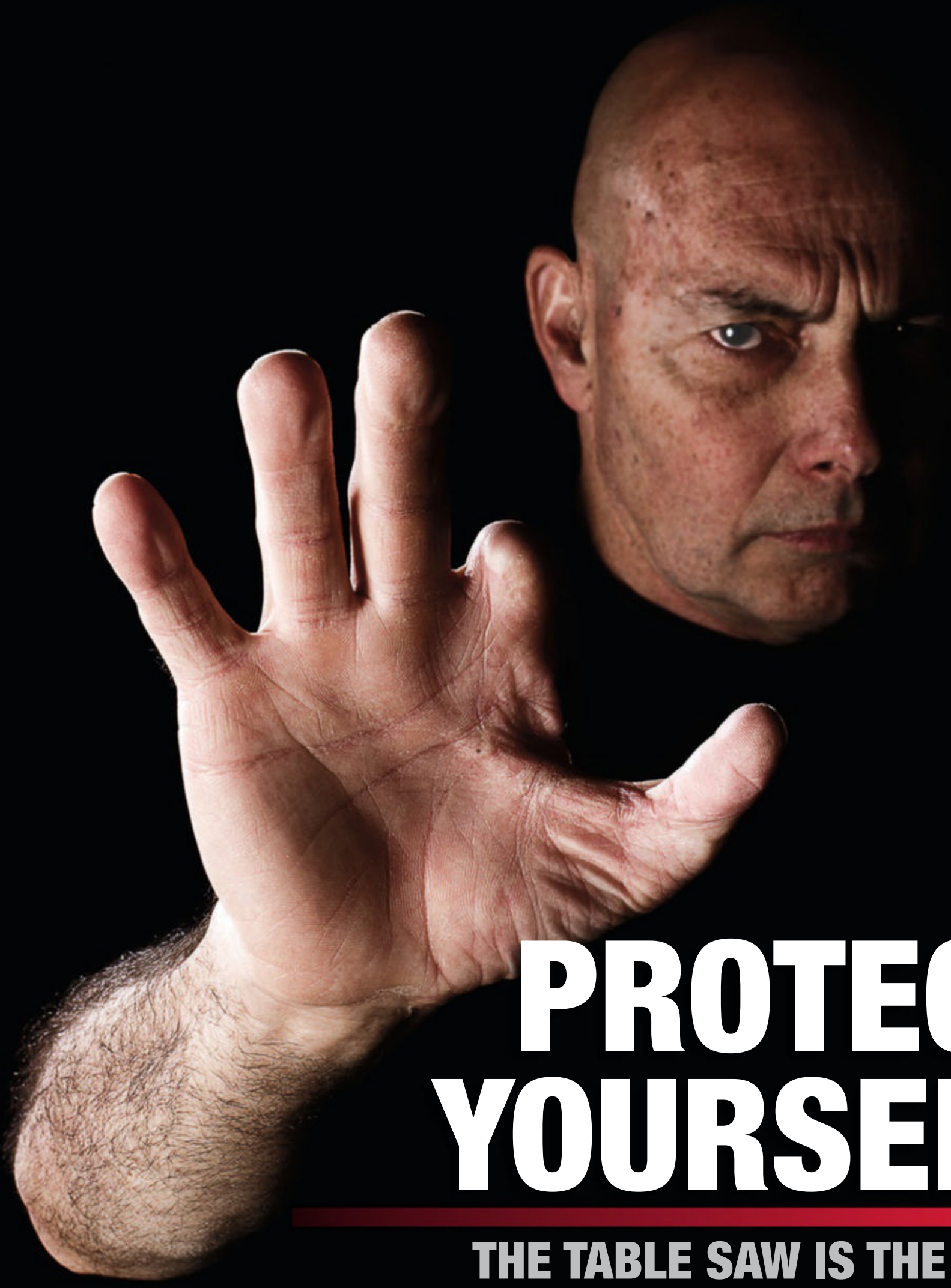




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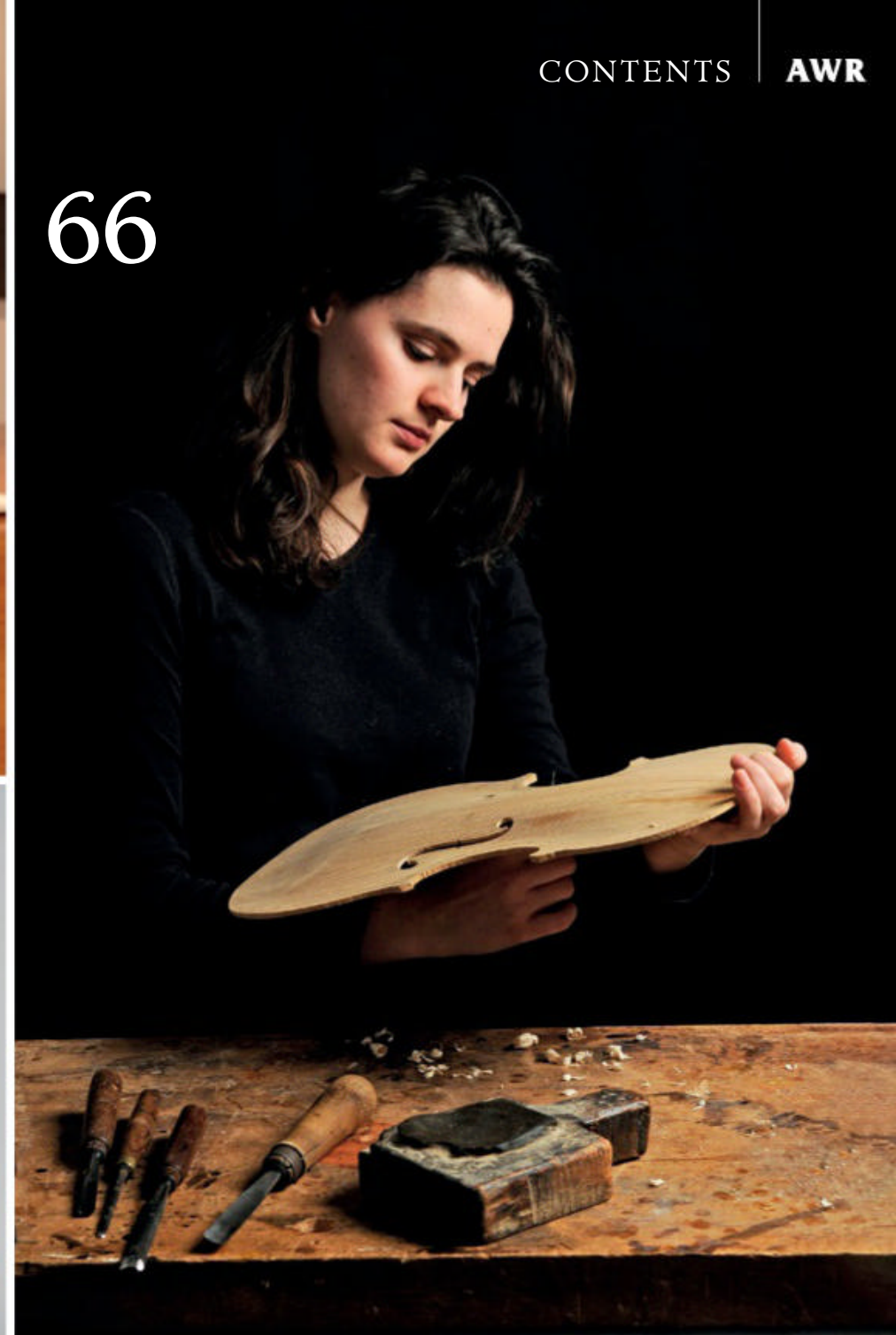
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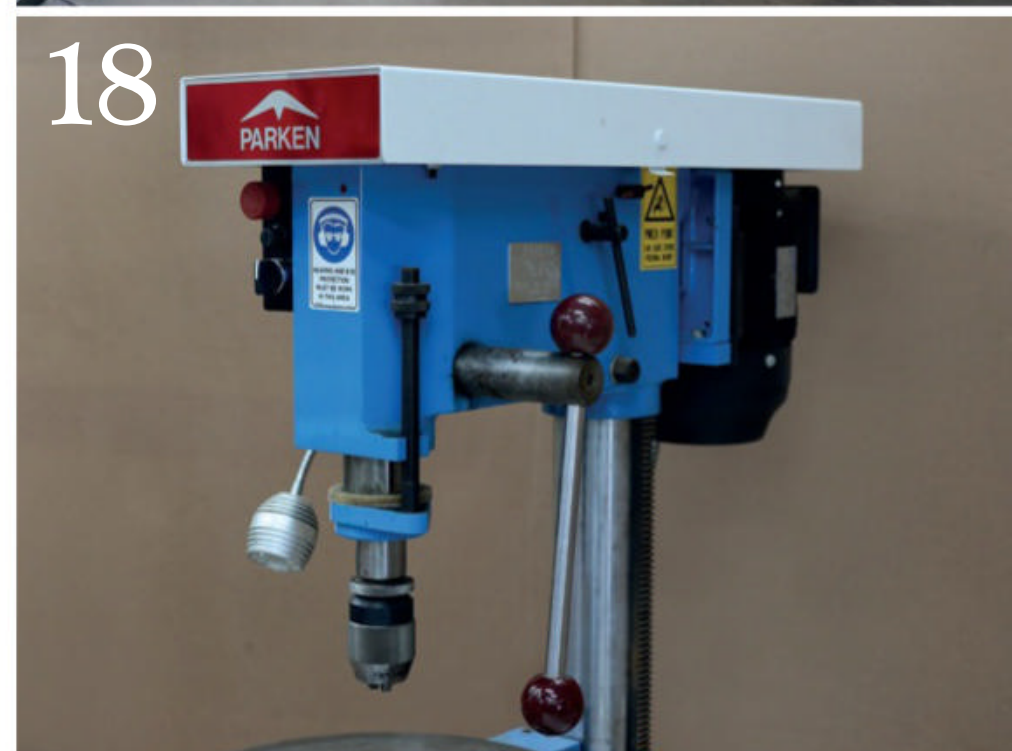
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Four jigs to help you safely and precisely machine small parts on your mitre saw. Story by Charles Mak.

Editor's Letter

Wood and art

Two of the makers featured this issue have an unusually strong connection to the arts. It's a connection that translates through to the way they work.

Over the years I've met and learned of so many woodworkers who are truly multi-talented with not only other skills, but who have significant expertise in other professions. Malcolm Gladwell's oft-quoted measure of mastery is 10,000 hours of practice, but for an Australian Ballet soloist and a conservatorium trained musician 20 years experience as a luthier as well, the hours spent would far exceed that.

Not all skills are transferable, and learning new skills can take a person back to absolute beginner status, but having developed the discipline and understanding of how to learn must certainly help. They're at different stages of their journeys as makers but you can read about Melbourne maker Vivienne Wong on p.46 and Italian USA-based luthier Sofia Vettori on p.66.

Millennial makers

Simplicity might be a concept that attempts to identify objects and ideas that are stripped back and without excesses. The only problem is those values are subjective and often chained to certain periods of time, to fashions, in other words. The work of three 90s-born makers was shown early this year at Sturt Gallery in Mittagong, NSW. As a statement of their values, it presents a glimpse of their view of where the craft is headed. From an earlier age, Rodney Hayward, former head of the ANU School of Art's Wood Workshop, takes a look at the future through the lens of their work.

Contemporary craft

Creating a financially sustainable career in the crafts is for many a kind of holy grail. It just doesn't seem fair that others might not want to pay you hourly for the processes you love to linger over, or the time you need to perfect things. In his article from p.40, Rolf Barfoed explores ways of combining high craft values on a commercial time sheet as a way to communicate with potential clients.

Traditions taken forward

Last year Simeon Dux was voted Wood Review's Overall Maker of the Year. He doesn't shy away from using advanced and time-consuming techniques to add details that reflect traditional styles and forms to his work. Although he's more than capable of producing time-saving jigs to make his one of a kind custom work, he's more than happy to enjoy time taken for hand tool processes. This issue he writes about a table he made, the styles it references and the processes he used.

Your invitation to enter

Maker of the Year 2021 is presented by Carbatec, and you can now see some incredible examples of work on our website and our social media (see Instagram @woodreview and Facebook @Woodreview). Many entrants have chosen to also write about their inspiration, stories that I personally find fascinating. Over \$20,000 in cash and goods will be awarded over six categories. To find out more and to enter, head to www.woodreview.com.au/moty2021

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COVER:

Vivienne Wong in her workspace at Worco Crafts Co-operative in Thomastown, Melbourne.

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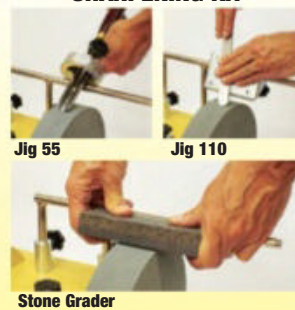
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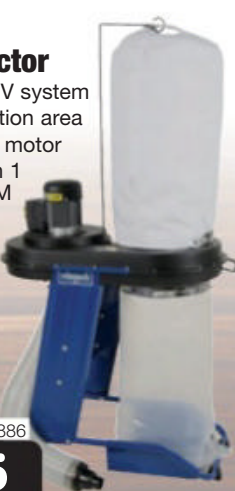
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Left: Heavy at 230kg, the PX16 is a well made machine that gave good results on test.

Below: Under the cover sits a beautiful spiral cutterhead with 60 carbide cutters.



Laguna PX 16 Thicknesser

Reviewed by Raf Nathan

Large 350 to 400mm wide planers have been coming out of Taiwan for years now, and in fact many, many thousands would have been made. In my opinion, and I might be wrong, this machine is based around one such machine, given the basic design and positioning of various components. That's not a bad thing as these are good machines. To my eye however, Laguna have fully modernised the older design and added many refinements.

Heavy at 230kg, this is a large and obviously well made machine. The attention to detail is very good. The quality seems as good as any other machine I have reviewed. It is quite large but much of this is due to the fully enclosed cabinet. The top is hinged for opening to access the cutterhead and a micro-switch prevents start-up when this is open. Under the cover sits a spiral cutterhead with 60 carbide cutters.

The table, supported on four threaded posts, is nicely machined and accepts wood up to 406mm wide. A handwheel on the right is used for the rise and fall. This is geared well with quite a quick action to bring the table up and down. This adds to work speed.

I'm not sure why they've got the rise working when you turn anti-clockwise as it does seem a little bit counter-intuitive but within a few minutes I was used to this. Being on the right side arguably is not inclusive for left-handers (as many artists are).

A knob on the right of the cabinet allows you to change between the two feed speeds of 4.9 and 8.5 metres per minute. This is a pretty good set-up, offering quick and slow feed speeds. To be honest, I achieved great planing surfaces on both speeds.

The machine is fitted with a Wixey digital height gauge (a very good brand) and there are extra support rollers on the in-feed and out-feed sides. However, I do not like feed rollers on the in-feed side as I believe there is a

risk of catching your fingers underneath. So personally I would remove this if I owned the machine. The out-feed roller is however worth using.

At 3hp or 2.2kw the machine has massive power and didn't miss a beat when I was putting through 360mm wide slabs of wood. Quality of cut was excellent, as one would hope for with brand new cutters. I trialled figured blackwood and wide Huon pine on the machine and got pretty well no tear-out at all.

The PX16 will accept up to 203mm in height and will plane down to 6.35mm (1/4"). Less would be better as I sometimes use 4mm thick wood. Planing wood up to 203mm wide is adequate for pretty well most general woodwork. This is a sturdy machine which was easy to operate and delivered great results.

Raf Nathan is a Queensland based woodwork designer/maker.

Review machine from Carbatec: www.carbatec.com.au



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Laguna JX8 jointer

Reviewed by Raf Nathan

First impressions of this jointer are of a strong, well built and nicely detailed machine. It has very long tables, in fact 1850mm overall, giving a good advantage for straightening long pieces of wood. There are two extra support rollers that slide out from both table ends. They extend the working length but I did not think they were necessary for my type of cabinetmaking work.

Both tables use a parallelogram system, which means that no matter how you adjust the table up and down, the gap between the end of the table and the cutterhead always remains the same. It's a little bit safer, and a superior way to adjust the tables.

The table rise lever has a smooth action to easily move up and down from around 0–4mm. As this machine has a built-in rebating table there is an option with the depth lever via lockout action to increase the cut depth. Most European style machines don't have a rebate table however I think it's a useful addition. Once you use them and get the hang of it, it is very helpful for certain jobs such as running rebated moulding.

There is general wood tech debate about the type of guard that is best for a jointer. Is it the mutton or lamb chop style, as is fitted to this machine, or alternately the fixed style guard common on Euro machines? My personal preference is the fixed guard as it remains locked in position covering the cutters, whereas the mutton style does open up to the cutters as the wood is fed in. As related to me though, many schools in Australia only accept the mutton style guard.

The fence, which is a critical part of a jointer, is heavy duty cast-iron, nicely

machined and has easy adjustment for moving across the table. Fence tilt and set-up is good with a locking nut to position at 90°. The whole fence assembly is heavy, accurate and pretty well bullet-proof. It has a spiral cutterhead, as all good machines today should have.

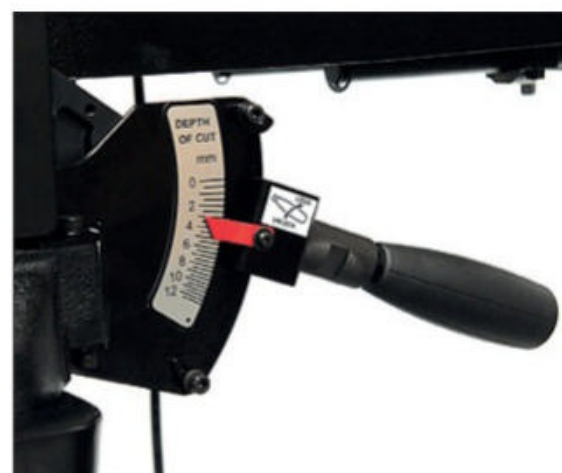
This machine was tested straight off the showroom floor and I have to say planed extremely well. I set the fence at 90° and was able to achieve consistent results with planed wood faces perfectly square and precise on all my test pieces of wood.

There is an easy to reach on/off switch with a large mushroom stop button. A great touch is the large red knock-off bar positioned at knee height that you can activate should you need to cut power no matter where you are on the machine.

There are inbuilt castors, which means you can move the machine around the workshop, another good feature. Motor size is 2.2Kw (3hp) and requires a 15 amp fuse so you may need some electrical work in your workshop.

Would I buy this machine? Yes!

Review machine from Carbatec:
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From top: Long tables, 1850mm overall, give a good advantage for straightening long boards.

The table rise lever moves up and down smoothly and easily from around 0–4mm.

The on/off switch is easy to reach and has a large mushroom stop button.



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Veritas No.1 Bevel-Up Bench Plane

Reviewed by Damion Fauser

Canadian toolmakers Veritas have released their latest in a long line of premium hand planes. The heritage of this tool is abundantly clear, with the Norris-style adjuster, nicely shaped and finished tote and knob, the set screws for fixing lateral settings in place, the brass lever cap knob and the swept back tapered profile of the blade.

As the No.1 nomenclature suggests, this is a diminutive tool that will be right at home performing any number of tasks, from smoothing and

edge-profiling to flushing down excess material like inlays and solid edging, and trimming the ends of frame and panel assemblies with their combination of end and edge grain. With the sides ground square to the sole, it would also serve as a handy plane for shooting tiny components such as inlays or edge bandings for boxes.

The adjustability of this tool is impressive for its size, with an adjustable mouth, Norris-style lateral and depth adjuster and the flexibility

of cutting angle that is afforded by the bevel-up configuration. As with many Veritas tools, care needs to be taken to avoid over-tightening the lever cap knob so as to prevent damaging the thread on the Norris adjuster in use.

The bed angle is 15° and the blade (available as either O1 hardened to RC58–60 or PMV11 hardened to RC60–63 tool steels) comes with a 25° bevel, resulting in an effective from-the-factory cutting angle of 40°. Applying a micro bevel of your choice means easy selection and adjustment of preferred cutting angles.

Out of the box the fit and finish was extremely good as is to be expected from this maker, and the blade, as I have found with most blades from this stable, was lapped near perfect, requiring only minimal effort to fully lap the rear of the blade. A quick micro bevel and this tool was ready for premium performance. I gave it a run in some end and edge grain cuts in both hoop pine and Vic ash and it performed flawlessly. I then presented it to my two current groups of hand tool students, many of whom had never used handplanes before. The feedback was overwhelmingly positive, with the only concern from those with larger hands who found the compact nature of the tool difficult to comfortably hold and use.

This is a fantastic little tool that with its build quality and versatility would suit many woodworkers across a wide range of tasks.

Review tool supplied by Lee Valley, learn more from www.leevalley.com Veritas tools available from www.carbatec.com.au

Damion Fauser is a Brisbane based furniture designer/maker who also teaches woodwork classes. See damionfauser.com



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The Good Rule

Reviewed by Raf Nathan

This ruler is a new take on the traditional folding wood rule. The folding wood rule was a mainstay in my workshop 35 years ago, everyone from cabinetmakers to carpenters had one. You can get the modern Stanley version of this as a plastic one today and it works pretty well, if not a little plain looking.

Like the original, this new rule, designed by builder and maker Regan Low in New Zealand, is really good. Folded it is a compact 150mm long, or fully opened it extends to 600mm. It is very well made from 5mm thick ABS plastic with brass pin and protractor head.

It's available in black or a fluoro green. The bright green is arguably better for site or workshop use as it is harder to lose in a messy work situation, although the black looks cooler.

It can fold to 450mm and so can be used to locate studs, or use it at 600mm for positioning joists.

On one face there are also two short rules with markings at 0.5mm, and on the reverse there are two centre rules which read to 70mm each way, a very good extra feature.

Apparently it took four years of development to get to a finished product, which from my experience with tool design and making, is quite fast. I like the Good Rule a lot. It is fairly priced and excellent for carpentry and building work, and it now has a permanent place in my tool box.

Available from www.thegood.nz

Raf Nathan is a woodwork designer maker in Queensland, Australia.



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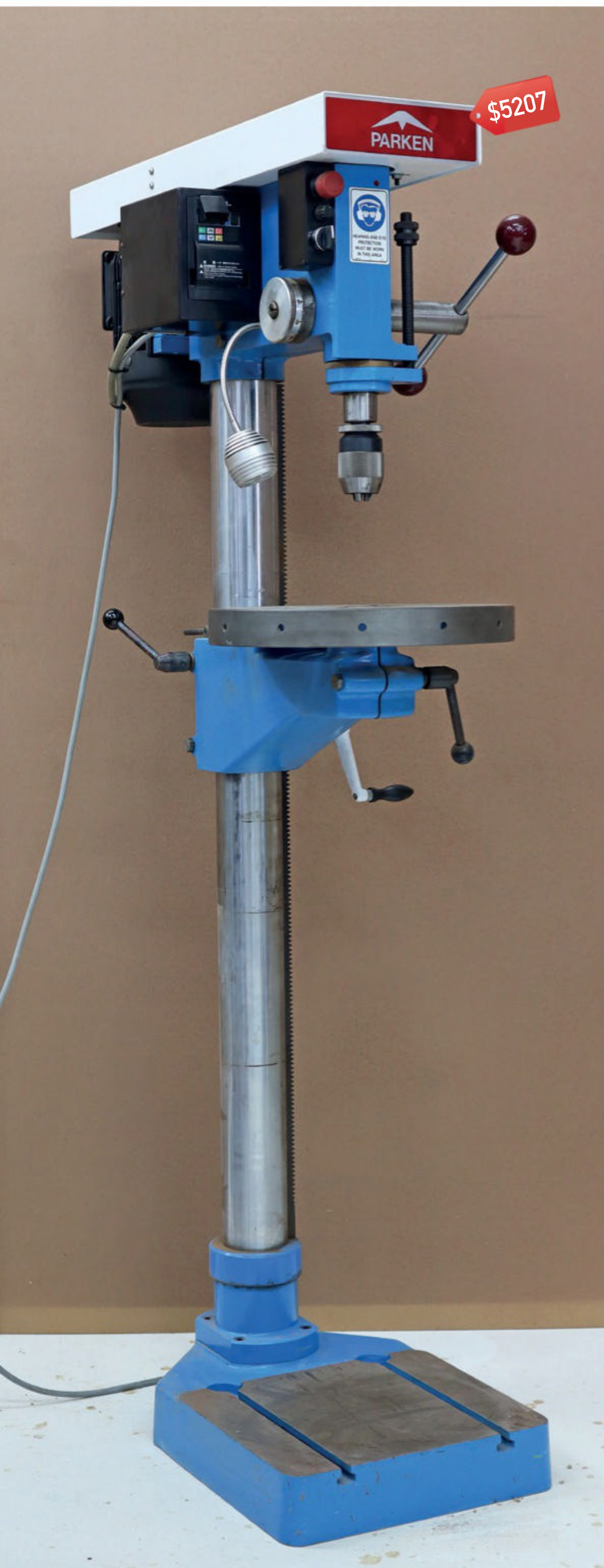
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Parken Drill Press

Reviewed by David Luckensmeyer

A drill press needs to drill holes precisely in a variety of materials. That means it requires: an accurately calibrated quill or spindle that can indicate hole depths, a solid moveable table, the ability to change speeds, and next to no run-out. Most drill presses on the market, more or less, have these features. But very few presses actually tick all the boxes. I bought a Parken drill press in 2014, and these are my thoughts on the purchase.

Parken Engineering has been open for business since 1945, as a partnership between 'Pardy' Haussegger and Ken Pizzey, with the name 'Parken' derived from a combination of their names. Michael and Karl Haussegger (brothers) took over the business in 1972 and have been working out of the original factory site in Clayton, Victoria, ever since. The company is busier than ever – 'flat out' to quote Karl in a recent conversation I had with him.

Amongst their line-up of machines, which are wholly Australian-made, are a series of bench and floor model drill presses, ranging from \$2,300 to \$5,700. I purchased the top-of-the-line B8 variable model in 2014 for \$5,562. Its specifications include a spindle travel of 140mm, throat depth of 260mm, 90mm solid precision ground hard chrome column, 380mm diameter table, integrated VFD with speeds from 10–10,000 RPM, MT3 (for the chuck), a capacity of 1,173mm between spindle nose and base, and the machine weighs in just under 200kg.

Anyone can read those specs on the website. But how does the drill press perform year after year in a professional environment? Very well indeed. The Omron VFD and the 1.5kw S1 continuous duty rated motor has not skipped a beat and it is so easy to decrease or increase spindle speeds electronically. As such, I rarely need to change the belt location on the pulleys and there is no perceptible vibration in the system.



Above: Showing the belt pulley system.

Left: The Parken drill press is not supplied with a chuck, but is pictured here with an Albrecht keyless chuck.

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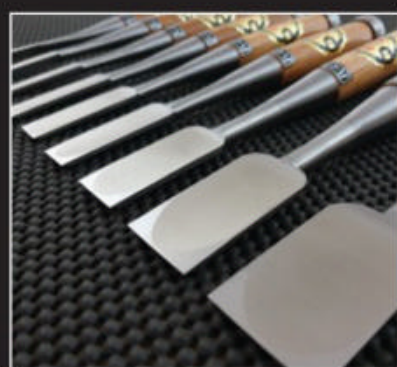
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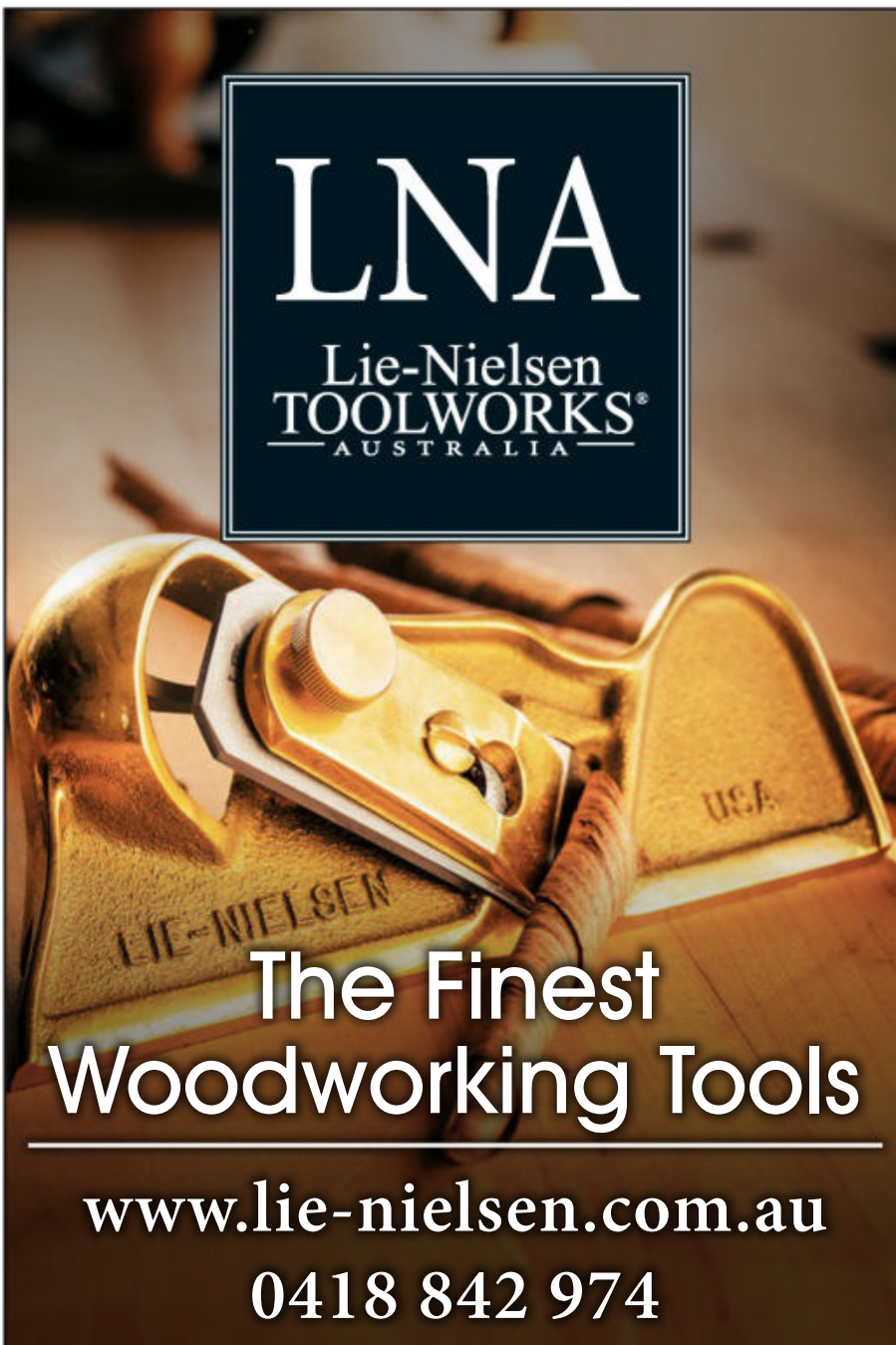


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Top: The Parken has a solid, movable 380mm diameter table.

Above: Quick depth measurements via a well calibrated zeroing mechanism.

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The large spindle travel is essential for deep holes but it is the depth stops I love most on this press. On one side there is the usual vertical threaded rod and double nut system for accurate repetition. On the other side is a lovely machined and calibrated aluminium zeroing mechanism for quick measurements of hole depths. All one has to do is line up the '0' mark when the drill bit is resting on the surface of the timber to be drilled. As long as the hole depth is not absolutely critical (which it often is not), I can tell instantly how deep the hole is, to the nearest millimetre.

I've skipped over lots of other desirable features, including the e-stop for emergencies, reversing feature for tapping of threads, integrated LED light, thrust bearing for the table up-and-down mechanism, and precision-made 12 point indexing pin. Some won't like the fact that the table does not tilt, but that has not bothered me. A couple of years back the on-off switch broke and had to be replaced. And the VFD does emit a high-pitched noise that takes a little getting used to. But overall, this machine is a joy to use, and will no doubt outlast me. I love owning a little bit of Australian manufacturing history.

Parken machinery from www.parken.com.au

David Luckensmeyer is a Brisbane based woodworker and furniture maker, learn more at www.luckensmeyer.com.au

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◀ Brushless and Cordless

Bosch Professional Power Tools have launched the 18V BITURBO brushless cordless power tools range. BITURBO brushless motors allow the tools to draw the maximum power out of one 18V battery. In other words, there is no need for dual or multiple battery usage on one tool at a time. These new motors can achieve up to 2000 watts corded equivalent power from one ProCORE18V battery that comes with a six year warranty. They are however compatible with all 18V tools running on the existing Bosch Professional 18V batteries. The new range includes slide mitre saw, glide saw, circular saws, plunge saw and grinder and we're told there's more on the way.

www.bosch-pt.com.au/au/en/biturbo

Product news

A round-up of tools and products to take notice of.

Plane Perfectly ▼

The Hafco Woodmaster PJ-6B planer/jointer is designed for light to medium duty applications with a long cast iron table and well-sized fence. This machine has a generous cut width of 153mm and its mostly cast metal construction provides rigidity which reduces vibration. The two HSS cutting blades are powered by a 1.5hp, 240 volt motor that produces a high blade speed of 10,000rpm. This machine also includes a unique built-in fan with dust chute and bag system to collect its own timber waste.

www.machineryhouse.com.au



Spartan Grit ▲

WoodTurners Wonders CBN wheels are now available in Australia from Woodwork Machinery...Plus. The 8" x 1" Spartan Wheel sells for \$240 and are said to work with the guards on most bench grinders. The wheel centres are made of 6061 aluminium which is impervious to oils and chemicals. The premium 8" x 1-1/4", 4-in-1 wheel costs more at \$335 and has a 1.25" wide wheel face for normal sharpening. It has a 1/4" radius on each side for sharpening hollowing tool bits and scrapers. Both sides of the wheel have a 1" side face of CBN material for non-hollow grinding skews and scrapers. The inside edge of the wheel has a 9mm, 90° gap space shoulder for making relief cuts or tapers on hook type scrapers or box scrapers. Both wheels are 180 grit and carry a lifetime warranty.

www.woodworkmachinery.com.au



King of Blades ▲

Laguna Resaw King Bandsaw Blades

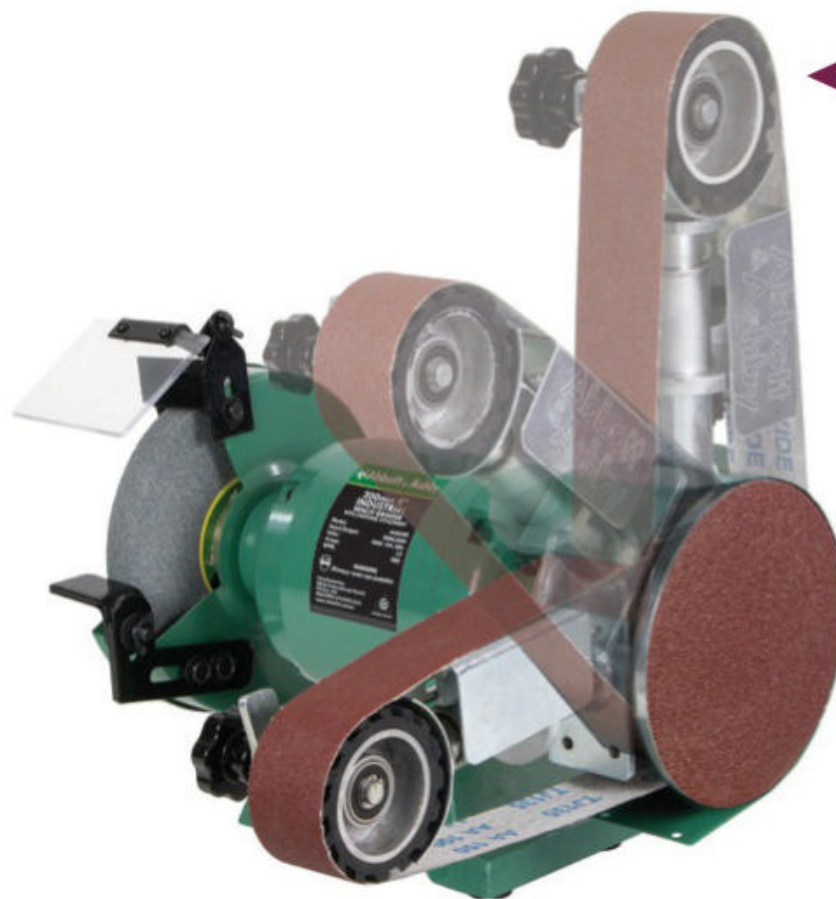
Laguna claim its Resaw King is arguably the world's finest resawing blade. It's made in Germany with C4 grade tungsten carbide teeth and designed to cut 'ultra-smooth, wafer-thin' veneers with minimal waste. The triple vari-tooth design minimises vibration and lowers harmonics. The teeth are individually brazed and ground using diamond wheels on Laguna's custom-built Shark grinder designed exclusively for this blade. The blades suit Carbatec, Jet and Laguna bandsaws, and others, depending on required blade length. Resaw King blades hold an edge longer than regular blades and can be resharpened four to five times. The blades sell for \$269–319.

www.carbatec.com.au

Rust Begone ▼

No mixing, no scrubbing, no sanding – minus the rust, bare metal never looked so good. That's the promise of Evapo-Rust, a water-based product that is said to easily remove rust and is non-toxic, non-corrosive and claims to give off no fumes or bad smells. The instructions read: soak, rinse, dry.

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Tough and sturdy, this Abbot & Ashby 200mm bench grinder with 50 x 915mm linisher attachment comes assembled out of the box. An innovative design allows fast changes via a self-locking push-in/out arm to the linisher working angle in any 360° position at 6° increments. The top platen can be used for flat surface grinding and moves out of the way if required. The 0.6kw, 0.8hp, 240-volt motor powers the grinder wheel and belt linisher simultaneously.

www.machineryhouse.com.au

Still Invincible ►

The story of SCM, the world leading manufacturer and distributor of woodworking machinery began in 1952 with its now iconic 'L'Invincible'. These are still top of the range of SCM joinery machines in terms of quality, speed and safety. From three major industrial sites in Italy, SCM now produces 20,000+ machines a year, supported by the largest distribution network in the industry. SCM also produce top-of-class joinery Minimax machines in five levels from the Genius Range to the Elite S range. In Australia customers looking for Minimax machines, parts or service can now find all the information they need on a new site exclusively dedicated to semi professional machines. As well as Minimax machines sold in Australia, there are also SCM Formula heavy duty bandsaws for those who want to do some serious re-sawing.

www.shopscm.com.au



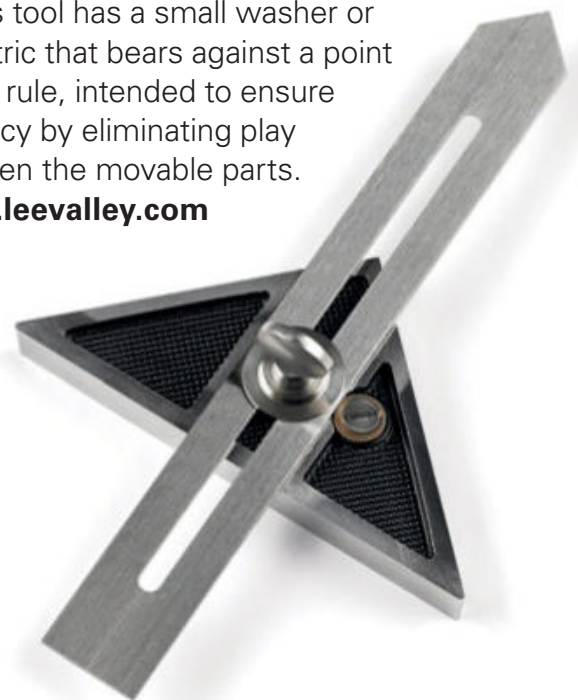
A-Class Alpha ▶

With a company motto like 'good enough is not enough' Harvey Machinery task themselves with setting standards of innovation. The Harvey Alpha HW110LC-36 cabinet saw touts top class features to satisfy the most demanding woodworkers. Features include a powerful 2.5hp single phase motor, a golden TiN coated tabletop for reduced friction and rust prevention, and a deeper 800mm cast table for greater stock support. There's also a built-in rigid and more effective dust collection system, magnetic safety switch and Harvey's easy glide, heavy-duty, T-square hi-lo fence with dual viewers for ease of reference. This Alpha comes standard with the newly engineered Compass MG-36 mitre gauge. www.gregmach.com



Never Made Replica ▼

This is a Veritas replica of a bevel square that didn't reach market. The design was patented in 1890 by Justus Traut, a 38-year employee of the Stanley Rule and Level Company. It's an improved version of a bevel square patented by Traut and produced two years earlier by Stanley but never released. The new Veritas tool has a small washer or eccentric that bears against a point on the rule, intended to ensure accuracy by eliminating play between the movable parts. www.leevalley.com



◀ Titebond Quick and Thick Glue

This is a relatively new adhesive that, as the name suggests, has a greater viscosity than standard wood glue. The label says it will glue a range of materials including wood, ceramic and fabrics, but for woodworkers the attraction is the feature of being fast drying and gap filling. For example, when applying

mouldings where you are looking for something that won't run and dribble everywhere, and yet set quite fast, this glue is a boon. The gap filling ability is useful for taking up the slack in certain applications although no glue will make up for sloppy work. Gap filling comes in handy for mitres and hand cut joints that have a bit of variation in fit. Clamping time is suggested as at least 15 minutes, which is pretty fast. This seems like a useful glue that is great for certain applications.



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Michael Fortune

A New Take on Tradition

Simeon Dux discusses the styles that influenced a recent project and talks about the processes he likes to use.

As a furniture designer and maker, I'm constantly challenging myself and being challenged to create new and different pieces that deliver both functionality and style.

A maker at heart I'm drawn towards traditional design elements, and techniques that have stood the test of time with inspiration coming from many sources. On the flip side I understand the benefits that modern machinery and clean lines can bring to a piece, so with a lot of my work I aim to strike a balance between the two.

Synthesising styles

My latest piece stemmed from my appreciation for the work of the New England, Pennsylvania, and Rhode Island cabinetmakers at the end of the 18th century. Elegant and well-proportioned pieces with beautiful carved sections and elaborate mouldings were their speciality.

The highboys and double chests made from 1740 to 1780 often had finials of different designs adorning their pediments. In particular, the twisted fluting of the flamed finials that spiralled and tapered became an element I wanted to try to incorporate into a piece, in one shape or another.

The challenge was how to integrate this detail; the overall design needed to appear simple enough so as not to detract from the fluting element, but also not be so minimal that the fluting looked out of place.

I decided on a small occasional table, three legs, no stretcher system, with a simple top rail set up and a central hexagonal post as the connection point.

The legs would taper to half-circumference and splay at 6° for an elegant stance, while figured maple 'socks' would visually elongate them. I wanted the top, with its large cove underneath, to appear to be hovering lightly over the legs, and the round-over profile on the topside would help give a reserved initial appearance.



Main and above: Simeon Dux's Flame Table in walnut and flamed maple

1. Wood for the table was selected, sized and grain matched.





Choosing the wood

With all this in mind I set to work. I chose to use US walnut. It's beautiful and I really love working it. The smell reminds me of good times – and a few very challenging projects, but its workability and stability are most important to me. It pairs well with other timbers, in particular maple and oak, the former of which I decided to use for the top and socks.

I've collected a stash of nice boards over the years in preparation for projects such as this and found some nice, lightly figured walnut and quite a spectacular board of flamed maple (**photo 1**).

From the ground up

First step was turning the tenons on the end on the socks (**photo 2**). These then were inserted into the round mortises drilled into the bottom of the leg blanks.

Mortises were drilled at the top of the legs to take the rails, and then filled with blanks for the turning process (**photo 3**).

Once socks were glued and the corners chamfered, I turned the legs into the

desired profile; tapering, but with the allowance for the fluting to project further out than the rest of the leg.

Marking the flutes

The layout was initially challenging and it took three prototypes to achieve the consistency of the desired pattern. I began by marking the number of flutes on the top and bottom of the area to be carved (seven in this case), then marked straight lines connecting them together. This area was then divided up into three un-equal sections, starting larger at the top and getting smaller, which would allow the spiral to tighten on its way down the leg.

From this point the challenge came to find something to trace that would stay straight laterally but be able to twist tightly around the leg. After trying unsuccessfully with a few different ideas, I gave some iron-on edge banding a shot and it worked very well.

I clamped the edge banding on the first point at the top of the leg and wrapped it around the leg being sure to match up with the same line at each intersecting mark, and finally

clamped it on the same line at the bottom (**photo 4**). It is important that the same side of the banding hit the marks in all four spots. There was some very slight variance in the width of the flutes, but I found it to be consistent overall.

Handwork

As most of my work is one-off commissions, I generally don't have to make many multiple components and therefore my jigs are usually very simple – just good enough to make the four or eight of the required part. So, in this case, with no plan to make multiples or set it up for production, I opted for a handcarved technique, which in moderate amounts really appeals to me.

If there is an option for me to use a hand tool over an electric tool and still hit the same quality and timeline, I'll take the hand tool any day.

I used a tenon saw to cut a line in the centre of each of the flutes (**photo 5**). This allowed me to separate the two grain directions for the next step, carving the up-cut and the down-cut (**photo 6**).



2. Tenons were turned for to attach the maple 'socks' to the legs.
3. Mortises were drilled for the rails, and then filled with blanks for the turning process.
4. The flutes were marked against some wrapped around iron-on edging that was clamped in place top and bottom.
5. A tenon saw was used to cut a line in the centre of each of the flutes.
6. The central line was used to separate the up and down grain directions when the flutes were carved.
7. 'I started working my way first up the lower side of the cove, then down the upper, while being careful not to take off my spiralling pencil line.'
8. Different sized dowels wrapped in sandpaper help maintain the shape of the flutes while sanding.

With a carving chisel that matched the size and radius of the flutes as close as possible, I started working my way first up the lower side of the cove, then down the upper, while being careful not to take off my spiralling pencil line (**photo 7**). This was followed up with a rat-tail rasp which helped to clean up and define the coves while maintaining a straight twisting line.

The idea of creating a jig for this on the lathe was floated, but with the flutes tapering in width, and the spiral tightening on its way down the leg, my brain began hurting with just the idea of it.

The rasping was time consuming but fun, and enjoying the process is very important to me. It's kind of when I'm in my element. Whether it be hand tool work or machining, seeing the parts take shape and putting things together is by far the most exciting part.

After the rasping it was file, then sand, sand, sand. A couple of different sized dowels wrapped in sandpaper help maintain the shape (**photo 8**).



9. The tenons for the cross-rails were first bandsawn.
8. The tenon shoulders were then coped to the radius of the leg, allowing for the splay.
11. Showing how the rails were shaped to fit the legs.
12. A rasp was used to dome the top of the legs.
13. The flamed maple was thickened and bandsawn to shape close to the line before using a shopmade jig to true on the panel saw.
14. A core box bit was used incrementally to cut a cove on the underside of the top which creates a floating appearance.
15. A rubbed shellac finish completed the piece along with some final chamfers and fine fitting.



I wanted the flutes to appear to grow near the top of the leg and then fade away again towards the bottom, referencing the popularity of this kind of detailing coming and going.

With the fluting on the legs now done, I trimmed off the excess on the top of the leg, shaped the domed ends, and removed the blanks from the mortises.

Machining the crosspieces

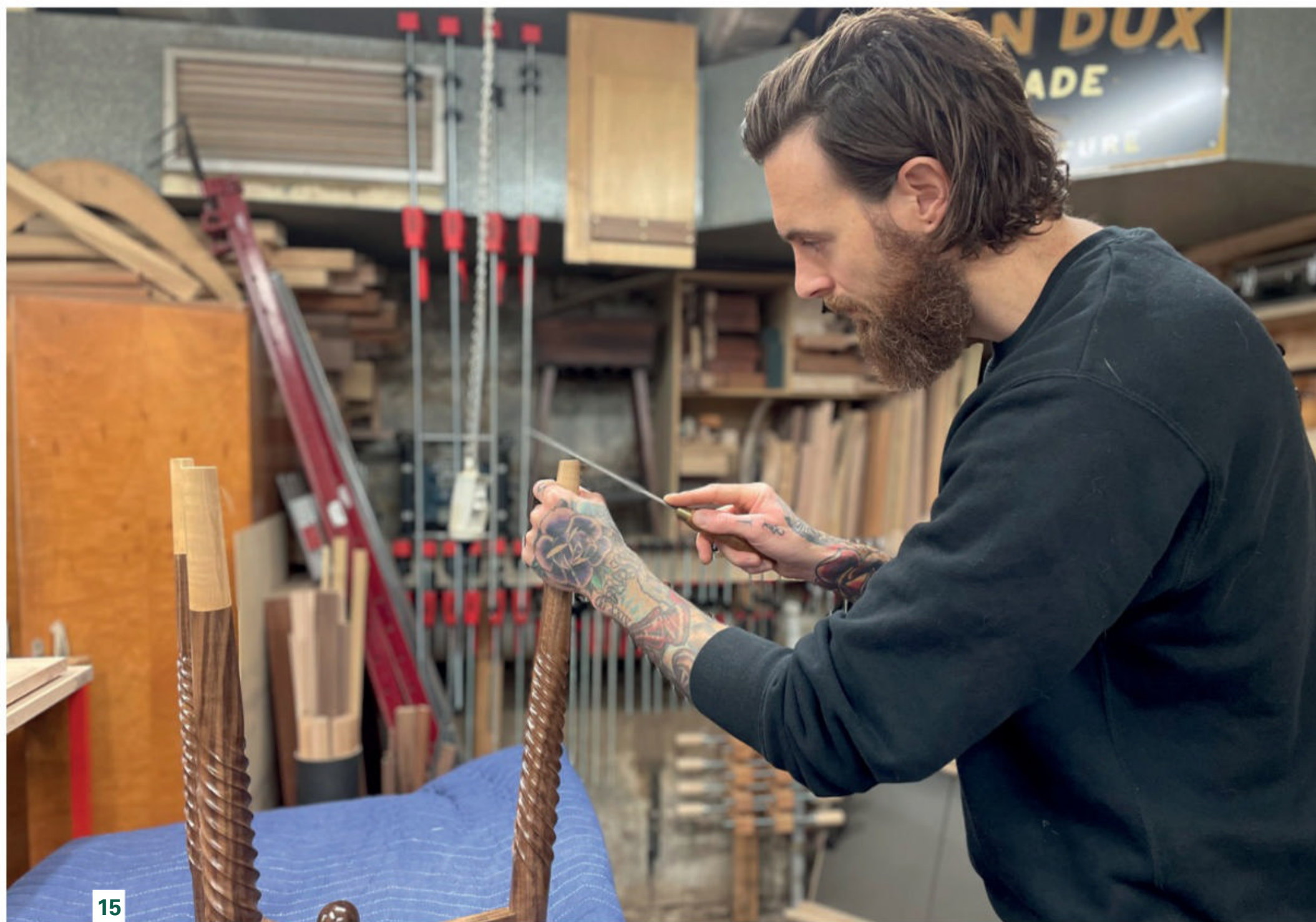
The rails were milled, tenons cut on the bandsaw (**photos 9, 10**) and fitted to the mortises. I chose to cope the shoulders to the radius of the leg, which was a challenge with the 6° splay (**photo 11**). With hindsight, a housing into the leg at the start of the project could have saved a bit of fussing about. I used a rasp to dome the top of the legs (**photo 12**).

A pattern shaped the cove accurately on all three rails and loose tenons were used to connect the opposing end to the central column. Care was taken to align these mortises correctly, as a slight twist at the top would be exaggerated over the length of the leg.

Topping it off

The top and socks were cut from the same board of highly figured flamed maple, then milled and oriented to conceal the joint. I marked out the circle, bandsawed close to the line and then used a shopmade jig to cut a true circle on the panel saw (**photo 13**).

The cove underneath is set back quite far from the front edge with the aim of having the top project out and appear to rise over the domed leg tops, creating a floating appearance.



15

This was achieved by using a core box bit which I incrementally stepped further in until the desired shape was reached (**photo 14**). The key with this process is to have the round top rotating off two contact points, in order to create an accurate reference the entire time.

The technique worked well, and the only issue I encountered was a little burning when I stopped spinning. Maybe I need to refresh my DJ-ing skills from my time at Roller-City in the late 90s.

Glue and screws

Gluing up is something I'm always nervous about. Preparation is key. As I'm sure everybody reading this has encountered, it can all be perfect in a dry run, but the addition of glue always seems to make for a frantic moment or two.

I've learned a few tricks, one of which is to try a few smaller glue ups rather than a complex one that makes you sweat. I employed that idea with this project. The rails went into the legs for the first glue up, then the rails into the central column for the second.

Some coved and tapered cauls could have helped with this, but I managed three legs just fine without.

Finishing touches

I chose to finish the *Flame Table* with my favourite finish, rubbed shellac. Classic, functional, organic and easy to repair, it's my go-to for most pieces.

Finally, I attached the top to the base with three slotted brass screws. The holes were enlarged from the top side of the rails allowing the screws room to wiggle with seasonal movement.

The table was a fun project but also enabled me to get an idea out of my head and into a physical form. I loved the new techniques and processes I tried and have learned a few new things along the way. The final product is nice and there are things that I would like to explore and re-visit which is one of the greatest things about being a designer maker.

The evolution of an idea is exciting and continues to drive me to try new things and explore new opportunities.

*Studio photography: Alicia Aulsebrook
Process photos: Simeon Dux*

Simeon Dux is a Melbourne furniture designer maker and was Wood Review's overall 2020 Maker of Year award winner. Learn more about him at www.simeondux.com and Instagram @simeondux



For Special Display

Steven Der-Garabedian shows how to build a veneered cabinet to showcase special items and woods.

We all have those special items that need to be put on display. Why not do it in style with this cabinet? Slide the doors open to reveal the main space. Slide the doors towards the middle and two shelves appear, each with a drawer below. Either way, the doors are a perfect way to showcase figured veneers.

On the outside this cabinet looks simple enough, but might seem intimidating to make. Breaking it down into steps we'll work through it all. The joinery is kept simple with domino reinforced butt joints, although dowels, dovetails and everything in-between will work just as well.

I'm getting a bit frustrated with hardware as of late which is why I used

sliding doors instead of hinged versions. There are no knobs or other hardware protruding to ruin the lines of the cabinet or the grain. Magnets are used to open and close doors and drawers, and the cabinet is hung with a hidden French cleat.

Another design consideration was the use of veneers. The strength in the cabinet largely comes from the rear panel that is glued into a groove – this can't be done with solid wood due to seasonal movement. Finally, the inner dividers have black walnut veneers on one side of the substrate and cherry on the other, keeping colour tones similar.

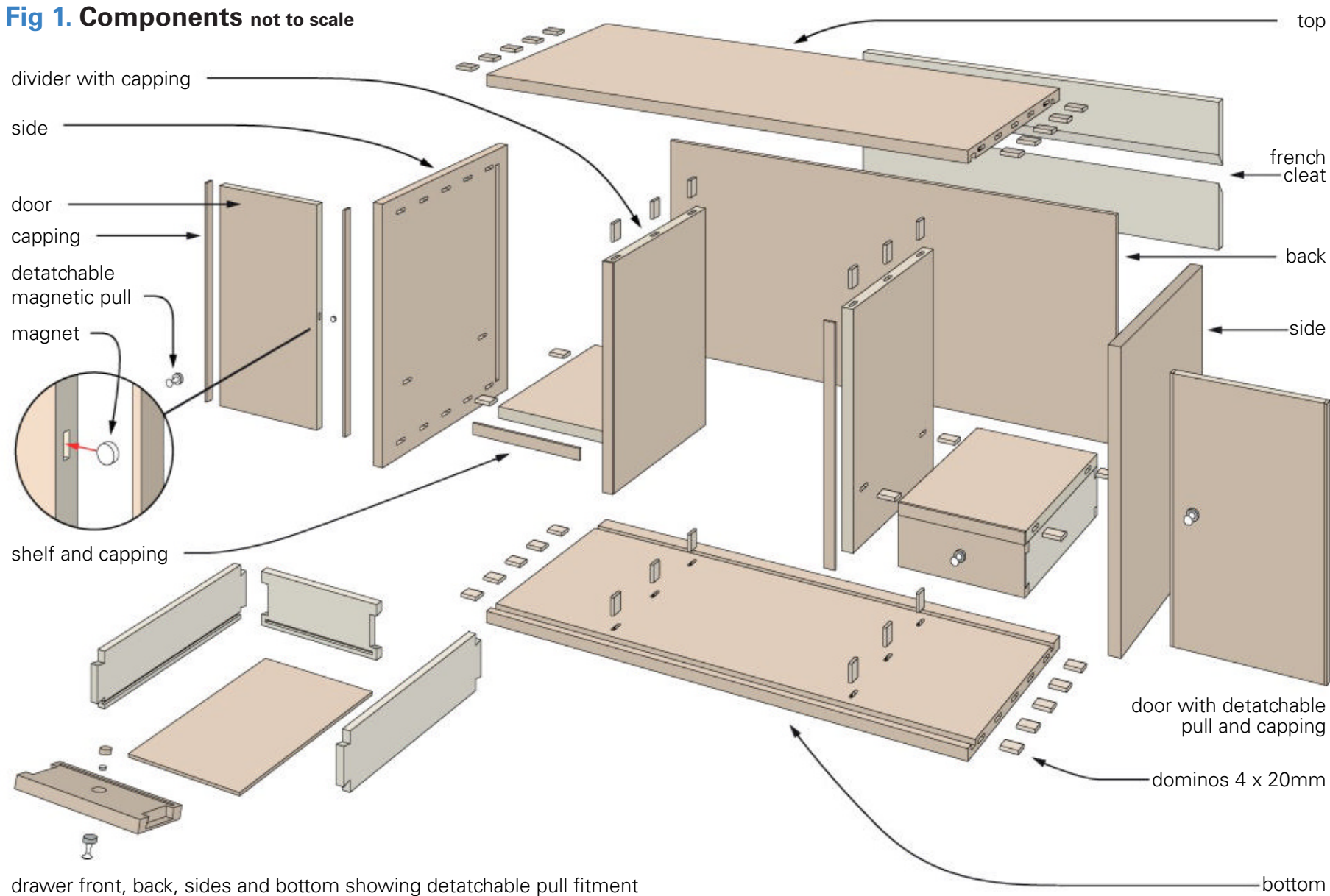
Normally sliding doors are made removable in case they need repairing. However in all the years I have been

woodworking I have never had to do this so I threw caution to the wind. This has the added benefit of lightening up the carcass by allowing it to be made thinner as the grooves don't have to be deeper or wider.

Veneering first

Start off by veneering the panels as they will need to rest at least overnight after pressing. I find the easiest way of veneering is with a vacuum bag. We get loads of even clamping pressure by harnessing the power of atmospheric pressure. This doesn't have to be an expensive proposition. All the pieces required will fit into a 660 x 710mm Roarokit kit.

Other than the veneers and substrate you'll also need a 600mm square,

Fig 1. Components not to scale

19mm thick melamine platen with all the sharp edges and corners rounded off. Create a grid of several 3 x 3mm grooves running across the top of the platen and criss-crossing each other. This, as well as the netting, will help evacuate air towards the one-way valve. Other methods of veneering will work just as well, including clamps and cauls. Hot hide glue as well as iron-on veneer, bought or shop-made, are other options.

Baltic birch is a great choice for a substrate however MDF will also work for the dimensions shown in **fig.1**. Cut all pieces 25mm oversize in length and width allowing us to trim and clean to final size. Use the substrates as templates to cut the veneers (**photo 1**). When veneering, it is necessary



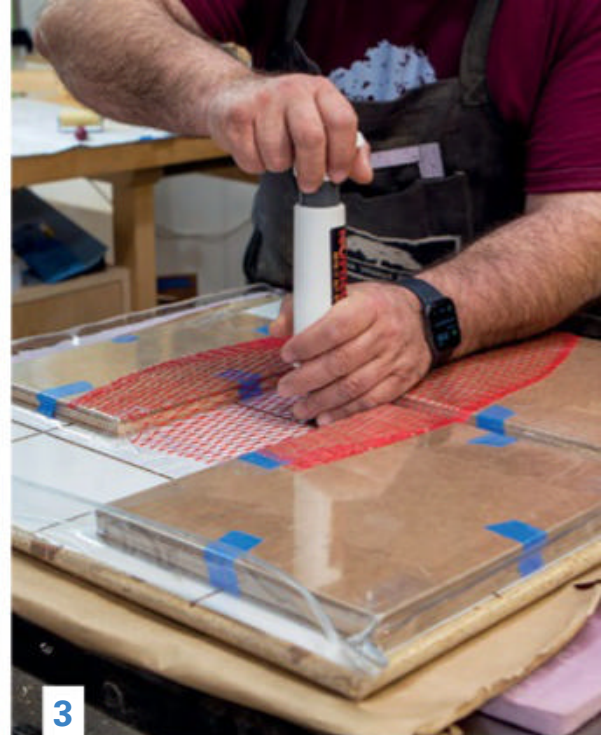
Main and above: The author's display cabinet in black walnut and black limba with chestnut burl, cherry and walnut veneers.



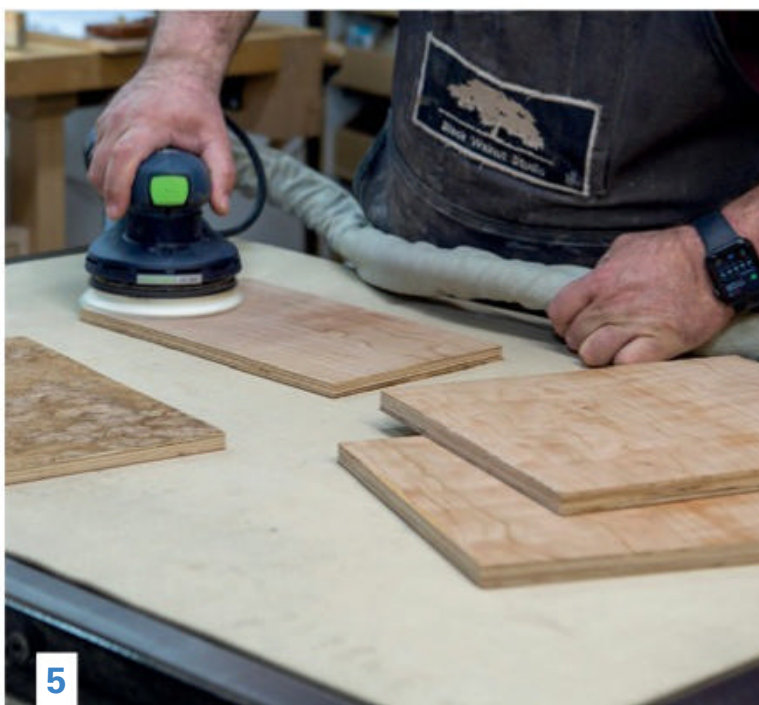
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3



5



6

to glue veneers to both faces of the substrate and to arrange the grain of the veneer perpendicular to the core. No matter how much of a rebel we might think we are, the first rule must never be broken. We're going to bend the second rule and have the grain run horizontally on one side of the dividers facing the centre, and vertically on the opposite side.

Make up a pair of 3mm thick hardboard cauls for each set of substrate and veneers. Size these to the same dimension or slightly larger but no more than 6mm longer and wider. Round the sharp edges and corners off with 120 grit sandpaper. Cover one face of each piece with packing tape and put aside for now.

Lay some newsprint on top of your bench and gather all your pieces to be veneered including your adhesive and spreader. While almost any glue will work, those made specifically for veneering will work better as they contain solids to stop the adhesive

from bleeding through. Place your melamine platen in the bag and have the pump and netting close by.

Apply glue to the substrate and cover with the veneer (**photo 2**). Place a caul on top, making sure the taped side faces the veneer, and flip it over. Add glue, veneer and another caul once more. Blue masking tape will hold the sandwich together as you slip it into the bag. Repeat these steps for as many of the pieces that you are comfortable pressing before the glue skins over and begins to set.

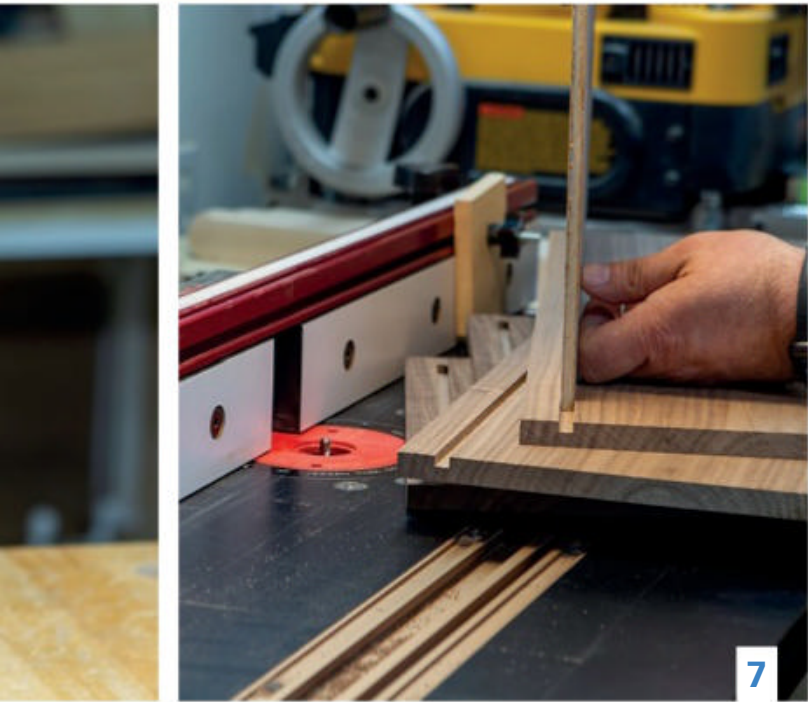
Place the netting over the pieces and under the valve (**photo 3**). Seal the bag and start pumping the air out. In less than a minute the bag will start to draw itself around your work and it will also become harder to pump. Write the time on a piece of tape and place it on the bag. Minimum time to 'cook' in the bag should not be less than two hours, however longer will not hurt.

Check often to make sure there are no leaks and that the bag is holding vacuum. Repeat these steps for all the components that need veneering. When you remove the pressings out of the bag prop them up overnight so they can fully cure. Don't leave them flat on a bench.

Carcase components

I found a plank of black walnut that was over 250mm wide and about 2500mm long but you can also glue narrower pieces together. In some cases this is a better option that could mitigate cupping and warping that can occur when milling wide boards. Mill the carcase components down to 13mm thick, then rip and crosscut the pieces to their final sizes (**photo 4**).

Mark the components with the cabinetmaker's triangle to keep track of everything. Next we can cut the grooves in our freshly machined parts for the back and doors. To get the proper width of these grooves we'll need to clean our veneered pieces.



Using the teeth on the edge of a mill bastard file, clean the overhang of veneer on one edge of each panel. Cut by pushing the file towards the core and angled so as to not hit the overhang on the opposite face (**photo 5**). Repeat for the other face then head to the jointer and clean this edge up further with a pass or two.

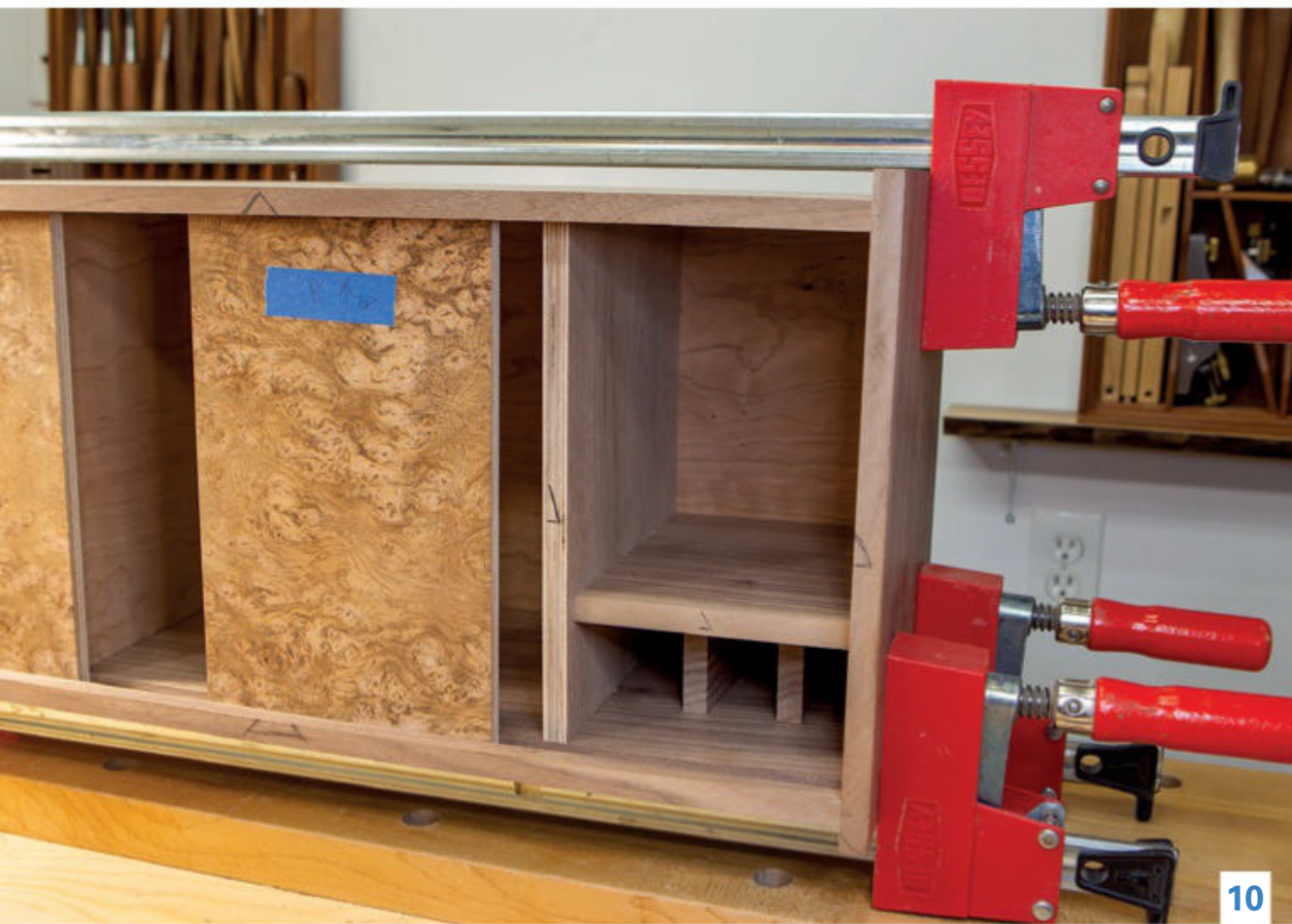
Trim the other edges by ripping and crosscutting on the tablesaw with a veneer cutting blade. It's important to leave these parts as large as possible at this stage as the final dimensions won't be known until a few more steps are completed.

With a random orbit sander clean the two faces of each piece with 180 grit sandpaper (**photo 6**). Remember, we have only so much veneer to work with. This is just clean-up and any stubborn areas can be dealt with hand sanding close to the end. We should now be near the final thicknesses of our veneered pieces.



1. Cutting veneers to size using plywood as template.
2. Gluing veneers onto plywood.
3. Vacuum pressing veneers using vacuum bag.
4. Gathering milled and veneered parts.
5. Sanding the veneered parts.
6. Cleaning one edge of veneered parts using a file.
7. Routing groove for back panel.
8. Mortising for dominos is cabinet side parts.
9. Using a bar gauge to size the back panel.

CUTTING LIST (MM)				
PART	QTY	LENGTH	WIDTH	THICKNESS
Top	1	585	255	13
Base	1	585	255	13
Sides	2	304	255	13
Dividers	2	255	220	12 + 2 veneers
Doors	2	265	153	9 + 2 veneers
Shelves	2	192	140	13
Back Panel	1	595	265	6 + 2 veneers
Drawers	2	185	138	50
French Cleat	2	530	90	18
Magnets for doors	2	9	2.5	
Magnets for drawers	2	12	2.5	
Magnetic knob	1	Lee Valley Tools 50K0202		



10

10. Dry fitting the cabinet.
11. Using a shop-made jig to make sure of divider alignment.
12. Gluing caps or edgings onto divider front edges.
13. Positioning rare-earth magnets and knob.
14. Drilling door edges for magnet mortises.
15. Cleaning mortises with chisel.
16. Gluing and clamping door edgings.



11



12

The top and bottom of the cabinet will get through grooves for the back. The sides will receive stopped grooves for the back. All grooves in the cabinet are 6mm deep.

Starting with the rear groove, place a 6mm straight bit into your router. A guide on a hand held router will work, however I like to use the router table. Since we'll be using 18mm plywood for the French cleat we'll need to start the groove 19mm in to make sure that the cleat draws the cabinet tight to the wall when hung.

Take several passes to reach the 6mm of depth. Run the grooves at the back of the side pieces as well making sure to stop them 16mm from the ends. At this point we are a bit too narrow to accept the veneered back. Move the fence away from the bit slightly and take another pass. Test fit the back panel and repeat as necessary to get a snug fit (**photo 7**). It should not have to be pounded in, yet not be so loose as to rattle. Repeat for the side pieces stopping again at the 16mm marks.

This is also a good time to cut the grooves for the doors in the top and bottom. Place a 9mm straight bit into the router and take several passes to reach the 6mm depth. Start this groove 9mm in from the front, and as before we'll need to take another pass with the fence moved back to let the sliding panels drop in. We need the panels to slide without binding so dial in enough clearance to allow for this.

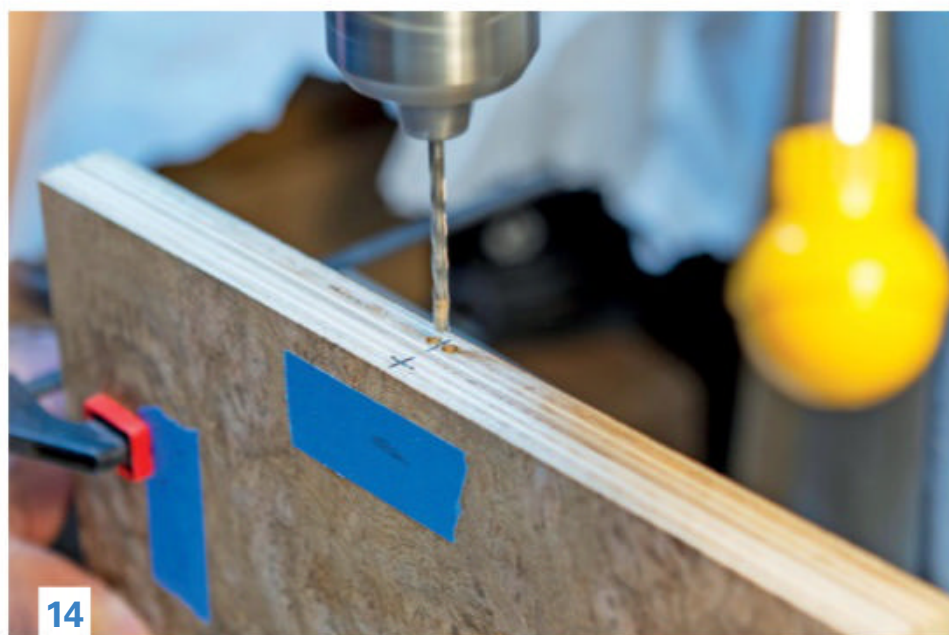
A bit of joinery

I opted for 4mm Festool dominos to reinforce the butt joints on the carcass as well as the cabinet dividers (**photo 8**). Small biscuits, dowels and splines will also work. The work on the cabinet corners is simple enough with the only concern being the placement of the dominos 18mm in from the ends to create an overhang.

With the cabinet joinery completed, dry assemble the cabinet. Using story sticks or a bar gauge, measure for the actual dimension of the back panel (**photo 9**).



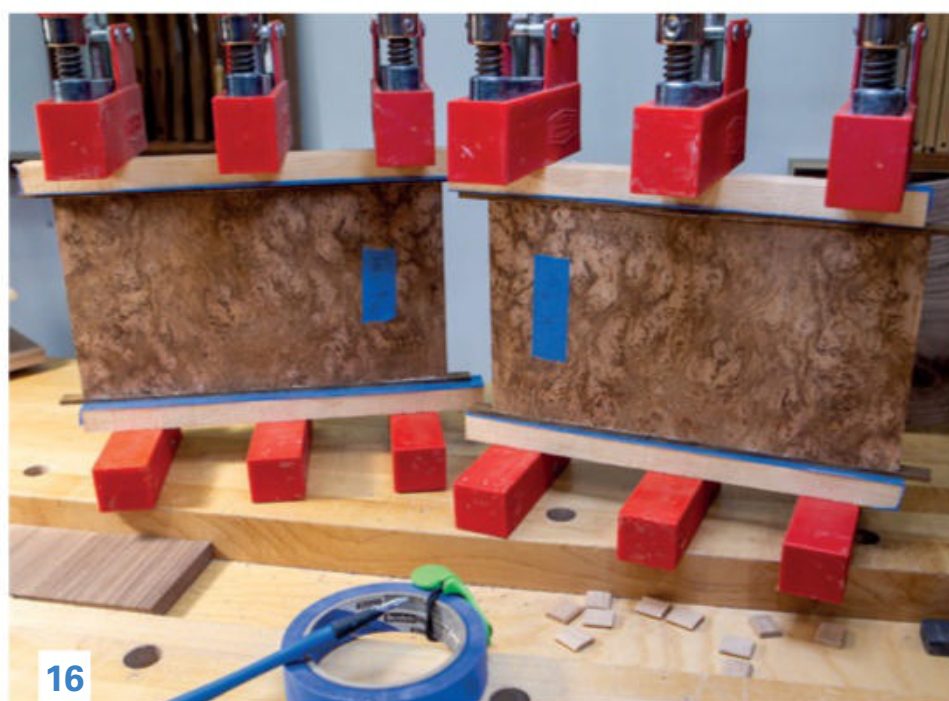
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14



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16

Transfer this to the tablesaw and cut the panel to size. While the cabinet is still clamped up, use the same method to measure for the height of the dividers as well as the height of the doors. The width of the dividers is the distance from the back groove to the front minus 3mm for some capping, plus another 2mm to 3mm for clearance. Trim the height of the door to fit but leave the width for now (**photo 10**).

To match the dividers location on both the top and bottom, we'll create a simple two-sided jig for perfect alignment. Take a piece of 12mm or thicker plywood 136mm wide and roughly 300mm long. On both faces place a mark defining the back of the cabinet. Place a strip of sandpaper on both faces so that it won't slip in use. Draw three lines to centre the dominos between the grooves. Transfer these lines to the opposite face and now we have a jig that will let us place dominos exactly where needed (**photo 11**).

Clamp the jig to the bottom flush with the back and one end. Use the marks to centre the domino and cut your mortises. Repeat three more times. Create matching mortises in the tops and bottoms of the dividers. If you are using a dowel jig, adjust the depth of the jig to centre your dowels on the 200mm mark from each end.

Create a second jig to do the same precise alignment of the shelf between the dividers and the sides of the cabinet. When using this jig on the cabinet side, dry fit and clamp the cabinet. When using the jig on the divider remember it is narrower than the cabinet. Make a shim that is equal to the distance from the back of the cabinet to the inside edge of the groove. Mortise the divider for your domino or dowel.

Dry fit all the cabinet parts including the dividers and back panel. Using the same method of referential

measurement, find the width of the shelves and make two that are 190mm deep. Remember to mortise the ends of the shelves for the dominos.

At this time we can also measure the precise width of the doors. Door widths are measured from the inside edge of the cabinet to farthest face of the divider, the one facing the centre. We will also decrease this width by 6mm to account for the 3mm capping soon to be glued to each edge.

Covering up

Mill up some solid wood edging that is roughly 4mm thick and 16mm wide. Make enough to cover the front edges of the two dividers, and the left and right sides of the doors (**photo 12**). There is no need to cover up the top and bottom of the doors nor the back, top and bottom of the dividers. Using glue, clamps and cauls glue the edgings to the dividers.



17



19



18



20

As mentioned, we'll keep our lines and faces clean by using magnets to move our doors and drawers. Before gluing the capping on to the doors, drill and glue in the rare earth magnets (**photo 13**). Position these 2.5mm thick magnets centred on the height and thickness of the door and roughly 20mm in from their inner edges. Use a 3mm drill bit to drill a couple of holes at the previously placed marks (**photo 14**), and clean up with a chisel (**photo 15**). Making sure that the polarity of the magnets are the same, drop them in and secure with a drop of CA glue. Now we can cap off the edges of the door using the same process as we did for the dividers (**photo 16**).

Once the glue cures flush the capping with a block plane (**photo 17**). Use two or three layers of blue masking tape diagonally across the front corner of the plane to make sure you don't scuff the veneered face. Come as close as you dare and clean up with some hand sanding at 180 or 220 grit at the most.

Since we made the capping thicker we can now finetune the doors and dividers to their final widths. The fronts of the dividers should be planed until we have about 2–3mm of clearance from the door groove. The width of the doors is equal to the distance from the cabinet side to the opposite face of the closest divider.

Making the drawers

I opted to dovetail the drawers in the cabinet. There are other options such as rebated and pinned as well as lock-mitre joints. No matter what you choose insert a magnet from the inside of the drawer front to allow us to open and close the drawer with a magnet (**photo 18**). Make sure the polarity is the same as those set into the doors. I used a drawer board to fit the drawers into their openings (**photo 19**).

Time for a finish

It's easier to finish some areas before assembly, after making sure all scratches and glue squeeze-out is removed. Shellac is a good option and

I applied seven thin coats (**photo 20**) followed by a fine furniture wax application. Another advantage of pre-finishing is that any glue squeeze-out during final assembly will just peel off. Remember to tape off any areas that need to be glued.

Putting it all together

The final assembly is not difficult if done in stages. There is also nothing wrong with recruiting a second pair of hands. Start off by gluing the dominos, dowels, biscuits or spines into one side of each joint. The first step is to glue the dividers and back to the top and bottom (**photo 21**). To help keep things square and aligned, dry clamp the sides as well. Let this sit for at least an hour.

Next, work on the left side of the cabinet. Leave the right side attached and glue in the left shelf and side. Leave this to cure for at least an hour. It's then time to glue in the right shelf and side, but *do not forget* to insert the doors. In fact place them in their grooves before applying any glue.



21

That's a wrap

Once the glue has fully cured come in with a small hand plane blade or spatula and peel off any residual glue (**photo 22**). Buff out any scuff marks left from clamping. Attach one side of the French cleat to the rear of the cabinet at the top (**photo 23**). Since the back is veneered and the cleat is plywood we don't need to worry about wood movement. Attach the mating piece to the wall using anchors or hitting studs and hang your cabinet. Place your cherished items inside the cabinet, stand back and admire.

Photos: Steven Der-Garabedian

Illustration: Graham Sands



Steven Der-Garabedian is a fine furniture maker and teacher in Mississauga, Ontario, Canada. His new book

Veneering Essentials is now available. Learn more at www.blackwalnutstudio.ca



22

17. Trimming the edgings flush using a block plane.

18. Gluing in magnets on the inside drawer faces.

19. Using a drawer board to fit drawers to their openings.

20. Applying shellac.

21. Final assembly.

22. Using a plane blade to peel off glue squeeze-out.

23. Fitting the French cleat on to the back of the cabinet.



23



The Business of Studio Furniture

Rolf Barfoed made three cabinets in three ways to use as examples for prospective clients. He explains why...

All too often I think: 'Wouldn't it be nice if I could just make the piece and charge for the recorded hours at the end?' If only that's how it worked for those of us who design and make furniture for a living.

The reality is, it's not that simple. There's much to consider, including the cost of materials and labour, as well as overheads such as equipment, consumables and rent.

I often speak with other makers and we have recurring conversations about promoting what we do, pricing our work, and progressing our practices. We seem to agree that many approaches are needed to meet this challenge.

The other reality is that our work is viewed quite differently by potential clients. Have you ever walked around a gallery and thought 'that's cheap', 'that's expensive', or 'I don't value that'? Or overheard someone speculate about how long it must have taken to make a piece? There's an air of mystery surrounding the business side of being a studio furniture maker; specifically, where the value of our work lies and what the amount we charge represents.

My approach

I was recently involved in *The Millennials*, a group exhibition at Sturt Gallery¹. The brief was set by each participant. I took it as a chance to make a body of work that

represented my studio's approach to recognising and meeting the needs of my clients.

It got me thinking about some of the ways that we as makers can help clients to understand what we offer and what's involved in working as studio furniture makers.

Create a display space for finished work

Like many studio furniture operators, I don't (yet) have a showroom. Having been an employee in a handful of small practices (only one of which had a showroom) I appreciate the ability a showroom affords the salesman (aka designer maker) to describe and



demonstrate furniture attributes to customers. Showrooms also function as a tool for staff to learn the in-house design language.

Create samples

Despite not having a showroom, prospective clients often visit me in my Canberra studio to discuss ideas, see timber samples and to view works in progress for design inspiration. My biggest challenge is describing the variety of options available, often without having actual work samples to refer to.

As our studio is diverse in our range of materials and techniques it's essential to demonstrate why one option is more suitable or expensive than another. People also have difficulty visualising ideas, even when sketched accurately. Samples of not just different timbers, but also of handles, hardware and joinery are useful to show people.

Identify and offer levels

Within my studio (and especially for cabinets) there are three or four tiers for materials and workmanship. Many

Pairs of bedside cabinets, left to right:

The author's *Exo*, *Louvre* and *Pulse* styles were designed to illustrate three levels of value in terms of materials, hardware and joinery used, as well as time taken to manufacture.

Below: Showing the drawer joinery and hardware used for each of the cabinets. *Exo* drawers in solid timber take 9.25 hours each to make, *Louvre* 5.75, and *Pulse* three hours.





of the differences are subtle and hard to describe without going down a rabbit hole of technical woodwork jargon (which can be overwhelming for layman).

It seems to me there are currently three general design styles, which I've identified as Fine Studio Furniture (FSF), Modern Commercial Timber Furniture (MCTF), and Premium Retail Furniture (Commercial Cabinetmaking CC).

Even many designers and makers don't have a sense for these levels so it's not surprising that fewer people who come in off the street understand. Groups such as Studio Woodworkers Australia² make an effort to promote FSF, but it can be like preaching to the converted. Educating a broader audience is a challenge.

The *Millennials* exhibition gave me a chance to clearly define and display the levels my studio offers.

Customer's needs

A recent interaction I had with a client follows: 'Many thanks for your quote. While it made me draw breath somewhat, I'm not really surprised. My decision is not so much whether I can afford it but whether I'm prepared to spend that amount on a piece of furniture – in other words, whether I acquire something beautiful and custom made or go for something more pedestrian but serviceable.'

This is a great example of a client who has the funds and understands my position in the market, however I couldn't quite get them over the line for the sale, potentially because I didn't have any 'in the flesh' examples of furniture to help build the excitement at the time of the meeting.

Interactions like this can be discouraging. However, I try to hold firm and avoid undercutting my prices just because I want to make the work. As one of my cabinetmaking teachers often said, 'You shouldn't win every



Top: Mock-ups of each bedside cabinet design were first made to gauge proportions and to create cutting and component lists from.

Above: For the *Exo* cabinets, panels were glued up from blackwood and then sent out to be CNC cut into components.

Opposite, from top: *Exo* bedside cabinets nearing completion, and an earlier view at assembly stage in Rolf Barfoed's Canberra workshop.

The inset routed handles of the *Exo* cabinets are a key feature achieved with CNC and handheld routing processes.

The drawers of the *Exo* cabinets featured dovetail joinery and traditionally handcrafted timber runners

Each cabinet is stamped with the maker's name and date of making.

Exo bedside cabinets, FSF

Craftsman: Rolf Barfoed

Dimensions: 380 x 380 x 500mm high

Material: Tasmanian blackwood, silver ash

Finish: three coats of Danish oil

Hardware purchased: None

Timber: \$766

CNC outsourcing: \$150

Carcases time tally: 29 hours

Drawers time (including runners): 9.25 hours each

Recessed handle time: 2.5 hours each

Overall time tally: 114 hours

Exo bedside cabinets are an extension of the *Exo* series I've been working on since 2017 and are the most technical of the three pieces. *Exo*'s design is rooted in my understanding of designing for timber. Its key aesthetic details include the corner rebate 'waterfall' from one component to the next and the clean intersection this produces at the top of each leg.

This pair of *Exo* bedside cabinets exhibits peak craftsmanship, including hand cut dovetail joinery, traditional recessed timber runners and a finely sanded and hand rubbed oil finish. All surfaces are crafted to this standard, both inside and out.





Louvre bedside cabinets, MCTF

Craftsman: Samuel Ryrie

Material: Tasmanian oak

Dimensions: 400 x 403 x 650mm

Finish: oil applied with a roller after 180 grit orbital sanding

Hardware: Blum Movento

Timber and veneer board: \$500

Hardware: \$199

CNC outsourcing for jigs: \$25

Carcases time tally: 25 hours

Drawer time (includes fitting runners and false fronts): 5.75 hours each

Overall time tally: 48 hours

Louvre bedside cabinets represent the 'bread and butter' skilled cabinetmaking practised daily by the team. Crisp mitred joints and chamfer profiles show careful planning, precision machining and thoughtful glue-up operations. Finger jointed drawers run on commercial runners which allow quick and easy soft-close operation.

This style of work is intended to be heirloom quality: durable, serviceable and easy to live with: furniture that is used multiple times a day while on the go. This style is particularly well suited to a commercial workshop, with a large panel saw and a wide belt sander being essential for accuracy and efficiency.



Above: Rolf Barfoed's *Louvre* cabinets represent his 'modern commercial' level which he equates to his studio's bread and butter type work.

Louvre cabinet details include mitred joints and chamfered profiles which highlight precision work.

quote. It means that your work is too cheap'. I've learned that this was great advice, but still aim to price my work as sincerely as possible. It would be neglectful to disregard a potential client by charging excessively when I could have got the job for a fair price.

Three cabinets

For *The Millennials* I presented three pairs of bedside cabinets. For each pair, the aesthetics, function, method of construction, materials and cost were prioritised in varying order.

My long-term intention for this collection is to function as a display in our studio.

From a young age I've enjoyed sports statistics and I've always felt the urge to bring similar analysis into my practice. Thinking of how we charge for and price our work, one of the missions in making these cabinets was to keep note of the productive hours, materials costs and outsourcing costs for each design. Standardising these parts for future quoting, i.e. being able to quickly calculate an accurate quote based on our past recordings, was another goal for the work.

In a fair reflection of the make-up of my studio, team members Nate and Sam were the craftsmen for two of the three pieces. We three makers all favour different types of woodworking, so I also had this in mind when



Pulse bedside cabinets, CC

Craftsman: Nathan Cummins

Material: American white oak timber and commercially veneered MDF

Dimensions: 451 x 394 x 621mm

Hardware: Hafele Matrix Box Slim

Finish: Black lacquer finish

Timber and board: \$333

Hardware: \$142

CNC outsourcing for jigs: \$25

Spraying: \$360

Carcases time tally: 24 hours

Drawer time (including the custom handled false fronts, fitting runners and box assembly): 3hrs each

R&D time: 6 hours

Overall time tally: 42 hours

Pulse bedside cabinets in American white oak with black lacquer make a point of celebrating form and function. The subtly expressed wood grain can be seen through the black finish and draws attention to the timber elements. The finger pull detail was designed as the hero element, with a striking endgrain cross section visible when the drawers are opened. The Hafele Matrix Box Slim drawer system has been used for economy and is my preference when 'behind the scenes' design needs to be inexpensive. This design represents conformity, reliability and repetition in commercial manufacturing.

designing for our skills, experience, and the nature of our equipment.

Some elements of these cabinets were outsourced. We often prepare solid timber panels that we have cut on a nearby CNC, along with MDF jigs. We use a furniture spray painter for all our lacquer finishing.

Points of difference

There are many approaches to business in the highly personalised world of studio furniture. It's not lost on me that our individuality is the fundamental part.

For my practice, I've learned that having a quoting system I can reference is gold. I've laid out this information not to be competitive (although we do try to work quickly and maintain objectively high standards), but as a way to extend the

dialogue between like-minded studio furniture practitioners. Even with our different styles, many of us share similar mantras in our approaches.

*Studio photography: Light Bulb Studio
Workshop photos: Rolf Barfoed*

1. *The Millennials exhibition was shown at Sturt Gallery, Mittagong, NSW from February to April, 2021. See p.57 to read Rodney Hayward's review.*

2. *Learn more about Studio Woodworkers Australia at www.studiowoodworkers.org.au*



Rolf Barfoed is a furniture designer maker based in Canberra. Rolf was featured in AWR#108 and appeared on the cover of that issue. Learn

more at www.rolfbarfoed.com.au and via Instagram @rolfbarfoed

This page: *Pulse* cabinets are black lacquered to 'celebrate form and function', yet the finish is tempered to allow the wood grain to still show through. Commercial drawer box hardware is time efficient, while the asymmetrical inset handle provides a distinctive and crafted focal point.



Dancing With Woods

The discipline and powers of observation developed by former Australian Ballet soloist Vivienne Wong are in full play as she builds a new career as a furniture designer and maker.

Fourteen years with the Australian Ballet might seem an unlikely training ground for a fine woodworker, and yet, creating furniture for a small but growing clientele is now the daily practice routine for Vivienne Wong.

‘When I left (the ballet),’ said Vivienne, 38, ‘I knew I wanted to do something creative and physical. I’ve always liked making things and working with my hands so I did a short course in furniture making at Melbourne Polytechnic. After that finished I wanted to pursue it further but didn’t know how, so I reached out to a lot of people just to get an understanding of the industry, what was involved, and how to start to learn.’

After that, around four years ago, Vivienne enrolled in a course at Handsome & Co, and at same time was able to do work experience with maker and restorer Liam Thomas. ‘I ended up renting bench space in his workshop for a couple of years after that as well’, she said.

An internship with Brian Cush (Sawdust Bureau) followed, as did mentoring from Steven Ziguras (Eco Wood Design). ‘These three makers have really been my teachers over the last four years. Going back to uni full time wasn’t a viable option, so for me to be able to learn from these makers who are all so skilled in different ways has been wonderful.’

After the ups and downs of lockdown life in Melbourne during 2020 Vivienne is now fully set up at the Worco Crafts Co-operative in Thomastown, where Stephen Ziguras also shares space.

Training as an elite level dancer usually commences in childhood and rising up through the echelons to perform as a soloist with the Australian Ballet for seven years represents a monumental level of technical and artistic mastery. Surely woodworking would be a breeze in comparison – but are there any parallels to draw?

‘They both have their challenges,’ Vivienne said. ‘It’s quite funny, but in terms of live performance my biggest

Main: Vivienne Wong in her workspace at Worco Crafts Co-operative in Thomastown, Melbourne.

Underframe joinery in blackbutt for a 2.2m long dining table and a three-seater bench.



anxiety would be gluing up. For the woodworker that's a different kind of dance: 'You've got to be efficient in what you're doing. You've got time ticking away, you can't let anything go wrong and you've got to be quite methodical and well prepared. And the phone goes on silent.'

As a 'performance partner' wood must also be treated with respect. You have to work with it, observe what's happening with the grain, and understand different species. 'It's a bit of an abstract parallel', Vivienne said, 'but when you work with a partner it's always about give and take, and working with what's in front of you. It's like when you plane an edge and it's about the amount of pressure put through the plane.'

Mastering the craft of dance requires well tuned powers of observation and the same applies to training in other disciplines. 'As a dancer you're trained to visually criticise lines and form and balance. It's a learning process of how to adapt some of that balance in terms of visual weight and proportion into a design, but it's something that

I'm trying to transfer across into what I make, whether it's something that's simple and clean but has a certain amount of balance and elegance.'

There's also the discipline of practice. 'Knowing that you will not necessarily get something right the first go but with repetition you'll become more efficient – the more you do it, the more precise you'll get. I guess it's about transferring that sense of discipline and not being afraid to try again and keep up the practice to achieve the skill.'

What are her priorities as a designer maker? Sustainability is key, Vivienne says. 'Ethically I'm very conscious of how much we're conditioned to consume, of the amount of waste that's involved with that. I'm conscious when I'm in the workshop of every cut I make and how much material I've got and cannot waste. I try to source materials in the most sustainable way I can. It depends what the client wants. If I know I can find that timber in the dimensions needed in a recycled timber yard I'll go there. FSC timber as well – I think we have a responsibility

as makers to give back to the environment, and the trees and mother nature, as we're also taking from them.'

And what about using local woods? 'I always try to see if clients are interested in Australian timbers. I've always loved eucalypt trees. I love gum vein and the features they have. They're not always the easiest to work with for fine furniture but I enjoy working with Australian timbers.'

Making on a professional level has other realities. 'So far my furniture has been based around what people want', Vivienne said. 'I really like to get an idea of what they're after and what they might like in a piece. That's what I enjoy most – that process of working down to a design that someone likes.' To that end, Vivienne uses a mix of pencil, paper and digital drawing tools 'just to get my ideas out' and to present something to the client.

Why aren't there more prominent women makers I asked, and how does being a woman maker sit with her peers? 'That's a difficult thing to



This page: Outdoor courtyard set in recycled blackbutt with powder coated steel frame.

Opposite: On the bench and close up, fitting off table leg joinery.

Detail views of corner shelving unit in eucalypt with half lap joinery.



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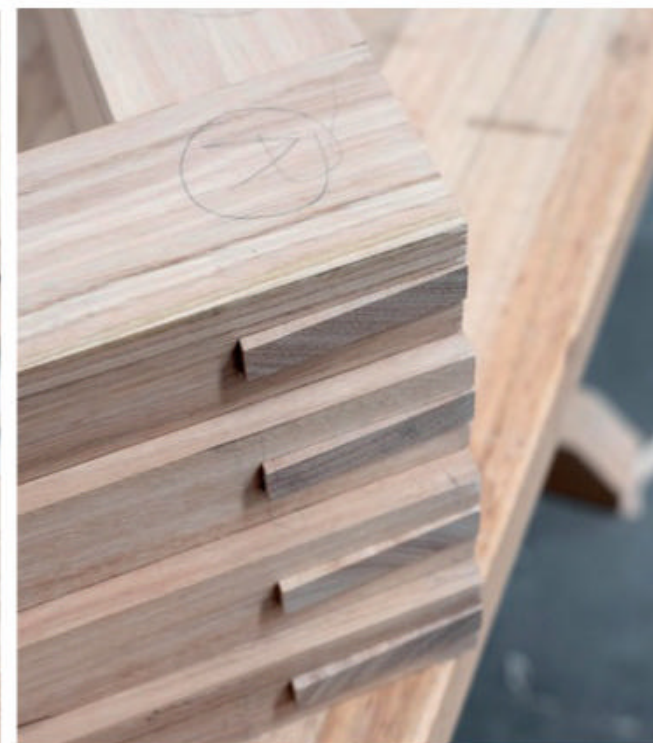
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Q&A

What's your favourite hand tool?

My Lie-Nielsen block plane is my go-to for a lot of things.

Your favourite machine?

There's nothing quite like freshly dimensioned flat and square timber, so I really enjoy using the thicknesser and planer.

Favourite process?

Isn't most people's favourite process putting on that first coat of oil? To be honest, handcut joinery and finishing are the things I most enjoy doing. Not every design allows for detailed joinery, but when it does and I can pick up my hand tools, I will!

Is there anything about woodworking that drives you nuts?

I know from working with epoxy resin that it's not the easiest thing to work with so I like to steer away from it.

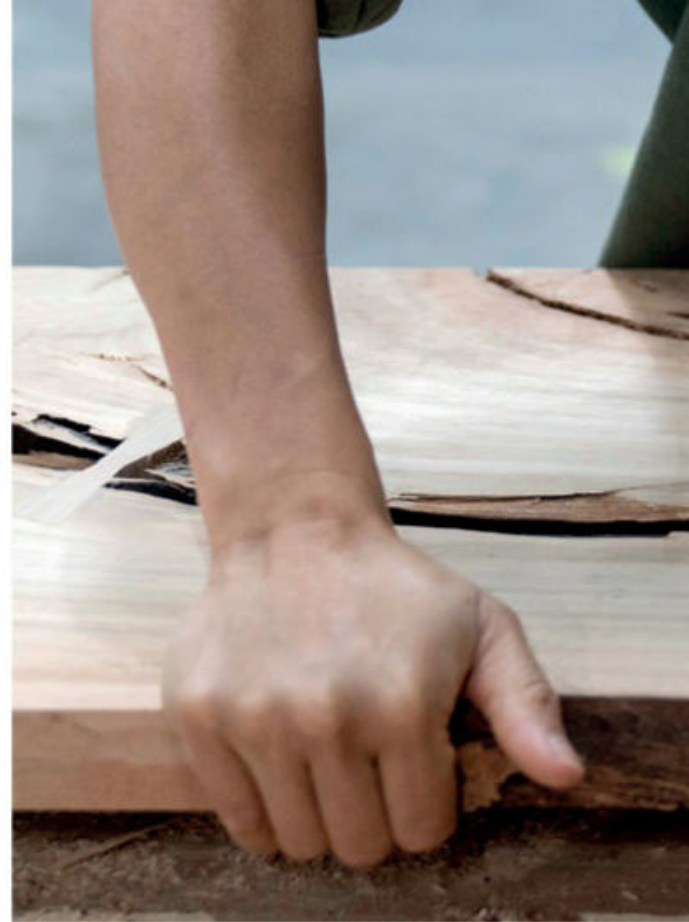
Worst thing about woodworking?

You know I've ruined so much clothing by getting glue on it. It can also be pretty dusty at times.

Best?

I really enjoy getting into my own groove and being able to concentrate on a process, the timber and what you're making.





This page: Dining table and a three-seater bench with sugar gum top and seat and brass pin detailing. The frame was ebonised with initial 'priming' with black tea followed by several coats of vinegar and steel wool solution. A combination of timber and epoxy resin inlays were used to replace some of the knots and gum vein in the slab, while cracks on the underside of the frame were stabilised with dovetail keys.

Opposite: Batchwork – custom order split-seat stools in blackbutt.

answer, especially for other people, but my experience is that all the independent makers that I've met around here in Melbourne have been welcoming and generous with their time, and in no way fit the macho man mould. They know how tough it is to make a sustainable business out of it.'

'As a solo maker I feel I have some physical limitations on size and the scale of pieces I can handle, but that would ring true for both male and female makers. But I kind of take that on board and know that maybe a process is going to take me longer. I'll do a glue-up in a lot of stages





instead of trying to muscle it and do it in one go. I feel that for myself I need to adapt and use different strategies.'

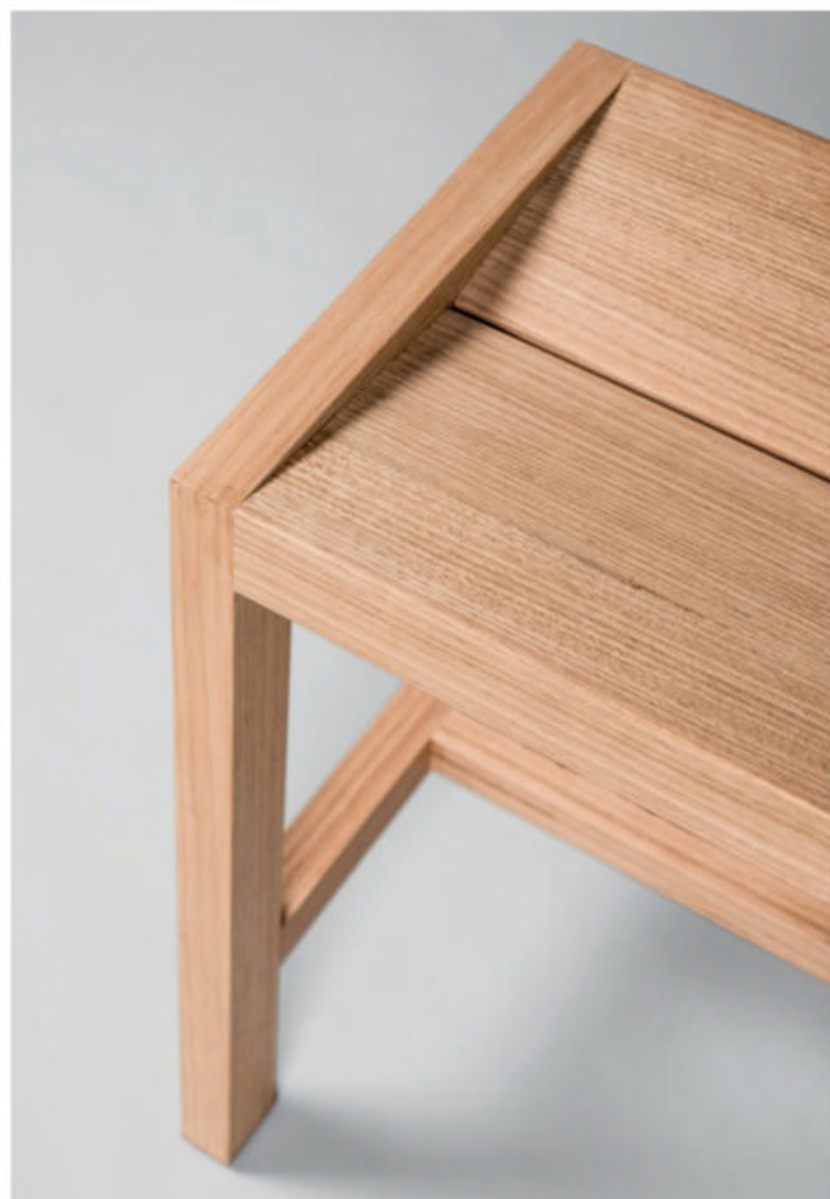
While Vivienne still relies on her income as a photographer, life as full time maker is the plan. 'That's what I'm aiming towards. I want to be doing this as a full time thing. I enjoy waking up every day and knowing that it's the workshop that I'm going to. I feel like I'm developing my language and voice as a designer and maker. I'd like to give myself room to develop these things, and see where the making process goes.'

Woodworking is not generally regarded a high paying career but Vivienne's priorities aren't based on that: 'I've always felt that if you can do something that you're passionate about and love, and make ends meet, that makes living so much more worthwhile.'

Referring to her transition from dancer to maker Vivienne said, 'It is unusual for a person to segue across from that industry.' However woodworkers as a group can have 'a mixed bag of back skills', she said. 'I think people get to the point maybe where the enjoyment of making things takes over. I think it's a real privilege to be able to do that.'

Photos: Northside Studio

Learn more about Vivienne Wong at www.viviennewong.com.au and @vivienne_l_wong



Choosing Bandsaw Blades

Getting the best out of your bandsaw is dependent on selecting the most appropriate blade for the task at hand. Story by Damion Fauser.

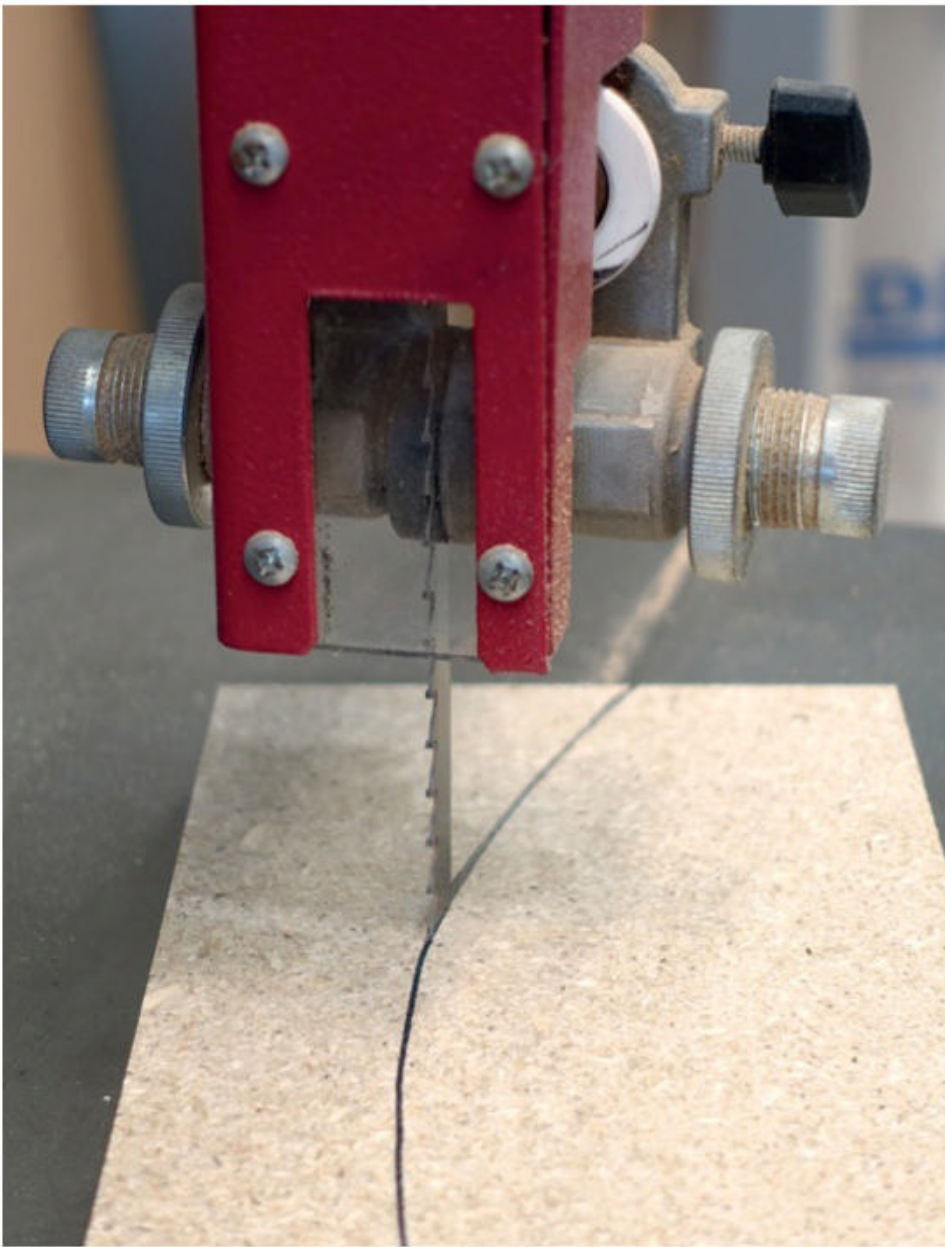
The bandsaw is undoubtedly one of the most versatile machines in the workshop, but getting the best out of it requires choosing the most appropriate blade for the task at hand. Blades vary in three primary ways – tooth type, tooth pitch and band width. The following factors will greatly influence the choice of blade in one or more of these variables.

Material to be cut

Bandsaws can be used to cut materials other than wood and this is a prime factor in selecting a blade for the task. They are commonly used to cut non-ferrous metals (such as brass, copper, aluminium), acrylic and other rigid plastics, frozen flesh and carcasses, and even ice (my local tackle store has a small bandsaw).

Wood is a little more forgiving in blade selection in this regard, but some materials require specific types to be successful. Some non-ferrous metals for example, require a carbide-tipped blade whilst acrylics require a very fine pitch to cut successfully.

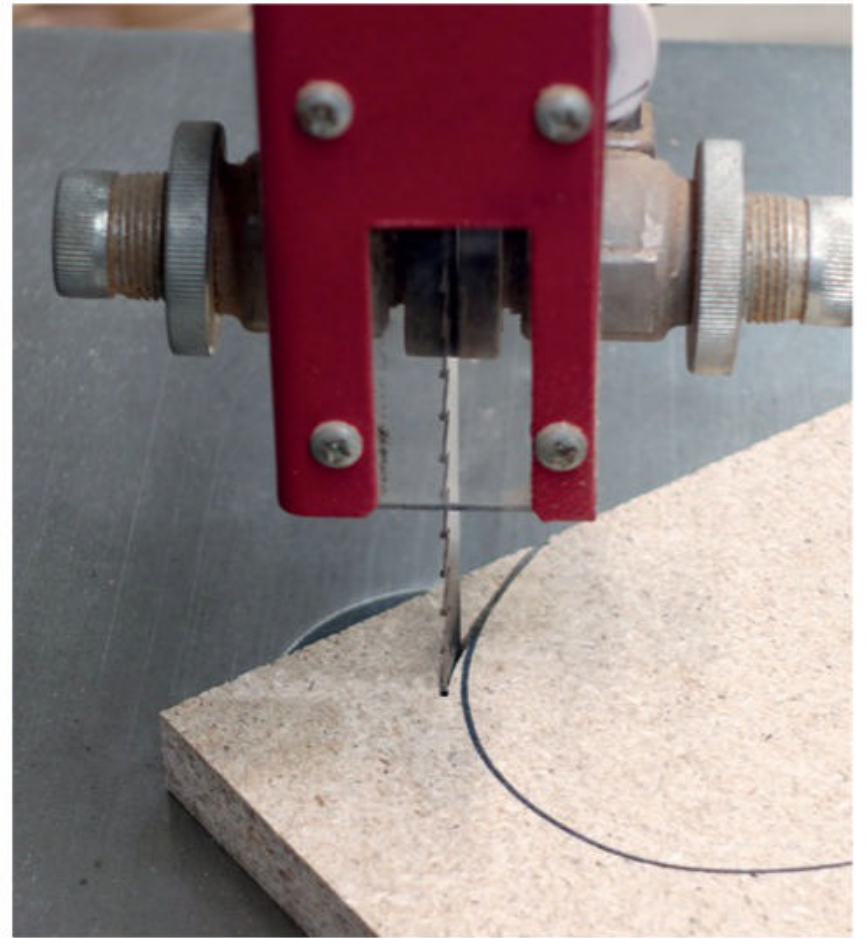
Blade wear can be a factor here too – I've been in shops with multiple saws set up, including one solely for cutting out curved template components in sheet goods, which are notoriously



Main: A selection of the author's blades showing various band widths and tooth pitches.

Left: This curve is easily handled by this 1/2" blade.

Below: Running off the curve and twisting – too tight for this blade.



abrasive on tooling teeth. We were strictly forbidden from cutting sheet materials on any of the other saws to prevent prematurely wearing the teeth.

Machine capacity and anatomy

The physical characteristics of your saw will play a great role in choosing the blades that are best for you. The width of the wheel edges, for example, will largely determine the maximum blade band width that you can run. This is a crucial factor when researching and shopping around for a new saw to ensure you end up with the capacity you require.

Lesser known though, is that the smaller the wheel diameter, the tighter a radius the blade has to bend around twice per revolution on the machine. This is important to know if you're choosing to run some of the higher quality bands that can be more brittle, which can result in premature work-hardening of the band and ultimately failure which can be costly.

Motor power is also a factor. Whilst the flywheel effect of well balanced bandsaw wheels means that even modestly powered machines can make decent cuts, you have to draw a line in the sand at some point in this equation. A 0.5hp powered saw is unlikely to be able to push even the sharpest blade through 200mm of spotted gum for example.

Type of cut

Two of the most beneficial cuts we can make at the bandsaw are tall resaws and curves – each has their own blade requirements to be executed safely and cleanly.

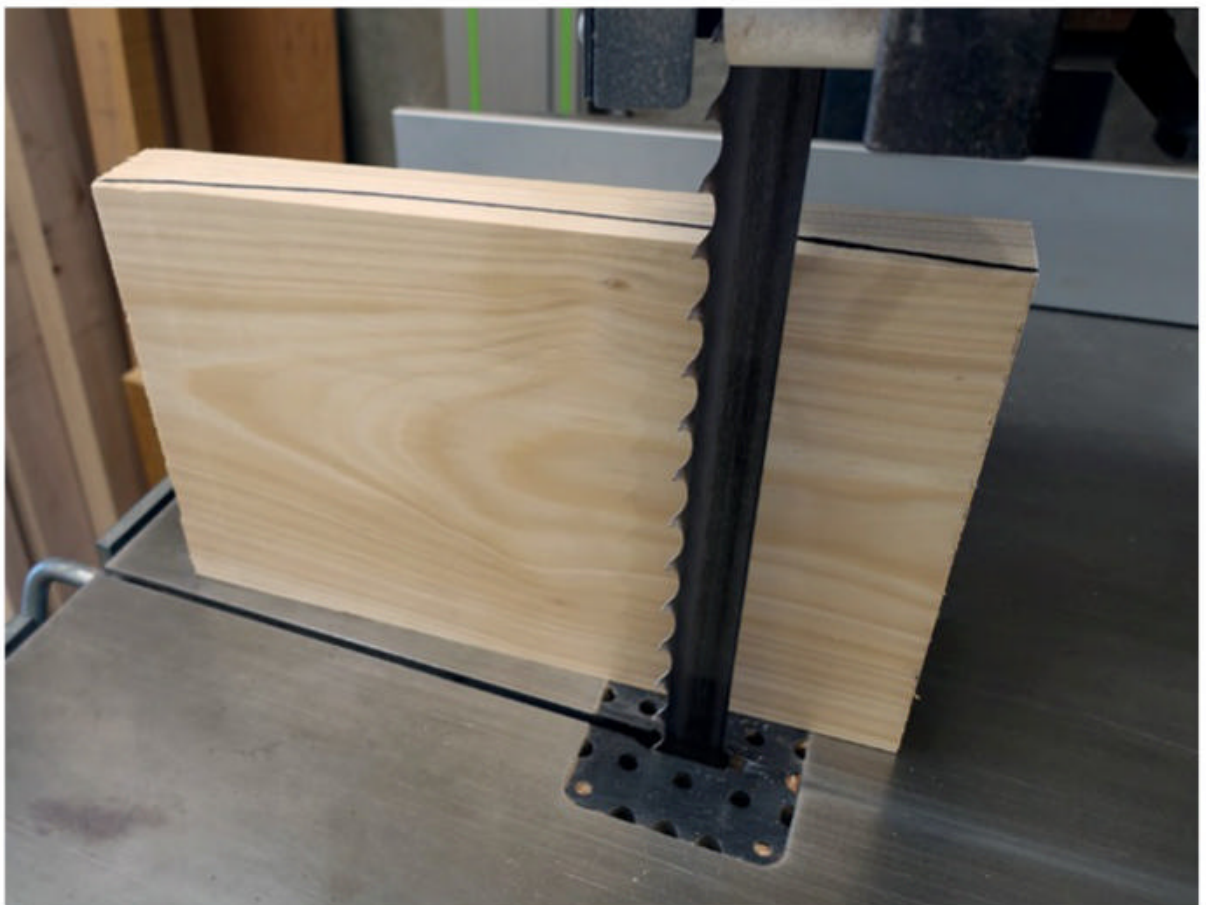
The tighter the radius of a curve, the narrower the blade required to make the required turn inside the kerf. Think of bandsawn boxes or jigsaw puzzles – a 19mm or 3/4" blade will simply not be able to make those turns. A clear sign that a cut is too tight for the blade fitted is burnishing on the cut edge of the workpiece, indicating the back of the band has

been rubbing on the cut edge inside the kerf. Further, if you're trying to follow a curve and the blade won't make the turn, or is twisting inside the kerf, this is a clear sign the blade is too wide (**photos 1, 2**).

Different blade manufacturers publish charts and tables on selecting the minimum radius that can be safely cut with any given blade width. The table on p.56 shows a general example.

Cut height

The height of the cut is the thickness of the material the blade has to pass through and is also a critical consideration. Too few teeth in the cut and there can be a risk of teeth straddling the cut, becoming hooked on the edge of the workpiece rather than entering the cut and being either damaged or broken off. Too many teeth in the cut and the gullets will struggle to remove the waste, resulting in a build-up of heat, which can both damage the blade and burnish the material.



Above Left: Big gullets and fewer teeth are the trick for tall resaws.

Above right: Sometimes you need to consider both cut height and radius, as for making the cuts shown on these stool seat blanks.

Selection Checklist

1. Type of material to be cut
2. Height/thickness of material to be cut
3. Diameter of machine wheels
4. Width of machine wheels
5. Resaw capacity of machine
6. Radius of cut
7. Desired quality of cut surface
8. Cost

A very general rule is to have 3–6 teeth inside the cut for wood and other softer materials, while metals require between 6–24 teeth. I have to stress this is a generality – I often resaw boards wider than 350mm, which would mean by this rule that I'd need a blade with one tooth per 120mm approximately, which is not feasible. In this case I consciously slow the cut down to allow the gullets to adequately remove the waste from the kerf (**photos 3, 4**).

Even straight cuts affect your choice of blade – aim to have the widest blade possible in the cut that you can run on your saw as the wider the blade, the higher the beam strength and therefore the straighter and cleaner the cut, all other things like machine setup considered.

Cut quality

Like many other cutting operations, the coarser the pitch, the faster the cut but the rougher the finished surface. The opposite rings true also. For example, if you're setting up to cut strips for stringing inlays, change your re-saw blade for something a little finer.

Cost counts

The simple reality is that some blades can cost upwards of a factor of ten more than others of a similar width and tooth pitch. This is a very personal choice however in my experience the higher the quality of the blade, the increase in tooth longevity, combined with the significant reduction in post-cut surface preparation means that the higher initial expense often ends up being more cost effective in the long term.

Blade types

Let's now explore the types of blades that are available for part-time and professional woodworkers by discussing tooth pitch, blade width and tooth type.

Tooth pitch. This measures from the base of the gullets the number of full teeth spaced within an inch (tpi) or 25.4mm. The pitch will influence how many teeth are contained inside the cut for any given cut height, as well as the real estate available for gullets to remove the waste.

Most blades have a regular pitch pattern, but this can, in some

circumstances, create a harmonic vibration that reduces performance due to vibration. To counter this, some high-end manufacturers offer variable pitch blades, with the theory being that the alternation of pitch patterns prevents that harmonic vibration. An example you might see a 3–4 pitch, indicating that the pitch alternates every inch between 3tpi and 4tpi. The higher manufacturing cost involved in making these patterns means you'll pay significantly more for them and likely have to order direct from overseas.

Blade width. The blade width is measured from the front of the teeth to the rear of the band. As mentioned, the wider the blade, the more beam strength it has in the cut and the better it can withstand tougher cut situations, but the minimum radius it can cut will be larger.

Tooth type. There are three commonly available types of teeth for woodworking bandsaws, all with pros and cons.

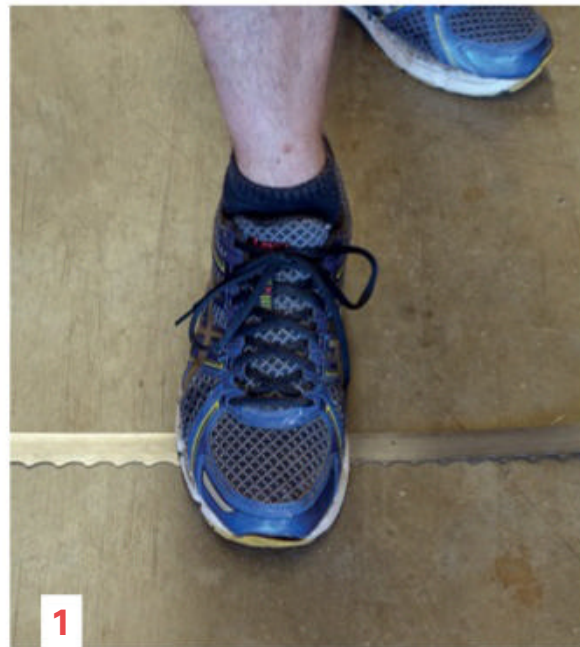
The cheapest and most commonly available in ready-to-use pre-cut and packaged bands are the **carbon steel** blades. These blades don't tend to last too long and may well struggle through denser woods, but they're relatively easy to sharpen and inexpensive to replace.

Bi-metal blades are the middle of the spectrum, with a flexible metal used for the band and a more robust metal brazed on to form the teeth points. These are good quality blades, able to cut most materials with a better surface finish and able to be re-sharpened quite easily. I've found they cost between 5–6 times as much as an equivalent configuration carbon steel blade but last at least 10 times as long, making them a great investment.

The upper end of the spectrum are **carbide-tipped** blades. These premium blades come with a premium price tag and are for those who want the very best, or like me are

looking to minimise the time required to subsequently remove the bandsawn marks from the cut surface.

They last a very long time and produce a vastly superior cut surface, but their primary downside is that they're difficult to resharpen. For reasons unknown to me, no commercial sharpening service that I'm aware of will touch them. My carbide blades generally last around 3–4 times as long as the equivalent width/pitch bi-metal blades from the same manufacturer that I used to run. For my business, carbide blades are a no-brainer.



Folding a bandsaw blade

1. Stand on the blade, teeth forwards.
2. Turn your master hand inwards and grasp the top of the blade.
3. Roll your hand back outwards and bring it down towards your master knee.
4. See the coils begin to form.
5. Gently shake the coils into their natural form.

Where and how to buy

If you run a fairly generic saw in the 10–18" class, chances are you can go to any woodworking store and choose from a good selection of pre-packaged carbon steel bands.

If you'd like to increase the performance of your saw (and in my experience save money if you use your saw often) and would like to investigate the bi-metal or carbide blades, then you'll need to know the band length of your machine which you'll be able to find in the manual. This is because bandsaw band stock is made in massive



Above: Clean new blades carefully with thinners.

rolls many kilometres long. Your supplier will cut and weld your bands to size when you order. Make sure you also have a good idea of the band width and tpi you need for the cuts you'll be doing as this will make the ordering process much easier.

Preparing, folding and storing blades

Before installing a new blade you first need to clean it with a rag soaked in thinners to remove the residual petrochemicals that it has likely been shipped in for protection from corrosion. Just make sure you wipe with the direction of the teeth and not into them (**photo 5**).

When not in use, I find it best to re-coil the bands for easy storage. This is

quite an easy process once you've got the knack for it. Start by putting on some gloves and safety glasses. Hold the band with the teeth away from you and stand firmly on the band on the ground. Turn your master hand inwards towards your chest and grasp the top of the band. In one smooth and consistent motion rotate your hand back outwards and concurrently start to take it down towards your knee on the same side as your master hand.

You'll find that if you do these two things smoothly, the band will spring into three loose coils, which can then be loosely shaken into a neat bundle. There's little risk of the bundle coming undone – as soon as you uncoil the band you'll understand just how much it wants to remain in this position – but

Bandsaw blade suppliers

- Beyond Tools
www.beyondtools.com
- Carbatec
www.carbatec.com.au
- Combined Saw & Knife
www.combinedsaw.com.au
- Hare & Forbes
www.machineryhouse.com.au
- Gregory Machinery
www.gregmach.com
- Woodfast Group Australia
www.woodfast-group.com
- Woodworking Machinery...Plus
www.woodworkmachinery.com.au

for peace of mind you can wrap it with a cable tie.

Many people hang their expensive blades on the wall. Avoid this if possible as workshop dust will settle on top and cause corrosion. This then results in vibration on the machine which seriously reduces performance. I keep mine in the shipping box I received them in.

Last words

My aim for this article was not to stipulate a specific set of blades that every woodworker must have. Rather, I've tried to outline some of the many factors that will influence your choice. For the record, I run two primary blades (both carbide), the first being a Lenox Woodmaster CT 1" x 1.3tpi and a Lenox Trimaster 1/2" x 3tpi.

Remember, your bandsaw doesn't cut the wood, that is achieved by the blade you put on the machine, so put some time into deciding which one would be best for you and you'll get so much more out of your machine.



Damion Fauser is a furniture designer/maker who lives in Brisbane who also teaches woodwork. See damionfauser.com

BLADE WIDTH BY CUT RADIUS			
WIDTH	METRIC	IMPERIAL	MIN. RADIUS (MM)
	25	1	175
	19	3/4	140
	16	5/8	100
	13	1/2	65
	10	3/8	40
	6	1/4	15
	5	3/16	8
	3	1/8	3

The Millennials

An exhibition of work by Rolf Barfoed, Elliot Bastianon and Andrew Carvolth at Sturt looked to define the aesthetics and imperatives of three contemporary makers. A review by Rodney Hayward.

To be formally a 'Millennial' you would have to have been born somewhere between 1981 and 1996. If so, you would be of a generation that is supposedly feckless, self-involved, unmotivated and entitled. Yet, although you came of age during the launch of the Internet, you are also old enough to have comprehended the fracturing of the world from terrorism and war. Now, as a generational demographic, you are over-represented in the fall-out from the economic disasters of the 21st century.

The Millennials exhibition has three millennium designers telling a story about themselves that is very different to the one that might be conjured from demographically based anecdotes. Millennials, like all generational cohorts have as much that divides them as tags them. Emotions, expectations, and needs always vary wildly within and across generations. The story here in front of us is not a

story about furniture likely trending to the iconic, but one of design-takes that could impact our culture's trajectory. It's a pragmatism about future outcomes. Rolf Barfoed firmly pins what amounts to a traditional ethos to his designs in declaring, 'I want to make heirloom quality furniture that's easy to live with'.

With his exhibited collection of three pairs of bedside cabinets, Rolf Barfoed demonstrates a nimbleness and ease between traditional and high-tech processes. The collection was also a study of priorities of materials, drawers, carcasses and price points, the *Exo* cabinets in Tasmanian blackwood and silver ash were high-end, more traditional affairs. Demure, confident in their good breeding of hand dovetailed, wood-on-wood side-hung drawers. It's furniture to serve... 'a good servant is discreet and self-effacing...' (Le Corbusier).



Elliot Bastianon, *Degree bench*.
Photo: Light Bulb Studio



From top: Millennial makers (l-r) Rolf Barfoed, Elliot Bastianon, Andrew Carvolth.
Photo: Kristie Phelan

Andrew Carvolth's *AP chair* in sand cast aluminium and timber was acquired in October 2020 for the permanent collection of the National Gallery of Victoria.
Photo: Dean Toepfer

Rolf Barfoed, *Exo bedside cabinets*.
Photo: Roy Schack

Elliot Bastianon, *Degree low table* (detail).
Photo: Roy Schack



The *Louvre* cabinets in Tasmanian oak were an answer to a lower price point. They were a severe and austere pair: with their full width, equal sized drawers they shared the DNA of a filing cabinet. They were an American Gothic of form and function. And, as much as I really admire the ingenuity and efficiency of mechanical running systems for drawers, they also trouble me. There is always that tug-of-war at the beginning of their opening. How hard do you tug? Where on the scale of the things is the damn mechanism's release point? And, things can go wrong.

The final cabinet pair, *Pulse*, was the economy price point. It again had mechanical slides and, with these plus its design, it demonstrated a problem. The pulls on the drawers were asymmetrically placed. Their integration into the drawer front was neatly and cleverly done by Barfoed. One cabinet could now be as the enantiomer of the other and this would impart to the pair a sense of matching; a sense of indivisibility. Aesthetics aside, when I revisited these pieces some time later, the off-centre pull now caused the body of the top drawer and its associated mechanics to slew and jam.

The *Degree Collection* of Elliot Bastianon consisted of two side tables, a low table and two seat benches. It was a collection united by a common detailing that delivered a finely austere minimalism. Yet, in any decor they would be unmissable focus points and, in the case of the benches, they would also define our movements.

Hidden is the engineering that delivers the collection's clarity, the flat planes and straight lines; the usefulness and scale. Steel structural elements embedded into the underside of the surfaces negate the prerequisite of cluttering substructures. With wide chamfers on the edges of all surfaces, we read the pieces as 'light'. Further, the penetration of the top surfaces by the domed tops of the columnar steel legs causes two elements that otherwise would be materially and



Clockwise from right: Elliot Bastianon, *Degree bench (detail)*.

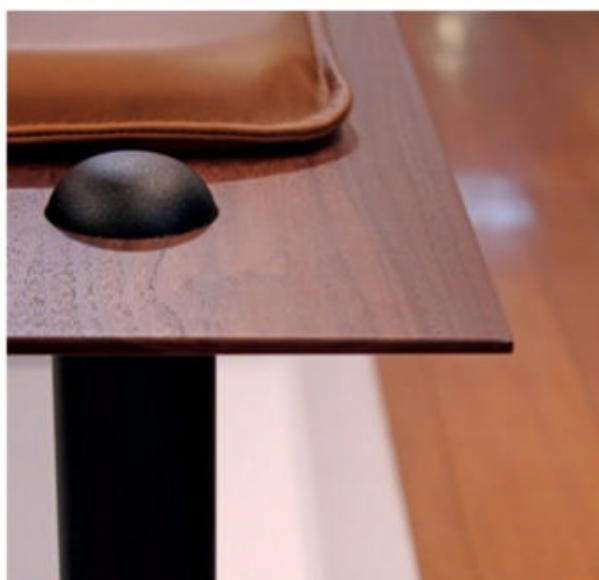
Another view of the exhibition installation at Sturt Gallery.

Detail view of Elliot Bastianon's *Degree bench with upholstery*.

Dovetail joinery on Rolf Barfoed's *Exo* cabinets.

Andrew Carvolth's *AP tables*, tall and short, both in sandcast aluminium and timber.

Photos: Roy Schack



structurally estranged, to have connection and respect. This is a nice detail that also cleverly references precedents set in traditional joinery.

Sensitivity in design is elusive. It is observation, an ability to see choice where none might be deemed necessary. It is sensing subtle detail; it is patience. It's about proportion, surfaces, silhouette and mass. It's a kind of intimacy. For the *Degree Collection*, I raise the quibble that the one size for the columnar legs, does not 'fit' all. To describe anything to ourselves we call upon relationships of dimensions, visual massing, even imagined forces...in the extreme of the bench in this collection there is disharmony between the visual mass of the piece and the columns.

An argument in early Art Nouveau history was the perceived merits of wrought and cast metal. Supposedly, cast brought one only face-to-face with matter while in wrought work we touched the intelligence of the guiding hand. True or confusion? Central in Andrew Carvolth's work are traditional making processes and materials to arrive at something we might label a neo-Australian vernacular.

Casting is part of this story. In his *AP collection* and the *Cope & Drag* triptych he offered tangibility of his explorations in the practice of sand casting. The cast





aluminium and paper cord *AP chair* draws from the naive, stick drawing of a chair by a child. This is not the banged together sticks of the vernacular *Jimmy Possum* chairs. The *AP chair* is less direct, more technological....more appropriate to the 21st century?

Design by the early 2000s had moved away from real problems to be a facilitator of consumerism. The resulting stream of bland, sterile products emphasised their own emotional dysfunction. Exploration of materials is key for a new expression of objects. This is craft. Craft is the innovative element, a way of working that asks questions of genres and pushes the use and limits of old and new materials and processes. We make the error of believing that in the way in which we see the world one thing is only one thing. We fail to see that any one thing is always many one things.

The Millennials: An Exhibition of Contemporary Furniture was displayed at Sturt Gallery, NSW from February 14 to April 4, 2021.



After an earlier career in organic chemistry, Rodney Hayward studied furniture making with James Krenov, and on relocating to Australia from New Zealand, went on to head the Wood Workshop at the ANU School of Art for 10 years before retiring from that position in 2011.

Wood Diary

Diary listings are free. **Email to:** linda@woodreview.com.au

Note: Listings are correct at time of publication but may be subject to change. It is advisable to check details with the organiser before visiting.

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8 JUNE

Annual Open Day

Gippsland Woodcraft Group
843 Maffra / Rosedale Road
Nambrok, Vic

Email: bluey@internode.net.au,
phone 0437510950

13–15 AUGUST

WA Wood Show 2021 & WA Craft Show

Claremont Showgrounds, Perth, WA
www.wawoodshow.com.au

27–29 AUGUST

Melbourne Timber, Tools & Artisan Show

Melbourne Showgrounds
www.timbertoolsartisan.com.au

SEPTEMBER– NOVEMBER

Indian Ocean Craft Triennial

Makers, artists and crafted works from countries around the Indian Ocean Rim
www.indianoceancrafttriennial.com

5 SEPTEMBER

Maker of the Year 2021

Deadline for entries
www.woodreview.com.au/moty2021

18–20 SEPTEMBER

Annual Exhibition featuring Golden Gouge Woodcraft Competition

Toowoomba & District Woodcrafters Inc
Woodcrafters Clubhouse,
Toowoomba Showgrounds,
Glenvale Road, Toowoomba
Email: tdwoodcrafters@gmail.com

24–26 SEPTEMBER

Hobart Timber, Tools & Artisan Show

Prices Wharf (PW1), Tasmania
www.timbertoolsartisan.com.au

2–3 OCTOBER

Goulburn Valley Woodworkers

McIntosh Centre, Shepparton Showgrounds, Vic
www.gvwoodworkers.com.au/
Len Taylor: 0458777901

8–17 OCTOBER

The Art of Making

An exhibition of new work by Studio Woodworkers Australia
Gallery 1, Australian Design Centre
Cnr William & Palmer Streets, Darlinghurst, NSW
www.australiandesigncentre.com
www.studiowoodworkers.org.au

9–18 OCTOBER

Sydney Craft Week

Celebrating creativity and the handmade in all its forms
An initiative of Australian Design Centre
www.sydneycraftweek.com

9–10 OCTOBER

Illawarra Festival of Wood 2021

Displays and workshops
Bulli Showground,
Grevillea Park Rd, Bulli, NSW
www.illawarrafestivalofwood.com

11–16 OCTOBER

Masterclass with Michael Fortune

Design and Construction
Dunstone Design,
Queanbeyan, NSW
www.dunstonedesign.com.au

23–24 OCTOBER

Lost Trades Fair 2021

Hawkesbury Showgrounds,
Richmond, NSW
www.losttrades.info

30–31 OCTOBER

Ancient Crafts, Rare Trades Expo

Heritage crafts, demonstrations, bushcraft
Gympie Pavilion, Gympie, Qld
Email: admin@ancientcrafts.org
www.ancientcrafts.org

13–14 NOVEMBER

Annual Exhibition

Eltham & District Woodworkers
Eltham Community Centre, Victoria
Adrian Desfontaines: 0414795347

Working With Plywood

For convenience and safeguarding against wood movement, plywood has real advantages. Here are some usage tips from Vic Tesolin.

One of the first questions furniture makers ask during the design phase of a piece is: how are we going to build it? Careful consideration of materials comes up as we decide how we will bring the piece to life, and with each choice comes a list of follow-up questions. Can it be made from solid wood? If so, what will the joinery be? What about a veneered construction? Would it be helpful to not have to worry about the ever-present movement of wood?

Veneered panels and components are great for some aspects of furniture construction because of the stability of the parts. Not dealing with the swelling or shrinking of components is a powerful draw to this style of building, though it's not without its challenges. Plywood requires special

consideration for joinery, often requiring metal fasteners or connectors.

You may need to know veneering techniques, or another option for some jobs is to use pre-veneered, furniture-grade plywood. Working with this material can be a fantastic option, but keep in mind there are some special considerations.

Cores and plies

Furniture-grade plywood comes in different forms and qualities. I usually aim for the higher quality materials – but what does that mean? Different sheet goods come with different cores, so I typically choose ones that are referred to as veneer core. This is what you would first think of when someone says 'plywood'. With veneer core, there

are a number of thicker veneer sheets laid with the grain running 90° to each other. This creates a core that is typically quite stable.

With this type of material, you generally get what you pay for. Cheap veneer core plywood has all kinds of voids and the plies aren't always even. This can spell disaster in furniture making because uneven plies can result in thickness differences that are impossible to deal with. If you think you are getting a 'good deal' on plywood, take a close look at the edges to see the quality you're getting for this great price.

The top of the heap are Euro-style plywoods that have many more plies than typical sheets and normally use hardwood instead of softwood. These are much more expensive but



are worth it in my mind. Materials are only a small cost in the build of a piece, so it doesn't pay to skimp on them. I usually avoid things like particle or MDF cores because they are too soft for my preferences and they don't take fasteners very well – it's like driving screws into cheese.

Break it down

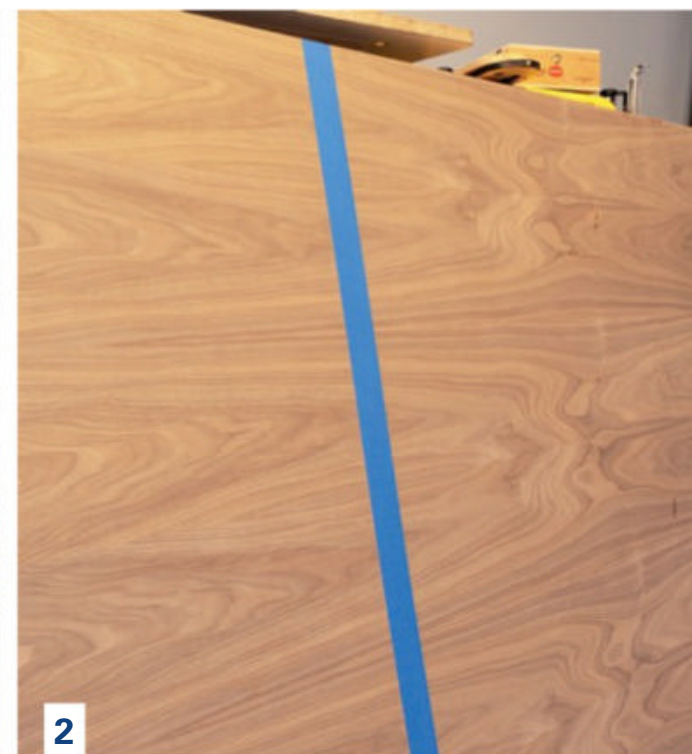
Cutting up the plywood will be the first order of business and there are some important things to consider here. I like to break down the sheets first using a track saw so that the pieces are more manageable on the tablesaw.

Regardless of the saw you use, the key is to use a sharp, clean blade that is designed for plywood and laminates. These blades make all the difference when working with veneered plywood. Ignoring this advice and using an inappropriate blade will lead to a mess. Gummy dull blades will rip out the veneer and expose the core beneath, so be sure to remove any pitch, or send the blade out for sharpening.

Another practice I use when working with plywood is that I always make sure the cut is backed up. I also do

all my cuts on foam insulation sheets (**photo 1**). Using these sheets as a sacrificial substrate protects the surface of the plywood and backs up the underside to further prevent splintering. With my track saw, I always check that the splinter guard is in place and in good shape.

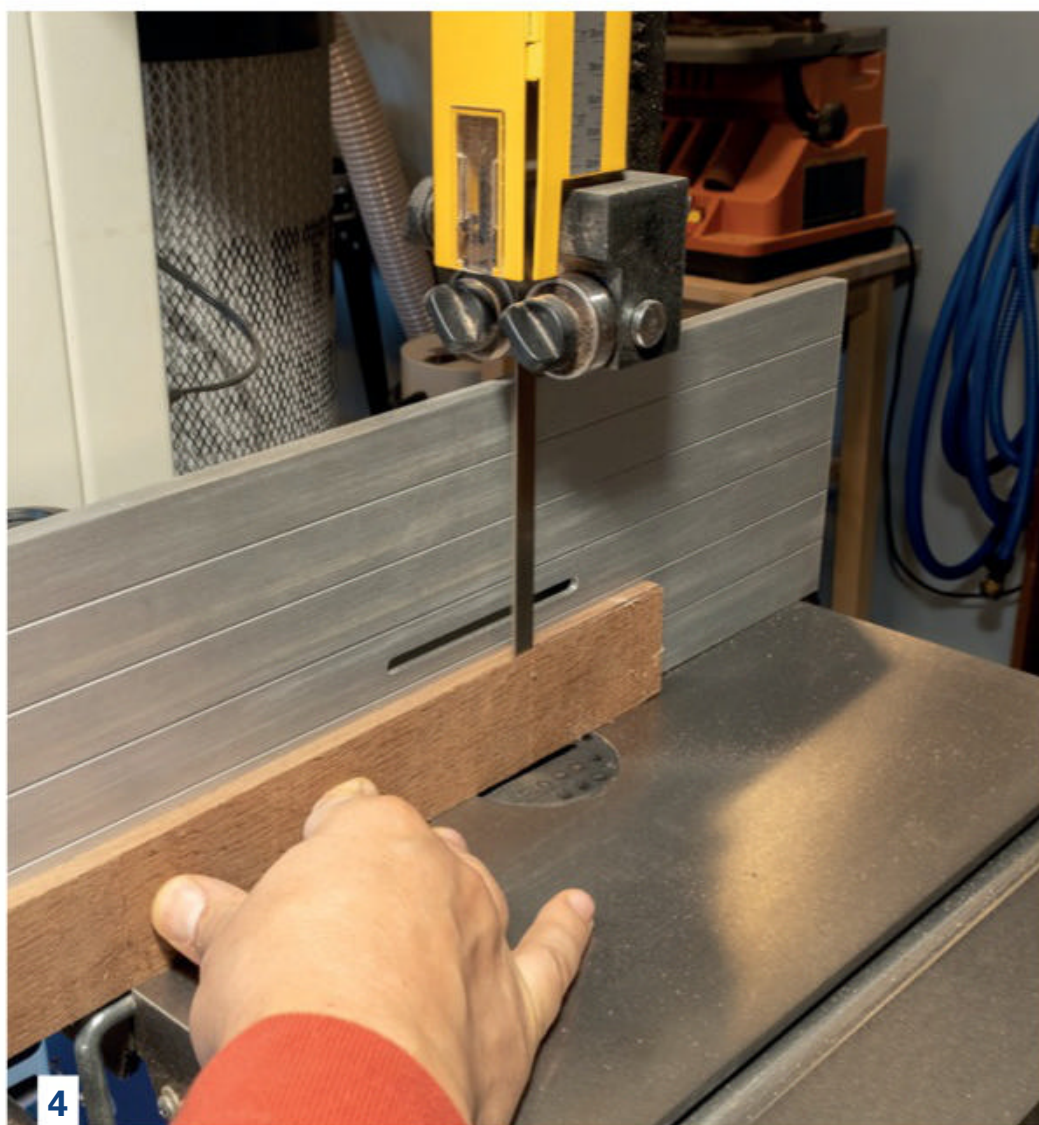
Over time the foam will get track saw kerfs all over it, but that's okay. I have two sides to work with and they are fairly inexpensive to replace. On crosscuts I go even further by taping the cut line with a strip of blue painter's tape (**photo 2**).



Main: Solid edgings and dominos or dowels make plywood a fast way to build cabinet carcasses.

1. This type of foam is an excellent sacrificial surface for cutting.
2. Yet another great use for blue tape in the shop.
3. Make a few extra edging pieces for those little mishaps.





4

4. A sharp blade on the saw will make neat and tidy cuts for the edgings.
5. The thickness sander is a real time saver when working with thin pieces of timber.
6. A few 23g pins will tack things in place without having to fill holes.
7. This binding tape gets used by many luthiers to secure banding on stringed instruments.

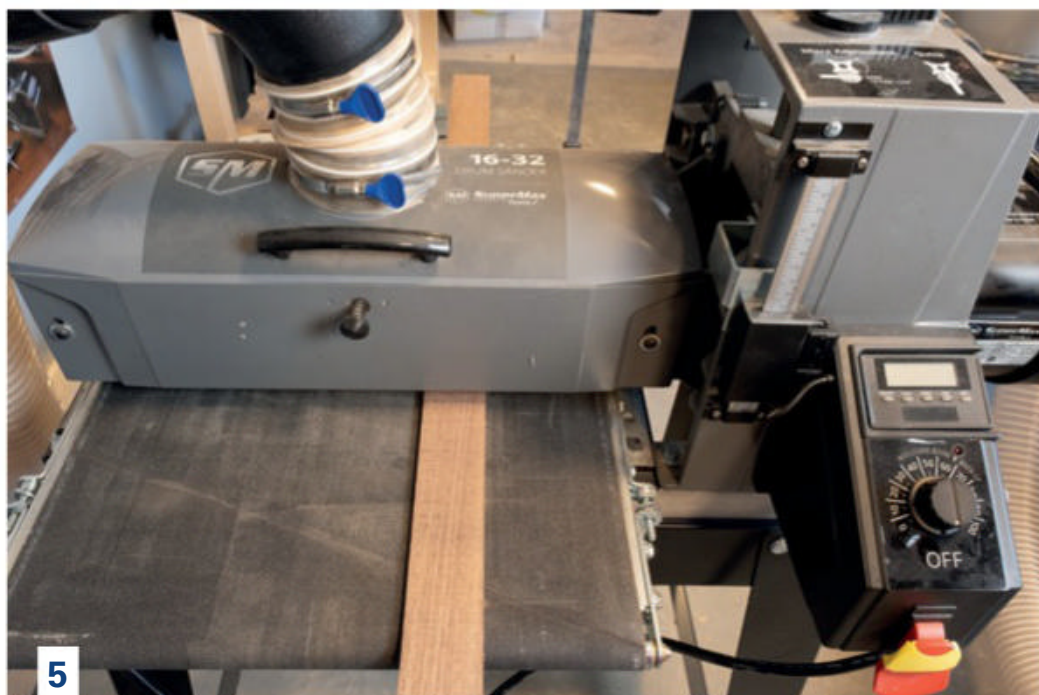
On the edges

As with any plywood build, I typically want to hide the plies unless of course the design calls for seeing them. I don't like using the iron-on variety of edge banding because it's not thick enough. One knock with a vacuum and the core will show for all to see, and this is not easily repairable. Instead I prefer to use solid wood edging that will take a hit and survive (**photo 3**).

I like to choose straight grained pieces that are rift sawn so the banding is as clean looking as possible. I also tend to start with stock that is around 50mm thick. This allows me to get two pieces of banding out of each piece of stock.

The process to make the banding is pretty simple and it all starts with some matching hardwood. I start by jointing one surface of the banding stock, then run it through the bandsaw. Then, back to the jointer for another clean surface, and repeat.

This technique always ensures one clean face and one sawn face, which makes cleaning things up quick



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- 8. A few strokes with a flush cut saw will trim the excess.
- 9. The block plane lets you sneak up on flush without damaging the delicate veneer.
- 10. A sturdy and clean, hardwood cap will hide the plies and protect the edges.
- 11. These panels are now ready to receive joinery to assemble the piece.

and easy. The banding is sawn a bit oversized to allow for cleaning and thickening to final dimensions. I typically don't make banding any thicker than 3mm, so cutting 4mm at the bandsaw is plenty (**photo 4**).

A thickness sander is a real boon for creating thin pieces like this (**photo 5**). I use mine any time I have to thickness stock smaller than 6mm because thickness planers tend to destroy thin pieces, and I don't need that kind of excitement in the shop. The digital gauge on this machine makes it easy to land at a specific thickness and to do it reliably and repeatably. The jointed surface goes down on the table as a reference and the bandsawn surface meets the sanding drum.

Applying edges

Applying the edge banding is also a fairly simple process. I cut the banding to a rough length, slightly longer than the piece I'm banding, then apply glue to the plywood edges. I lay the banding into the glue

and centre it so that there is a bit of overhang on either side. The banding is secured with a few 23-gauge pins to prevent it from sliding around (**photo 6**). These nail holes all but disappear once the edge has been sanded and finished. I use binding tape (Scotch 233+) to clamp the binding in place (**photo 7**).

Once the glue has set, I trim the extra length off with a flush-cut saw and remove the binding tape (**photo 8**). I like to use a block plane to flush the banding with the surface of the plywood (**photo 9**). There are many techniques for doing this but I find the block plane offers me the most control.

Now I'm left with a clean bit of banding on the edge and I'm ready to repeat the same steps to cover the adjacent plies (**photo 10**). I typically use butt joints where the two pieces of binding meets, but you can use mitres if you prefer. The amount of endgrain visible does not drive me to go through the hassle of little mitres and their fussiness.

Now that the panels are all banded and prepared, I can move on to joinery. I like using dominos in plywood construction because they are fast, easy, and provide more than enough strength (**photo 11**). I will also cut in any rebates or dados as the build requires. After this, a quick sand with a random orbital and all the plywood components are ready for finish.

Using furniture grade plywood is a great way to save some time on a project and is great for built-in furniture or stand-alone pieces alike. All you need is a little bit of extra care and attention to have success with this material.

Photos: Vic Tesolin



*Vic Tesolin is a furniture maker who lives in Burlington, Canada. His new book *Projects from the Minimalist Woodworker* is available now. Learn more at victesolin.com*

Woods That Make Music



Sofia Vettori makes stringed instruments that reflect her passion for music, and the importance of art and culture during pandemic times. Story by Linda Nathan.

The names of Italian violin makers form a glorious lineage – Stradivari, Guarneri, Amati, Ruggieri, Seraphin are synonymous with beautiful music. Today that tradition lives on in the Vettori family workshop in Florence. Three generations ago, Dario Vettori was a talented musician who passed his instrument making skills on to his son Paolo, who in turn taught his sons Dario and Lapo, and his daughter Sofia who now lives in Indianapolis, USA.

‘Woods that make music, isn’t it the beauty we are living for?’, says Sofia Vettori, 39 who has a ‘a love for music and a passion for playing’. Take a wander through her social media you will learn that not only is she a maker of stringed orchestral instruments, but also a children’s book author, a film maker who once solo-piloted over the hills of Tuscany and recently turned her energy to opening her own gelateria – and there’s much more to learn about her artistry.

Ask Sofia who she is however, and she will answer quite simply: ‘a dreamer’.

Now especially, in these pandemic times, the dream is to bring art and music to fore, because that is what we most need now, she says. ‘Where there is music, there is peace. I have a dream to spread art and culture.’

Violin making has always however been the biggest part of her life. ‘My

whole family are violin makers – my grandfather, my father, my brothers. We grew up in my father’s workshop and we always travelled together as a family when we went to exhibitions all over the world,’ she said.

As children, Sofia and her brothers were no strangers to their father’s workshop but she started making violins when she was 17. ‘The first thing I did was varnishing and it’s still the thing I like most,’ she said.

What was it like learning from her father? ‘My father is a very charismatic person and super enthusiastic about life so it’s easy to learn from him because he really likes to spread passion everywhere. So he was like: “just start” – and he’s very positive, and it’s not like it took me ages, because he would let me do things and believed in me and in my brothers. He also saw that we had ability.’

At the same time Sofia was studying music and graduated in violin and viola from the Cherubini Conservatory in Florence. She played professionally until the demands of juggling evening rehearsals and young children took over.

Main: Luthier Sofia Vettori shown at work in an image taken in 2009. *Photo: Lucio Ghilardi*

Right: Two views of a Guarneri del Gesù model violin in slate cut maple made by Sofia Vettori. *Photos: Godfrey Zhu*





Q&A

Is instrument making an art or science?
If it's a science you could just buy a factory made one. Handmade is the difference.

Is it about precision, or feel?
Some things have to be as precise as possible, like the fingerboard, which is important for playability, as well as the shape of the neck and the set-up of the fingerboard. Smooth and shiny is an art. The arching of the top needs to be precise, but it's a feel.

Your favourite wood?
Birdseye maple.

Why is varnishing your favourite process?
It's like dressing the violin, you see it in its own beauty and the varnish determines the sound as well, more than you would think. And it's very challenging as well.

Your favourite tool?
My finger planes.

What percentage of machine to hand work is involved in your work?
I would say ninety percent hand tool work. I mainly just use the bandsaw.

Does a violin maker need to be a good musician as well? 'It's difficult to bring the two careers to the same level, but most of all (a maker needs) the ability to adjust the set-up and sound. It doesn't mean you know how to play a concerto. I know many makers that don't play well enough to perform on the stage, but understand the instruments and know to adjust the sound.' Makers also need to know how to give a certain sound that a client may want, she added.

Different models of instruments also have their own qualities. The woods selected, the shape, the length and width of the f-holes, the arching of the soundboard and the positioning of the bridge all make a big difference to the sound.

The construction methods used by the Vettori family are traditional but each instrument bears the individual signature of the maker's hand, explains Sofia. 'We copy the models of the past but we do things differently. It's an art that comes from the hand and the eye of the maker, and the heart of the maker goes into the instrument as well.

I can recognise one of my father's instruments, and also those made by my brothers. Every hand is different.' I'd like to be a maker whose instruments were recognised in years to come as being made by me, for example by the way I carve my scrolls. I don't want to just make copies.'

Selecting the woods used is also an art. High altitude old growth timbers can have more resonant qualities. For this reason reclaimed wood can be a rich source. Sofia cites some old church beams dating from the 1500 and 1600s that her father had analysed to reveal that they grew in the Alpine region. '(The wood) was there and waiting for us,' said Sofia. 'That's the best wood we can use for violins and it is very rare.'

Often the wood itself inspires the instrument made. 'A while ago my father was working on some cellos he had an order for, but then he started making a viola. My brother asked him, "why are you making a viola?" Because I had this beautiful piece of wood that would be just perfect for it', he said. 'Inspiration and



everything starts from the wood,' said Sofia.

Traditional construction also extends to other materials used. Egg white is used to seal and harden wood before applying varnish. Finding horsetail (Asprella) growing near her home in the USA was a happy discovery. She uses cut-open stem sections for finish sanding to impart a unique smoothness and sheen. Sofia also makes her own oil-based spirit varnish from her grandfather's recipe.

To date, Sofia has now made 80 to 90 instruments and in a normal (non-Covid) year completes eight or nine, mostly to order. 'When I sell an instrument I feel a connection with the owner. I give (them) an album with pictures of the piece as it is made through to the end, and I like to stay in touch with the people who play my instruments, it's like being part of a big family.' Sofia also likes to name each instrument as part of a series – some are named after Venetian bridges, some are named after flowers. Violins made

Clockwise from opposite: Three views of a cello scroll carved by Paolo Vettori. The hand of an individual maker is recognisable in details such as these.

Favourite tools: tiny finger planes are ideal for shaping arched soundboards. *Photo: Sofia Vettori*

Sofia's workshop is an intense zone of creativity. *Photo: Sofia Vettori*

Sofia and Paolo Vettori with some reclaimed church beams that were dated and analysed as centuries old Alpine region grown wood. *Photo: Alex Class*

Sofia's grandfather Dario Vettori was first in line of the Vettori family of luthiers. Here he's shown with Bavaglio, the family's pet duck whose name Sofia uses for her publishing imprint, and the gelateria she recently opened in Florence, Italy.





Top: Taken in Florence, Italy in pre-pandemic times, this image shows Dario, Paolo, Sofia and Lapo Vettori. Photo: Matteo Nannelli

Above: A recent image of Sofia Vettori with the violin she named *Non ti scordar di me* (forget me not) after her favourite flower.

from birds-eye maple (a favourite species) are named after birds.

During the pandemic Sofia and other makers she knows have worked on special projects. In her case, last year became the time to make a Venetian Santo Serafino model from the beautiful piece of birdseye maple she had saved for many years. 'If I hadn't been forced to stay home and not travel around it might not have happened,' she said.

Sofia's husband Ted Skreko is also a luthier and studied at The Violin Making School of America in Salt Lake City, Utah. She met Ted some time later when she and her brother Dario travelled to the USA to undertake a violin making masterclass program at Oberlin College in Ohio. 'We're a family of violin makers', she laughed, 'I can't escape it!'

Plans to live in America were hastened in March 2020 when pandemic related travel difficulties

turned a two-week holiday in the USA into an extended and now permanent stay.

Besides special projects, the pandemic has also been the main motivation for using her social media to show not just her own work but also to promote other artists and makers. 'I really think that with the pandemic everyone is struggling, but the thing we can't live without is art, music and culture. I don't like the message that we can live without it. When there is music and art there is no war, there is respect for each other. It's not just for us, it's for our children too.'

'I would like to focus on the project of bringing art and music around the world. If you do what you love for work, you're living the dream life.'

Learn more about Vettori violins at www.vettorifamily.com and about Sofia Vettori at Instagram @sofiavettori



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Safer on Your Mitre Saw

Four ways to safely and precisely machine small parts on your mitre saw.
Story by Charles Mak.

Many woodworkers, including numerous tradespeople, are unaware of some of the serious injuries that can be caused by the mitre saw. On countless videos shared on social media, operators are seen risking themselves by holding a piece with their bare hand close to the spinning blade. One study of the statistics kept by the National Electronic Injury Surveillance System put the mitre saw second only to the tablesaw as causing the greatest number of accidents – estimated at 6,800 a year in the US alone. The mitre saw is often incorrectly perceived by uninformed users as a safe machine.

At the other extreme, some woodworkers – keenly aware of the design limitations of the mitre saw, or haunted by the memory of launching small projectiles across their shops – avoid using the mitre saw entirely for any small work. They are, of course, failing to take advantage of the full potential of their saws.

While some cross-cuts should indeed be made with a different machine or by hand, I use the mitre saw for both breaking down large stock and trimming small or narrow pieces on a regular basis – without jeopardising my safety. I will share four jigs that I use to handle thin or tiny work with the mitre saw. You will just need some scrap wood and a few pieces of hardware to employ these methods.



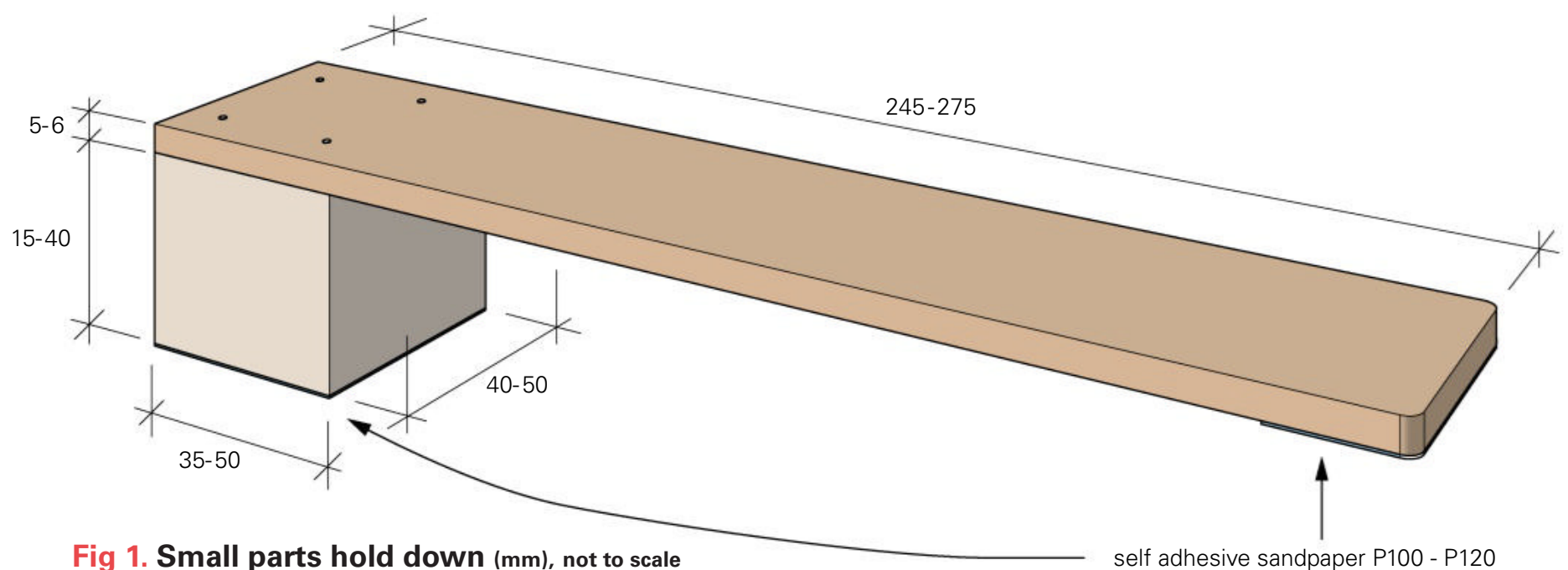


Fig 1. Small parts hold down (mm), not to scale

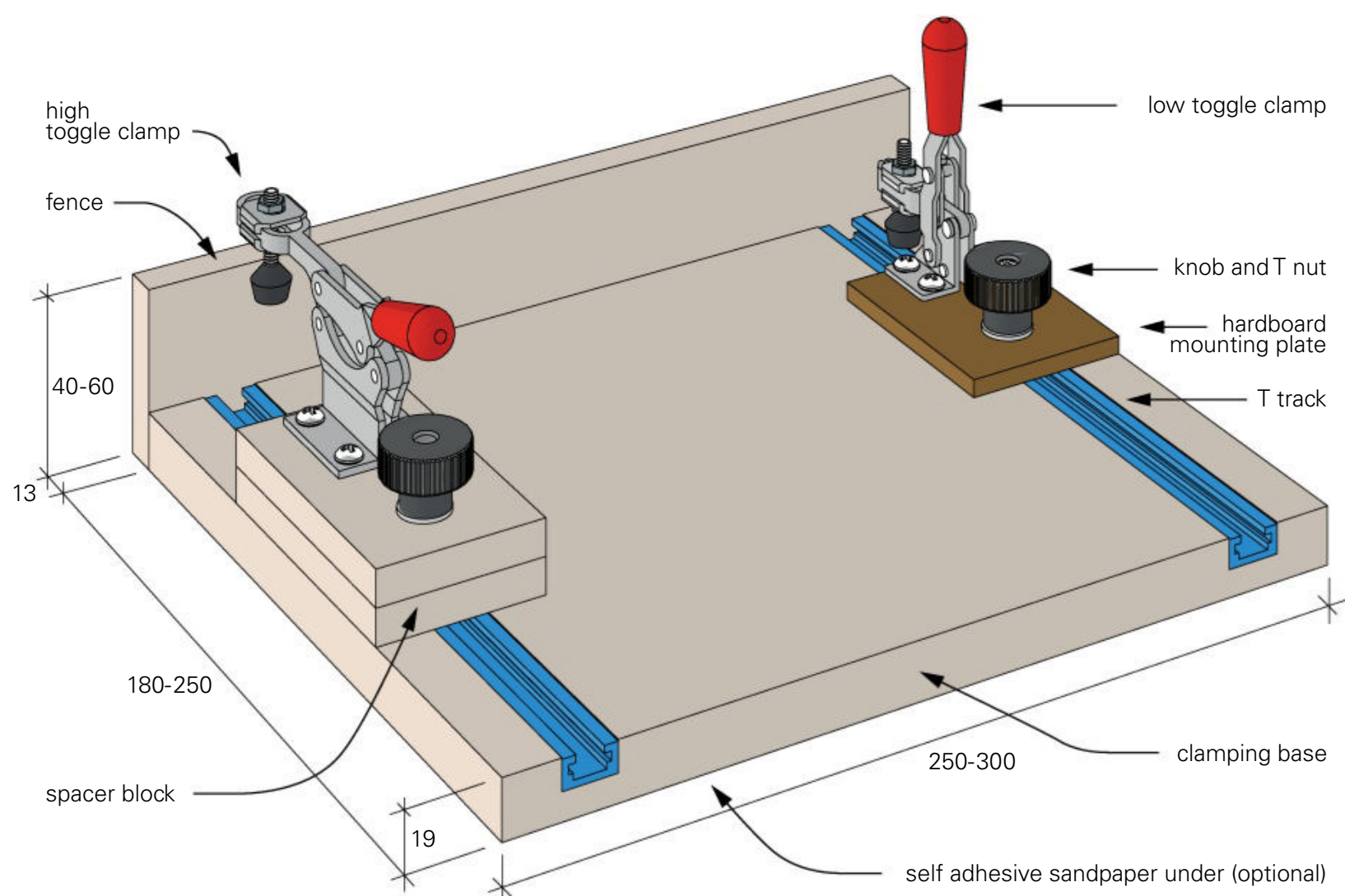


Fig 2. Hold down jig (mm), not to scale

1. Holding down shorter workpieces

To avoid placing my fingers too close to the blade when holding shorter pieces on the mitre saw I made several small parts hold-downs, consisting of strips glued and nailed to a riser block of different thicknesses (**photo 1**). To maximise stability, sandpaper is glued to the undersides of the riser block and strip end (**photo 2**). The suggested

dimensions of the hold-downs are given in **fig.1**.

In use, choose the hold-down suitable for the thickness of the work, and press down the strip in the middle with the saw's clamp (**photo 3**). The strip acts as a bridge, providing downward pressure from the clamp on the small work. You can also make a hand-held version of this hold-down by replacing the strip with a beam, about 20mm x 40mm wide x 500mm long (**photo 4**).

1. Attach the strip to the riser block with glue and nails or screws.
2. To increase grip, adhere sandpaper or friction pads underneath the block and strip.
3. The pressed down strip, or bridge, secures the work to the saw table and against the fence.
4. This is a commercial version of a hand-held hold-down.



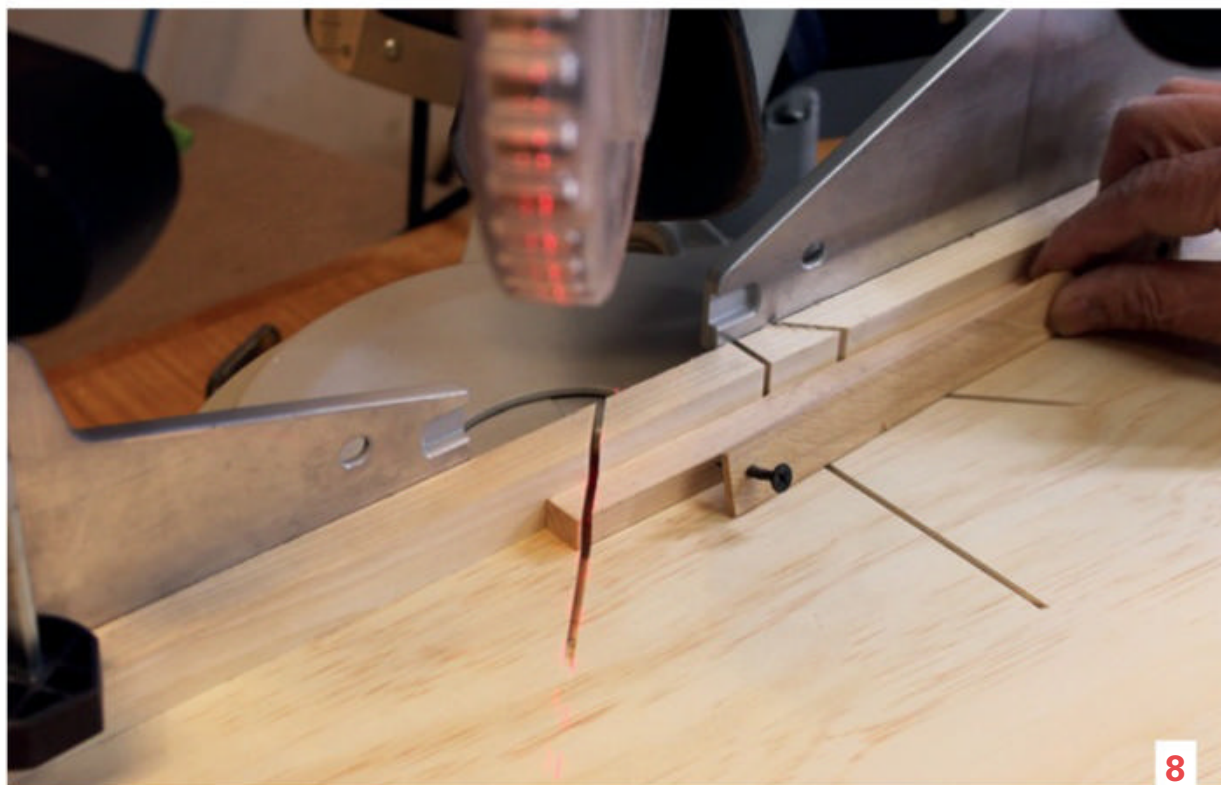
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5. Be sure to check that the fence is square to the base.
6. Clamp the zero-clearance jig in place, and make a scoring cut through the fence, about 1mm deep into the base.
7. Before using the jig, first zero out the jig by aligning the fence kerf with the saw blade.
8. A pinch stick is used when the work is too short to hold safely with the bare hand.
9. For thinner pieces, use a thin double-sided tape so they can be removed with ease after the cut.
10. With the work taped to the sacrificial board, clamp the stack in place, and make the cut.
11. Mark out the dados and depth on the base.
12. Set the depth of the cut to the pencil line marked for thickness of the T-tracks.
13. Once the dado walls are cut, remove the waste between them in passes.
14. The use of spacer blocks allows you to change the clamping capacity of the toggle clamps.
15. With the work toggle-clamped on the jig, secure the jig in place, using the saw's hold-down clamp.
16. The T-track design allows the author to use toggle clamps of different profiles to suit the size of the work.

2. Cross cutting narrow work

Some narrow pieces such as muntins and decorative beads are harder to hold securely on the saw table, and when not supported on both sides of the fence, tear-out from the cuts is also common. To handle such cuts, I made an L-shaped zero-clearance cutting jig which consists of a fence and a platform glued together at a right angle (**photo 5**).

To set up the jig for right-angle and mitre cuts make a scoring cut through the fence on the surface of the base at those angles (**photo 6**). The cuts allow you to align the jig with the sawblade and position the jig in place on the table (**photo 7**). Once the jig is zeroed out and secured at the desired angle, cuts will be made dead-on and tear-out free (**photo 8**).

3. Cutting thin stock

When a piece is too thin to hold down with any clamp or fixture, British

cabinetmaker Peter Millard has a simple solution: he tapes the thin piece on a sacrificial board, and cuts the piece as a stack (**photos 9, 10**). For small and thin pieces, use a double-sided tape of light bonding strength. By extension, we can use this approach to attach something small to a sacrificial piece with CA glue, and trim off the waste.

4. Trimming small pieces

What if a piece is too short or small even for the small parts hold-down to handle? I borrowed the idea of the holding jig used for routing small parts, and came up with a version for the mitre saw: a toggle clamp holding jig (**fig.2**). The jig consists of three main parts: the base with a right-angle fence, two T-tracks, and two small toggle clamps that run on the tracks. With the two toggle clamps, the jig can be used on either side of the blade.

To make the jig, start with marking out and cutting the dados on the base to the thickness of the T-tracks or slightly deeper (**photos 11, 12, 13**). Add a

fence to the base and install the tracks in place. Screw the toggle clamps to blocks that act as the mounting plates (**photo 14**), and feed the plates into the T-tracks. In use, the holding jig is clamped to the mitre saw table while the work is held under one of the toggle clamps (**photos 15, 16**).

With these shop-made fixtures, not only can you keep your fingers out of harm's way, but you can also get better cutting results from your saw that are tear-out-free and precise. And it is an ideal weekend project to make those jigs when you need a bit of a break from your usual furniture builds!

Photos: Charles Mak

Illustrations: Graham Sands



Charles Mak lives in Alberta, Canada and enjoys writing articles, teaching workshops, and woodworking in his shop. Email:

thecanadianwoodworker@gmail.com



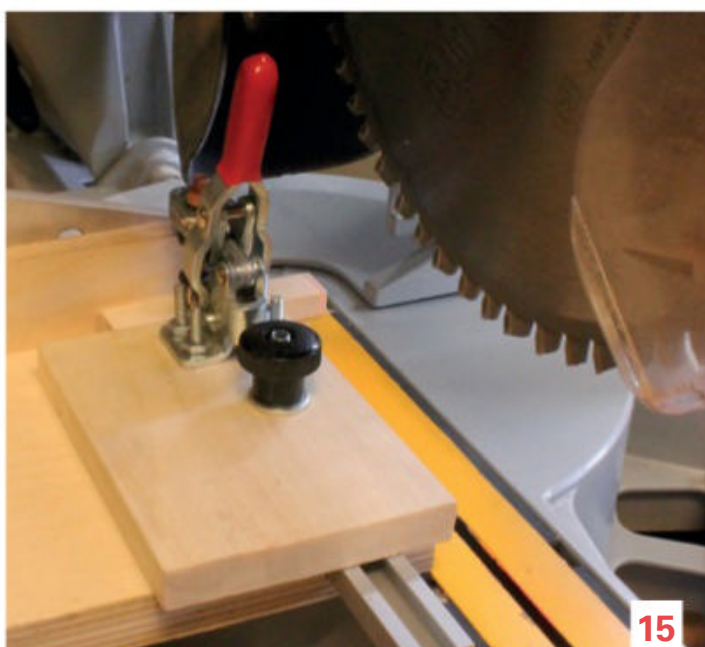
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The Humble Card Scraper



Properly sharpened, a card scraper can achieve an off-the-tool finish comparable to that of a well fettled hand plane. Neil Erasmus explains.

It would be unusual not to find the humble card scraper and burnisher always at hand in most woodworking shops. In mine, a scraper is often to be found in my apron pocket. This simple tool is arguably the most versatile of all, especially when an understanding and skill is developed to make full use of it. However its simplicity belies the complexity and skill required to sharpen and use it properly.

Tool anatomy

Typically, a card scraper measures 150 x 70mm and varies in thickness between 0.4 and 1.0mm. In **fig.1** the 'face corners' are the four corners you see when the face of the scraper faces you, while the 'edge corners' are adjacent to the edge of the tool.

Like any product, some are better than others, so some things should be considered before you buy. The card scraper should be considered a cutting tool, not too dissimilar to a bench chisel or plane blade. A little knowledge of how the finish on the backs of these tools affects their cutting edges will help in understanding what can be achieved with a properly sharpened scraper. So, always buy one that is finely ground on its two faces. The coarser they are, the more work will be required to hone them into a far better performing tool.

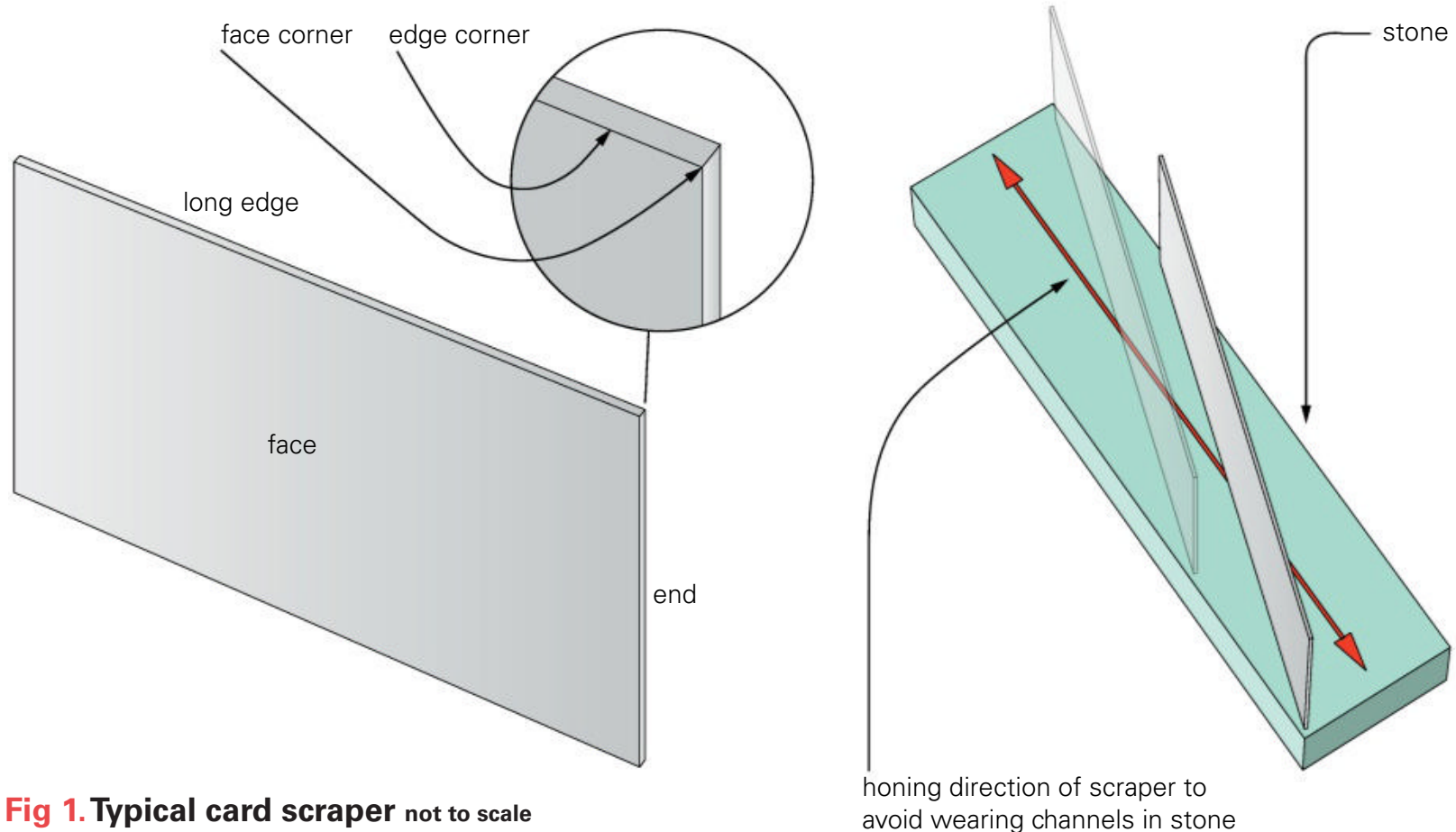


Fig 1. Typical card scraper not to scale

Sharpening

When I fettle a scraper for the first time, I first tackle the two opposing faces on waterstones, working through the grits from 800 to 4000. What I try to achieve is a uniform, dull grey sheen (**photo 1**). Once the faces have been ground smooth to 4000 grit, never take anything coarser to them again. It is not necessary to polish the faces to a mirror finish as on the backs of chisels and plane irons – there is little to be gained.

Once I'm satisfied the faces are how I want them to be, I am ready to prepare the long edges. If the tool is new and has never seen a burnisher I hone both long-edges, again working up to 4000 grit. It is important to keep the tool at 90°, or very close, throughout the process, and to work it around the stone to avoid cutting channels in it (**fig.1**).

Like their chisel and bench plane brothers, scraper edges wear relatively quickly, even though there are four longish edges to work with. Check the surface of the honed edge regularly, and once you have

advanced to the 4000 stone and are satisfied the edges are flat and the corners nicely square, you can de-burr the edge-corners on the same 4000 stone by going between face and edge until no wire burr remains. At this point, we still don't have an effective scraper edge.

The burnisher

Another tool, the scraper burnisher, now comes into play. Held in one hand, this is a tool with a palm-length turned wooden handle and a shorter length of round hardened steel or, better still, tungsten carbide.

The next stage requires that you draw the burnisher, at an angle of around 5°, down the length of each of the four edge-corners (**photo 2**). The pressure applied at the point of contact between the super-hard burnisher and the softer scraper results in pushing or 'turning' the edge-corner into what is called a 'hook'. Done properly, this is the sharp edge that will, literally, whistle across the surface of wood as it cuts a fine shaving like a handplane – the higher the note, the keener the edge.



Main: Fluffy shavings and a gleaming surface are within reach if you understand the tool and know how to sharpen it.

1. Flattened to 4000 grit on waterstones, these scrapers can now be edge sharpened.



2



3



4



5



6

2. Use the burnisher one-handed, or you can mount the scraper in a vice.
3. Store scrapers in a simple shopmade rack.
4. Restore the hook by keeping the burnisher parallel with the face of the scraper.
5. Remove unwanted metal by drawing a file at 90° over the edge of a vice-mounted scraper.
6. A small bevel at end corners stops dig-ins on flat surfaces like tabletops.

Be particularly mindful that when you turn a hook the angle of the burnisher is consistent, and that you apply as much pressure as you can muster. Try and get it right with two, perhaps three turns, no more, as multiple attempts tend to curl the hook too far around the edge. Finish off the same process on the other three edge corners and you're done. If you're struggling physically with the process, try placing the scraper in a padded vice and use both hands on the burnisher.

Once the edge-corners have been pulled or turned, a thumb across the edge should reveal a nice burr, or hook. Many professional woodworkers sharpen several scrapers at the same time, and store them safely in a simple rack (**photo 3**).

Restoring the hook

A dull card scraper will soon reveal its reluctance to cut efficiently.

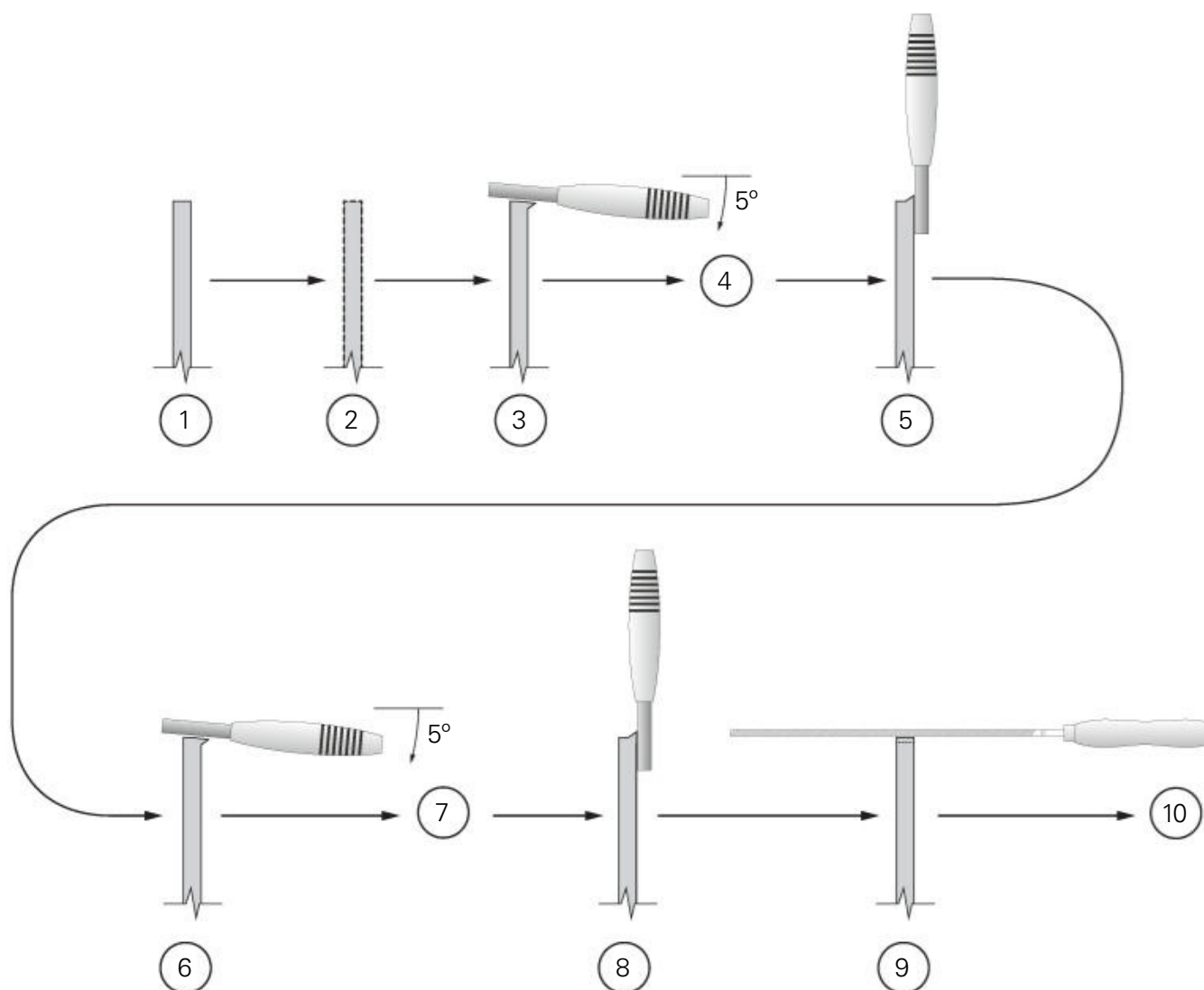
Increased effort will deliver miserable dust rather than reams of wide shavings. With a little practice you can get to use the full length of each edge-corner with a little stretch of the fingers.

Place the dulled scraper near the edge of a bench and flatten what remains of the hook back over the edge, now keeping the burnisher parallel with the face of the scraper (**photo 4**). Several swipes on each corner should suffice. Now turn four new hooks. Clearly, this kind of restoration has a limited number of three or four goes, each with slightly diminished edges, before a full sharpening is required again.

Squaring the edge

Let's now assume the hooks have been restored several times, and no matter how much pulling with the burnisher, the tool refuses to cut cleanly. The

Fig 2. Preparing and maintaining scraper hook not to scale



Turning a Hook

1. Start with an un-fettled, new scraper.
2. Hone the faces and long edges.
3. Turn the hook.
4. Use until hook dulls.
5. Turn hook to edge.
6. Turn hook to face (as in 3).
7. Use, and repeat steps 5 and 6 until hook dulls and can no longer be turned into a useful edge.
8. Turn remnants of hook to edge.
9. Remove around 0.5mm from edge with file.
10. Repeat, starting at step 2.

corners that produce the hooks have been worn away completely and in fact are rounded. Again, as before, push any remaining burr or hook back over the edge. We now have to remove about 0.5mm of material, and then proceed on waterstones as described at the beginning.

There are several ways to remove this unwanted metal – traditionally, a file is drawn over the edge of a vice-mounted scraper, being mindful to keep the angle at 90° (**photo 5**). If my scraper is to be used on flat surfaces like tabletops, I tend to place a tiny bevel at each end-corner to prevent any possibility of a corner digging in (**photo 6**). The cycle of preparing a sharp hook is shown in **fig. 2**.

The scraper in use

The most common use is to hold the tool in both hands, fingers

outstretched around the back, while the thumbs press down at the front at the apex of the curve thus created, and low down.

For the most part, the scraper is pushed, not pulled. The angle that the tool is held to the surface is crucial in getting the desired scraping. As a general rule, it is best to keep it as upright as possible on hard woods, and leaning it more forward, and with less pressure, on softer ones. The tool will generate a lot of heat through friction, so be prepared for thumb blisters. Some people quite wisely place fridge magnets on the scraper body to help sink some of this heat.

Try to push the tool in long, smooth strokes (**photo 7**), starting each by gradually applying pressure to get the sweet spot to engage. Very soon this becomes second nature, and

spontaneous. However, there are some important things worth noting.

Firstly, unlike a hand plane, you can't start a cut by applying downward pressure before moving forward – you have to move the scraper first, then get the sweet spot to engage while in motion. Failing to do this will likely result in nasty cross-grain marks in the wood where the scraper has dug in.

Secondly, when scraping a tabletop or board, it is only possible to do the ends properly by skewing the scraper slightly and pushing it towards, and then beyond the edge – you can't start at the very end as you can with a hand plane.

If this is awkward due to the size of the tabletop, it may be necessary to hold the scraper differently, and pull it towards you, across the end (**photo 8**). Play with the tool to develop an understanding of the



7. Push the tool in long, smooth strokes applying pressure gradually until the sweet spot is found.
8. If you need to pull the scraper towards you experiment with the angle of the tool relative to the surface and stroke direction.
9. Curved scrapers can deal with concave surfaces.
10. Custom profile scrapers for specific jobs such as cleaning out rebates.

results you get when you vary the angle of the tool relative to the surface of the wood, and when you skew it relative to the stroke direction. Held at a more acute angle to the wood and pushing down more gently will give you a better finish. Add to this, skewing the scraper, and the results compare quite favourably to that of a hand planed finish.

Done properly, the shavings are gossamer-thin and should float gently to the floor in long ribbons of wood fluff. Of course, the real beauty of the scraper is that there is practically no fear of tear-out, especially on highly figured woods, that may require only a little light sanding to prepare for a first coat of finish.

When to use a scraper

The scraper is the perfect tool to remove the kind of deep scratches left by belt sanders, to even out glue joins, or even remove thicknesser marks. Another little mentioned use of this humble tool is its ability to de-nib finishes before their next coat. First coats tend to raise the grain a little, and the roughness can be quickly and efficiently cut back with a sharp scraper by lightly drawing it across the surface before lightly sanding.

A scraper is capable of removing shavings from hard to get places, such as dished areas in scalloped chair seats, using a curved scraper for instance (**photo 9**), or to clean out stopped rebates (**photo 10**). And then there is the myriad of shapes that may be scraped with specially profiled scrapers to suit – the sky's the limit!

Photos: Neil Erasmus

Illustrations: Graham Sands

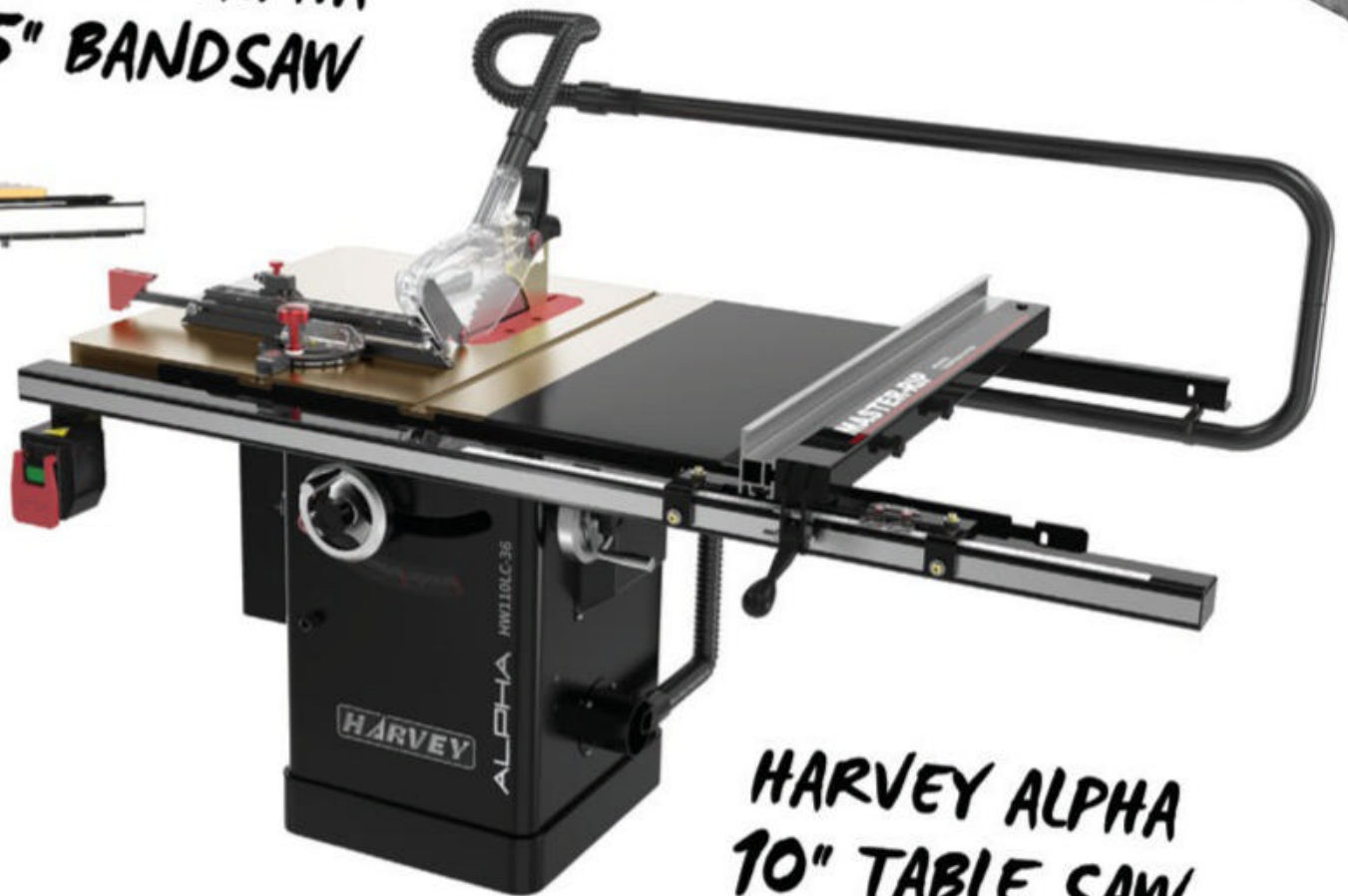


Neil Erasmus is a furniture designer/maker based in Perth, WA.

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