I scaled it to the actual size and transferred it to a 20mm-thick plywood sheet. To scale the curve in an approximate but still functional way, it was necessary to draw its line and divide it – I divided it



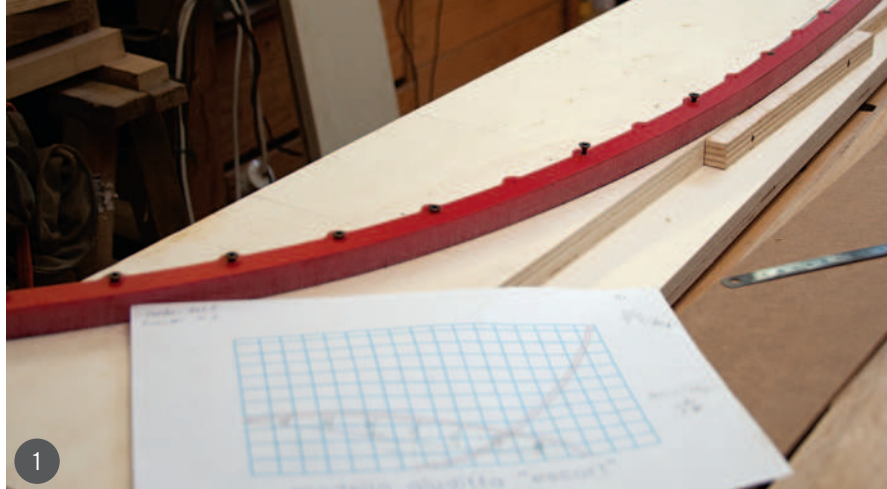
into 10 parts – and then measure the perpendicular of the line for each point up to the intersection with the curve.

The measurement of the line, like that of its parts and perpendiculars, must be drawn in real scale so that by joining the single points, it is possible to reproduce the curve. The degree of approximation depends on the number of divisions of the line and on the system adopted to trace the union of the points. In this case I used a flexible ruler anchored to the support to draw two equal curves one above the other, spacing them by a few centimetres. I roughly cut the two curves with the bandsaw and then finished them on the router table. This created a template that I could use against the shape and the first rib necessary for the construction of the shape.

The three ribs were then screwed to a rectangular panel, which acted as a base. Spacers were placed internally to stiffen the structure.

At this point I covered the structure with a 4mm-thick sheet of MDF, which is sufficiently flexible and economical to be screwed on following the curve, and can be replaced as needed if it remains attached to some point of the lamination. Using the template for the counterform, I traced and built the latter in a similar way to the method I used for the form, this time gluing the structural components together.

1–5 The flexible steel ruler is an extremely convenient tool for drawing and cutting a curve. Being anchored to the support, it provides an ideal guide to the cutter, which is used to refine the coarse cut made by the bandsaw





6 Clamping the form together 7 Clamping the counterform together 8 Adding the thin MDF cover to the form 9 & 10 To make it easier to apply the glue, the ends of the edges were fixed to the surface with a paper plate 11 & 12 To prevent the form from sticking to the lamination it is necessary to isolate it; cling film fixed to the side with tape is perfect for this purpose 13 & 14 To prevent the counterform from warping under the pressure of the clamps, it is advisable to interpose beams with an adequate spacing 15 & 16 Excess glue was removed with a chisel and the edges were squared

THE LAMINATION

The decisive factor in this phase is the open time of the glue, which determines the width and number of laminates that can be glued at one time. You have to be absolutely sure that you will be able to spread the glue and clamp everything in those few minutes. The polyurethane glue that I used guaranteed an adequate seal to the atmospheric agents, given that the deckchair will be used outdoors, and a workability time of 15 minutes.

I worked on a parcel of 11 sheets which were 160mm wide, from which I then obtained six staves, for a total of eight laminations about 43mm thick. This would be enough to get all the parts needed to make the chair and table.

For the space required to place them side by side, the 11 sheets were divided into two groups of five. I also packed all the sheets on top of each other on the second five and placed the eleventh on the last one at the top. I then inserted the package between the two forms. The tightening had to be started from the centre to prevent the sheets from slipping together or moving sideways, and the pressure was exerted a little at a time on all the clamps, always starting from the

centre and continuing towards the ends in the same way. This was the most critical moment of the whole procedure as the glue open time was nearly over, making it more difficult to adjust an incorrect position. Before removing the ends and starting the same procedure with another pack, I let the glue dry for at least 12 hours.

CUTTING THE STAVES

After removing the excess glue with a chisel and squaring the edge of all the laminations on the surface planer, I trimmed them on the tablesaw. This process was done by eye, in the sense that the cuts run along the pencil marks.

Now that the laminations were more precise, I re-packed them together and smoothed and refined the convex edge. To do this I used a flat-bottomed tray, a cabinet scraper and a random orbital sander. I also prefer to use the bandsaw which has the advantage of removing the material in light cuts.

At the end of this phase, all 48 pieces had been planed to thickness. It is inevitable with this process that at the end the surfaces still show some defects, such as the grain being chipped in a few places, but these would be dealt with

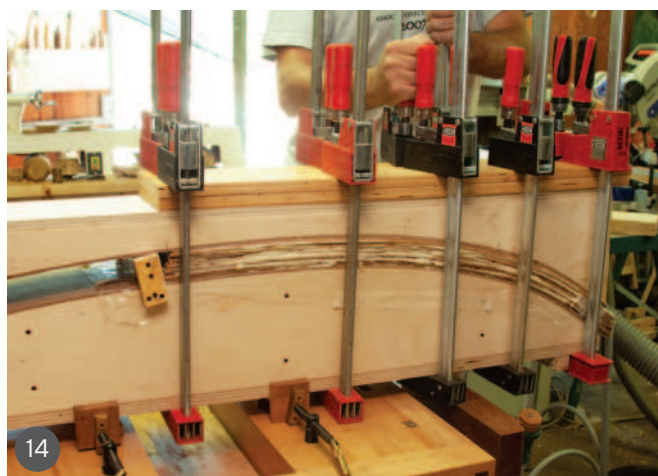
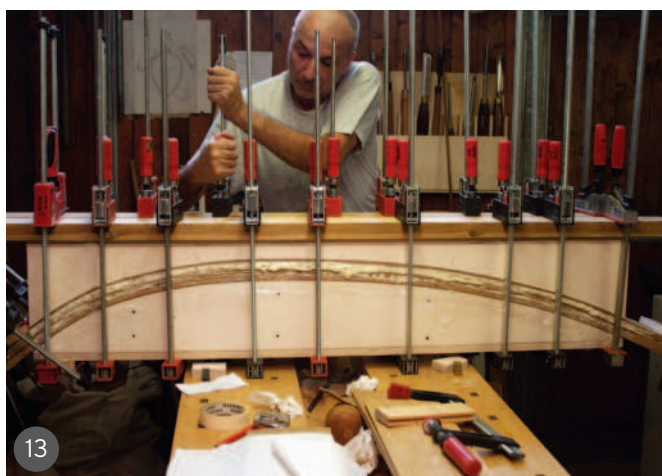
later. In fact, the profile of these slats still lacked an important process that will characterise the appearance of the chair and the table ...

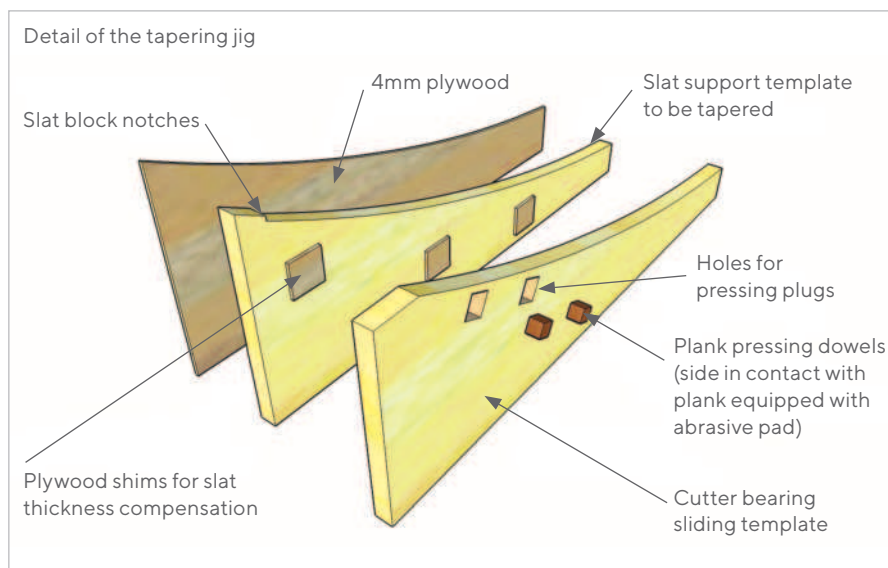
THE TAPER

As the taper is part of the curves, there was no simple way to create it; it was not possible to use the first plate as a pattern for the others, since the reduced support section would not allow a safe passage on the router table or spindle moulder.

So I needed to construct a jig to hold the stave, which would be capable of providing a guide to the bearing of the cutter used for tapering. The jig will differ depending on the use of a cutter with the bearing on either side or the cutting edge, but the sequences for the construction do not vary much.

Since the jig is equipped with stops for repetitively positioning the staves, it also provided the references to cut all the pieces to the same length, eliminating the small differences left by the previous processes. At the end of the long tapering work, I would have staves that are very similar to each other, if not exactly identical, allowing me to move on to the next phase.





17–19 Machining and cutting the staves to length 20–23 Finishing the stave's curve and cutting to width 24 A sacrificial stave was made from offcuts for the tapering jig 25 & 26 This stave was fitted on to the central panel and set to the slat using the flexible ruler

THE TAPERING JIG

Making the tapering jig begins with the creation of a sacrificial stave from offcuts of discarded material, the thickness may be different from those of the laminated slats. The curve and the position of the stops on the central panel of the template is cut with a bandsaw and finished on the router table. The sacrificial stave is then fitted onto the central panel and, with the flexible ruler, is set to the slat. Cut and finished as usual, the stave is repositioned and

used to mark a second panel, the one that will provide the bearing that will complete the tapering work of all the slats. This panel will inevitably have to be disassembled given that it will overlap the workpiece and it cannot be extracted laterally because it is held by the centre panel notches. To avoid repositioning errors when reassembling the top panel, it must be identical in measurement to the three straight sides. It will also be thickened as the upper edge of the panel is 22mm thick and the plywood

is 18mm, which was sufficient size to insert it between the middle and top panels of 4mm plywood.

A third sheet of 4mm plywood is screwed on to the underside of the form. To prevent the plank from being sucked towards the cutter during processing, four screwed-on clamps on the upper panel lock it in position by acting on the same number of clamps passing through the upper panel. The clamps in the contact point with the slide are glued together with an abrasive material.



PROVIDING SUPPORT

At this point, keeping two slats in balance on the bench, I used them to copy the profile of the chair and the table, reproducing the angle and the overlap point.

The slats were traced in that way to help later on when assembling the two pieces of furniture. The bottoms on the legs of the chair and table were also traced and marked.

On the opposite ends of this last piece, it was necessary to trace again the glass position and the notches that will hold the piece in place.

The legs were cut on the saw to create practically identical pieces, I built and modified a new jig for each series of cuts with the task of repositioning all the elements of that group at the same point and with the same angle, made on the router table, providing the necessary support for the cross spread of the stave and the stop with two specially shaped plywood scraps.

FINISHING AND ASSEMBLY

All the joinery work on the slats was now completed and I just had to finish them to prepare them for assembly. The slats were planed by hand and sanded with abrasive pads up to 220 grit, paying close attention to the direction of the grain so as not to raise splinters at the edges or tear the fibre elsewhere. Given the shape and the narrow support base, the use of sanders even if hand-held was not possible for obvious reasons.

All the staves were then dusted and finished with two coats of water-based waxed impregnating agent, applied with a brush. Eleven days later the project was given an energetic polish with a soft, tightly woven cloth, to give the same lustre to all the staves.

Before assembling the deckchair and table I had to prepare the two strips that will tie and align the slats together and provide for the other two that will have the task of providing the hinge for the opening and closing of the furniture itself.

It is interesting to note the simplicity with which these last two strips of

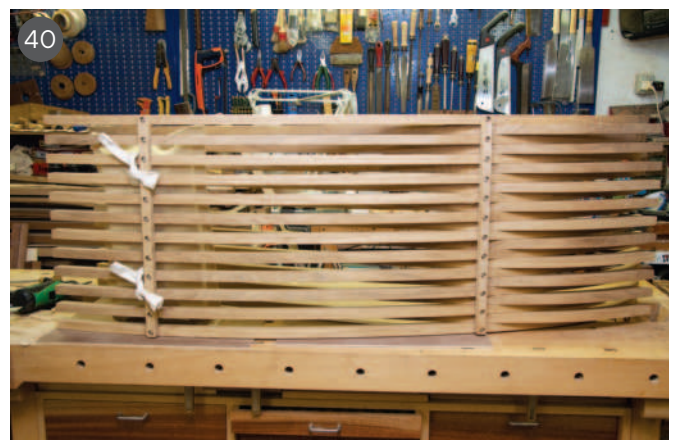


27–29 It's then repositioned and used to mark the second panel 30 The stave seen clamped to the jig 31 The changes made to the form of the staves 32 The completed staves 33 The staves held vertically so their position can be marked 34 Using the mitre saw to rough the curve 35 The router table is used to cut the glass inserion notch 36 Hand-planing the staves to width 37 Screwing on the crosspieces 38 A Forstner bit is the right tool to cut the plug holes 39 Clamp the pieces together to make sure they fit 40 The clamped chair seen from below

trapezoidal section fulfil their purpose, that is to allow the sliding of the two groups of slats to the point where, due to the tapering effect, they reach the block.

On all the eight elements I made low bases and holes for elevated stainless steel 40 x 5mm pieces that will attach to the slats. The assembly procedure is the same for both the chair and table. After having aligned and spaced the pack of slats with

suitable spacers, I tied it initially with the rectangular slat, then let it slide inside the corresponding pack. The packs were brought to the final open position and marked with the position of the two reducing strips, then they moved towards the closed position which will allow you to conveniently drill the pack of staves using the strip with its holes as a guide for the drill bit.



HAYRAKE TABLE

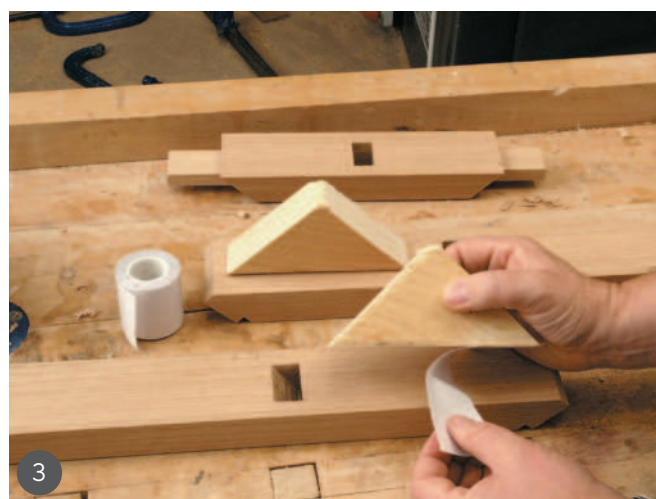
JOHN BULLAR'S TABLE DESIGN FOLLOWS THE VERNACULAR TRADITION OF GIMSON AND BARNSELEY

A century ago, Ernest Gimson and Sidney Barnsley were developing carefully made utilitarian furniture with strong links to English vernacular traditions. There are fine examples of this in the Cheltenham Art Gallery and Museum. According to curator Mary Greensted, in her informative book *Gimson and the Barnsleys*, ideas for the distinctive feature of this design, with its

hayrake-style stretcher joining the legs, came together from the Arts & Crafts cabinetmakers' study of farming implements.

Hayrakes like this had been developed over preceding centuries and were still common in Cotswold agriculture at that time. I was particularly taken with the rigidity and practicality of the stretcher radiating from each leg so it cannot obstruct the sitters' feet.





1 Cutting tenons on the bandsaw 2 Cleaning out the angled mortises 3 Clamping blocks located with double-sided carpet tape

THE DESIGN

For some time I had wanted to produce an interpretation of the hayrake table, staying true to the original construction but with contemporary clean lines and minimal decoration. The chance came when I was asked to make a family dining table. The request was for a one-piece top, large enough to seat six comfortably and several more when the need arose. The family live in an early 20th-century house. The dining room, with its warm patinated parquet floor, cast-iron fireplace and French windows, already contained a piano, a desk, a gateleg table and an assortment of chairs. The piano was to be moved out, which would leave space for the table but not much to spare. We agreed on dimensions of 1.75m long and 1.1m wide.

Barnsley's hayrake table had square legs, turned through 45° with heavy chamfers cut on them. I took the chamfering a bit further to make the legs octagonal and appear less massive. The stretcher uses through tenons with a cross brace, similar to the original, but the heavy gauge timber is rigid enough without the need for any diagonal bracing.

HAYRAKE JOINTS

The hayrake assembly consists of the long central stretcher, tenon-jointed at right angles into a pair of short crosspieces, one on each end. Radiating from the central stretchers and stub-tenoned into it are four angled stretchers. These are restrained by tenons on the end of the crosspieces, passing through 45° mortises in the angled stretchers. These are all through joints with the tenons cut flush on the far side of the mortise. I cut all the tenons on the bandsaw as far as practical – cutting up to the angled shoulders might be possible with a platform on the table angled fore and aft, but I found it easier to use a tenon saw for these.

The 45° angled mortises looked a bit awkward so I decided, rather than setting up a mechanised jig, to cut them by hand. After marking both faces with the mortise entry and exit locations, I drilled pilot holes at 45° right through the timber to help me stay on course. I used conventional hand chisel mortising techniques to remove the waste, being particularly careful not to break out the clean edges of the mortise on the exit side. The entry side of the mortise was lightly chamfered



to encourage the tenon to align and enter without force, which could distort the shape of the visible far end.

The stub tenons on the ends of the angled stretchers are the full timber width so the mortises had no sides, more like bridle joints. These locate the stretcher ends but have a subsidiary function as the angled through mortise joints are more than strong enough by themselves.

RESOLVING FORCES

Pulling the joints together required some angled clamping blocks. I cut a pair of triangles off the end of a piece of construction-grade pine, with the long grain on the longest side, the hypotenuse. Sticking double-sided carpet tape to this side allowed me to pre-align the blocks on the angled stretchers, while engaging the tenons and placing the assembly on a sash clamp. The holding strength of double-sided tape against a shear force is minimal, so simply tightening the sash clamp forced the blocks to creep down the stretchers. By placing a pair of large G-clamps at right angles to the sash clamp, I was able to restrain between the clamping blocks and each side of the crossrail. This applied the required direction of force on all three through tenon joints and on the stub tenons. Once the glue had set, I cut the through tenons flush and planed over them with a short smoother.

THE LEGS

The legs were cut to length, planed and thickened as 75mm square sections. I marked a regular hexagon on each end of each leg, then used Shaw guards and pushsticks to feed the legs at 45° over the planer, making a succession of cuts until the octagonal markings were reached.

Again, working with the hayrake on the bandsaw table, each stretcher was cut with a 22mm-wide tenon on the end. To receive these, I used a Forstner bit to chain-drill the large mortises in the legs, before I joined and squared them with a hand chisel.

At the top end of each leg, a simple bridle joint slot was cut to receive the horizontal cross rails. A longitudinal rail down the table centre, tenoned into each cross-rail, forms an 'H' pattern. The 75mm depth of the rails prevents sagging of the tabletop in either direction. The legs were glued to the stretcher assembly and the cross rails using the saw table as a reference plane.

TABLETOP

I then selected timber for the top from nominal 25mm-thick flat-sawn boards. These were planed and thickened to 22mm, ensuring the best sides could be presented upwards and the boards co-ordinated to avoid clashes in the figuring, alternating the growth ring directions as far as possible. I grouped the six boards as three widths, arranging the widest ones in the middle. The tabletop had to be removable for transporting the table. What worried me was that there would be a lot of strain on the edge joints of the top whenever anyone attempted to lift the table or remove the top. I knew the tabletop would be heavy – attempting to lift the stack of planed boards confirmed that.

I decided to edge-joint the boards in the way you would for a rubbed joint, planing the edges very carefully as matched pairs before standing them edge-to-edge, while checking no light could pass between them. With all 10 edges matched and prepared, I biscuit jointed them using size 20 plates with waterproof PVA glue. This swelled the biscuits without the risk of weakening them from accidental spillages on the table. The whole width was built up in a number of stages, starting with each outside pair of boards. With these set, I added the centre boards, and finally glued the two halves of the top together. With all the joints set, I marked out a long radius arc on each end and cut it off with a hand-held jigsaw.

EDGES

Before assembly, I had used a bearing-guided 45° cutter in a hand-held router to chamfer all around the upper and lower side of the hayrake. This left rounded inside corners, which I then sharpened using a fine paring chisel. The same treatment was applied to all the edges of the assembled rails on top of the legs, giving touch-friendly edges to all the undersides.

Again using a bearing-guided cutter, I formed a barrel-shaped edge all around the tabletop. The radius of the cutter I used was large compared to the tabletop thickness so it would only form a gentle arc.

STRENGTHENING

I was still worrying about the weight of the top and the risk of splitting it during handling so I decided to go for belt and braces. I cut a pair of 22mm-thick oak reinforcing battens to screw on to the underside of the table towards each end. To ensure there





9 Fitting cross rails on the legs 10 Gluing legs to the stretcher using the saw table as a reference plane 11 Fine jointing the edges
12 Underside of the table – note end slots 13 Barrelled edge on the tabletop and hayrake stretcher 14 The finished table, ready for delivery

would be no resistance to seasonal movement of the top, I waxed the underside of the battens and cut elongated countersunk holes for the screws to slide in, again well waxed. Initially these were just intended to provide additional strength for handling while the glue was fresh – I thought I might remove them with the table installed. However, the battens were quite unobtrusive so there seemed little point in removing them, and I simply slackened the screws half a turn to make doubly sure they would not fight against movement. They were left in place for whenever the top needs removing again.

FINISHING

All the components were sanded using a random orbit machine before assembly in order not to miss any inaccessible corners. With the table assembled, I sanded again by hand using fine silicon carbide and following the grain.

I used a water-borne acrylic lacquer finish with good resistance to discolouration and immunity to hot drinks or alcohol spillages. To ensure the lacquer would penetrate well into the open grain of the oak, I used the sort of technique normally applied to Danish oil. I diluted the lacquer with a little water and brushed a copious

amount on to each surface. After giving it about 20 minutes to soak in, I removed the surplus liquid with a clean cotton rag. Once dried, I de-nibbed by hand-sanding with the grain. Next, I applied three more coats of acrylic, this time using an HVLP spray gun to build up surface layers.

With all the surfaces lacquered and set, I finally used steel wool lubricated with Vaseline to give them a silky touch. This buffs off with a cotton cloth but does not gloss up in the way the wax paste lubricant would.

DELIVERY

The piano was still in the dining room when I went to deliver the table. Together with some neighbours I helped load it on to a trailer for dispatch to its new home. The table itself also fitted on a trailer for delivery, wrapped in numerous blankets then cocooned with a tarpaulin in case of a change in the weather. We carried the frame and top into the house separately through the French windows and assembled them on the parquet floor. The results met everyone's approval and I left the house with a request to think about a matching set of chairs.



If you need it, make it – and make it beautiful

THE MUSEUM COMMEMORATING THE WORK OF AMERICAN ARTIST AND FURNITURE MAKER **WHARTON ESHERICK** IS CELEBRATING ITS 50TH ANNIVERSARY. EXECUTIVE DIRECTOR JULIE SIGLIN AND COMMUNICATIONS AND PROGRAMME SPECIALIST LARISSA HUFF TELL US ABOUT THE ARTIST AND HIS LEGACY

Wharton Esherick was a problem solver who saw every issue he faced as a chance to make something with beauty or humour. 'Anything that he or the space needed was an opportunity to make a work of art, whether that was a metal andiron, a spoon to eat dinner with or a place to sit down,' explains Julie Siglin, executive director of the Wharton Esherick Museum, which commemorates the artist in his former home in Malvern, Pennsylvania. Julie gives the garage Esherick built on the land as an example. 'It is such a utilitarian space, but a magnificent structural design,' she says. 'Everything was an opportunity: if you need it, make it – and make it beautiful.'

Wharton Esherick lived from 1887 to 1970, and the Wharton Esherick Museum opened in his former home and studio in 1972. Born and raised in Philadelphia, Esherick studied drawing and printmaking at the Pennsylvania Museum School of Industrial Art and painting at the Pennsylvania Academy of Fine Arts, and started his career in fine art as a painter. At the height of American impressionism he and his wife Letty joined the flight of painters from the city to the countryside and they settled in an old farmhouse near semi-rural Paoli, where they had enough land to grow their

own food if the paintings didn't sell.

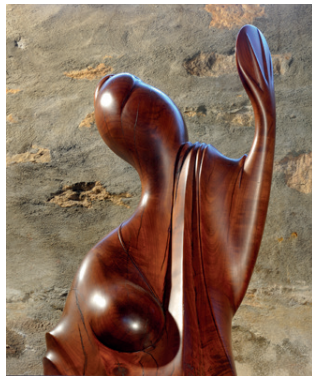
He started getting interested in wood in 1920, when he began carving simple representational designs on frames for his paintings. 'He started carving frames for his works, and then people were more interested in the frames than in the paintings, and he went from there,' explains communications and programme specialist Larissa Huff. 'It's such an interesting way to tip over the edge into a 3D medium.' Carving picture frames led to woodcuts – some 350 blocks and nine illustrated books – and carving on furniture, and then in the early 1920s Esherick began sculpting in wood, which at the time was considered to be solely a craft medium. He gravitated towards direct carving and interior furnishings, and so began what was to become a lifelong exploration of the nature of wood and its dynamic material quality. By 1926 his sculpture was being exhibited at the Whitney Museum of American Art in New York, and he turned to the construction, the expression in space, of his studio.

FROM SALAD BOWLS TO ARCHITECTURE

Word about Esherick's art and furniture spread through his friendship circles, and Julie says the business side of his work

was always based around friendship. 'Something that really stands out about him is that his clients were typically close friends – or they became so in the process,' she says. 'There is a wonderful bit of writing about him saying that the more he loved his work, the more he wanted to give it to you. People would start with a salad bowl and end up with architectural elements of their house created by Esherick. It's one of the things I really love about him.' Larissa adds: 'He has a martini party and people buy the table they are eating at!'

Esherick's voice as an artist became very clear once he moved into the medium of wood. 'There is something fiercely individual about his style – it is very Eshericky,' says Julie. The 1939-40 New York World's Fair was a marker in his career, when his work was discovered by a much larger group of people. 'This not only led to commissions and a cementing of his work in furniture, furnishings and sculpture, but also gave rise to him as the de facto leader of the studio furniture movement,' Julie says. 'He's a very important figure in American modern design writ large. He dabbles in architecture, works on paper and in different media. As he got older he also got very prominent in some seminal



PHOTOGRAPH: CHARLES UNIATOWSKI

events around American contemporary craft as we think of it today. He was an advisor figure at these events and to the artistic community well beyond them. He still is one of the woodworkers people find out about and then point to as a major influence.'

BEYOND ARTS & CRAFTS

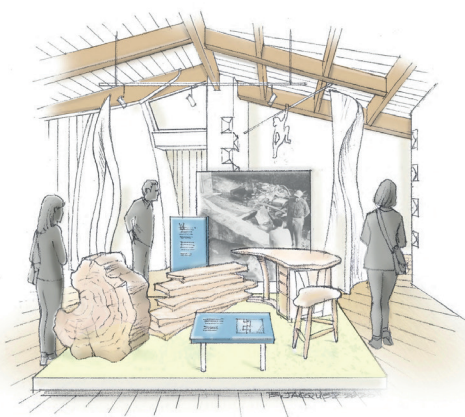
Esherick tends to get categorised as a romantic recluse, living on a mountain outside the city, working with hand tools and making Arts & Crafts-style pieces – but Julie points out that in his period of activity woodworkers didn't have many of the tools they have today. 'The truth is he was very much at the epicentre of experimentation with design materials,' she says. He was visited by American sculptor Wendell Castle, who cites Esherick as the person who introduced him to the idea that furniture could be sculptural as well as functional, and also spent time socialising with famous writers and other artists, spreading his impact across a range of media.

As a furniture maker herself, Larissa says she has been inspired by Esherick. 'I was trained very traditionally to make things people wanted to buy. As I started exploring the more artistic side, Esherick's medium appeared – his forms and his fine take on it. He was not driven by economic concerns. He was a serious maker: not a craftsman, but an artist. But then there was the idea that it was fun and there was humour in it. He took it seriously enough to care about it and be good at it, but he could also feel the joy.'

Julie adds: 'It was very immediate with him. He didn't want art historians to write about his work, he thought they would embellish and over-explain things. He thought the way to know him and his work was to experience it physically.'

THE ARTIST HAS LEFT THE BUILDING

In Esherick's absence, the Wharton Esherick Museum aims to give visitors the chance to experience the artist and his work through the physical presence of his pieces in the space where he lived and worked. The idea is to give the sense that 'Esherick has just walked away, and we have stumbled into his space,' says Julie.



Set in 12 wooded acres, the museum campus has several buildings with the studio as the centrepiece. This highly individual, hand-built space was constructed over a 40-year period starting in 1926 and incorporates Arts & Crafts, expressionist and organic designs. Two years later, in 1928, Esherick began building his garage, which is now the museum's visitor centre, and in 1973, just a year after it officially opened as a museum, the studio was added to the US National Register of Historic Places. In 1993 the museum was designated as a National Historic Landmark for Architecture, and it is also a member of the Historic Artists' Homes & Studios organisation. Another part of the campus is Esherick's 1956 workshop, designed in collaboration with Louis Kahn. The most recent addition is the Diamond Rock Schoolhouse, a historic octagonal one-room schoolhouse which was an early painting studio for Esherick.

In 2014 the museum was able to buy Sunekrest, the 19th-century farmhouse where the Eshericks first lived on Valley Forge Mountain, and plans have been made to use this space to grow and enhance visitors' experiences. The plans were developed just before the Covid-19 pandemic forced the museum to close its doors, but are now being

displayed as part of the 50th anniversary celebrations, which can be explored on the museum's website.

The aim is to connect contemporary audiences to Esherick's legacy through a reimagined site which tells the story of a boldly individual life, restores tranquility and releases the creative impulses of the visitors who literally follow his path. The plan calls for a new visitor centre to provide critically needed exhibition and programme space and an administrative home for the museum, allowing parts of the current site that are now being used for offices and other amenities to become part of visitors' experience.

'We are picking up all those threads again with a lot of energy,' says Julie. 'New spaces on the lower campus will provide a visitor experience that echoes the truest progression of the site as Wharton would have experienced it in the 1960s. Our vision is to establish a creative hub, a place to explore the history and practice of studio craft that will inspire visitors and practising makers to embrace their own creativity – as vocation, as avocation, and as a personally fulfilling journey.'

ONLINE EXPANSION

Before the pandemic the Wharton Esherick Museum hosted some 5,000-6,000 visitors each year. It has now gone back to giving tours although group sizes are small and visits must be booked in advance. To celebrate the museum's 50th anniversary, organisers split the year into chapters based around the home and its relevance to Esherick and his work.

The first chapter was about the studio buildings' architecture, the people involved and the decades it took to build each section. The second chapter includes



RENDERINGS: ATKIN OLSHIN SCHADE ARCHITECTS



a juried exhibition entitled Home as Self, inspired by the fact that the studio itself can be seen as a self-portrait. The museum has been running annual juried woodworking exhibitions since 1994 as an opportunity to encourage new creative and imaginative works in wood.

This year applicants were invited to share innovative works of art, craft and design that represent a self-portrait. Each submission had to include wood in some way, but could take a different approach to what it means to make a self-portrait. The finalists were selected by jurors Fabio J Fernández and Keunho Peter Park, along with the museum's curatorial affairs and strategic partnerships director Emily Zilber. Twenty-five artists will be featured online in the exhibition and the top three will be on display in the museum's visitor centre.

Julie says the Covid-19 pandemic and lockdowns gave the museum a valuable opportunity to extend its reach online.

'When the shutdown occurred we built up sections of our website with collections information, bibliographies and all kinds of other information. The team here set about doing virtual programmes and we still do that, and they are pretty well attended. It is a way to bypass geography and ability to access the site, and engage whole new audiences.'

She adds: 'In 2020 we had about a quarter of our typical visitorship while we were entirely closed, and half of those people were new to us. We felt pretty good about that. Nothing replaces the experience of physically being here, but being able to reach people with technology is great.'

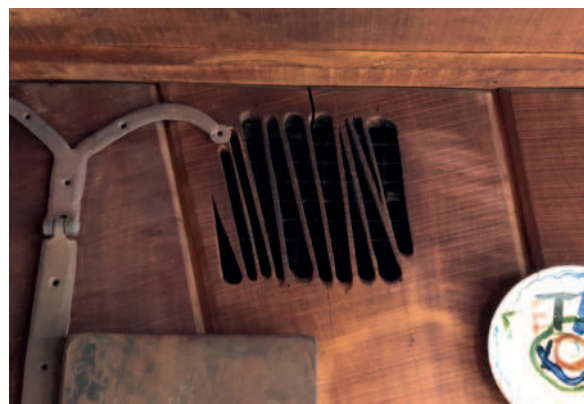
To wind up our interview, I asked Larissa and Julie if there was one piece in the museum they would pick as being particularly representative of Esherick's philosophy and style. Larissa pointed immediately to the iconic staircase that is the centrepiece of the studio and many

people's strongest association with Esherick.

She says: 'The staircase is the icon, the identifiable piece that most people have seen or hear about,' she says. 'It is very utilitarian – a means to go upstairs made with mortise and tenon joints, able to be dismantled and moved which is also practical – but it is an incredible structure.'

Julie says: 'The dining room was an addition Esherick made when he began to live in the studio. It is 1940, woodworking has become his identity and he literally envelops himself in it: walls, floor and ceiling are all wood. He needed an air return, so he hand-carved one into the wooden wall. It is absolutely extraordinary, and for me that is very representative of this idea that he can solve a functional problem or need with something that is just gorgeous. I had it tattooed on my body a couple of years ago.'

whartonesherickmuseum.org



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COFFER CHEST

KEVIN LEY CREATES A STRIKING CHEST FROM
WALNUT AND CEDAR OF LEBANON

Unique timbers and individual designs are the unique selling points of my work, so I try to make interesting, unusual, high value pieces that are small enough to go into a car boot to assist impulse buyers at shows. I have made several chests like this: they fit easily into most rooms and sell well because they can have a range of uses. The storage is flexible and the top can be used as a seat, low table or shelf.

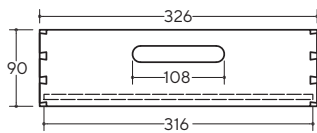
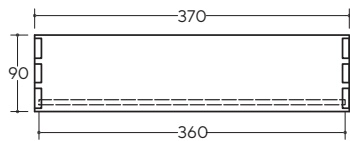
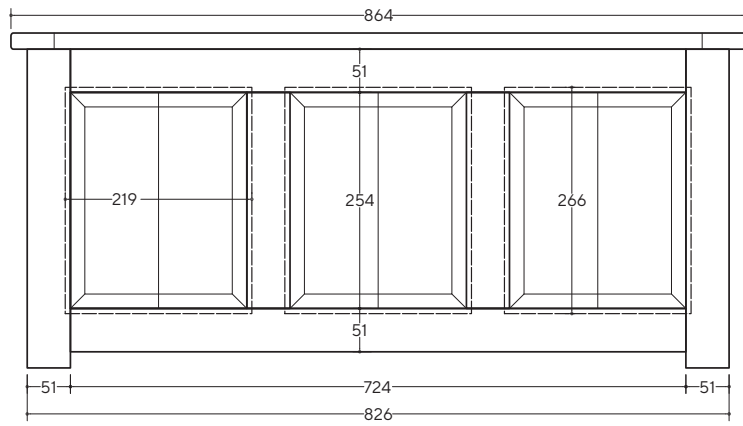
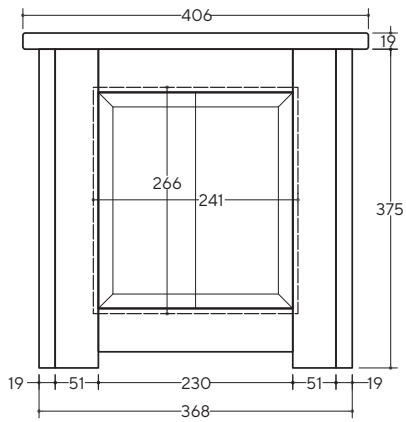
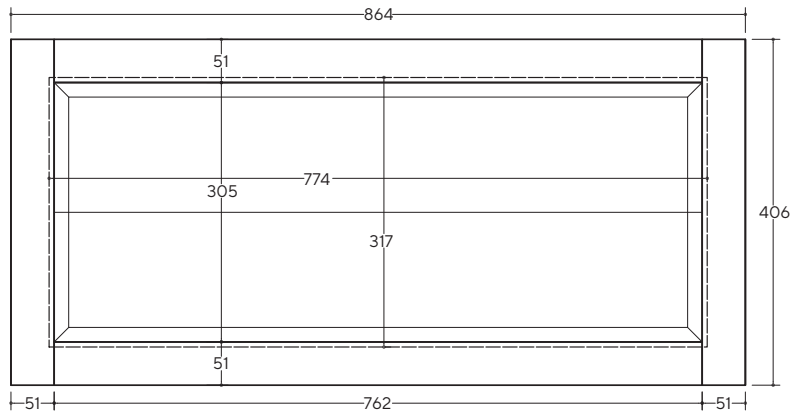
DESIGN

This particular design with the internal trays is aimed at use as a sewing box or for clothes storage. As this would be a display piece I intended to use a decorative timber. The frame and panel construction would allow figured book-matched panels to be shown off against straighter-grained and more stable frames. The design also allows small and narrow pieces to be used. Internal trays would be fitted to give flexibility of storage.

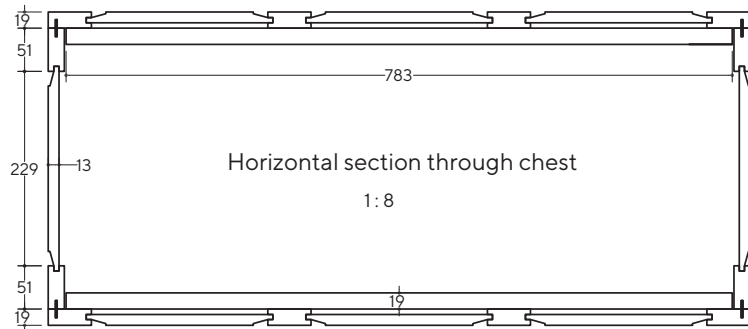


Plan of Top and Elevations

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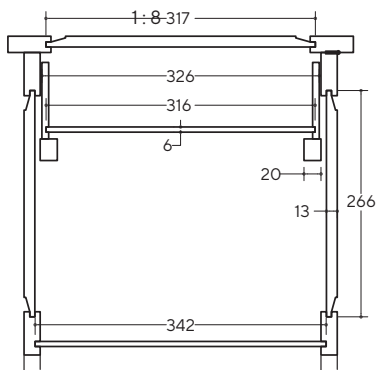


Tray Details



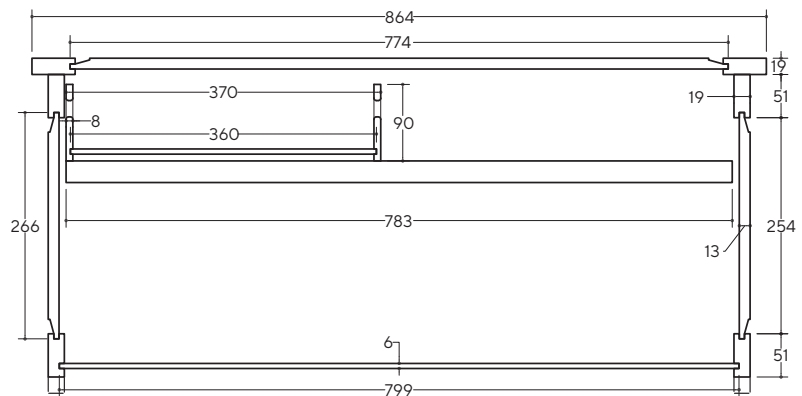
Horizontal section through chest

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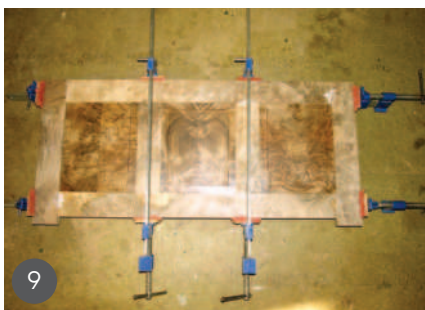
Vertical section through chest

1:8



Vertical section through chest

1:8



SELECTING THE TIMBER

1 I had some offcuts of burr walnut in stock that were ideal for this piece. There were some nice highly figured decorative pieces of burr for the panels and some narrow pieces of straighter grained timber suitable for the frames. The top panel was the largest piece I had to find. Selecting the right pieces, working round the inevitable cracks and faults in this highly figured timber is crucial to the final look of the piece. I took my time and enjoyed the challenge, marking out the pieces and cutting them out a bit oversize with a jigsaw. The trays would be made from cedar of Lebanon for its lovely scent, which is also an insect repellent. Cutting that out was much more straightforward – the timber comes in large wide boards with only the occasional large knot to work round.

2 The stock I had was 25mm thick so it would also need to be deep-sawn for the thinner drawer casings. Once all the pieces were cut out they were trimmed to just over size. The pieces for the panels and the tray casings were deep-cut on the bandsaw. I fitted the 19mm Fastcut blade from Tuffsaws and the thinner kerf and the accurate flush weld on the blade made the saw run smoother and the higher tension helped keep it true. The deep-sawing of the burr walnut for the panels and the cedar of Lebanon for the tray casings went without a hitch, and the cut finish was better too! All the pieces were faced and thicknessed, then sticked and stacked in the workshop to condition during the making.

THE PANELS

3 The deep-cut components for the panels were carefully matched up. The joining edges were planed true on the surfacer then hand-planed to remove the ripples. An extra stroke or two was taken off the middle of the joining edges to give a hollow centre.

4 When the joint was clamped up this would put extra pressure on the ends where shrinkage is likely to occur. As these pieces were burr with the grain going in all directions, it was inevitable that some parts of the glued joint would be short grain to short grain and potentially weak. To counter this, biscuits were used to strengthen the joint and help locate the pieces during clamping up. I took care to place the biscuits so that they would not be exposed during the fielding process. The joint was glued up and clamped, and when cured the glue ooze was removed with a scraper.

5 The finished panels were accurately cut to size and belt-sanded down to 150 grit. The edges of the best face were then fielded using an upright fielding cutter on the router table.

6 The fieldings were finished with a hand-plane and palm-sander. The panels were then random orbital and hand-sanded down to 320 grit and finished with several coats of oil. I always finish panels before assembly into the frames so that any parts exposed by future shrinkage will look the same as the rest of the panel.

THE FRAMES

7 All the frame components were cut to exact size and Domino slots cut in the ends.

8 A router with a straight cutter was set up on the router table and the stopped housings and the housings to accept the panels were cut.

9 The Dominos and slots were glued up, the panels dropped into place and the frames clamped up. Care was taken to ensure that no glue ooze spread on to the panels so that they were 'floating' and free to move if necessary. The frames were checked for square and wind and left to cure.

10 Once cured the housings for the ply base were cut on the router table and biscuit slots were cut in the relevant edges for the butt joints between the sides and ends. The top edge of the back was planed down to 3mm to form a rebate for the top's piano hinge.

BASE

11 The base was cut from cedar of Lebanon-faced ply and was not to be sealed. This would allow the wood's scent to permeate the interior of the chest. To avoid a difficult masking job, the interior faces of the assembled frames were oiled prior to assembly. The glue faces were masked to avoid contamination.

ASSEMBLY

12 The biscuits, slots and edges of the butt joints in the sides and ends, and the housings for the base were glued up and the carcass assembled. The joints were tapped home with a rubber mallet and clamped up, checked for square and wind, and left to set.

13 The top edges were then sanded.





14 A piano hinge was fitted to the top back edge, which had been cut short to form a rebate for it to sit in. The pilot holes for the screws were drilled with a self-centring drill bit – a brilliant bit of kit well worth the couple of quid it cost. A strip of cedar of Lebanon was screwed to the inside of the front and back to support the trays of the chest.

TOP

15 The top was made in a similar way to the frame and panel carcass components with a larger single panel, fielded on the top face, and recessed into the frame. The frame corner joints were Domino loose tenons. The outside edges of the top frame were rounded over with a 6mm radius cutter on the router and the hinge fitted to the back under-face of the top. The overhang allows the top to open just past the vertical and stay open. The top panel was finished with a sanding block.

16 Here you can see the Dominos in the top construction.

TRAYS

17 The pieces for the tray components were cut to size and the dovetail depths were marked with a cutting gauge. I had sharpened the knife in the gauge to make a clean cut across the grain in the soft cedar of Lebanon.

18 The tails were marked with a hard pencil using my dovetail 'square'.

19 The sides were taped together and the bulk of the waste removed to form the tails on both ends, all together, on the bandsaw. The tails were trimmed to exact size with a paring chisel. The pins were then marked on the sides with a scalpel, using the tails as a pattern.

20 I set up a straight cutter on the router and, using the router table and some careful marking out, removed the bulk of the waste for the pins. They were also trimmed to exact size with a paring chisel. The dovetail joints were checked for fit with a partial dry insertion. Dovetails should only go right home once! Housings were cut in the sides and ends for the cedar of Lebanon-faced ply bases.

21 The finger slots were cut on the router table, then the edges rounded over with a 3mm radius cutter, to soften them.

22 The inside faces of the sides and ends were sanded to a finish and glue applied to the dovetails and base housings. The dovetails were tapped together around the base ...

23 ... and the trays were clamped to finally pull up the dovetails. Diagonals were measured to check for square and the trays checked for wind. When I was happy, the clamped trays were left to cure.

24 Once cured, any glue ooze was removed with my mouse plane.

25 Most of the components had been sanded to 320 grit during the construction and several areas oiled as well. Now all the bare surfaces were checked for blemishes, which were removed by ironing, filling, scraping or sanding as necessary, then all were hand-sanded down to 320 grit.

Burr can soak up a lot of oil before the finish evens out, so the first coat was applied liberally and refreshed frequently during the first day, at the end of which the surface was vigorously rubbed with a soft cloth to remove any surplus and left for 24 hours to cure.

Any dull areas left where the grain was end on or very absorbent, were treated with Liberon Worktop Seal and Finish, a water-based varnish that can be applied to oiled surfaces and, in this case, acts as grain filler and sealer. When dry this was lightly sanded to blend with the oiled finish and several more thin coats of finishing oil applied over the whole piece at 24-hour intervals for several days. After each coat any oil remaining on the surface after 15 minutes or so was buffed off with a soft cloth. A week later the finish was cut back with a Scotchbrite grey pad and buffed with a soft cloth.



ENLIGHTENMENT BOOKCASES

OLI RENISON BUILDS A SET OF OAK BOOKCASES INCLUDING QUADRANT SECTIONS AND SUBTLE LED LIGHTING

Sometimes a client comes to you knowing exactly what they want and sometimes they might only have a vague idea – they’ve seen something they like the look of but are looking for you to fill in the gaps. The commission for these bookcases was very much the latter.

I was asked if I could design and make a piece that would echo something the client had seen in an interiors magazine, but with the addition of several other elements that would make it fit with their needs in practical and aesthetic terms.

In terms of materials, having recently had a lovely modern oak staircase installed in their home renovation, they were keen to have this as the main material in the piece, and then the natural woodgrains would be contrasted with painted elements.

Some of the other requests were for curved ends to soften its presence, possibly curved doors and warm lighting on the shelves. What I came up with, and presented to them via SketchUp renderings, was something they were really excited to have built. I got the go-ahead and started making the piece soon after.

BREAKING IT INTO SECTIONS

I don’t know if I do it subconsciously, but because my furniture-making business is just me working alone, whenever I get a large piece like this to make, the thing that is foremost in my mind is building it in such a way that it can be broken down into manageable sections so I can handle it alone if at all possible. This piece would lend itself well to this approach.

The whole thing is basically four shelving sections, unified by joining strips. This meant that the largest two units were around 750mm in width, and the outer quadrant sections were around 350mm. All fairly mobile.

PLANNING THE DESIGN

The first job I needed to do was to plan out the build on a full-sized drawing. This was crucial as there were so many different radius templates to make for the various formers and routing templates – so having these planned out first, in full size, was essential. I drew everything out in a simple plan view on to 6mm MDF, taking key dimensions from my SketchUp drawings, and this allowed me to tweak things where needed and better understand how everything would work together.



1 SketchUp render of my proposed design 2 An exploded view of all the elements of the full build





THE PLINTH

The plinth was built first as this was the basis for everything on top. Normally you would always include some method of levelling in the plinth, but I knew that the spot where it was going was lovely and flat, a brand new floor and nice and level. This simplified things and I was able to make a framework structure, with laminated stacked MDF layers at the front corners, which I could then cut my radius into and sand to a nice flowing curve.

THE MAIN CARCASSES

Next came the main carcasses. These would be constructed with 19mm pre-veneered oak. Pre-veneered boards vary a lot in quality, but I find that if you get a nice batch, which these were, then you can really get some beautiful grain. It's a good material if you are not set up in your workshop for veneering and obviously saves a lot of time. The structure of this shelving also allowed me to keep the best faces on show and hide anything less attractive.

The downside of using pre-veneered boards of course is that you are left with raw edges that need covering. This wasn't to be an issue here, as I was using fairly wide shelf 'nosing' made in solid oak which, when applied to these edges, would give the shelves much more strength and also provide a hidden routing path for the lighting, which would come later.

The two main central carcasses were very straightforward. They were all biscuit-jointed together and the construction was further simplified in that because the outsides of the carcasses were not seen, I was free to use screws during assembly to pull all of the joints up tight. The shelves sat proud of the sides by around 15mm. That meant that when I later fitted my 19mm vertical strips to unify each section, the shelf-fronts would sit back from there a little.

THE QUADRANTS

I worked on the quadrant sections next. Again, these had to sit back from the vertical joining strips a little and then each shelf had to be jointed on and then the appropriate radius cut with a template and hand-held router. The shelf at counter level and the ones below it had to have a different radius cut, which needed to allow for the thickness of the laminated curved door to sit over them, which I would make later.

THE SHELF LIPPINGS

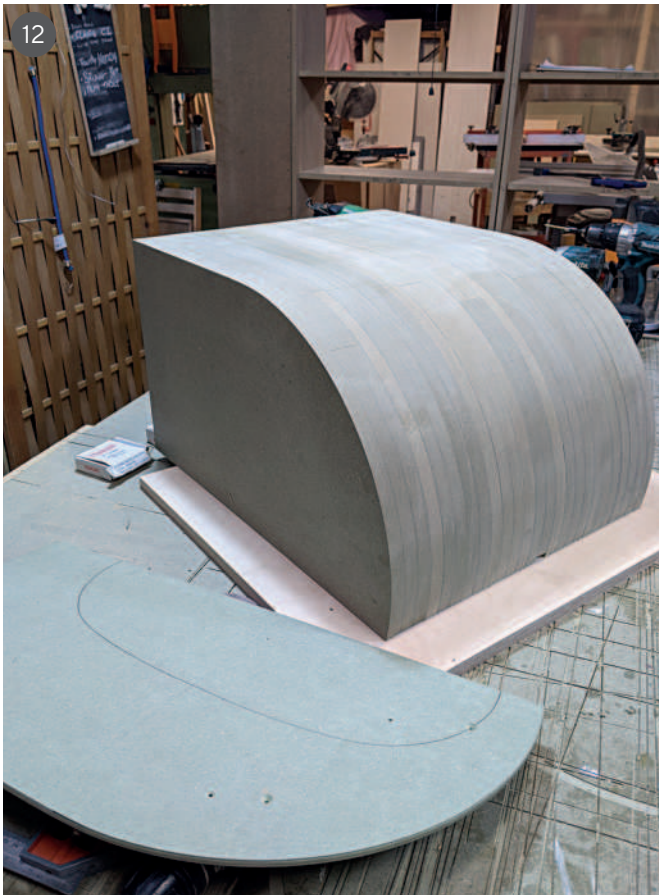
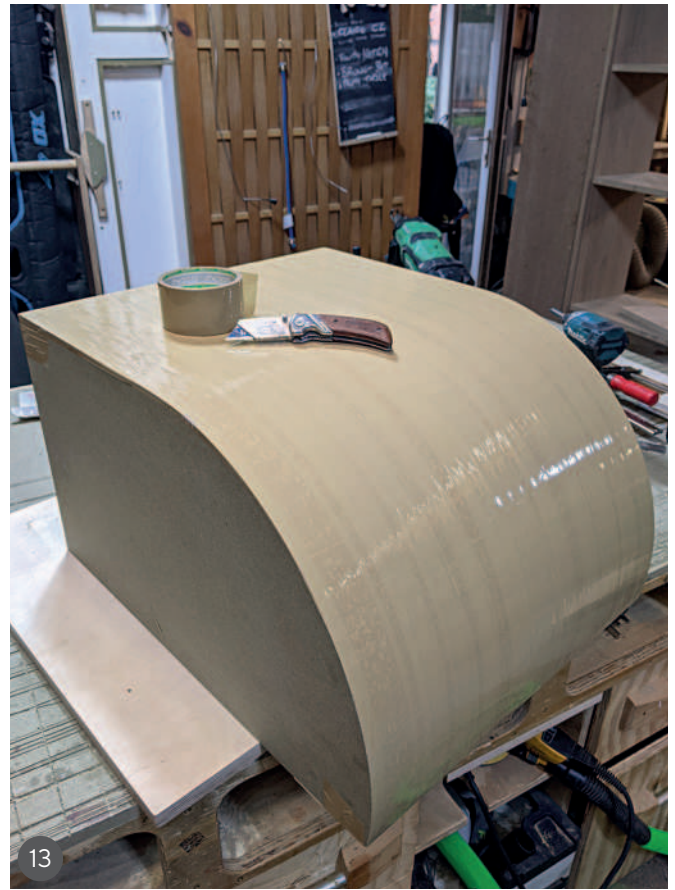
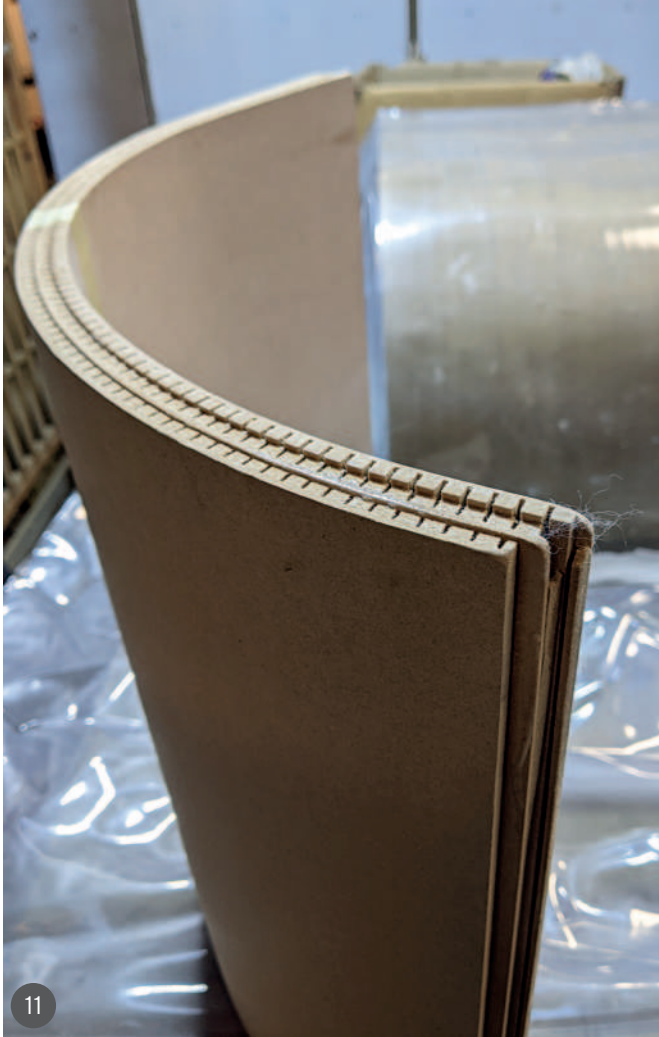
With all the carcasses initially together it was time to construct the shelf lippings. On the central, flat carcasses these were solid oak at 35 x 12mm. I wanted to keep them fairly minimal, but I had to be mindful of the lighting I was choosing and that they would have enough overhang on the 19mm shelf thickness to cover the lighting from view behind the resultant lip. The lippings were also rebated on to the shelf edges so that I would only be left with a very fine line if viewed from above.

The quadrant sections required laminating, and for this I used 2mm constructional veneer built up in layers to give me my 12mm. For the maths fans out there, that's six layers! To make the former, I had to produce another template. These were all pretty straightforward to do, as everything was based on a radius, and so with a router mounted on a trammel, I was able to quickly cut 6mm or 9mm templates of whatever radius I wanted. I could then produce a working template from these which, for a former such as this, needed some 'run-out' or extra length at each end so that you could laminate longer sections than you needed and cut them to size later while cleaning up.

I made the former with a sandwich of 3 x 18mm MDF layers to give me enough height for the 35mm I needed plus some extra, covered the surface in parcel tape to



- 3 Full-sized rod and various radius templates 4 The main carcass sections together 5 The lipped shelves sitting back from the vertical joining strips 6 The quadrant shelf section 7 The oak shelf lippings rebated on to the shelf edges 8 The 2mm constructional veneer used for the quadrant lippings 9 The constructional veneer in the former for the curved shelf lippings 10 Creating the curved shelf rebate on the curved lippings





avoid sticking, and using Cascamite which sets very rigid, glued and clamped the layers into place to dry with a combination of band clamps and squeeze clamps.

The next day I could clean off any glue squeeze, plane one edge nice and square, then carefully thickness to size before creating the rebate to fit over the shelf edges.

With a couple of biscuits for alignment (not so easy on curved sections) I could glue and clamp each lipping to its quadrant shelf and clean up.

DRY ASSEMBLY

I was at a stage now where I could dry-assemble all of the carcasses. I had planned them so that when they stood next to each other, they would be separated by 12mm packing between them. This would mean that my vertical joining or cover strips would be 50mm in width made up of 19mm + 12mm + 19mm. These cover strips were biscuit-jointed in place and dry-fitted to unify all of the carcasses. The backs of these cover strips then had to have housings cut in them at points which lined up with the routing for the lighting, to allow it to pass through from one section to another.

THE DOORS

The next job was to produce the two quadrant doors. Back to my router and trammel, I produced a working template, very similar to the one I had made for the curved shelf lippings but another slightly different radius.

The doors would be made up from three layers of 'bendy MDF', which is essentially just regular MDF with machined kerf cuts to one side of it which allow it to easily bend to your desired shape. It's fairly delicate on its own but three layers together, with all of the kerfed faces orientated inwards and glued, forms a strong and rigid shape with a nice, smooth face for veneering, or in this case, painting.

There are several ways you can approach a larger laminated component like this. You can glue up many layers of sheet material, with the shape cut on to its edge until you have your desired width. You can take a 'skeleton' approach where you have the shape on the outer faces and then the middle is built up with ribs going across, and then skinned with a thin ply, very much like how skateboarding ramps are built if you've ever studied them. Another approach is to use layers of foam such as insulation foam, which you cut and shape or you can even have complete blocks CNC-cut for you by specialist companies.

As I only needed a relatively small length, my doors being a shade under 450mm in height, and because I have an abundance of smaller MDF offcuts, I went for a hybrid version of the first technique, the stacking method, to make up my length.

You do not need every single layer to be the full depth of your main former shape. You can actually use relatively small filler-layers, pieces that you tack on to overhang the edges, which you then cut back with a bearing-guided cutter. These are interspersed every few layers with a full piece to keep some strength in the former and maintain consistency. This also helps to keep the weight down in what would be an otherwise very heavy former.

Once the former was made, it was covered in parcel tape to repel glue squeeze-out and all of the edges were softened so that it would not damage the vacuum bag in the next step.

With a couple of dry runs under my belt, always a good idea, I could apply Cascamite adhesive to both meeting faces of my layers, assemble them and then tape them together centrally before positioning them on the former inside the vacuum bag. I find that taping them helps to limit the slipping of layers that can happen and eases the process. With the bag sealed and the pump attached and running, it was a case of performing



11 The kerfed cuts on one side of the bendy MDF can be seen 12 The former made up with many layers of 18mm MDF 13 The former covered in parcel tape to prevent sticking 14 One of the curved doors in the vacuum bag 15 The finished finger pull on a curved door 16 The warm white LED lighting strip 17 Showing the lighting cable routing



The best thing is that, to my eye at least, it looks much better than the image in the interiors magazine the client handed me as inspiration. That's what I call a satisfactory outcome!

that slightly anxious positioning and repositioning dance that we all do when vacuum-pressing components. You have to give a form like this a big cuddly bear hug, pressing it all down in order to get it seated right on the former before all the air starts to get expelled so much that you can no longer move it. It's always a bit nerve-wracking, as are a lot of glue-ups, but it's satisfying when everything goes into place nicely and you see little rivulets of adhesive tracking out, telling you that you've got a closed joint.

Once each door was ready, I cut and cleaned them up and applied a thin MDF lipping to all edges to cover any gaps from the kerfed layers.

THE DOOR PULLS

I made a small template for forming my handle pulls. These were to be formed using an Ovolo or finger pull router cutter with a guide bearing, and were a simple curved cut into each corner creating a pull. This was done on the curved doors and on the flat doors at the front. The curved doors needed some work here with several applications of two-pack body filler and shape sanding to get the pulls smooth and free of any voids from the kerfed layers. It was all to be painted later and so needed to be ultra smooth.

With the doors done, I could spend some time giving everything a big clean-up down to 180g abrasive and glue and assemble all of the carcasses. I drilled some exit holes under the quadrant shelf lips, which would allow the lighting to exit at the back of the cabinet, and set about making the crown board for the top. This was also to be painted and so was a piece of MDF with the radius cut to its edge and a simple moulding applied before sealing the edges. Before fitting

the crown board, I routed and screwed in some steel joining strips on the tops to help keep each section strong together. I repeated this at the back of the whole unit too. The last thing I would want was for the different sections to drift apart from each other.

INSTALLING THE LIGHTING

The next job was routing and testing the lighting. The lighting I had chosen was a beautiful warm white continuous LED strip from a company called Hartington Heath. The strips were not like the usual thin, peel-and-stick strips with each LED distinct from its neighbour that you see so often, but a completely self-contained rope of light, which diffuses the light too. There's no transformer to hide either, and they can be wired to plug right into a regular socket at very long lengths with no dimming towards the end.

I had based my shelf overhangs on dimensions from the lighting company's website and had unfortunately not factored in enough leeway to account for the clips which hold the strips. I found that when I fitted these clips, they made the light strip sit just proud of the shelf overhang by a tiny fraction, but enough that when viewed from the front, your eyes were drawn to these bright spots, over the gentle, warm and hidden light elsewhere. This meant that I had to carefully rout a shallow channel behind each shelf lip, including the curved ones, so that the lights would sit up into the shelves a little more. No big deal in the end, but I was lucky that I was at a stage where this was still possible.

PAINTING AND FINISHING

Each of the doors was hung using Euro-style soft-close hinges, which were very

much welcome when it came to the curved doors as they allow a good degree of adjustment to get the fit just right. They also keep the doors shut without magnets or anything and so work well here.

Everything was now dismantled and ready for finishing. For the wood, I applied two coats of Osmo UV-resistant oil. The bookshelves were going to be sited right next to an exterior glass door, and so I wanted the oak to have the best chance of keeping its colour in the sunlight. For the painted parts, I had picked up a little HVLP paint spray gun from Rutlands to try, which I thought might work fairly well for smaller pieces that I can paint myself.

I'm by no means a painter, but after several coats of primer and then top coat with careful flattening between, I was really happy with the finish I got. It's lovely and flat and even and the grey 'Little Greene' colour looks fantastic against the warmth of the oiled oak.

Everything was reassembled in the workshop for a full shakedown run before I was able to deliver it and install it in the client's home. I added some felt pads under the plinth to soften things on the wooden floor, branded it with my hot stamp and added a remote-controlled plug so that the client could switch the lighting on and off from afar.

It really looks fantastic in place, and I'm so happy with how it turned out. The client has since filled it with treasured items and is over the moon with it and the warming glow it gives their hallway every evening.

The best thing is that, to my eye at least, it looks much better than the image in the interiors magazine the client handed me as inspiration. That's what I call a satisfactory outcome!





THE BALANCING BARN

THIS SUFFOLK HOME IS A REMARKABLE EXAMPLE
OF SUSTAINABLE ARCHITECTURE

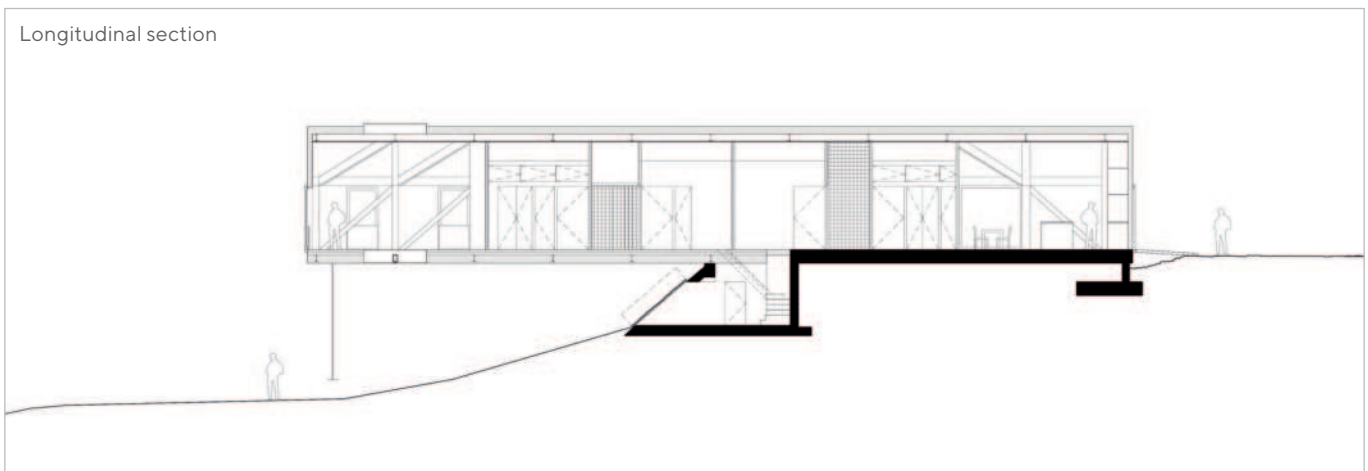
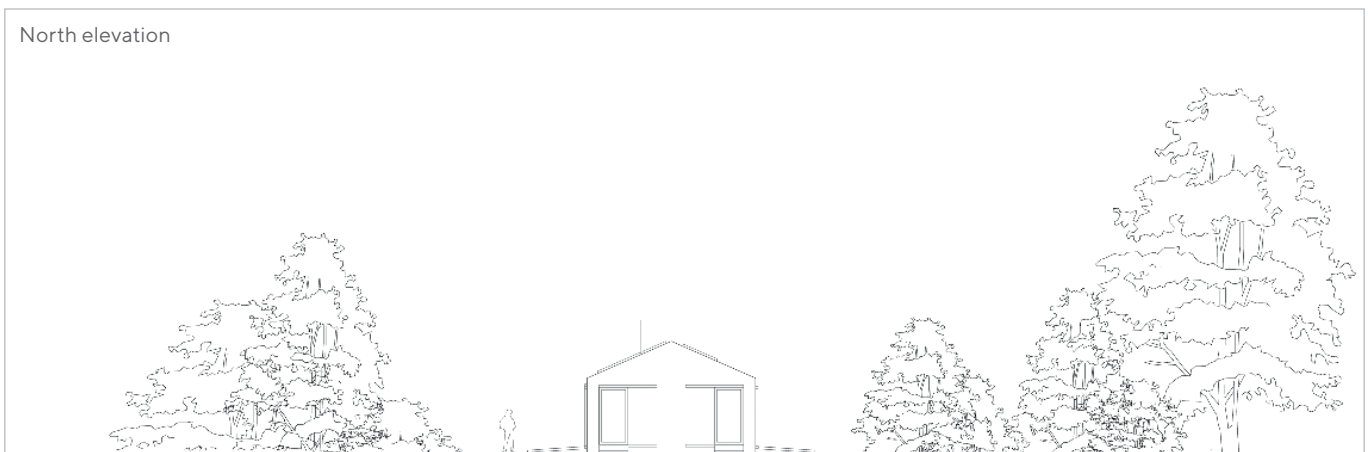
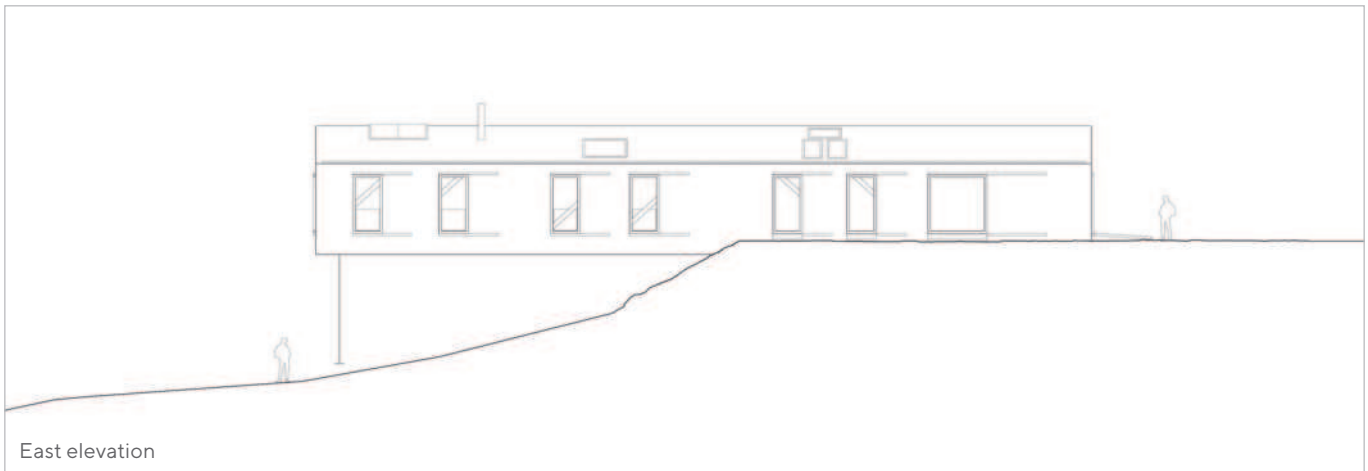
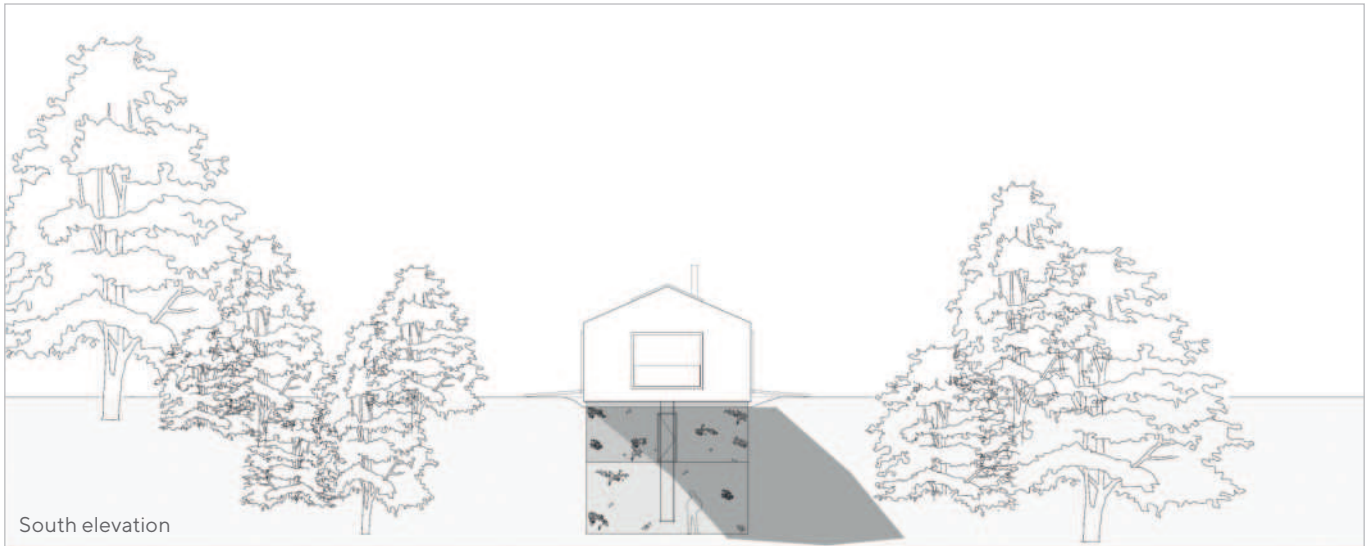
‘Sustainable design integrates consideration of resource and energy efficiency, healthy buildings and materials, ecologically and socially sensitive land-use, and an aesthetic sensitivity that inspires, affirms and ennobles.’ This is the definition of sustainable design used by the International Union of Architects (UIA) and the American Institute of Architects (AIA).

The process of construction affects the environment and surrounding ecosystem. Once buildings are constructed, the occupants and administrators face a series of challenges in their attempt to maintain a healthy, efficient, and productive environment.

In order to meet these challenges, innovative and varied building strategies have been developed that can be grouped based on the place they are mainly employed. Strategies related to the building location attempt to minimise environmental impact, integrate the building into the landscape and increase the alternative transportation options. Strategies centred on energy aim to conserve energy and use renewable energies that guarantee the efficient use of natural resources and reduced public utility costs. Strategies that ensure a state of wellbeing inside the home make use of natural light and ventilation to reduce energy consumption and improve lighting and interior environment. Water-management strategies employ a system of maximum efficiency, reduce public utility costs, and manage rainwater and grey waters. Material strategies involve reducing, recycling and composting materials, and using green construction products where possible. Finally, technology should be used as an ally in sustainable and efficient construction. For instance, automated home thermostats can greatly contribute to developing future sustainable strategies in building design, construction and maintenance.

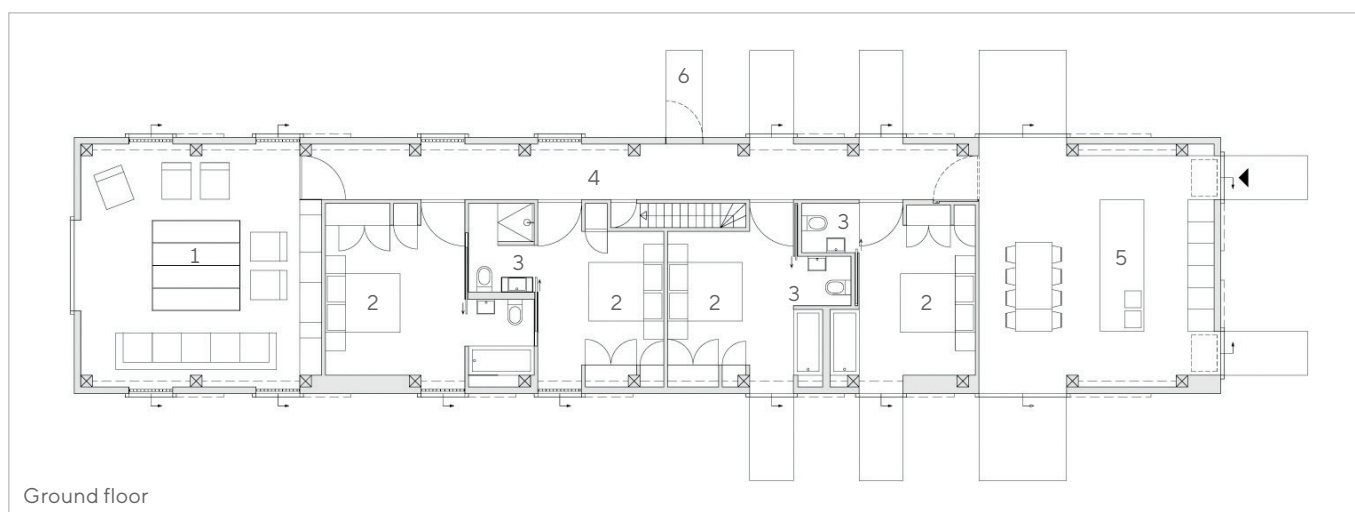
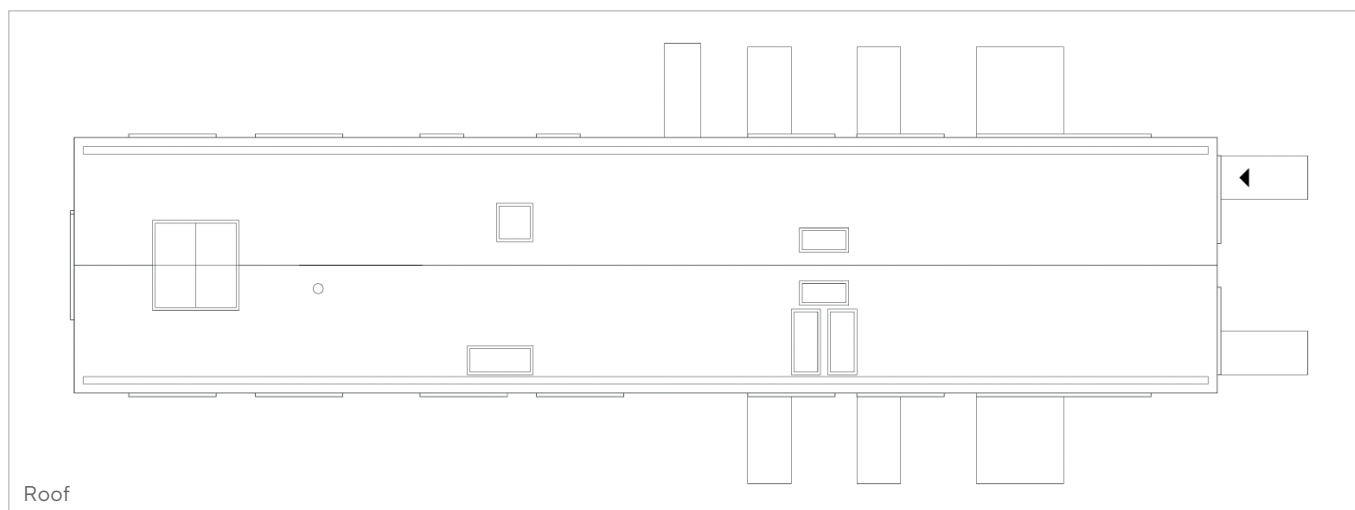
These strategies and their regulations in standards and certifications contribute to the achievement of environmentally friendly homes that are alive and ‘breathe’. One such example is the Balancing Barn in Thorington, Suffolk, which was designed by the Dutch firm MVRDV.

PHOTOGRAPHS BY EDMUND SUMNER AND CHRIS WRIGHT/COURTESY OF MONSA PUBLICATIONS









- | | |
|----------------|----------------------------|
| 1. Living room | 4. Hallway |
| 2. Bedrooms | 5. Living room/kitchen |
| 3. Bathrooms | 6. Hidden fire escape door |

Located in a beautiful setting, near a small lake, this house blends into the natural environment through its architecture and its engineering. Its design, in the form of a traditional barn with reflective metal sheeting, references the local construction style. Contemporary architecture permeates all areas and spaces, even the most traditional.

Despite appearing to be a small house for two people, when visitors approach they appreciate the full length of the house and its overhang. At more than 30.5m long and with an overhang of 15m, the house is submerged completely in nature thanks to its lineal structure. Visitors are treated to nature from the ground floor to the final room in the overhang, which is the height of the trees and boasts windows on three sides as well as in the floor and ceiling. Moreover, the metallic cladding will never cease to reflect the continuous passage of the seasons.

The beautiful balance achieved by the attractive overhang is possible because of the rigidity of the building: the structure

has a central concrete core, where the section that sits on the floor has been built with heavier materials making up the cantilevered section.

The sequence of four double bedrooms, each one with a shower and separate toilet room, is interrupted in the centre of the home with a hidden staircase that accesses the lower garden.



Eco Houses: Sustainability & Quality of Life, published by Monsa, RRP £19.99, available online and from all good bookshops

UNDER THE HAMMER – ANTIQUe CHINESE FURNITURE

THE CHINESE WORKS OF ART SALE AT BONHAMS' NEW YORK AUCTION HOUSE FEATURED THESE STUNNING EXAMPLES OF RARE FURNITURE



▲ **LOT 199 • US\$212,812 (£172,048)**

A large huanghuali table, made during the Qing Dynasty in the 18th century. The massive, well-figured single board table top is half-lapped, mortise and tenoned to thick side panels carved with a single yuji cutout, centred above a scroll-work base. Tables of this type were used for holding musical instruments, reading handscrolls and other leisurely pursuits. The yuji cutouts on each side panel are symbols of good fortune



▲ **LOT 149 • US\$56,562 (£45,728)**

A rare huanghuali and huali demi-lune triple-top card or games table, made circa 1730–40. The edges of the three-leaf top have a half-round moulding, and the double-gate back legs have integral wood hinges to support the flaps. The top flap is plain while the second is baize-lined. The solid apron is delicately carved in low relief with a beaded edge terminating in ruyi lappets above the rounded, slightly tapering legs, which end in pad feet decorated with fanged dragon heads with wavy manes.

▼ **LOT 200 • US\$162,812 (£131,619)**

A rare pair of huanghuali 'rose chairs' with 'cracked-ice' decoration, made in the 17th or 18th century. Unusually, these huanghuali chairs have been modelled after bamboo chairs, each with a short rectangular back and sides inset with slanted spindle posts forming the 'cracked-ice' design. The framed seats are fitted with soft mats and secured by stretchers underneath. The simple column legs are further framed with bamboo-form stretchers and supports. The wood has a rich caramel colour and an attractive patina.



PHOTOGRAPHS COURTESY OF BONHAMS



▲ **LOT 147 • US\$75,312**
(£60,867)

An early example of a huanghuali 'vase splat' chair, made circa 1730. The chair is modelled in the George II style with shaped stiles and a central vase-shaped splat with a shell cresting above with a pendant acanthus. The huanghuali wood has a rich tone and attractive darker markings. The cabriole legs are decorated with carved shell motifs to the knees above a further pendant acanthus and carved claw and ball feet.

▼ **LOT 142 • US\$3,499**
(£2,827)

A rare bamboo bookcase, made in the Shanxi province during the Qing Dynasty in the late 18th or early 19th century. It comprises three inner shelves and one top shelf, the back has a latticework design centred by octagonal panels of angled lattice bordered by square panels of T-fret lattice.



▲ **LOT 201 • US\$12,750**
(£10,303)

A jichimu and huamu wood rectangular table, made during the late Qing/ Republic Period in the early 20th century. The single board table top is made from a finely figured huamu panel set into a mitred, mortise and tenon frame with an 'ice-plate' edge, tenoned to straight tubular supports and long stretchers bisected by vertical posts and embellished with double keyfret open spandrels.



◀ **LOT 144 • US\$47,812**
(£38,620)

A large huanghuali and huali bookcase, made circa 1750. It is supported by scroll bracket feet. The lower section is in the form of a chest of drawers with a hinged fall-front with pull-out supports and enclosing a fitted interior with various sized drawers. One drawer is inked with Chinese number characters, one horizontal shelf and eight pigeonholes with Chinese-form apron details, all above four graduated large drawers each with two highly-decorative Chinese paktong (baitong) handle plates with swan-neck handles. These are also mirrored in the paktong carrying handles to the sides. The upper section has two mirrored doors (a later addition) with rocaile paktong key-plates at the centre and further paktong carrying handles to the side, opening to reveal two drawers and three shelves.



SECRET MITRED DOVETAILS

MICHAEL T COLLINS EXPLAINS WHY THESE JOINTS
ARE IDEAL FOR MAKING BOXES

Whenever I make boxes – and I make a lot of boxes – I like to keep the grain flowing around the joints and generally employ a spline joint, since a standard butt joint is not particularly strong. When creating a dovetail, either a through, or half-blind or lapped dovetail, this visually aesthetic flow of the grain around the corners is interrupted by end grain.

Typically, in the 18th century it was considered ‘provincial’ to have dovetails showing, and master cabinetmakers would cover the through or half-blind dovetail with moulding or a cornice at the top of the piece. However, this is not practical when making boxes. So how to employ the strength of the dovetail joint yet allow the grain to flow around the corners?

ENTER HIDDEN DOVETAILS

Hidden dovetails, often called mitred dovetails, appear to be quite complex and therefore difficult to master but, given a methodical approach and careful layout, this type of joint is no harder than the half-blind dovetail. In fact, unlike the half-blind dovetail, there are only three faces that need to be ‘perfect’ – the top and bottom edges and the mitre. The hidden section can be as rough as you like, so long as the dovetails hold and the mitres fit snugly.

BASIC MITRE AND TONGUE LAYOUT

1 Unlike through and half-blind dovetails, hidden dovetails work best if the boards are of equal thickness. They don’t have



PHOTOGRAPHS BY MICHAEL T COLLINS

to be, but working with boards of differing thicknesses adds complexity. To start, select a piece of straight-grained wood (I have chosen to work with poplar), then cut and plane to final thickness and square the ends. To do this I just use a jack plane and my bench hook.

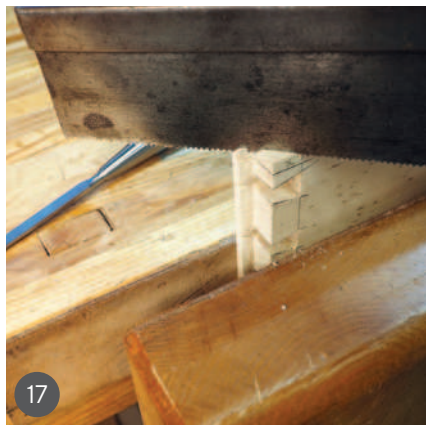
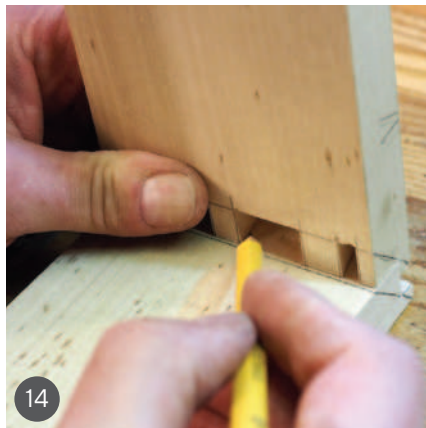
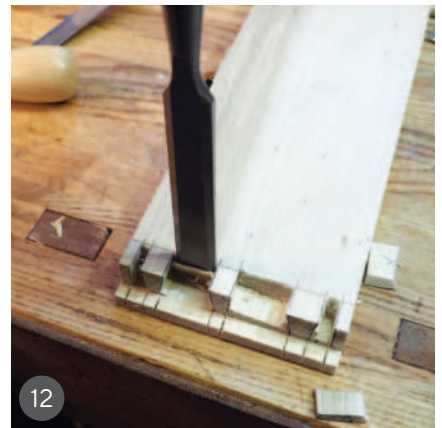
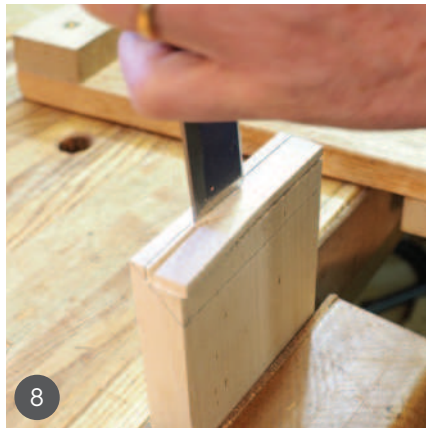
2 Mark the face and edge sides. These will be the outside surfaces of the final piece. Then set the marking knife to the exact thickness of the board.

3 Scribe a line on the inside face of both pieces, referencing off the end grain.

4 Set the cutting gauge to approximately 6mm and, from the face side, mark a line on the end grain, referencing off the face side of the wood.

5 With a ruler, connect the outside corner of the board with the scribed line on the inside edge. This produces a 45° angle.

6 Repeat this process on the ends of all four pieces. Now, mark the same 6mm line from the end grain to the point where this line intersects with the 45° diagonal line. Also mark a line on the inside face, referencing off the end grain. In photo 6 I have emphasised the lines for clarity.





7 Cut the rebate using a chisel and remove a V-notch on the waste side of the scribed line.

8 Saw down to where the scribed line meets the diagonal line and chisel off the waste.

9 Pare down to the scribe line and check for squareness.

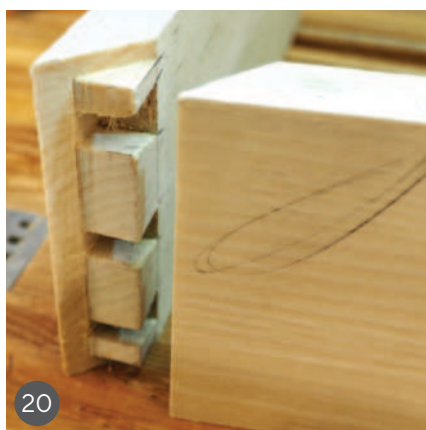
LAYING OUT THE PINS

10 As a matter of habit, I usually cut tails first, however, in this example it would be very difficult to lay out the tails first, so we'll start with the pins. On the end grain and within the rebate area, mark in approximately 6mm from both edges and then come in an additional 6mm. Then divide the remaining space for three pins (the number of pins is determined by the width of the boards). Here I am using a 1:6 shop-made dovetail template. Mark the waste – it is so easy to get carried away with excitement and cut the wrong part. Trust me, I know.

11 When cutting half-blind dovetails, it is quite acceptable to over-saw the pins, but in this case, I want to retain the secret nature of the joint and over-sawing would, to some extent, give the game away. So, instead saw on the waste side, leaving the pencil line and making sure you do not over-saw the 'tongue' of the rebate or go beyond the scribe line on the inside face.

12 Once all the sawing is done, chop out the waste. To do this, start by using the largest chisel that will fit within the waste area, bevel out and about 1mm from the scribe line. Chop into the waste.

13 Then, from the end grain, remove the waste. Repeat this process until you have excavated most of the waste. You will need to chisel down along the side of the tails where the saw hasn't been able to reach. Depending on the wood you're using, you might want to go easy, as chopping too hard on the half pins can cause the wood to split. To reach into the corners, use a smaller chisel or a skew chisel. Finally, place the chisel in the knife line and chop down, adding a slight undercut. Clean up the pins. It's a good idea to add a small chamfer to the inside edge of each tail. This makes for a cleaner joint and a place for excess glue to go. Repeat this process for all the waste.



LAY OUT THE TAILS

14 The tails are laid out using the pin board. This process is very straightforward and uses the rebate tongue to position the pin board on the tail board. Using a sharp pencil to lay out the tails, carry your lines square across the end grain. Note the way to remember: tails are angles on the face grain and pins are angles on the end grain.

15 Again, mark the waste clearly.

16 Saw on the waste side of the line and chop out the waste using the method described above. When cutting tails, it's sometimes easier to angle the wood so that the saw is cutting vertically.

CUTTING THE MITRES

17 Carefully saw the mitres on the edges on the waste side of the diagonal scribe lines.

18 Pare away the waste – take care not to cut beyond the face edge of the tongue.

19 Tweak the long-mitred edge, taking small amounts at a time and test-fit as you go. Make sure that the leading edge of the mitre remains sharp – you are looking for crisp lines between the mating surfaces of the joint.

20 Now all you have to do is repeat this whole process three more times... Since these are custom-fit dovetails, make sure you label the mating joints.

21 Once all the mitres are cut, a groove can be planed or sawn about 6mm up from the bottom of each piece. Apply glue to the mating surfaces and clamp together. And there you have it, the secret dovetail joint.

It may take a little more time than a normal dovetail, but it is worth the extra time when you are working on a particularly nice piece where strength is needed, and the appearance of end grain will ruin the piece or where you can't simply cover it up with moulding. It is also another joint that will develop your woodworking skills.

PURSuing A PASSION

DOM DUDKIEWICZ HAS TAKEN A LEAP OF FAITH TO LEAVE BEHIND A CAREER THAT WASN'T MAKING HIM HAPPY AND EMBARK ON A NEW LIFE MAKING BEAUTIFUL AND SUSTAINABLE FURNITURE. *F&C* MEETS HIM.

'I'd been dreaming about making a living working with wood for a few years, while I grew increasingly disillusioned with the corporate and consumerist reality I found myself in,' says Melbourne, Australia-based furniture maker Dom Dudkiewicz of Blue Wren Timberworks. 'I was working long hours in a job I was not passionate about, and that didn't bring me fulfilment or joy. I realised that a focus on making money and consumption was never going to fill the void, and I reached an inflection point last year when I could no longer continue down the path I was on. It was then that I decided I would start my furniture business.'

He adds: 'I have always wanted to do something for myself and be responsible for an end product or service, rather than a cog in a larger machine. The tipping point for me was hearing a short audio clip of an old recording of Alan Watts, making the case for pursuing your passion even if you feel there is no money in it: better a short life doing what you love, than a long life doing things you don't like doing, simply to live longer doing things you don't like doing. I realised that waiting for tomorrow to start living the life I want to live is folly, and the only time to start doing so is today.'

Dom has always loved making things, crafting his own toys from an early age, and his interest grew when he and his partner moved home 11 years ago and he started to work on his new space. 'I decided to put in our own solid timber floors, build pergolas, decks and so on. My woodworking journey started with a mitre-saw and some construction lumber and quickly escalated into hand planes and hand-cut dovetails,' he says.

'Furniture making is a pursuit that has a seemingly endless scope for learning and improvement, and I am really drawn to this. I get immense satisfaction creating a piece of furniture from nothing more than an idea and a sketch, and doing so with my own hands. I feel the process of making can create more value and meaning than the actual finished piece, and I find that refreshing in an otherwise fast-paced, consumption-driven world.'

He set about teaching himself by reading books and magazines, watching videos and trying to solve problems himself. 'I have made a conscious effort to build up my skills, including performing deliberate exercises like cutting many dovetail corners on scraps, to develop muscle memory and skills with hand tools,' says Dom. 'In slowly building out my workshop I have also used every shop project as an opportunity to further develop my skills, focusing primarily on sound and accurate joinery and quality of craftsmanship. It's amazing how much better you get at cutting dovetails when you choose to hand-cut nine drawers' worth for a router table cabinet, for example. The past three years have effectively been a part-time self-guided apprenticeship for me.'

A SPACE TO WORK

Dom's workshop is in an oversized two-car garage of around 50 sq m with a 20 sq m post and beam timber-frame addition he built himself – his most challenging project so far. 'Designing and building this structure required me to learn more about the limitations and structural properties of timber,' he says. 'I was working with freshly sawn, green timber

beams and laying out joinery on timbers that were not straight or square using reference faces and string lines. It was a great learning experience and gave me my first opportunity to build exterior doors and windows with robust and traditional joinery techniques.'

Although his workspace is small, he is happy to have it. 'The primary garage is where I do most of my milling and joinery work. There's precious little space given the machinery and workbench, so the timber-frame extension provides uncluttered floor space for stock breakdown and larger assemblies, as well as room to store timber,' Dom says. 'While it is not perfect, I feel fortunate to have the space I do and the benefit for now is minimal overheads while I work things out and establish my business. I will definitely consider a commercial premises that suits the nature and scale of the work I end up doing in the future.'

The workshop is also home to Dom's favourite project so far, his Roubo workbench. 'I felt like I was building not only a piece of shop furniture, but a lifelong companion,' he explains. 'The Roubo marked my decision to take woodworking more seriously as a professional pursuit, so it had additional significance for me. Finding some large section blackwood for the base was the icing on the cake. The workbench really makes working in the shop more pleasant and just makes me smile. I can thoroughly recommend the investment in building a nice workbench – or better yet, if you're in Australia, contact me and I'd be thrilled to make you a beautiful bench to your specifications!'



PHOTOGRAPH: CLAIRE RADBOURNE

MATERIAL WORLD

Dom uses power tools for bulk and repetitive work, but looks for any excuse to work with hand tools. 'There's a definite sense of mastery and connection with the wood that comes from using hand tools that I just don't get using machinery,' he says. 'I do alternate between hand and power tools depending on my mood, priorities, scale of the work and the timber used, but hand tools always get used, even if only to refine and tune the fit of joinery. The only hand tool process I avoid is mortising, and you'd have to pry my chisel-mortiser from my cold dead hands.'

In a bid to be sustainable he chooses locally or sustainably sourced timber wherever possible, although he enjoys working with most woods. 'My favourite Australian species is Tasmanian Blackwood – *Acacia Melanoxylon*. I love the diversity of this timber, the range of colour and figure never ceases to catch my attention. It's nice to work with hand tools, provided you are attentive to the often interlocked and reversing grain and keep your tools sharp, and it is a very stable species. I am also fond of celery top pine, walnut and white oak.'

He has had some experience machining metal and plans to use brass going forward, as well as trying out designs using Danish cord and Japanese paper. 'But wood is my primary medium,' he says. 'If you ever see me pour an epoxy table you have permission to slap me – no offence to the many makers and consumers out there who love river tables, it's just not for me.' In terms of finishes he prefers to keep close to the original wood with Osmo and Rubio Monocoat hardwax oils or hand-rubbed varnish and oil blends. 'I like finishes that leave the timber feeling and looking quite natural,' he explains.

Dom took six months' leave from his former job to set up his business – but within a week of his departure his home state of Victoria had gone into three months of hard lockdown in response to the Covid-19 pandemic. Residents were only allowed to leave their homes to get groceries and could only travel within 5km of where they lived. 'The government response to Covid was extremely aggressive and affected me quite profoundly,' he says. 'That, coupled with various concerning developments

in policy that painted a bleak picture moving forward, meant I really struggled to maintain a positive mindset. The jobs I had lined up were delayed, it was difficult to progress new leads and my motivation and mental state took a real hit. It took me some time to find my drive and positive energy again.'

PLANNING AND INSPIRATION

But Dom had spent some years before he left his job planning his next step: fitting out his workshop, registering a business, developing and refining his joinery skills, paying down debts and saving up to cover any lean periods while his business was finding its feet. 'This has put me in a position where I feel I have the skills and tools necessary to make pieces I can stand behind and be proud of, while also having very low overhead costs and no need for debt to initially start the business,' he says. 'I am under no illusion that it will take time and hard work and that it's extremely unlikely to be a financially lucrative way to make a living – but that's not my focus.'

Social media is a big inspiration for Dom, who loves seeing the amazing makers on Instagram. But he notes: 'It's sometimes difficult to not feel overwhelmed by the amount of stunning work being produced.' He also takes inspiration from the natural world and industrial spaces. 'I am making a conscious effort to keep my eyes and mind open and improve my skills as a designer. I have taken to spending more time sketching numerous iterations of potential designs throughout the day,' he says.

He sees himself as very much in his infancy as a designer, and hasn't yet found his style. His work is currently all commissioned, but he is working on his own line as well. Dom says: 'I have a focus on robust and precise joinery, with a preference for exposed joinery details and an attention to quality craftsmanship. My underpinning ethos is to build sustainably in the broadest sense of the word. To me that means intelligent design and high-quality craftsmanship, producing pieces that will last many lifetimes. To make less, and slower, but better, where the human work, passion and skill imbued into each piece provide an inherent value to both the client and

myself as the maker. I have no interest in chasing fads or gimmicks, or building short-term or disposable pieces.'

CONTENT CREATION

He adds: 'I have enjoyed the commissions I have taken on so far, including the constraints, feedback and validation during the design process, however I have begun to focus on designing and building a collection of my own pieces that showcase my skills and preferred aesthetic to help shape client expectations in the future. I feel a collection of pieces will naturally bring clients that are drawn to my style of building and make future commissions more likely to align with my preferences. Working on my own pieces and designs is more liberating, but I am also finding it challenging to work without constraints to anchor me and limit my options.'

Dom is currently working on bench seats for a dining table and a commission for a blackwood desk, and is in discussions for another dining table commission. 'I'd like to slip in a nice hanging tool cabinet for myself at some point soon too – my poor hand tools are sitting on melamine shelves at the moment, a most disturbing situation that I urgently need to resolve!' Looking ahead, he is excited about growing both his business and his skillset as he works on more commissions. 'I am also diversifying by dipping my toes into content creation, tool-making and taking commissions for work-benches,' he says. 'While diversification may mean that things progress a little more slowly on each front, I believe this approach will bring me the most enjoyment and reduce risk in the long term.'

A former champion racing cyclist, Dom still loves cycling to keep fit, 'and will always be a racer at heart', he says. 'I also enjoy hiking, motorcycling, running and fishing – spending time outdoors is the common thread for me outside woodworking. With my career change I am finding I need to be more proactive in catching up with friends and family, as woodworking in a one-man shop can be somewhat isolating at times, but I love every minute I spend in my workshop,' he adds.

[@bluewrentimberworks.com.au](https://bluewrentimberworks.com.au)
[@dudkiewiczdominik](https://www.instagram.com/dudkiewiczdominik)



DRAWER UNIT

JIM BENNETT MAKES A MATCHING DRAWER UNIT FOR HIS SHAKER-INSPIRED WRITING DESK

In issue 305 of *F&C* I described the design and making of a writing desk, and how it became apparent during the design process that, due to access restrictions in my client's Suffolk cottage, the piece would have to be split into two separate parts – a writing table and separate drawer unit. This article describes the design and making of the drawer unit.

The writing table utilised the Shaker principles of a simple design combined with time-honoured honest craftsmanship and it was important to apply the same ethos in this case.

DESIGN

Part of the skill of a furniture designer and maker is the selection and use of the right material, the method of construction best suited to that material and getting the overall proportions of the piece correct.

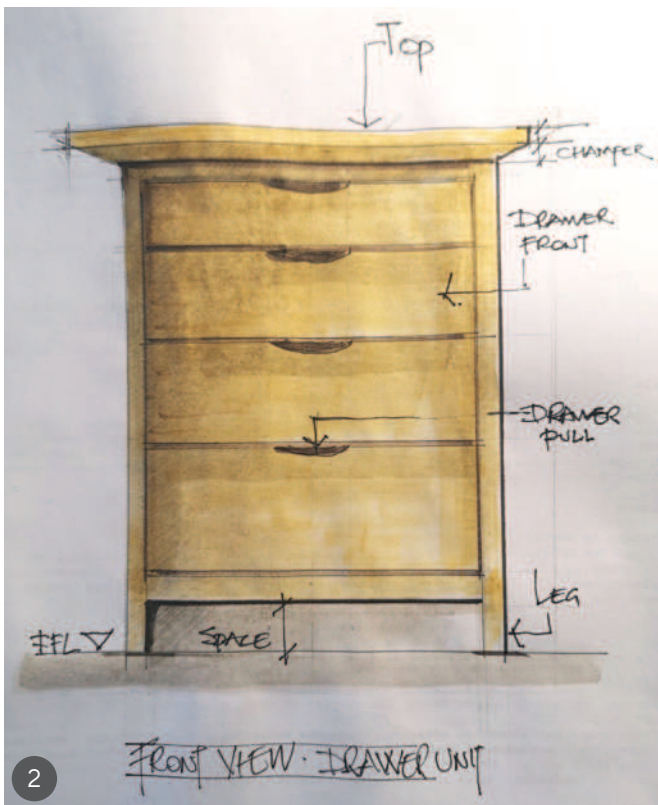
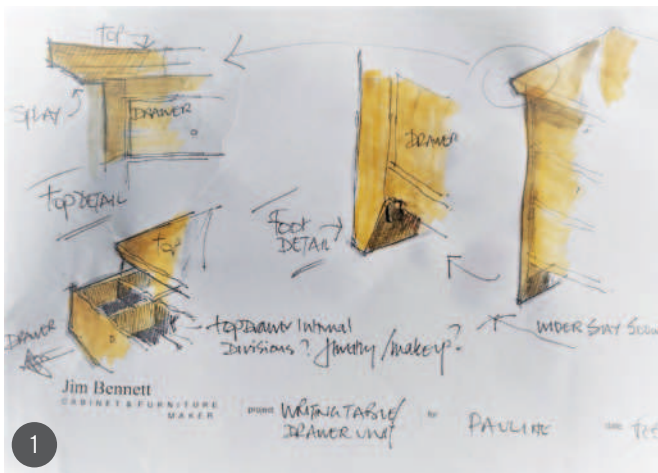
TIMBER

Both the writing desk and the drawer unit were to be made in solid ash, which has a fairly pleasing appearance with straight grain and is good for freestanding furniture. I used kiln-dried ash, which was left to stand in the workshop for a few weeks before preparation.

Having decided on a separate low-level drawer unit, while it was not necessary to design it to match the table exactly, it was important that it should sit well with it – for example the same timber was used from the same batch of kiln-dried ash purchased for the table.

This unit was to double as storage for paperwork and, as requested by my client, the top drawer was to be divided into sections for jewellery, beads, etc.





1 Initial sketch ideas 2 A more detailed elevation drawing for the client in watercolour 3 Selection of sawn kiln-dried ash
4 Planing down central panels to side frames using a hand plane

METHOD OF CONSTRUCTION

As it was to be made from solid timber as opposed to any man-made MDF or plywood sheet material, and placed in a centrally heated house, I was concerned about wood movement. This is one of the most common difficulties makers face when using solid timber. Timber will always move. The trick is to try to anticipate by how much and where it will move, and to allow for that in the design and construction.

Although most early Shaker furniture was originally mainly of 'slab' construction, ie flat pieces of solid timber, Shaker

cabinetmakers soon realised the advantage of frame and panel construction which, if carried out properly, allowed the wood to move and reduce the risk of damage.

Therefore, I decided to make the unit out of ash frames with a thinner central panel, also of ash, but to give it a contemporary feel I decided to have the panel flush with the face of the frame on the outside as opposed to traditionally recessed. There would be a 'shadow gap' around the panel for definition. The side frames would extend down, with the bottom of the stiles tapered to form the feet.





5 Side frame constructed with 70mm-wide solid ash stiles and top rail and deeper 85mm bottom rail. Flush central ash panel with shadow gap. Note the darker 'olive ash' grain selected for the outer frame and the lighter-coloured timber to give contrast **6** Cutting and testing bare-faced tenons to the top rail **7** Top view of fixing the top rail to the side frames **8** General view showing the top rail in position supporting the side frames to form the cabinet. The shadow gap detail is visible to the side frames **9** Cutting the mortises and tenons for the stub tenon fixing of the bottom rail **10** View showing the rear of the cabinet with the ash panel fixed. Here you can see the shadow gap around the surrounding frame **11** Cutting dovetails on the bench to the drawer sides for the half-blind dovetail joint to the drawer front **12** Sockets cut by hand in the drawer front to receive half-blind dovetails **13** One-off dry fit of the half-blind dovetails to the drawer front **14** The half-blind dovetails fitted to the drawer front. This picture shows the deeper lower section to conceal the drawer runners. There's a slight excess on the drawer front to allow for planing back

PROPORTION

There would be four graduated drawers diminishing in height, with the deepest at the bottom, roughly based on the 'golden triangle' often used in Shaker design. In essence each drawer is 1.618 times higher than the preceding one. There is a complicated mathematical reasoning behind this: the theory is that it is a ratio that occurs in nature, so we are used to seeing it in the world around us and for this reason it is thought to be calming. Essentially it looks right and so rests easy on the eye. I drew it out for my client, who agreed, and a final design was produced.

CONSTRUCTION

As with the table I drew out a full-size rod to work from. From the rod, the components were selected from the available timber – mainly looking at the grain direction, colouring and pattern in each case.

It is also important at this stage to make sure that there are sufficient matching timbers for the larger areas – drawer fronts, top and side panels – with the other smaller or less visible components being cut from the remaining stock.

The drawer unit was a much more complex construction than the table. As can be seen from the drawings and the photographs, the two sides were made from frame and panel construction. The outer frame was made with 25mm-thick rails and stiles jointed with traditional mortise and tenon joints and grooved along their inner edge to receive the central panel.

There are a number of different methods of constructing such a panel – my preferred one is forming a 20mm-deep groove within the frame using a straight cut router bit mounted in a router table. Once the router has been set up and adjusted using scrap timber to get the exact positioning off the fence, all of the rails and stiles can be routed out to ensure alignment. As my router and table is

a fairly basic set-up, mainly by eye, it is important that all of the timbers are referenced off the same face so that any discrepancy between individual components is eliminated. This also means that the groove can be cut in several passes.

As I was using a dovetail to connect the top rail to the side panels I decided to cut the grooves as 'stopped' grooves – as in they did not run through the full length of the stile. This left more material and strength at the top of the stile where I would be cutting out.

Once the grooves were cut, the frames were jointed with traditional mortise and tenon joints. I could have cut a 20mm-deep tenon on the end of the rails to sit within the groove already formed. However, I personally never think that that is enough depth to prevent twisting, and as a result formed a deeper mortise and hand-cut a longer tenon to suit.

The central panel was made from re-cut pieces of solid ash, planed and jointed using a hand plane. It is a rebated panel – the finished thickness of the panel is greater than the width of the groove to allow the front face to be level with the surrounding frame. As a result, once the panel was cut to size, the edges were rebated on the router table and fine-tuned with a shoulder plane and fitted into the groove, allowing the front of the panel to sit flush with the front of the frame with a 2mm shadow gap all around. This took some time because shadow gaps have to be very precise, as your eye will pick out the smallest discrepancy.

Here was a situation where I used the grain difference by using the darker 'olive' ash timber for the outer frame and the lighter-coloured ash for the central panel – a traditional Shaker detail.

The two side frames were then joined together using solid ash rails forming the cabinet itself. At the top the front and rear rails were secured to both side frames using a barefaced slotted dovetail, with only one side chamfered. The joint at the base of





15 The drawers being fitted, showing the lower section is thicker to allow for the internal drawer rails **16** The drawers lined up prior to fitting, showing front alignment and gap to sides for timber runners **17** Test fitting the drawers in the carcass unit **18** Hand shaping the drawer pulls using a shop-made profiled cutter **19** The top and drawers fitted and the finger pulls shaped **20** The unit nearing completion on the bench, showing the alignment of the drawers and the detailing on the side panels **21** Removable top drawer insert formed in solid ash with half-lap joints **22** The drawer unit and writing table in the workshop **23** The writing desk and drawer unit together in the client's home

the frame was more difficult as the horizontal rail was meeting the vertical, but not at an edge. I decided to use a stub tenon here, where neither the tenon nor the mortise extend through the full thickness of the timber. As the length of such a tenon has to be less than the thickness of the side frame I decided to use a double tenon here for additional glue surface and strength.

It was possible that the back of the unit would be visible once in situ and therefore had to be treated with the same level of detail and finish as the remaining sides. A solid ash panel was inserted between the side frames to form the back of the cabinet – but again a shadow gap was left to the perimeter to match the detail on the side panels.

The top was made as the tabletop – out of solid ash pieces 180mm wide, which were planed on one side on the planer and then run through the thicknesser. Each piece was then planed on the edges and jointed using a rubbed joint. Final finishing was achieved using a hand plane and card scraper, as ash can be tricky to finish due to tear-out. This was explained in some detail in the previous article. The underside of the top was chamfered to the underside to give a lighter feel, a matching detail was used on the table.

DRAWERS

The drawers were constructed using solid ash. In true Shaker style, the drawers were all made using finely hand-cut half-blind dovetails to the front and side joint with a standard rebated joint to the rear. As a result, when closed, the joints are not visible. When opened the front joints can be seen to the side.

Having cut the sockets out for the dovetails it is not advisable to test-fit the sides more than once or twice, otherwise the joint can become loose, bearing in mind that there is mainly end grain in this joint so the effectiveness of the glue in such a case is reduced. As a result, the trick is to try to get it right early on.

This was a traditional piece of furniture with timber drawers on timber runners – no ironmongery involved at all.

Drawer fitting generally is a time-consuming business, but in wood to wood there is little room for error – striking the balance between fitting tightly, ease of use and allowing for some future

movement. It was essential in this case that the carcass and the drawers were absolutely square. It is then a painstaking job of fitting each drawer using a hand plane to get that perfect fit.

As the drawers were fitted on traditional timber drawer runners I extended the drawer fronts at the bottom to allow for the runners within the carcass to be concealed, as opposed to running fixed rails across the front of the piece below each drawer. There was no reason for this other than visual. The chance of the sides bowing out – a common problem where no front rails are used – is unlikely in this case, due to the low height of the unit and the construction of the sides.

The brief called for the top drawer to be divided up into compartments for beads, etc. This was made using a solid ash insert with half-lap joints, which could be removed if required and for cleaning.

IRONMONGERY

As mentioned above I did not want to use traditional ironmongery. As Kerry Pierce says in his book *Pleasant Hill Shaker Furniture*, 'the maker chose to avoid the visual distraction of metal (escutcheon) on the front of the piece which is otherwise an unbroken seascape of wood...!'

Rather than produce an obvious turned Shaker-style knob, my contemporary take on it was not to have a handle fitted to the drawers at all. Instead, I formed a shallow groove in the drawer front – by hand – as a finger pull.

I shaped a series of metal scrapers cut from saw blades and carved the finger pulls by eye, until I was satisfied with a sufficient grip to open the drawer. The 'handles' line up without the interruption of timber rails. Although I could not manage the millimetre-perfect repetition achievable with a router, it was good enough to the eye and I quite like the slightly imperfect hand-carved look it gives.

FINISH

Both the table and the drawer unit were finished with a hard wax oil. Once applied, the grain of the ash becomes really pronounced and the contrast of the darker to the lighter grain worked well.

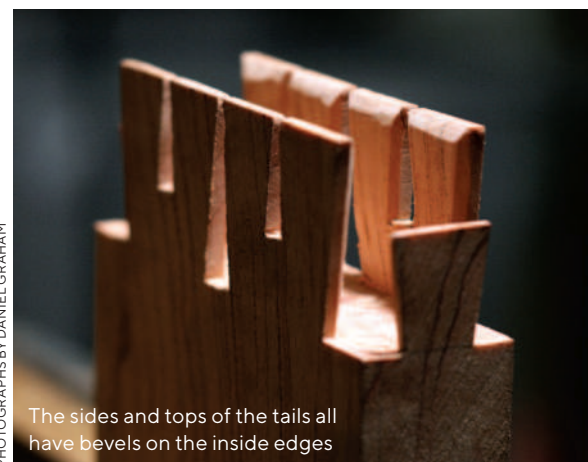
HOLOGRAM JOINT

DANIEL GRAHAM HAS
A CLEVER SOLUTION FOR
JOINING END GRAIN
TO SIDE GRAIN

With this joint, I tried to come up with a new solution to a common woodworking problem. What to do when you have to run end grain into side grain and you're not excited about dowels, pocket screws, biscuits or the like? I find that most of the time intersections like this are a missed opportunity for a design solution. I came across this situation in making my first slant-top desk. The support rails for the lid of a slant-top desk usually join end grain to side grain. This joint is obviously never a dovetail since the side grain in the front piece would be a weak spot and most likely fail. I thought there had to be a way to keep the aesthetic choice of the dovetail without compromising the structural integrity. Some people would not regard this as much of a problem and I know it can be resolved in a host of ways including veneer. However, I was going to try something new that could solve both the structural and design problem. I came up with a joint consisting of a herringbone inlaid dovetail on the side faces in addition to tails on the top and bottom. It was fun to make and I think it looks great.



The finished socket board with shallow pins



The sides and tops of the tails all have bevels on the inside edges

PHOTOGRAPHS BY DANIEL GRAHAM

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