

Furniture & cabinetmaking

DESIGN • INSPIRATION • PROJECTS • TECHNIQUES • TESTS • NEWS • EXCELLENCE

Architecturally inspired

Discover what
makes Simon
Smith's drawers
the best in the
business

PROJECT
Westminster-style
folding library steps

HOW TO MAKE SLIDING DOVETAILS

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Large-scale laminating
for short batch production

RESTORATION

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boxwood into Bakelite





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A3 31



A3 41 A

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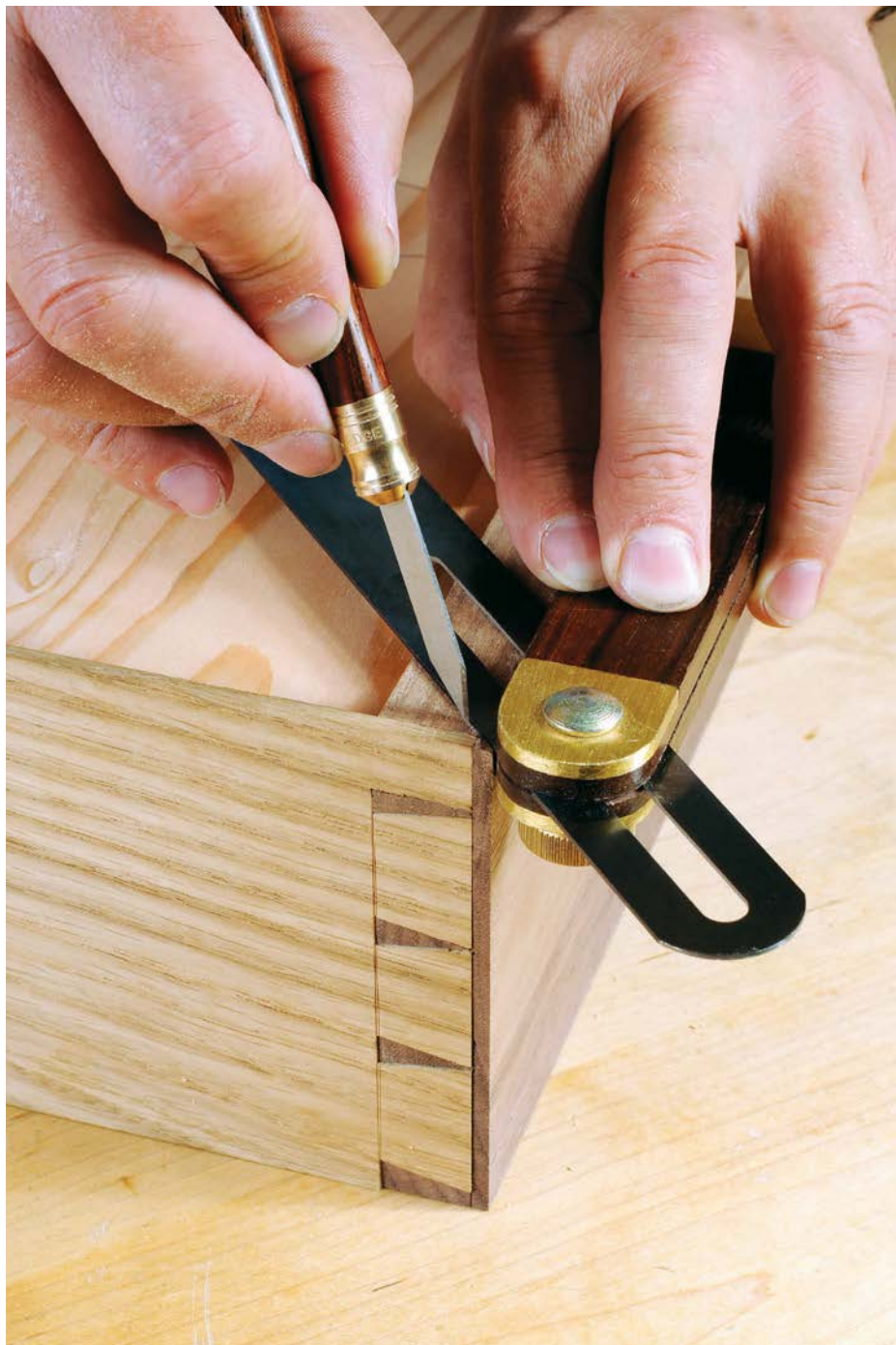
...Cabinet construction

One of the great things about steering a ship like *F&C* around the globe is coming face-to-face with such a diverse range of skills and techniques that contribute to our general pool of woodworking knowledge. Out of that we cherry-pick what we feel best fits our house style, whatever that may be. My apologies if that sounds a bit vague but here's why...

First of all I can't be doing with mission statements. Sure it's great to set your stall out so everyone knows what you're selling but why on earth would you back yourself into a corner when it's not necessary? Plus, I am a self-confessed butterfly when it comes to ideas and concepts. Mission statements are like knots in your hanky, there in case you forget. My view, and I'll keep it brief to avoid sounding like a mission statement, is if you need to remind yourself just how good your idea was in the first place then maybe it isn't worth remembering. As far as *F&C* is concerned it's always been pretty obvious, to me at least. The clue is in the title after all, *Furniture & Cabinetmaking*. Occasionally we're a little more design focused and therefore 'Furniture' but for the most part 'Cabinetmaking' takes centre stage.

This month we're leaning unashamedly towards a tech-heavy issue with a focus on cabinetmaking. Simon Smith leads the charge on page 27, with his Zaftig chest of drawers based around the design of Frank Lloyd Wright's Johnson Wax building. Furniture and architecture are so closely linked that when the former is influenced by the latter the results can be stunning. And when so much of our influence stems from historical form and function Simon's approach is undoubtedly among the best of 21st-century cabinetmaking.

It's fascinating to observe the historical lineage in the style of cabinet construction and how it creeps into our work. For the most part these origins can be traced back centuries. Doors and drawers are perhaps where the most significant changes have happened. For example, we prefer to house large panels in a fixed frame and drawer bottoms are best held in a slip of some kind. Such details can often be used to identify a specific maker or a region. Elements of Simon's work can be traced back to his time at Parnham. The first time I encountered a drawer running on a single central runner was from an article in *F&C* 162 by ex-tutor at Parnham, Robert Ingham. Initially, with just the text in front of me I struggled to understand the concept. It wasn't until I saw the pictures a day or so later that the penny



PHOTOGRAPH BY DEREK JONES/GMC PUBLICATIONS

dropped and I notched up another invaluable technique. The second time I saw this type of construction was from Simon Smith. Provenance, lineage, influence, call it what you like, it's what makes us better craftsmen.

We're taking you across three continents this issue and as many (if not more) time zones, so sit back, relax and enjoy the ride.

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Furniture & cabinetmaking

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

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Front cover image courtesy of Peter Hughes of Photoview

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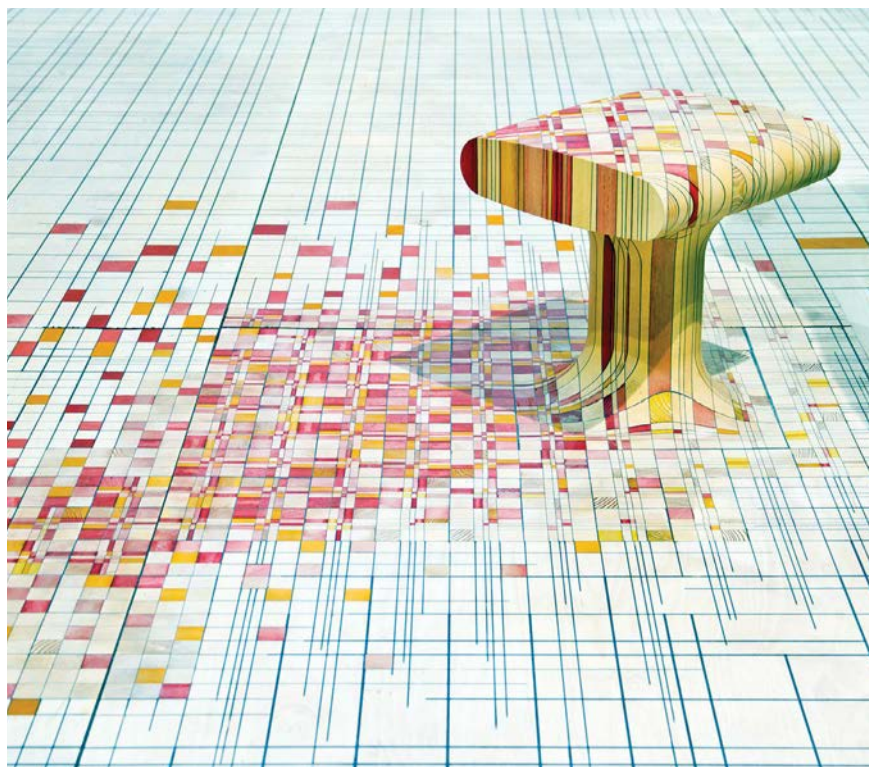
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Wood Awards 2016 open for entries



Slatted Chair by Emma Leslie – Student Designer People's Choice award winner 2015



Endgrain by Raw-Edges Design Studio – joint Bespoke winner 2015

The Wood Awards: Excellence in British Architecture and Product Design has launched its 2016 call for entries. Architects and designers from around the UK are invited to enter their wood-based projects and have until 27 May, 2016 to submit their entries.

Established in 1971, the Wood Awards recognises, encourages and promotes outstanding design, craftsmanship and installation using wood in projects throughout the UK. The Wood Awards' elite independent judging panel not only judges all submitted entries but also visits the shortlisted projects in person, making the Wood Awards a uniquely rigorous competition. The Wood Awards shortlist will be released in July and the winners will be announced at the Wood Awards ceremony in London on 22 November, 2016, hosted by *Crafts Magazine* editor, Grant Gibson. The shortlisted projects will be on display at the ceremony and during the London Design Festival.

Michael Morrison of Purcell and Max Fraser of Spotlight Press return as chairmen of the Buildings and Furniture & Product judging panels. New to the Furniture & Product judging panel is Ruth Aram. Ruth heads up buying for the renowned Aram Store, based in Covent Garden. She says: "I grew up with design all around me. This unfettered access to design on a daily basis has greatly influenced who I am today and generated a hunger and passion for design".

In a new innovation for 2016, everyone will be able to nominate contenders easily via Instagram and Twitter using the hashtag #WoodAwards2016. Once again within the Furniture & Product competition there will be a Student Award, recognising the value of student work in wood with £1500 in prize money (£1000 for the winner and £500 for the People's Choice).

The Wood Awards top prize, the Arnold Laver Gold Award, goes to the overall winner of winners. Previous Gold

Award winners include: The Hurlingham Club Outdoor Pool by David Morley Architects, the Ditchling Museum of Art + Craft by Adam Richards Architects, and most recently, The Fishing Hut by Niall McLaughlin Architects. All previous category winners from 2003 onwards can now be found on the new digital archive on the Wood Awards website.

With permission from the owner, anyone associated with a building or product completed in the last two years, can enter. Buildings must be located within the UK while furniture and other products must have been either designed or manufactured in the UK. There are no restrictions on the size, budget or function of entries. The competition is free to enter and entrants may submit more than one project.

DETAILS:

Contact: Wood Awards

Web: www.woodawards.com

PHOTOGRAPHS COURTESY OF WOOD AWARDS

Somerset Guild of Craftsmen Furniture Prize 2016

From their new headquarters, at 23A Broad Street, Wells, the Somerset Guild of Craftsmen, the oldest guild in the country, is once again holding their Furniture Prize Exhibition for Student and Apprentice furniture makers. In past years the Somerset Guild of Craftsmen, together with Friends of Somerset Art Works has set a challenge to student furniture makers of Bridgwater College to create the finest piece of work for the year. Last year the quest was widened to include students from the City of Bristol College and the private school run by Williams & Cleal, based in Lydeard St Lawrence.

The overall winner of the 2015 Furniture Prize was Charles Byron from Williams & Cleal. He set an exceptionally high standard with his 'Log Stack Cabinet', and following the Exhibition his piece was featured on the front cover of *F&C* 236 and went on to win the Alan Peter's Award. The judges also awarded a commendation to both Leon Adamson, from City of Bristol College, for his dining table and to Joby Martin, from Bridgwater College, for his cabinet.

Following the success of last year's exhibition the Somerset Guild of Craftsmen is planning to further expand the accessibility of the competition to additional schools and colleges.

According to organiser and Guild Member, Chris Tipple, the intention is to expand yet further. He said: "Last year we put our toe in the water to try and expand the exhibition to students from additional furniture making courses, and this year Axminster Power Tools have agreed to sponsor and support the Exhibition, so we are able to offer more prizes to the exhibition winners. From our new gallery in Wells we're trying to grow a big oak tree from a little acorn and, by taking a step at a time, develop and steadily expand the Guild's Furniture Prize Exhibition to cover the South West and beyond. Through our Furniture Prize we hope to increase the profile of furniture design and making."

Entries to the competition will be on display at the Guild's Wells gallery from 25 June to 30 July, 2016. Judges, nationally acclaimed furniture maker Tom Kealy, and editor of *Furniture & Cabinet Making*, Derek Jones, will decide on the winners according to design and quality of workmanship.

Visitors to the gallery will also be able to take an active part in selecting a winner for another prize, the 'popular choice'.

As Chris explained: "Students' furniture will be displayed in the gallery and throughout the duration of the exhibition. The visiting public are invited to vote for their favourite piece and at the end of the exhibition all the votes are counted and a



2015 award winner – Charles Byron's Log Stack Cabinet



2012 award winner – Mark White's Writing Box

prize awarded to the 'popular' favourite. Quite separately, during the exhibition, the judges will arrive and do their completely independent assessment without any knowledge of how the public vote is going."

Three years ago, Chris was himself the winner of the Furniture Prize and when asked for his reaction to the success he exclaimed: "To me it was a really big deal. I felt honoured, and quite emotional, to have my work recognised, and even more honoured, after I joined the Guild, to be asked to organise the Furniture Prize exhibition. My background is in architecture but now, following a change in career path, I indulge my passion for wood and furniture making."

The Furniture Prize takes place against a backdrop of a new era for the Somerset Guild. Their recent move to the new premises in Wells follows a period of uncertainty when their old headquarters building in Somerton was up for redevelopment.

John Candler, Master of the Guild, commented: "After looking at a number of options around Somerset we are pleased to have chosen Wells as our headquarters, and after only a few months trading the early signs are very encouraging."

Meanwhile the Somerset Guild is intending to build on its existing 120 members. Chris said: "What we're trying to do on the back of this furniture competition is introduce young craftsmen into the Guild and offer them a 'stepping stone' to a big wide world. I regard the competition as the first step on the ladder. We also want to grow as an organisation on the back of the furniture prize, and there will be other similar exhibitions where we will seek to discover more new talent and introduce them to the Guild."

DETAILS:

Contact: Somerset Guild of Craftsmen

Web: www.somersetguild.co.uk

Latest projects from members of Northern Contemporary Furniture Makers



Dining suite by Design In Wood

Dovetailors' reputation as fine furniture makers for some of the UK's greatest ecclesiastical establishments continues to grow as they present their latest completed commission; A Paschal Candle Stand with shaped candle holder has recently been installed at Mirfield Monastery, just in time for the Easter celebrations. The stand is a whopping 2.5m in height and can be separated into two parts and the lower base can be used on its own. It is made from the classic solid oak of most church furniture but the sinuous, modern shape is inspired by the twisting shape of a tree. The helical shape is designed to be constructed like a jigsaw puzzle. It has required over 60

individually sculpted pieces, shaped using CNC technology, which were then hand-sculpted and hand-finished.

Design In Wood have recently completed commissions including an oak coffee table with walnut inlays and a television stand in maple. The work shown here is an innovative dining suite in oak with walnut inlay, which makes the best use of the available space and comprises a dining table, a corner settle and two benches.

DETAILS:

Contact: Northern Contemporary

Furniture Makers

Web: www.northernfurniture.org.uk

Busy times at Rycotewood Furniture Centre

Staff and students at Rycotewood Furniture Centre are embarking on the busiest time of the academic year. As well as preparing for the annual summer show, which opens on Monday 20 June, 2016 the students have also been displaying their work at the Pitt Rivers Museum in Oxford. The exhibition featured pieces inspired by museum objects, all designed and made by second-year degree students. This is an annual exhibition resulting from a collaborative project that is designed to challenge the students with the introduction of a culturally diverse range of inspirations. The students have used a range of materials and processes to create both practical and conceptual pieces. Found objects and reclaimed timber sit with leather and plastic, the processes used include soldering, woodturning and metalwork. And finally, the Rycotewood Graduate Show will take



Model of reclaimed oil rig by Terry Davies for the Pitt Rivers Museum display

place on 12 July, 2016 at the Furniture Makers Hall in London.

DETAILS:

Contact: Rycotewood Furniture Centre

Web: www.cityofoxford.ac.uk

TIMBER TRADE NEWS Oak dieback



Leaf loss gives oak trees a 'stag headed' appearance

In F&C 211 I discussed oak dieback caused by the beetle *Agrilus biguttatus*. However, dieback can also occur in the absence of this insect. In such cases the problem is regarded as 'decline' and can have several causes. The first symptom is a yellowing of the leaves, which may be smaller and sparser than usual. Later small, then larger branches lose their leaves, leading to a 'stag headed' appearance. Sometimes tarry exudates appear on the trunk, associated with larvae of the beetle *Agrilus pannonicus*, but dieback can occur even when they are not present. Both native oak species can be affected. Trees usually recover, with new growth from the inner parts of the crown eventually covering the dead branches. The causes are not fully understood, but dieback often follows a period of stress. The problem was common in the early 1990s following two years of severe droughts. Another obvious cause of dieback is root damage. Stag heading is often seen in oaks growing in ploughed fields and if care is not taken to protect the root zone, they may eventually die. Root damage can also occur as a result of attack by pathogenic fungi, such as *Phytophthora* spp. and honey fungus.

Chris Prior

European ash extinction

According to a paper recently published in the *Journal of Ecology*, the ash tree could become extinct in Europe. The two main threats to the European ash come from the fungal disease ash dieback and the emerald ash borer, a beetle that is native to Asia but has now reached Europe. The beetle's larvae bore into the bark and kill the tree. Dr Peter Thomas of Keele University, who led the study, said: "Between the fungal disease ash dieback and a bright green beetle called the emerald ash borer, it is likely that almost all ash trees in Europe will be wiped out – just as the elm was largely eliminated by Dutch elm disease."

The Woodland Trust says that there is some evidence that native British ash trees have more resistance to ash dieback than other European trees and the Trust is lobbying the government to strengthen border controls to prevent the introduction of the emerald ash borer.

Events



Pulse will be held at Olympia, London

Pulse

Pulse is described as the definitive event for trend-leading giftware, modern living and retail insight. The event's slogan is 'Discover the unexpected' as it showcases cutting-edge products from a range of 'unseen' brands.

Pulse is curated by a panel of market-leading experts whose role is to pinpoint new and exclusive products, highlighting the very latest trends, emerging talent and directional brands. A preview of some of these products is available on the 'Pulse Unseen' section of the event's website.

When: 15–17 May, 2016

Where: Olympia, Hammersmith Road, London W14 8UX

Web: www.pulse-london.com



PHOTOGRAPH COURTESY OF PULSE

dotdotdot will be exhibiting at Pulse

Minerva Spring Exhibition

Every year in May and October, the Minerva Furnishers Guild hosts its own trade exhibitions. These are now major events in the furniture industry's calendar and the shows typically feature approximately 70 affiliated suppliers in an area of 5000sqm. Latest designs in a wide range of upholstery, beds, dining, occasional furniture and accessories are exhibited.

Minerva holds a national members meeting during the show to discuss trade issues, and hosts a gala dinner in the evening for exhibitors and retail members.

When: 17–18 May, 2016

Where: NAEC, Stoneleigh Park, Warwickshire CV8 2LZ

Web: www.minervafurnishers.co.uk/merchandise-exhibitions.html

Clerkenwell Design Week

The seventh edition of Clerkenwell Design Week (CDW) promises to be the best and most ambitious yet, as new locations, brands and installations join this vibrant festival in one of London's most idiosyncratic and creative quarters. In a first for the festival, organisers have appointed architecture practice OMMX to create a strategic masterplan for the event. The plan marks a significant point in CDW's development, with the format expanding to eight exhibition venues, a gateway destination to Clerkenwell's showrooms, an installation trail and a brand-new destination at Spa Fields. New sites and structures will provide enhanced possibilities for exhibitions and programming; Design Fields, a large-scale curated exhibition of contemporary design, will be set in a specially constructed two-floor pavilion at Spa Fields, near Exmouth Market.

The park space at St James's Church Garden will become a key destination as part of CDW's new look with the new exhibition Project hosting leading international brands presenting furniture, lighting and product design, alongside the

hugely successful interior products show Additions. A new show, British Collection, will showcase some of the UK's most exciting home-grown talent within the barrel-roofed Crypt of St James's Church. Each will enhance the well-established CDW exhibitions; Detail at the Order of St John and pavilion on St John's Square and Platform at the unique underground space House of Detention. Long-time collaborators *Icon Magazine* will again stage Icon's House of Culture exhibition at another iconic Clerkenwell destination; Fabric. Underpinning CDW, the area's multitude of design-led showrooms is a vital part of this unique event. For the first time Brewhouse Yard off St John Street will act as a gateway to the showrooms, many of which are clustered close by. In addition, the Goldsmith's Centre on Britton Street will also join the festival as a key destination for live content with fresh programming and activity throughout CDW.

When: 24–26 May, 2016

Where: Various locations in Clerkenwell, London

Web: www.clerkenwelldesignweek.com



Another Brand will be showcasing their TAVOLINI and CUBO ranges at CDW's Design Fields

PHOTOGRAPH COURTESY OF CLERKENWELL DESIGN WEEK

Design and Craft Fair featuring MADE

Visitors to the third annual Design and Craft Fair at West Dean Gardens will be able to browse and buy from over 100 innovative makers and artists. There will also be the opportunity to get hands-on in a Creative Workshop with an expert tutor, crafts available include wood and stone carving, pot throwing, jewellery making, painting, mosaic making and many more. Each workshop lasts 1.5 hours and prices are £12.50–15, the Creative Workshop programme is available on West Dean's website. There will also be free talks and demonstrations on a variety of arts and crafts subjects. Tickets to the Fair start from £8 and include free access to West Dean Gardens.

When: 3–5 June, 2016

Where: West Dean Gardens, West Dean, Nr Chichester, West Sussex PO18 0RX

Web: www.westdean.org.uk/gardens



PHOTOGRAPH COURTESY OF WEST DEAN GARDENS

Creative Workshops will be held for a variety of crafts at the West Dean Design and Craft Fair

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CON185	1600W	60/40	£54.99	£65.99
CCS2	1300W	60/45	£59.98	£71.98

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• Dual purpose, for both finishing & sizing of timber

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8/510	2HP	7.5	50ltr	£119.98	£143.98
11/510	2.5HP	9.5	50ltr	£139.98	£167.98
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• Dust extraction port

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Clarke SHEET SANDERS

CON300

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£13.99
EXC.VAT
£16.79
INC.VAT

MODEL	SHEET SIZE	MOTOR	EXC.VAT	INC.VAT
CON200	190X90mm	150W	£13.99	£16.79
CON300	230X115mm	330W	£32.99	£39.99
Makita	112X102mm	200W	£54.99	£65.99

Clarke PORTABLE THICKNESSER

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Provides exceptional finishes for deep & wide work pieces, front edges & narrow inner curves

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CPT800	8"	120mm	£199.98	£239.98
CPT1000	10"	120mm	£269.98	£323.98

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Fury 3	250/30	75/340mm	£159.98	£191.98
TH-SM2534	260/30	95/130mm	£199.98	£239.98
Makita				
LS1040				

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• Suitable for most sizes/makes of saw

• Inc. outriggers & rollers

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RT-0S13	130W	£22.99	£27.59
CDS-1V	280W	£24.99	£29.99

Clarke 12" DOVETAIL JIG

CDTJ12

- Simple, easy to set up & use for producing a variety of joints
- Cuts work pieces with a thickness of 8-32mm
- Includes a 1/2" comb template guide & holes for bench mounting

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Clarke BOSCH JIGSAWS

CJS380

• "DIY" Professional

MODEL	POWER (W)	DEPTH OF CUT (WOOD/STEEL)	EXC. VAT	INC. VAT
Clarke CJS380*	420W	55/6mm	£12.99	£15.59
Clarke CON750*	750W	80/10mm	£24.99	£29.99
Bosch PS1700*	500W	70/4mm	£44.99	£53.99
Einhell RT-JS 85	750W	85/5mm	£49.99	£59.99

Clarke SCROLL SAWS

CSS16V

- 50mm max cut thickness
- Air-blower removes dust from cutting area
- Table tilts 0-45°

MODEL	MOTOR	SPEED RPM	EXC. VAT	INC. VAT
CSS400B	85W	1450	£69.98	£83.98
CSS16V	120W	400-1700	£79.98	£95.98
TH-SA405E	1200W	400-1600	£79.98	£95.98

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Clarke BENCH BANDSAWS

TH-SB200

• Produce fast, precise mitre & longitudinal cuts

- Cuts in wood, plastic, etc.

MODEL	MOTOR	SIZE	EXC.VAT	INC.VAT
TH-SB200	180W	8"	£99.98	£119.98
CBS190	350W	7.5"	£114.99	£137.99

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B = Bench mounted
F = Floor standing
V = Variable speed

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CDP202B	450 / 16		£159.98	£191.98
CDP10B	370 / 12		£169.98	£203.98
CDP352F	550 / 16		£199.98	£239.98
CDP350V	550 / V		£219.00	£262.80
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Top Quality Bandsaws - ideal for professional workshop use. Strong steel body with solid cast iron table featuring induction motors

- Table tilts 45°
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MODEL	THROAT DEPTH	MAX CUT 90°	MAX CUT 45°	EXC.VAT	INC.VAT
CBS300	305mm/12"	165mm	115mm	£349.98	£419.98
CBS350	340mm/14"	225mm	160mm	£449.00	£538.80

Clarke BOSCH CONTRACTOR ROUTERS

CR2

• Powerful heavy duty machines ideal for trade and DIY use

CR2 INCLUDES 15 PIECE KIT WORTH OVER £20

£39.98 ~~£47.98~~ **EXC.VAT**

Clarke ROUTERS

CR1C

• "DIY"

MODEL	MOTOR (W)	PLUNGE (mm)	EXC.VAT	INC.VAT
CR1C*	1200	0-50	£39.98	£47.98
Bosch	1400	0-55	£79.98	£95.98
POF1400ACE				
CR2	2100	0-60	£109.98	£131.98

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• Stands come complete with bolt mountings and feet anchor holes

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CBG6RSC	HD	150mm	£49.98	£59.98
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CLICK & COLLECT

Editor's round-up...

Having trouble sourcing the right tool for the job? Derek Jones sets about identifying the essential tools and equipment on offer this month

All sterling prices include VAT, correct at time of going to press



PHOTOGRAPH BY GMD/DEREK JONES

There are a host of great new publications out this year that will no doubt keep us all entertained and inspired to tackle new skills and projects in the months/years ahead. No surprises here though as the emphasis is still on hand tools, with hardly a new word being written about machine usage. Is it a phase? Have we finally fallen out of love with our post-industrialisation of the workshop or is it just that there's not much left to say about machining? Frankly, that doesn't hold up as any good woodworker worth his salt will testify to a library full of old texts on the subject of hand tool use. Even though there's not a lot left to say we still like hearing it, and that's surely a good thing.

It's a similar story with tools, because in this month's round-up we have pleasure in bringing to your attention a new and improved version of the hand router courtesy of Walke Moore Tools. With the bugs from a couple of centuries well and truly ironed out we've every reason to believe it will set a new standard for this often under-rated and under-used tool. Serious hand tool users will want to get their hands on one. As far as machines and power woodworking goes

there's something brewing down at the factory in Stuttgart. No not that factory, the Cayman GT4 is old hat nowadays. I'm talking about Bosch. By the time you read this we should be back from the Bosch Professional Innovation Summit 2016 with a full report.

However, routing is still very much a theme this issue. Sliding dovetails are so satisfying to make when you get them right that I can't believe I don't use them more often. I mean they're strong, they don't require clamping and if you can get the proportions right they just look fantastic. For these reasons alone they're a great joint to have in your construction repertoire. Just take a close look at an item of period case furniture and you'll see how much it was relied on in the past.

Last month, Gary Rogowski demonstrated a couple of techniques for producing this joint with hand and power tools, and just about the same time as we were putting his article together up popped an alternative method from down under by Liam Thomas from www.weeatthesun.com.au. Liam was using the Makita Trimmer RT0700C with a tilting base to create the long pin for a sliding dovetail on the legs of a dining table. He's written his technique up for us and it appears on page 38.

MINI TEST: Trimmer RT0700CX2

Notwithstanding the noise and dust created by power tools and machines, there's a basic flaw with all of them compared to hand tools. OK, so not a flaw exactly but a difference in the way we interact with them. Feedback and interface are all very hands-on when it comes to hand tools, but if the Makita Trimmer RT0700C is anything to go by some power tools are so user friendly they're practically a hand tool.

The RT0700C is one of the breed of trimmer routers intended for light duty routing and trimming often without the aid of a fence. This kit comes with a fixed base as standard, a regular plunge base and tilting base. The full set allows the machine to be used in a variety of ways and, thanks to its size, with a great deal of control. For those interested in the numbers that's 710w in a 1.8kg machine with perfect balance and all the features you expect in a fully spec'd machine. The 1/4in collet might restrict use a bit and the fence rods are a tad shorter than we were expecting but this is a small-scale precision tool where up close and personal are required. Each base configuration comes with an extraction port so dust and waste material can be kept to a minimum. All in all a cracking little machine for hand tool users who also like power tools.



PHOTOGRAPH BY GMD/DEREK JONES

Jet spindle sander

This very versatile machine has many uses in the trade workshop. The JOSS-S spindle sander oscillates up and down while rotating at 1400rpm, ensuring that the abrasive is not continually exposed at the same point thereby reducing burning and creating a better quality of finish. The stroke is some 38mm long and is driven by worm drive gears working in an oil filled gearbox. The large cast-iron table gives adequate support to nearly all types of work, has a 90° positive stop and can be tilted to a full 45° if required.

The machine is supplied with 10 metric bobbins all with sanding sleeves attached and the bobbins fit with a taper into the main drive shaft of the machine. The sleeves are spirally wound to ensure that they have no bump where the join is; they are more expensive than simple belts but they do leave an excellent finish on nearly all materials.

The spindle sander is floor standing with feet and has no castors or wheels. If the machine needs to be moved on a regular basis, the manufacturer recommends the purchase of a mobile base unit. A fine dust extractor is recommended to work alongside this machine.

The sander is supplied with table insert, service tools, 100mm dust extraction outlet and sanding spindles 6, 9, 12, 19mm plus rubber drums of 25, 38, 50, 75 and 100mm.

£1278



Veritas mitre plane

The new Veritas mitre plane offers the choice of blade in either O1 or PM-V11 tool steel. The body is fully stress-relieved, ductile cast iron, with both sides machined flat and square to the sole. Weighing almost 2.25kg, it has a heft that provides good inertia. Its 266mm long and 68mm wide sole, with a toe fully one third the length, gives it solid registration even when used at an angle for a

skewed cut. Being a bevel-up plane, it has a low 12° bed angle for exceptionally clean end-grain cuts. The lapped blade in either O1 or PM-V11 tool steel is 52mm wide and 4.8mm thick. The Norris-style adjuster extends under the rear knob to allow easy adjustment. Two blade guide screws prevent lateral blade shifting.

This plane offers a comfortable grip whether you use it on its side or upright. When used on a shooting board, the side-mounted horn lets you push the plane with

the web of your thumb. You can attach the shooting horn on either side of the plane for right- or left-handed use. When used upright deep finger grooves in the sides and the front knob provide a secure grip. The rear knob provides a comfortable palm rest for driving the plane forward.

Both the knobs and the shooting horn are made of torrefied maple. By loosening the front knob, the plane's adjustable mouth can be set to a fine opening.

A brass thumbscrew retains mouth settings and prevents the toe from contacting the blade. Prices are £256.96 for the plane with the O1 blade and £263.96 for the PM-V11 blade.

From
£256.96





No. 2500 router plane

Walke Moore Tools is about to release their newest tool: the No. 2500 router plane cast in manganese bronze. Based on the Preston model 2500P, this router boasts the largest footprint on the market and the blade can be moved to four distinct locations for handling a wide range of cutting scenarios. Customers can choose between smaller handles based on the original Preston design or a larger style (recommended) based on the handles from the Stanley No. 71. The tool, which is expected to start shipping in June, costs US \$285 and comes standard with a fence, depth stop and 1/2in square cutter made from O1 tool steel. Please note that the cutter in the photo shown here is a temporary place holder while the production design is finalised.

Artist's pyrography machine

Premier woodworking tool maker Robert Sorby is to manufacture Peter Child's Artist's pyrography machine. The agreement to make one of the UK's most popular woodburning machines will harness Robert Sorby's production expertise and increase the availability of a product in high demand. Production will be relocated from the Essex-based tool retailer to Robert Sorby's factory in Sheffield with new machines available from the end of April. The machine will still bear the Peter Child name, but will be marketed by Robert Sorby's consumer operation Turners Retreat/Craft Supplies.

Pyrography, literally 'fire science or fire writing' from the Greek, is becoming an increasingly popular hobby with woodworkers and crafters. Using simple and easy to learn techniques, pyrographers can create beautifully textured patterns and pictures burnt into wood and other materials. The machine's reliability and ease of use make it a favourite among both craft hobbyists and pyrography professionals.



Turners Retreat/Craft Supplies will soon be launching a new website that will feature its own pyrography microsite. A range of courses from entry level upwards is planned with some of pyrography's best known names delivering workshops and advice. Supporting this will be what promises to be one the largest collection of pyrography blanks and accessories in Europe.



Hydra GTX safety shoe

When working on site, why it's important to choose a shoe that has three key features – protection, comfort and durability. The Hultafors Group's new 'Solid Gear' brand – available through Snickers Workwear stockists in the UK – is revolutionising footwear on site – just look at the new HYDRA GTX trainer-style safety shoe. It's a highly technical safety shoe that integrates modern design with best-in-class materials for water protection, durability and a sporty look. A waterproof and breathable GORE-TEX® lining keeps your feet dry and comfortable, while the Vibram outsole and Cordura ripstop fabric offer great protection and ruggedness. What's more, the unique BOA Closure System – used on many top-brand sports shoes – distributes the pressure of the fastened shoe evenly across your feet to ensure a glove-like fit all day with maximum comfortable protection.

Pneumatic random orbital sanders (PROS)

Mirka is expanding its pneumatic random orbital sanders (PROS) range with the addition of two new dust bag machines designed for multiple sanding applications, together with a new fleece dust bag that has been developed to increase the dust collection capacity of the sander and improve the air flow. This will enable users to work in a healthier, dust-free environment as well as improve the life span of the products, leading to less down time when changing the bag.

The new PROS 550DB and 650DB provide effective and durable tools for professional sanding. These machines are built for maximum dust extraction at low suction power and have a low noise level even when operating at their 12,000 rpm maximum. The PROS weighs in at less

than 1kg, reducing the strain on the user's arms, and its ergonomic design makes it user-friendly, with plenty of finger space for the controls that can easily be operated when gripping the machine with either the left or right hand.

The sanders' innovative features include a revolutionary brake seal, which eliminates the possibility of causing deep marks in the surface when the fast rotating abrasive first touches the job. When the PROS is removed from the surface, the brake seal immediately brakes the rotation speed of the backing pad. The PROS 550DB is available with 125mm pads and the PROS 650DB comes with 150mm pads. Both are equipped with a dust extraction hose, pneumatic hose, fastening strips and the new fleece dust bag.



Cast scratch stock

Founded in 1825, Edward Preston & Sons, Ltd. produced some of the finest tools of the Victorian age. This reproduction by Lee Valley is an elegant hand reeder and beading tool, which can be used to cut decorative profiles into furniture (such as beading on small table or cabinet edges or reeding on chair and table legs). It can also be used with a straight cutter for shallow rabbeting work, such as on mirror and picture frames.

The convex sole and fence are helpful for curved workpieces, allowing the tool to follow contours, and its slim design (only 5/16in from front to back) lets you cut close to an inside corner. It can cut on either the push or pull stroke.

At just over 5in wide and about 1 1/2in tall overall, it keeps both your hands close to the work, affording excellent control. The curved handles fit your fingers naturally, offering a secure, comfortable grip.

Lee Valley's version is a close reproduction of the original, cast from stainless steel with a black powder-coat finish.



A 3/32in single-point cutter, a 1/8in beading cutter and a blank cutter for custom shaping are included; since both ends of each cutter can be used, this gives you six profile possibilities.

Standard blade shapes are also available, the same hardened spring-steel blades used with our other beading tools #05P04.01 and #05P04.50. A classic tool that's both practical and pleasing to the eye.

Contacts

Artist's pyrography machine

Contact: Robert Sorby Ltd

Tel: 0114 225 0700

Web: www.robert-sorby.co.uk

Cast scratch stock

Contact: Lee Valley

Web: www.leevalley.com

Hydra GTX safety shoe

Contact: Snickers Workwear

Tel: 01323 418935

Web: snickersuk.com

Jet spindle sander

Contact: Axminster Tools & Machinery

Tel: 03332 406 406

Web: www.axminster.co.uk

No. 2500 router plane

Contact: Walke Moore Tools

Web: www.walkemooretools.com

Plunge saw blades

Contact: Trend

Tel: 01923 249911

Web: www.trend-uk.com

Pneumatic random orbital sanders (PROS)

Contact: Mirka

Tel: 01908 866 100

Web: www.mirka.com/uk

Trimmer RT0700CX2

Contact: Makita

Tel: 01908 211 678

Web: www.makitauk.com

Veritas mitre plane

Contact: Brimarc Tools & Machinery

Tel: 03332 406 967

Web: www.brimarc.com



Plunge saw blades

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John Hartnett welcomes us into his workshop

I'd rather be skiing...

Derek Jones meets up with black run veteran and antique furniture restorer John Hartnett

The first workshop I spent time in was more of a dumping ground in a shared space at the back of a large antique furniture warehouse. There were no benches and it seemed that wherever you stood you were in somebody's way. As a shy, awkward and probably monosyllabic adolescent in the dying throws of a lacklustre attempt at education, it was my first glimpse of what adult life might be like if I pursued a career in antiques. Looking back, I can see that it wasn't a real workshop at all and not really a true reflection of the trade I had set my eyes on either.

One of the most frequently used words I hear to describe a workshop is 'sanctuary'. I get it, but I find it a bit odd as it suggests a place to hide from the outside world rather than a place to unravel its secrets or contribute to its development. In this context 'sanctuary' seems somewhat divisive and out of bounds. Workshops can be social places, the ones I've most

enjoyed working in certainly have been, one minute a place for quiet contemplation and intense moments of concentration, the next a hotbed of creative energy. If you've ever shared space in a communal workshop you'll recognise that rhythmic cycle. It's a force every bit as infectious and involuntary as yawning. Then there's the language; somewhere between building site and back office. The same I'm told can be said of dressing rooms and studios the world over.

This is the workshop where I discovered a passion for learning and language and furniture. This is the workshop that we're visiting this month and it's where we caught up with antique furniture restorer and fourth generation cabinetmaker, John Hartnett. It's not however, where our story starts and he makes it clear he'd rather be skiing...

The French Connection

Grandpa Spawtz, as John calls him was a 19th-century ebonist from Luxembourg,

specialising in parquetry and decorative floors. His skill and expertise were such that he travelled widely throughout Europe plying his trade in the most fashionable houses of the time. It was during one of these visits to England that he met his future wife, a Frenchwoman, and decided to stay, planting roots in north London. A century later and a complicated family history worthy of an episode of *Who Do You Think You Are*, and the family business is still going strong albeit not pursuing quite the same line of work.

I've known John for more years than I care to remember and I've done a lot of what he does as a job for most of that time. Even so, I still find it hard to put a finger on what he actually does for a living. If it were just a case of fixing things that would be easy, any practically minded, hand tool competent person could do it. The core skill here, I believe is managing people's expectations and that takes nerve. Building things from scratch is child's play by comparison,

you make the rules and you decide when and where to break them. Invisible mending on the other hand is sorcery that would baffle the Magic Circle.

"I never tell customers I can make a repair disappear. Under promise and over deliver is the best approach if you want to encourage repeat business," he advises and in a nutshell there you have it, the most important word missing from most craftspeople's vocabulary; business. "You can have all the skills and experience in the world but it means very little if you can't run a business".

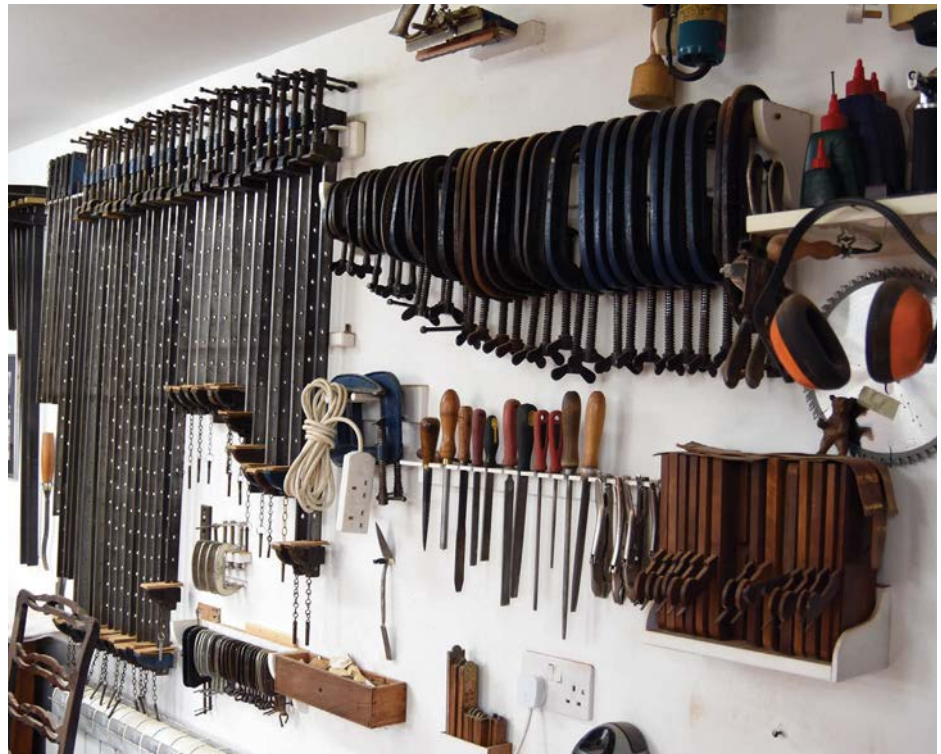
Max Wall and other storage

If they ever do a Hard Rock Café for woodworkers this is what it would look like.

The walls in John's workshop are filled with rows of neatly displayed tools, metal clamps by Record mostly and not a Bessey in sight, no plastic or garish bright colours here. By the looks of some of them John isn't the first owner but they all work with precision and ease. "There's nothing worse than a clamp sticking when you come to use it. Rather than wear out, these old clamps just seem to get better with age", he said, "providing you look after them of course." It's a practice that I can see he not only preaches but lives by. Among the hundreds of tools on the wall hardly any are from this century and quite a few date from the one before that. They are a mixture of good users and keepers. A Marples Ultimatum brace sits pride of place above the door to the 'shop flanked by a Norris A5 and A11. "I used to have a lot more before I built this workshop but during the move from my last workshop they sat in boxes for so long that when I got round to unpacking them I just felt the time had come to sell them. The rest I thought were worth putting on display. I did quite well out of the sale. They probably paid for the roof on this place". There's a completeness in knowing that these old tools are in some way still able to contribute to the built environment for which they were made. It's even more fitting perhaps that they are doing it without breaking a sweat. Age and wisdom it seems, pulls rank every time.

There's an interesting moulding plane on a purpose-built shelf above the bench. The near perfect circle shape of the top of the wedge suggests it's an early one. "Oh that, I just liked the shape. I used to sell hundreds of these when I had the shop in Church Street. That's one of the nicest I've seen so I kept it". I can personally testify to that as the shop in Church Street was where I worked on Saturday mornings, after school and during the holidays until I could work full time after failing most of my exams. It was my first taste of a proper workshop; a dedicated space where old things were dismantled and then re-built, stripped of their finish and re-polished or just generally tinkered around with until they were fixed.

In recent years the work of the conservator has quite rightly been recognised for the role it plays in preserving much of our heritage. It is, if you like, the academic branch of the antiques trade, less concerned with

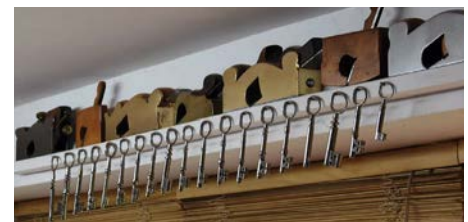


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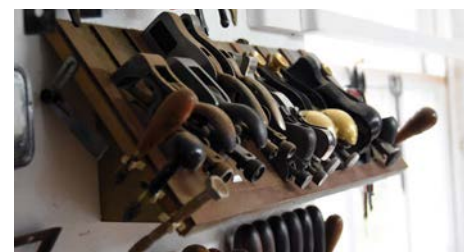
monetary value and more concerned with the preservation of knowledge and artefacts. Conservators fight on the side of inanimate objects to ensure they have a voice when it comes to deciding their fate. It can be a tough job but technology and forensic science make for powerful allies. No such luck I'm afraid for the restorer, when it comes to doing battle with something far more emotive; the very personal and often unrealistic expectations of the general public. "You've got to be good with people and not just things," he says, although I get the feeling terms and conditions may apply to this arrangement.



Keepers and users



An early moulding plane stamped 'T Philip & Son'



A fine layer of dust reveals that a block plane is the most often used plane in the 'shop



A multi-toothed scratch stock that's still used

A new breed of recruits

Self-employment, albeit a forced option, began for John back in the 1960s after a string of what he describes as 'character building' jobs. Missing out on conscription by about six months his generation were the first of a new breed of raw recruits. After a short spell working at Selfridges on Oxford Street John made the move to the south coast and worked for his uncle's firm Eurotherm International doing deliveries all over the country. "I'd go from Brighton to Carlisle, Doncaster and up to Glasgow and through a lot of industrial cities that were really buzzing at the time. They weren't that pretty to look at but were real hives of industry. You couldn't imagine it then, but just 10 years later all that had gone. When I had to replace some saws after we had a fire here at the workshop during the building works I was really pleased to be able to buy some new saws that were made in Sheffield." He leans over the bench to a neat row of Thomas Flynn's mounted on the wall next to his boxwood handled paring chisels, also ex Sheffield. I asked him why the clinical approach to racks and organisation: "It might have something to do with going to boarding school. You either looked after your stuff or you lost it. And I like to have things where I can get hold of them easily, especially clamps when you're working on your own."



From Boule to gilded bronze, the work is varied



Items like this can rack up more hours to restore them than their resale value



A shrine to Sheffield and workshop cats



Antique furniture does make the best workshop storage for an antique furniture restorer

Temperamentally unsuited to the position

"I always enjoyed looking around antique shops. There was one down near the station in Lewes, run by a very well connected lady. I started talking to her one day and said that I wanted to learn about antiques and she mentioned that her son had just left a restorers in the town, Davenport's. I went straight round there and said I'd heard they had a vacancy." The proprietor Ernest Davenport told him they weren't employing any more youngsters. Undeterred, John offered to work for nothing between 5.30pm and 7.30pm after he finished his job at the local builders' merchants. A full-time position came about after John had an accident with some cast-iron guttering back at the builders' yard. "I cut my arm quite badly and went into the office and asked my boss to run me up the hospital. He shooed me out and complained about dripping blood on his carpet. After I'd been stitched up I went back and told him where he could stick his job and his guttering. It wasn't a bright move because I didn't have anything else to go to".

John still wanted to get into the antiques business so offered to work at Davenport's

for £5 a week, whereas all his friends of the same age were earning £15-20 per week. "Ernie [Mr Davenport] wasn't that keen but his son John who was a bit older than me pointed out it was only £5 a week and he should just give me a job." For the next 18 months John worked alongside Ernie in the polishing shop and occasionally with his son in the cabinet shop carrying out repairs. "Ernie was very particular about the furniture we would work on. Queen Anne and Georgian mainly. He wouldn't touch Victorian furniture". At that time the two Johns would go out on site to carry out repairs and refurbish architectural joinery and cabinetry that would fall outside the remit of a general builder. "It was always interesting work and every day was different. I much preferred the cabinet work to polishing."

As John tells it: "The 60s was a time when anything became possible. The likes of Jagger and the Beatles made it possible for working class people to enter worlds that were previously off limits. Before then the antique trade was a closed shop ran by upper class people. You wouldn't get

a look-in if you were working class. In fact a lot of trades were like that. But then suddenly if you could demonstrate you could do it and had a bit of drive, banks would lend you money and you could start a business."



Well worn but not worn out



Adding the finishing touches to an Art Deco cocktail cabinet

Lucky break

Temperamentally unsuited to the position of employment John left Davenport's to set up shop in Brighton. "It was huge step and I had to work evenings as a silver service waiter in a restaurant in Brighton to help pay the bills". Customers were a mixture of antique dealers bringing things in for repair and items that John had bought and restored for resale. A frequent customer in the shop and antique dealer from Paris came into the restaurant one evening. He recognised John and greeted him politely not wanting to embarrass either of them. The next morning he pulled up outside the shop in his little corrugated Citroen van and asked if John would like some work. "I couldn't believe it,

the van was packed to the roof. My bill to him when he came to collect was £200. My rent at the time was only £6 a month including rates. That was it, I was off and running with my own business".

Over lunch I asked John if he remembers hitting on a particularly rich seam of clients or even a golden era when things were noticeably easier than today. "Yes, before Tony Curtis published his antique buyer's guide with estimated values. I was at a party where a lot of us told him it was a bad idea to effectively mark everyone's card. It was bad for the antique trade but not for him obviously as the book was a tremendous success". It opened the door to a new breed

of antique dealers; Knocker Boys. A succession of TV programmes like *Going for a Song* with Arthur Negus and then *The Antiques Roadshow*, plus the numerous revisions of *The Lyle Book Of Antiques* have changed the trade for good. So as we pack away the lights and prepare to shut the doors on John's workshop I reflect on the conversation we've had today. It's not the interview I was expecting to get, full of tips and tricks and nerdy talk of tools but more the story of one man's business and how it began. "People think that the key to a successful business is a lot of hard work. There's plenty of that but you also need luck and I've had a lot". **F&C**



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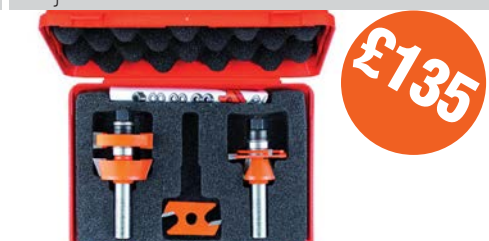


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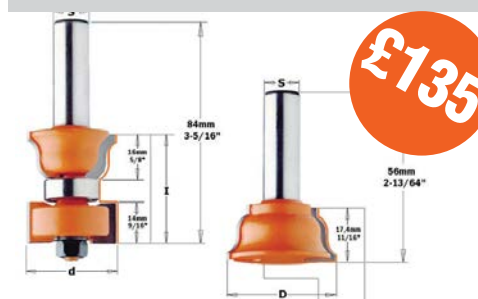


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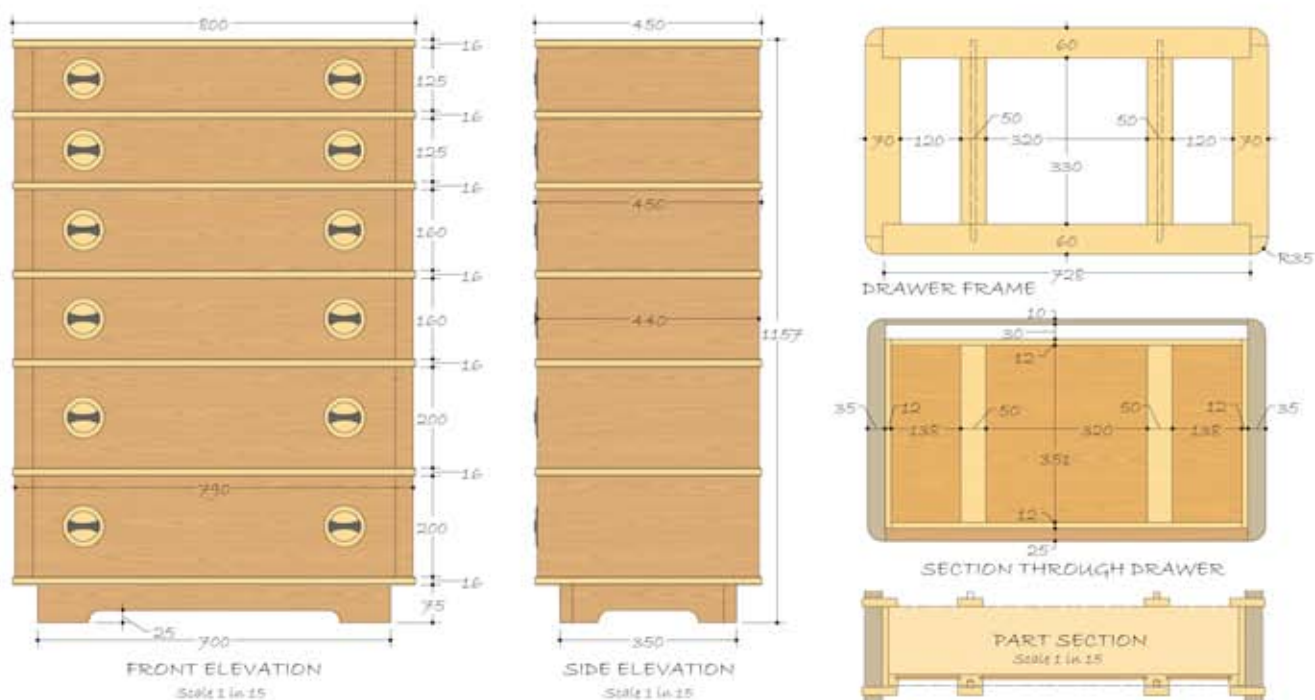
Simon Smith explains the veneering technique used on this architecturally inspired chest

There comes a time for all fine furniture designer-makers when it is necessary to create some new speculative work to show, and then is the time to review one's sources of inspiration. I have been a long time admirer of the architect Frank Lloyd Wright since visiting some of his creations in Oak Park, Illinois. However, one of his most outstanding designs was that of the Johnson Wax Corporation headquarters in Racine, Washington. I particularly admire the design for its streamlined look, its

layered construction and its smooth curved contours. It was certainly not my intention to create a literal representation of the original architectural design but to somehow use the essence of the aesthetics of the design to produce a piece of elegant and modern furniture with that same smooth streamlined appearance. The layered design of the building lends itself to the creation of a chest with drawers layered one upon another with generously rounded corners giving that smooth tactile look.

With this inspiration in mind I proceeded to design the chest as a stack of drawer frames and side panels, with the drawer frames being exposed around all four sides. The materials I selected were steamed pear (*Pyrus communis*) and maple (*Acer saccharum*) partly because they reflected the original Cherokee red bricks and cream mortar of the original building and partly because they are both close-grained timbers that produce a smooth polished finish to complement the smooth rounded design.

Veneering the side panels



Carcass sides, shaped MDF core veneered both sides, domino jointed top and bottom each section to maple drawer frames

Solid maple drawer frames with 35mm radius corner sections with grain angled at 45 degrees, frame joined using splines throughout, drawer runners screwed to muntins

Drawers formed by 12mm maple box butt jointed using dowels and splines, planted pearwood 25mm front; maple muntins grooved for runners, 3 part bottom in cedar tongued into muntins and slips

Three part drawer pulls let into solid pear drawer front, solid maple bezel into 76mm diameter blind hole veneered at bottom with maple disc, shaped handle from cherry

Drawer muntins through tenoned into drawer box front

Solid maple plinth, veneered bottom infill panel, splined at joints

The chest is constructed from a set of vertically stacked solid maple frames with steamed pear side and back panels as shown in the illustrations of the carcass and the chest dimensions.

The first dilemma is whether to make the side panels from solid material or veneered panels. Using solid material would make the shaping much easier but there are the drawbacks of movement across the grain due to fluctuations in humidity which may cause the drawers to jam, also the question of finding enough clean and interesting solid steamed pear to make the whole piece. In addition, where the solid pieces are rounded over, the end grain is exposed and would look much darker after finishing than the side grain, rather hindering the flow of the grain around the chest. The veneering approach is more challenging but the resulting construction is much more stable, plus there is considerably more choice in attractive

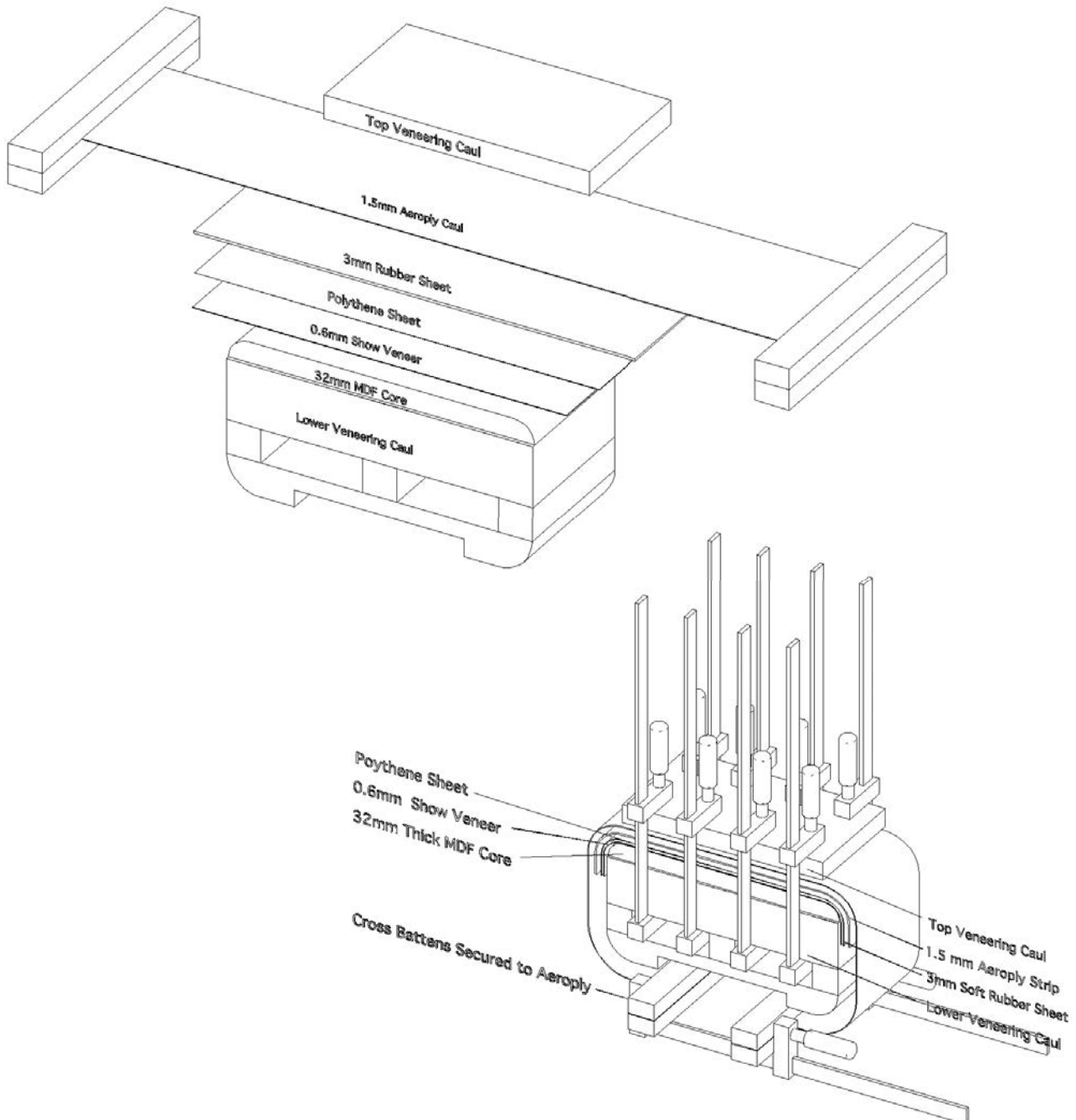
veneer grains. In addition the veneer leaves can be wrapped horizontally around ensuring grain continuity from side panel to drawer front to side panel.

To successfully veneer the curved sections of the side panels it is necessary to get even pressure perpendicular to the surface along the whole of the profile and across the entire width. The first temptation is to use the vacuum press but the bag will grab the flat part of the profile first and as the bag is evacuated it will try to push the ends of the veneer leaves upwards, thus creating a crease across the curved profile. The best way to achieve a good result is to use an aeroply caul, which is stretched around the profile and therefore a cramping jig is required such as the one shown in the illustration below. The MDF side panel is placed on top of the jig, the show veneer is positioned over the side panel with the adhesive applied to the panel, followed

by a layer of polythene, a layer of 3mm flexible rubber to take up any unevenness in the lamination, followed by the aeroply caul. I have glued and screwed 50 x 30mm hardwood battens to the ends of the aeroply caul for cramping. The show veneer layer is at least 30mm overlength at each end. Once the layers are completed the top caul is positioned and cramped in place on the flat area, then the aeroply caul is drawn around underneath and cramped in position as shown in the illustration at the bottom of this page. Beads of adhesive should be observed oozing out evenly along the veneer joint.

Wood used

- Pear (*Pyrus communis*)
- Maple (*Acer saccharum*)
- Cedar (*Cedrus spp.*)



Undermounted wooden drawer runners



Drawer detail



Detail of undermounted drawer runner



Drawer bottom details

This project requires the construction of six drawers 720mm wide by 400mm deep. As the drawers are much wider than they are deep, my preferred design is for a pair of under mounted wooden runners as shown in the illustration on page 29. The advantage of this design is that the drawer sides can have much more of a clearance with the cabinet sides than would be the case with a traditional close-fitted drawer because the drawer is guided on the runners and not by the cabinet sides.

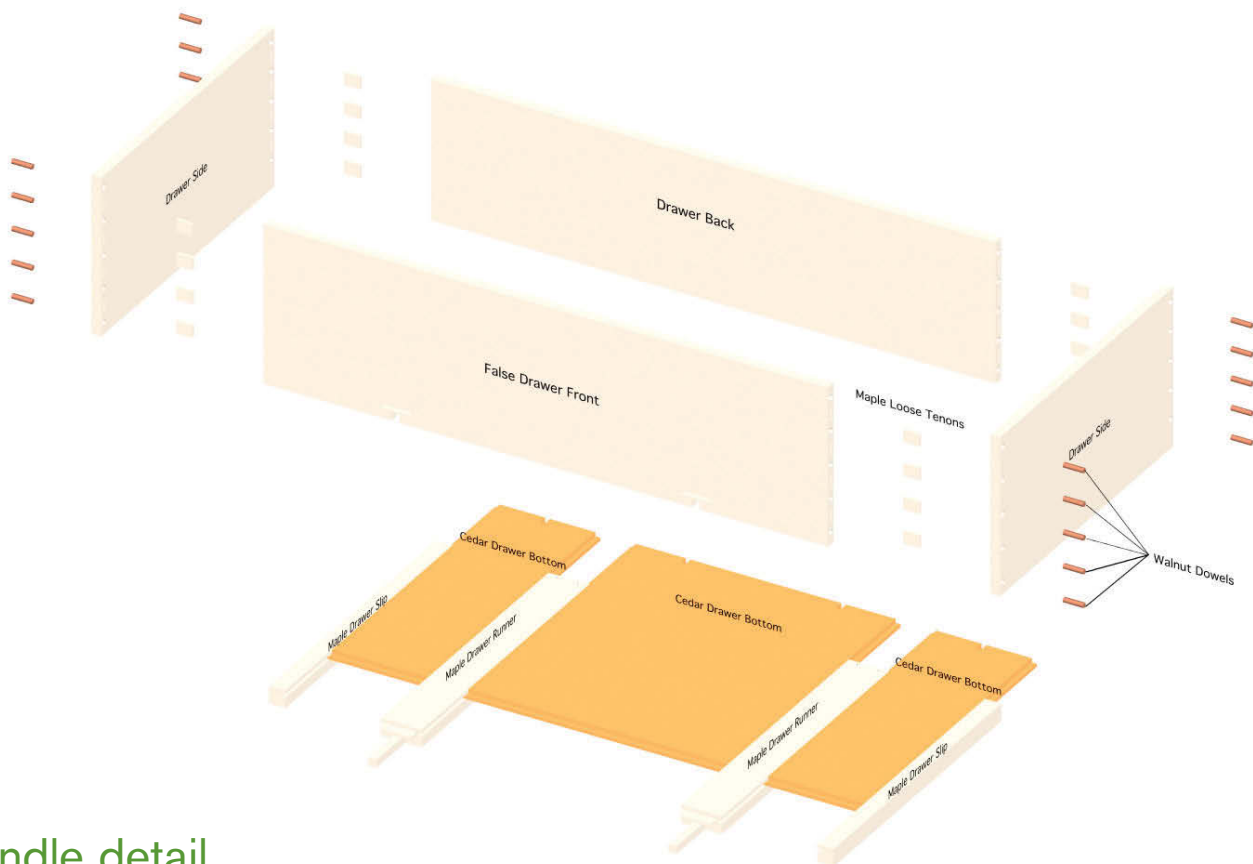
I usually set the drawer side clearance at 1–1.5mm so that if there is any swelling or cupping in the drawer side it will not bind on the cabinet side. To be on the safe side, I normally construct the drawer side from quartersawn material, in this case solid maple, to prevent cupping. The configuration of runners shown in the illustration, provided they are properly fitted, should eliminate any racking. The drawer should open smoothly when pulled by the right-hand or left-hand handle in turn.

The male and female parts of the runners

are also made from maple as this is a hard durable material with a smooth waxy surface, although the best material to use is hornbeam if you can source it. The female part of the runners also provide support for the cedar (*Cedrus* spp.) drawer bottom panels. I usually make the runners 12 x 12mm in section and these are then shot into the groove on the female part of the runner so that they are an easy sliding fit. The female parts of the runners are grooved for the bottom panels, tenoned through the false drawer front and screwed into the bottom edge of the drawer back. These components must be fixed in exactly parallel to each other and to the drawer sides. To achieve this I normally cut some 18mm thick spacers, exactly square and the same width as the gap between the female runners and the drawer slips, and the gap between the two female runners. The spacers can be wedged into the drawer box while the runners are fixed in thus keeping the runners parallel. The cedar bottoms are then machined and slid in from the back and screwed into the

underside of the drawer back. The tongues on the front of the cedar panels locate in a slot cut in the rear face of the false drawer front. The resulting look inside the drawer is shown in the photo above right on this page and the underside of the drawer is shown in the photo above.

The male parts of the runners must also be fixed exactly parallel on to the drawer frames. To get the spacing correct I temporarily fix an overwidth batten to the false front of the drawer and then push the drawer box into the carcass until the batten touches the front of the side panels, then I push in 1mm shims in between the drawer sides and the carcass sides. The drawer box is then perfectly parallel to the drawer sides and the drawer front is perfectly aligned with the front of the cabinet assuming everything has been constructed square. The male drawer runners can be pushed into the female slots from the back and held in the correct position front to back. The runners are screwed through predrilled holes in the underside of the frames.



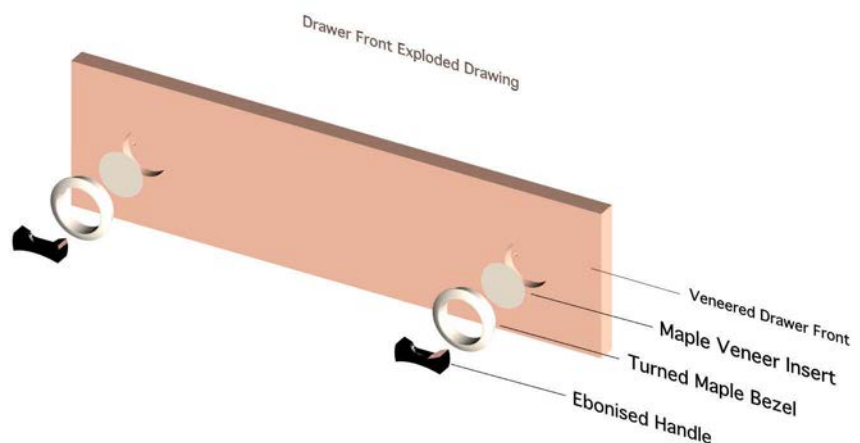
Handle detail

Although handles are small components I always find them a challenge to design, it's easy to get them wrong and too often their design can appear to be an afterthought. Generally handles are the first components that a person physically interacts with so they must be attractive, tactile, functional and the design must contribute to the resolved design. For this project I have chosen a circular recessed detail, the black handle providing a sharp contrast against the lighter colour woods.

The overall detail is made from three components as shown in the illustration below left. The solid maple bezel has been made to fit exactly onto a 76mm diameter blind hole machined directly into the drawer fronts. The bezel has a 2mm lip that fits around the perimeter of the hole. The bottom of the hole is veneered with a maple disc. The bezel is cut from a piece of 20mm thick crown grain maple. The central hole is cut first with a router and appropriate template, the 80mm diameter blanks are then cut from the board on the bandsaw. As the material is side grain it is difficult to turn because the grain will not be orientated along the axis of the lathe. I have chosen side grain because the colour will be much lighter than end grain when finished. The outer profile is cut using a concentric jig fixed to the disc sander, which produces an outer profile of 80mm diameter and exactly concentric with the central hole. The shallow rebate for the lip can then be very carefully turned on the lathe with a very sharp square scraper chisel. The piece is then reversed in the chuck to machine the front bevel. The actual handle component is made from ebonised cherry and is screwed in from the back of the drawer front.



Handle detail





Johnson Wax Headquarters designed by Frank Lloyd Wright in Racine, Wisconsin

The Johnson Wax Building

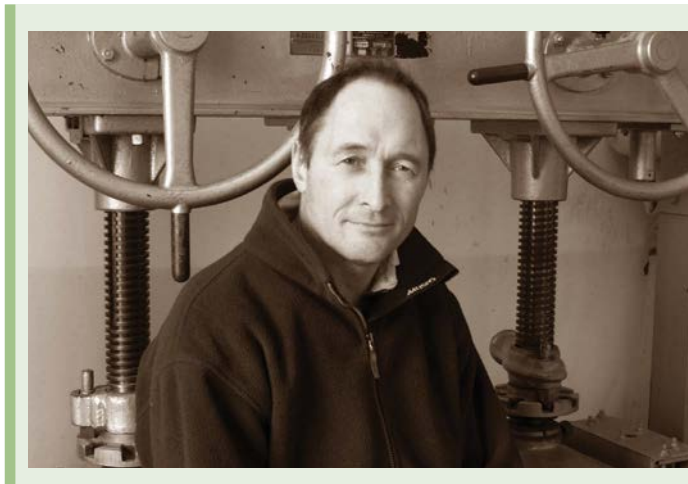
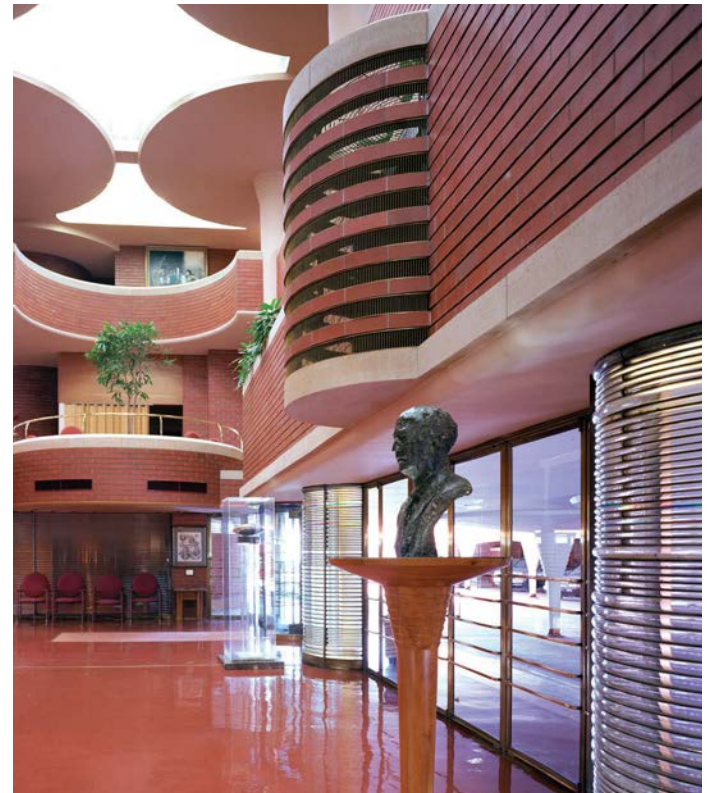
The Johnson Wax Building situated in Racine, Washington was designed by Frank Lloyd Wright for the President of the Johnson Wax Company. Construction began in 1936 and the building was completed in 1939. It is a prime example of modern streamlined architectural design as Wright was influenced by the Art Moderne style, which was popular in the 1930s. The design was revolutionary in many ways. It has more than 200 types of 'Cherokee red' curved bricks that make up the exterior of the building and tubing made from pyrex glass running from the ceiling to let in light. The light shines into the building through several layers of glass tubing, which cannot itself be seen through. The building still serves as the global headquarters of the SC Johnson company

In 1944 the 14-storey research tower was added, which made the building even more impressive and added a vertical counterpoint to the horizontal structure of the main building. It is one of only two high-rise buildings remaining by Wright. The tower is no longer used for research but is open to public tours where visitors can see the labs preserved as they would have been when they were in use.

The Johnson Wax Building and tower are on the US National Register of Historic Places and in 1976 they were designated National Historic Landmarks.



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Simon Smith

Simon Smith originally trained as a Chartered Mechanical Engineer and spent nine years working in construction and commissioning of North Sea oil platforms. At the age of 31 he took the decision to change career having been inspired by his grandfather who owned a furniture factory in East London. Simon had a short apprenticeship with designer-maker Stephen Owen, followed by a year at Buckinghamshire College studying Fine Craft and two years at Parnham College in Dorset. Since 1997 Simon has been self-employed designing and making high quality, contemporary, fine furniture from his studio in Acton, West London and now has a long list of satisfied and appreciative customers. Simon is a Member of the Society of designer Craftsmen and has been awarded three Guildmarks from the Worshipful Company of Furniture Makers. *F&C*

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Christopher Schwarz and John Hoffman of Lost Art Press, not quite pulling off the Pet Shop Boys pose

Our correspondent... The Anarchist's Lemonade Stand

Woodworking, publishing and radical making collide as Lost Art Press christens new northern Kentucky headquarters

My Lost Art weekend began 9ft off the floor at the new northern Kentucky headquarters of Lost Art Press. I'd been asked to troubleshoot a trio of newly installed ceiling fans. According to Christopher Schwarz, owner of the building, the wiring error was John Hoffman's. Hoffman, his partner in Lost Art Press, begged to differ.

Over the years, *F&C* has acquired readers from all four points on the compass and since going digital in 2013, that trend has increased. You can find us anywhere in the world with a link to the web. As the content of the magazine is a true reflection of our readership, we like to take you on a workshop tour of the globe. On 11–12 March, 2016 several hundred woodworkers gathered in Covington, Kentucky, for a weekend bacchanalia of woodworking, tools, books and beer. One over-caffeinated, overtired and mostly fully dressed punk toolmaker recorded the events for posterity. Our correspondent this month is Raney Nelson, of Daed Toolworks.

I knew I'd struck gold. With a little luck and judicious use, I could get years of mockery from the fan error. Even better: fan fiasco. I am not an easy friend to have. But then, these are not easy men to mock.

A little background music

Schwarz and Hoffman founded Lost Art Press in 2007 as a way to publish the kind of woodworking texts the major woodworking outlets were not interested in. Primarily, this meant works that focused on traditional techniques.

Another way to put it: in 2007, at the peak of the internet's impersonal and spectacular decimation of print media – just one year before the world economy would nosedive like a porpoise skydiving sans parachute – two DIY hooligans decided to launch a company. A company that printed books. Books focusing mainly on obscure and archaic subjects considered complete losers by the powers-that-be.

In hindsight, it screams 'crash and burn' on an epic scale; a cautionary tale ending with broken men, a doomsday cult and shut-ins screaming at neighbourhood kids. Yet, not only did Lost Art Press survive – it thrived.

Four years later, they published Schwarz's third book: *The Anarchist's Tool Chest*.

Because the title seemed controversial – to say nothing of its radical anti-consumerist message – his then-employer, F&W media, had declined to publish it. In the book's afterword, Schwarz writes that lately he had been hearing 'long-dead artisans' whispering in his ear: "Quit your corporate job. Get yourself fired."

He shipped the manuscript off to printing, and within a week quit his job as editor of *Popular Woodworking* magazine. *The Anarchist's Tool Chest* is now in its ninth printing, and remains the best-selling title in the company's catalogue.

The other half of Lost Art Press, John Hoffman, avoids the limelight and attention. It's easy to wonder if the company's readership even remembers Hoffman exists – or if perhaps they suspect Schwarz carries him out of some obligation; maybe he's Schwarz's simpleton cousin or college roommate. His habit of referring to himself as 'the Lost Art Trash Man' does little to dispel this.

The truth is that Hoffman is incredibly easy to underestimate – a fact I've come to suspect is intentional.

Hoffman, who retired from his 'real job' in 2013, is largely responsible for the infrastructure that makes Lost Art Press look simple. While Schwarz builds and



Bar, with LAP catalogue titles



Schwarz discusses something (probably beer or nails) with a guest while other visitors examine the storefront for unlocked screws



Schwarz's staked desk, my favourite design from *The Anarchist's Design Book*. Atop the desk, examples of Schwarz's wireframe mockups for determining rake and splay

writes and teaches and edits, Hoffman quietly designs, organises and manages an international distribution network, online store, order fulfillment pipeline and customer service system – mostly single-handedly. He is the rare case of a man for whom your respect increases as you get to know him. He is nobody's simpleton.

Which is why I'm thinking gleefully about those ceiling fans. I make no apology for it.

Lie-Nielsen Handtool – Braxton Brewery

The timing and stage for this weekend gathering was set by Lie-Nielsen's annual Cincinnati/Covington hand tool event. This year, for the first time, it took place at Covington's Braxton Brewery, a fantastic local watering hole.

Lie-Nielsen hosts hand tool events all over North America, and they are an exceptional service to the woodworking community. Attendance is free, there is nary a whisper of sales pressure, and there is no better venue to meet, chat with and learn from extremely talented and passionate woodworkers – both the company's travelling staff, and the guest demonstrators they invite to share the space. The cost to those demonstrators (many of whom are technically 'competitors')? Nada.

With the exception of their annual Maine open house, this was easily the largest Lie-Nielsen event I can ever recall attending. Guest demonstrators included at least a dozen companies and organisations – including no fewer than six individual planemakers – and the crowds were non-stop and enthusiastic.

The array of beer, which I'm told was outstanding, surely helped. As did the brewery's excellent coffee (which garnered my loyalty), but by 5pm Saturday, as we broke down our benches and hurried back to Lost Art Headquarters, exhaustion had begun to set in.

Meanwhile, back at the store

Fortunately, the sleep deprived exhaustion gave way to a much more pleasant stupor by the time visitors began arriving at the Lost Art Press storefront around 6:30pm.

The Lost Art Press building occupies a corner lot in Covington's Main Strasse Village district, off the main thoroughfares. A beautiful, but somewhat neglected, second empire Victorian from the late 1800s, it was most recently the home of a bar frequented by local lesbians – and reportedly a rowdy group at that. "Not just a lesbian bar," Schwarz told dozens of visitors, "it was

a fighting lesbian bar." He looked almost child-like saying this – if your child were a lanky 6ft5in, middle-aged Harry Potter impersonator.

Several months of work restoring the ground floor to an approximation of its 19th-century state had been careful and considered, but by no means slavish. Concessions to modern convenience – alarm system, internet and my cherished ceiling fans – were all welcome additions. Still, the aesthetic and materials clearly accentuated the building's history without feeling stifled or museum-like.

Around the room, examples of Schwarz's furniture from *The Anarchist's Design Book* were showcased, as were the tools of his trade: a pair of enormous single-slab workbenches, and a pair of tool chests. On the building's low-profile bar, believed to be original, copies of Lost Art Press titles were arranged.

Refreshments were beer, coffee and some of the best pizza I've ever had outside the New York tri-state area. While local fire-codes limited the attendance to just 100 people, at least that many had visited earlier in the day, when Schwarz's wife Lucy May and daughter Katy opened the doors for stragglers from Braxton, half a mile away. Katy, aged 14, also used the event to launch her own line

of handmade soft wax (it's excellent stuff) under the moniker 'The Anarchist's Daughter'. By the evening's end, she would sell all but 11 of her initial 100 tins.

At one point, Schwarz and Briony Morrow-Cribbs, the artist behind the magnificent copperplate engravings in *The Anarchist's Design Book*, sat down to sign books. Reportedly, they signed at least one torso

as well – but I managed to remove most of the ink before my wife asked any questions.

By 10pm, the event had winnowed a bit and become significantly louder. Hoffman, who I have never seen appearing anything but relaxed, sat on a stoop with an overlarge beer, laughing loudly. Schwarz was visibly entertaining, and appeared pleased, if tired.

At 11:30pm, I said my goodbyes and walked to my car, ready to make the 90 minute drive back to Indianapolis. I looked back once through the front windows and thought it could easily have been a scene from any decade of the last 20. People laughing, talking, and indulging in a large open room with a certain timeless quality to it, and some truly great ceiling fans.



Christopher Schwarz



Cover art for *The Anarchist's Design Book*, which arrived in Kentucky the day before the event



Schwarz's Anarchist's Tool Chest



Briony Morrow-Cribbs, who created the marvelous copperplate etchings for *The Anarchist's Design Book*, and Christopher Schwarz sign books for attendees



The Lost Art Press building, including newly repainted ground floor and no more neon



The crowd finally began to winnow down after 10pm. Fortunately the police were not called. At least not that night

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A new way of cutting a sliding dovetail

Liam Thomas discovers a new technique for cutting sliding dovetails

A dining table commission came into the workshop recently that required an oak (*Quercus robur*) base capable of holding a 100kg concrete top. The weight of the top coupled with the client's design meant some sturdy joinery was required for the legs and rails. I decided the best solution was to opt for a sliding dovetail joint. With this in mind I set about trying to find an easier way to cut this somewhat complex joint on the ends of long table components.

Process of elimination

A solution was needed to enable the quick and accurate production of the sliding dovetail joinery. To add further complexity to the task, the rails requiring sliding dovetails would be angled by 2° to match an inside tapered leg profile.

I evaluated several options, including using the more conventional method of a dovetail cutter in a router, hand-held and running against a guide along the end of the rail. I also considered using the same cutter but mounted in a router table with an angled jig to hold the long rail upright at 2°. Finally, I considered using my combination saw and spindle moulder with sliding table. This option would allow the rail to sit flat on the sliding table, then using a 4mm grooving cutter in the spindle moulder tilted to 7° and the fence angled at 2°, the dovetail would be cut in two passes, being flipped over between each pass and the angle of the fence changed.

Each traditional method of cutting this joint had its merits but each one was also a compromise of sorts. With the rails being so long I felt that the two router options were unsuitable as the workpiece could not be handled or worked on in a way that was safe and accurate requiring either extensive work holding jigs to balance either the router or workpiece.

Similarly the spindle moulder option would require a number of cutting operations per dovetail as well as additional setup time, with adjustment of the fence angle as well as further hand tool fettling to fit the final joint, cleaning up the intersection of the dovetail and shoulder, which would be left square by the cutter. After each method was dismissed I kept coming back to the dovetail router bit itself – maybe I was looking at it all wrong.



PHOTOGRAPH BY LIAM THOMAS



One option was to cut the sliding dovetail vertically on the router table



Another was to cut the dovetail using the sliding table spindle moulder

Testing the tilt

A couple of years ago I purchased a Makita CT0700CX2 trim router that came with a number of additional accessories including a plunge router base as well as tilt base. With my long workpiece flat on the bench and the router upright I wondered if the tilting base accessory could be used in conjunction with a standard dovetail router bit to cut the sliding dovetail. Time to test my idea.

A simple guide was made out of MDF and clamped to a test piece for the tilt base of the trim router to run against. Like fitting a tenon

to a mortise, the pin part of the sliding dovetail was machined first as often it can be easier fitting the tail part to pin. This does mean some careful adjustment of the depth of cut is needed, something which can be done with a little trial and error with this router.

A quick test was in order. Knowing that the shoulder of my dovetail needed to be 90°, with the router base tilted over and the dovetail bit in the collet, a square was sat firmly on the base up against the edge of the cutter. When the blade of the square sat flush

against the cutter edge I tightened up the thumbscrews that lock off the tilting base.

With the tilt base angle set closely to that of the dovetail bit and a simple guide fence clamped in place a test joint was produced, the resulting sliding dovetail was more than acceptable for a first try. The joint was a good fit and the actual cutting time was comparatively quick. With the right jig and set-up procedures it looked like this method would be good enough to use for the dining table commission.



Makita trim router with tilting base accessory



Depth adjustment on the router is simple with some patience



The quick and easy way to set up the tilting base angle is to use a square



Successful test of the new method

Time for the real thing

Although the test run was a success, further refinement was needed to ensure consistency and accuracy. One area needing improvement was the fence. Rather than clamping one shoulder to the edge of the workpiece and then the whole assembly clamped to the bench, a new jig was made that was an exact fit of the width of the rail now only requiring a couple of clamps to hold in position.

The distance of the angled guide fence from the end of the workpiece needed to produce the correct dovetail length was determined once the pin parts of the joint were cut and some further test pieces completed. From here an MDF spacer was prepared that could be used to accurately align the fence to both faces of the workpiece.

A marking knife was used to mark the shoulders of the joint to help avoid any damage to the fibres caused by the router at the end of the pass. This is also a useful guide to check that the angle and depth of cut are correct before any cutting begins.



New angled fence jig for the router to run against

The dovetail was cut in one pass. With not a great amount of material being removed, a sharp cutter and steady feed rate, the Makita trim router performed without fault.

The diameter of dovetail bit was slightly less than the required length of the dovetail. This was of little concern, however, as the leftover material at the edge of the dovetail



MDF spacer, with 2° angled sides...

was easily planed flush with a block plane.

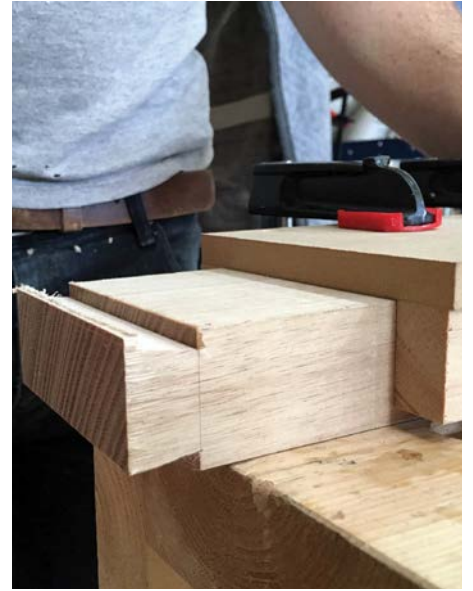
The assembly of the finished dovetailed rail required just the right amount of pressure to bring the joint together, one of those small pleasures for woodworkers worldwide. The final result was a nice clean sliding dovetail, produced easily and quickly on a long table rail component. Success!



... used to set the fence spacing on the workpiece



Marking out the joint can help with depth and fence alignment



Dovetail cut in one pass leaving a small ridge on the end...



... which was easily cleaned up with a block plane



End result, clean sliding dovetails



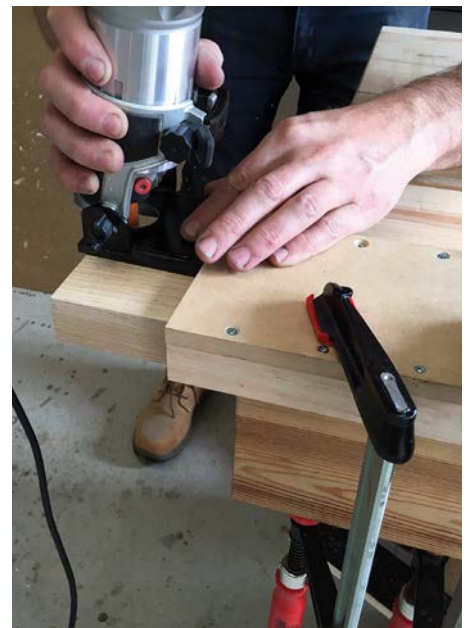
The fence is flipped over and spacer used to align the second cut



Rail fitted to table leg



Tilting base angled to that over the dovetail cutter



Routing the sliding dovetail

Digital angles – the future is here

When it came to doing the final setup for the sliding dovetail I double-checked the angle of the tilting base using my smartphone. The internal inclinometer in the iPhone is surprisingly accurate and can measure angles on two different planes. The app I used is called Clinometer and can be found in the App Store. Not only was it useful for double-checking the angle of the tilt router base but I have also used the same app to check compound angles on drill press jigs with great results. One tip for use on larger angled surfaces, especially for users of the iPhone 6 and 6s, is the camera lens protrudes 1mm from the back of the phone so a 3mm MDF spacer below the lens will ensure the inclinometer gives an accurate reading.



Clinometer app showing the router tilt base angle

Quick fix for a loose dovetail

A loose fitting dovetail in the testing stage can be remedied by using a little bit of masking tape. Apply a layer of tape to the angled face of the sliding dovetail, reduce the cutting depth by sitting the cutter on top of the masking tape. Using more layers of masking tape will move the cutter up further, increasing the width of the sliding dovetail tail for a tighter fit.



Using layers of masking tape can help with fine adjustment of cutter depth



Liam Thomas

Liam Thomas completed his City & Guilds in Cabinetmaking while living in the UK in 2006 and went on to work for a number of different workshops with experience spanning traditional fine hand tool work to CNC manufacturing.

Upon his return to Australia in 2008 he began studying the RMIT Diploma of Furniture Design. Since finishing the course he has worked for a local furniture maker specialising in solid timber furniture for architectural clients.

More recently he has set up his own workshop specialising in furniture making and restoration. Liam's work is influenced by simplicity in design, driven by a construction and joinery based view. His restoration business Medium Rare specialises in Mid-century design, restoring and repairing both local and Scandinavian pieces and the contact with such furniture has inevitably influenced his own way of designing and making. *F&C*

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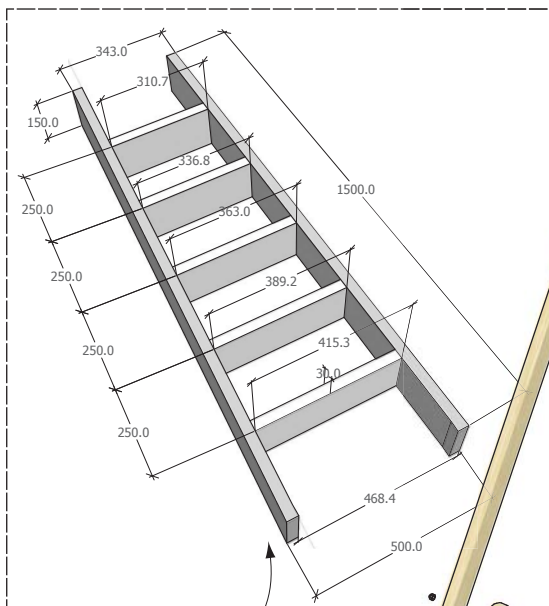
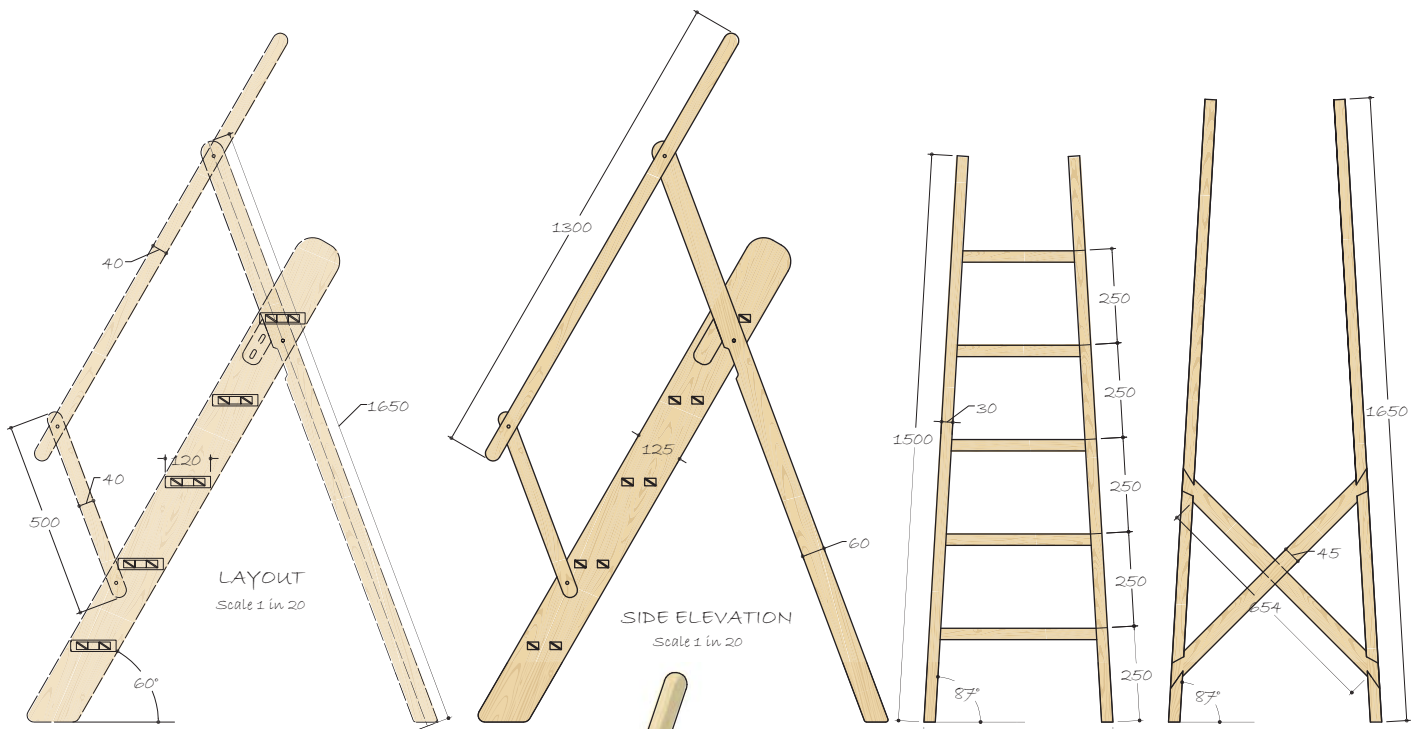
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Westminster-style folding library steps

Matt Morse takes on a challenging project for a client's library

Over the summer last year I was asked if I could make a set of steps for a client's home library. Picturing some kind of step stool I said that: "Of course I could make some library steps; how hard could it be?". Chris Schwarz remarked: "Careful, could be the Barnsley Steps!" While certainly not the Barnsley Steps (the unusual folding steps designed by James Ryan at the Edward Barnsley Workshop), this project was beyond a simple step stool and it included some compound angled through joints and mind-straining angles. Half an hour on Google and a field trip to see an example in an antique shop and I had an idea of what was required. The brief was: steps in the Westminster style, slightly stronger visually and literally, than the antique examples to allow access to floor-to-ceiling shelves up to 3m high. The Westminster style has two useful party tricks; first, there are handrails on both sides and second, they fold flat including the handrails. These tricks make them very useful in the modern setting as an elegant stepladder that can be folded away when not required. ➤



6mm bead to front inside edge

All treads with through wedged tenons

3mm bead top and bottom to front edges of treads

30mm thick handrails bolted into back support and handrail support

Back support stops domino jointed into sides of steps

Cutout in back support to allow steps to fold flat

Back support with crossed braces, lapped dovetailed into back edges of verticals, half-lapped across each other

Design

Breaking down the design is relatively simple. There is a ladder section with five treads, a back section to form the other main side to the A-frame, a small upright on each side and a handrail on each side. Complexity is introduced as the steps diminish in width towards the top and each tread is angled back at the same angle as the ladder. The angle of the sides to the floor was determined by drawing several variants to scale until it looked

visually right. The angle of the base of the legs was finalised at 60° from horizontal. All the treads follow this angle so when the ladder is open the treads are parallel to the floor.

The tread heights were 250mm on centre making the whole ladder section 1500mm long. The material size for the ladder was 30mm thick by 125mm wide. Material for the rest of the structure was also 30mm thick to visually balance the design. Determining the

length of each tread and the angle of the sides was problematic theoretically; at least for me! In the olden days I'd probably have drawn it full size on an 8x4 sheet of something and used it as a rod for the build. These days I tend to use SketchUp. The tape measure and protractor tools meant in very short time I had a cutting list and all the required angles. This method was more accurate and quicker than full-scale drawing and gives a 3D model to play with.



Mock-up of full-size steps in softwood screwed together and left as square edge for speed

Once the angles were established the next step was to determine the correct pivot points to allow the steps to support weight and fold easily. Initially several scale models were made from scrap. Then a full-size mock-up in softwood was quickly cut out and screwed together. This proved the size and proportions were correct but more importantly allowed the mechanism to be tested at full scale.

The steps could be scaled up or down but the main principle for the folding mechanism is to keep the pivot points equidistant in all the uprights and in all the diagonals.

Design details

The hardware used was stainless M10 carriage bolts with dome nuts and nylon bearing washers. The stainless hardware was selected to allow polishing to a mirror shine without concern about removing any coating or plating. The dome nuts were designed to prevent catching clothing or users on the steps and gave a good visual finish. The rim of the bolts was counterbored just enough to make the 90° section disappear and to give the illusion that the bolt heads blended into the surface. Between the moving parts, 2mm nylon bearing washers were used. These gave a tight clearance and allowed the bolts to be relatively tight but still allow easy movement.



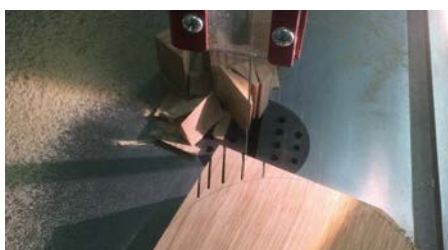
Polished hardware

Building the ladder section

In this project 90% of the joinery involved is in the ladder section. Using the mock-up components as templates it was relatively simple to mark out and prepare the final stock from 32mm rough sawn boards. The first challenge was encountered here when one of the two quartersawn boards for the ladder sides turned out after planing to be full of shakes making them unusable. The spare contingency stock was not quartersawn resulting in one quartersawn side and one crown cut side.

The base needs to be cut at 30° across the board with a 3° compound angle. This gives good bearing surface in the finished steps for stability. The top end was simply rounded over to a pleasing radius on the bandsaw and the disc sander. I normally

find something roundabout the right size and trace round it to give a line to cut to. The base had its points rounded over in a similar way this time by tracing round a 13mm socket from the socket set.



Making relief cuts at the bandsaw before cutting the curve is quicker than changing to a narrower blade for only one or two cuts



Refining the curve on the disc sander – the guard is removed from the right-hand side to allow the full arc to be faired in, but all the contact is on the left where the disc is descending into the table. The guard goes back on when the operation is completed

The centre lines of each tread were laid out in pencil and a jig was used as a fence to guide the Domino. In my experience the simpler the jig, the more likely it is to work; this was a stick with some pencil marks on it and another stick as a shim. Lining up the pencil marks with the layout put the Domino in the right place for the first run of mortises, using the shim offset the Domino to give the final width of the mortise. The two ends were mortised right through to a clamped-on backer board to prevent blowout on the face side. The centre web of each mortise was cut to 10mm depth only; enough to give full support to the tread but not detract from the strength in the side. All the through mortises were 25mm wide, 30mm long and separated by 35mm from the other mortise for that tread. There was a 5mm shoulder on all sides of the tread's tenon.

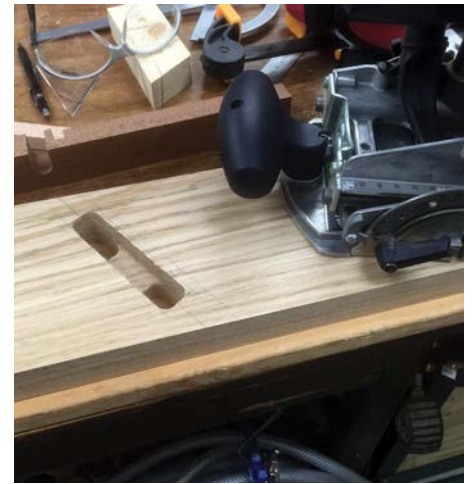
The mortises were cut at 3° to accommodate the 3° angle of the sides of the steps. The Domino was tried on a test cut set to 3° but in the test cuts it didn't achieve a 3° mortise owing to the fence on the machine protruding slightly. It was probably not designed to operate this way but from trial and error it was found that by setting to 4°, a 3° mortise was achieved. Layout lines were then transferred and the mortises were squared using a chisel and gently flared towards the outside for wedging.

From the SketchUp model and the full size mock-up the shoulder lines for the treads were marked out and a generous tenon added before cutting to length. The tenons



Inserting the shim to space the Domino off an additional 12.5mm and widen the mortise to 25mm – positively locating against stops and this shim is more repeatable, accurate and quicker than measuring

needed to be long enough to go through the mortises and leave some length to allow a chamfer. This is lost in the final clean-up of the outside but is invaluable during dry fit and final assembly to prevent blowing out the face sides of the mortises. The cheeks of the tenons were cut on the router table staying well clear of the shoulder lines. The shoulders were cut a few millimetres from the line with a handsaw taking care to preserve the 3° angle. The final few shavings were pared back to the line using a large guide block cut to 3° to help cut the upper and lower shoulders accurately at 3°. The shoulders are one of the structural elements that prevent racking and needed to be cut accurately.



The resulting mortise has rounded ends and needs to be squared up



Paring the 3° shoulder line using a guide block secured to the piece and the bench with a holdfast



Full dry fit

With the angled shoulders cut, the remaining parts of the tenons were cut with a handsaw and chisels. The individual width of each through tenon was determined by showing the tenon to the mortise and taking the sizes directly from each mating piece. No measuring for increased accuracy! Each tread had to be marked from the outside of the side and placed upside down for marking out. When turned over and put on the inside the sizes corresponded.

The treads were then individually dry fitted after fine-tuning the fit in all dimensions with router plane and shoulder plane. After a full dry fit the parts were smooth planed to remove all the layout line and the decorative details were cut.

At this point the holes for the hardware and the counterbores were cut and the square recesses for the square shank of the bolts were cut with a chisel. Inking the shank of the bolt with a marker and giving it a tap in the hole marks the cut perfectly. I aligned the square sides on the diagonal with the grain to allow easy cross grain paring for all sides of the hole.

The inside front edges of the ladder sides in the original examples I have seen are beaded. This gives a nice smooth edge with a decorative detail but also gives a shadow line. This can be an important visual cue as to where the edge is so I included this in the sides and on the treads. I cut the bead using an old wooden side bead plane. One side was cooperative and the other was not so I had to plane against the grain. It's best

to minimise the tear-out in some way when going against the grain so I used two cutting gauges to define the sides of the quirk to prevent surface tearing. I then rounded the edge with a block plane with the grain to minimise tear-out on the rounded section. Care is needed here not to round over too much or the beading plane will struggle to engage on the edge – because it's been taken off!

All other edges including the feet and the rounded tops of the ladder sides were then rounded over using a similar radius round-over bit in a hand-held electric router. The exposed edges of the treads were all beaded with a slightly smaller beading plane. The quirk from the beading planes can be a little sharp so I used the tiny Veritas shoulder plane to bevel this back on all the beads. All the rounds and surfaces were then blended together using Abranet on a sanding block and the pieces were sanded to 320 grit by hand for pre-finishing. Sanding sealer followed by multiple coats of shellac applied by rubber was used to give a prefinished surface before assembly.



Tear-out reduction strategy for beading – define the extents of the quirk with cutting gauges, round with a block plane with the grain, use lots of wax on the beading plane and blend it all at the end with some Abranet



Easing the sharp edge of the quirk on the bead with a miniature shoulder plane

Wedging the tenons for the treads

The tenons for the treads needed some mechanical lock for maximum strength in this part of the steps that would take the user's weight and be subject to racking forces from side to side. Normally wedges go across the tenon and across the grain of the mortise component. In this case the two parts were at an angle and so diagonally across the tenon was close to straight across the grain of the side piece. This has the advantage of being able to flare the tenon in two directions making it tight with all walls of the mortise. It has the disadvantage that the wedges need to be shaped to fit the corners of the mortises and the wedges themselves are at a 3° taper angle! After an hour freehanding with a block plane and achieving only one successful wedge and several shortened



Fixture in use on the shooting board

fingertips, I thought some sort of fixture might be in order. Using the chapsaw I cut two blocks for the shooting board at compound angles – 3° in the width and 87° and 93° for the length. I used these like a mitre shooting



Showing the wedge to the mortise and marking the length

board to accurately put the correct angles on one end before marking the length and putting the angles on the other. The fixtures needed to be recut with the 3° the other way for the other side of the ladder.

Glue-up

My usual first choice of glue for oak (*Quercus robur*) is Titebond III as the dried glue is a reasonable colour match. The open time is only about 15 minutes though so a bit short for sinking 20 wedges in the five treads! I opted instead for liquid hide glue, which has about double the open time. I warmed the glue in warm water for 10 minutes before use to make it flow and soak into the wood better. As these mortises are cut on the diagonal the majority of glue surface in the mortise is end grain. I applied a size coat for all the end grain surfaces before going back five minutes later with a second proper coat. The size coat fills the pores and allows the glue coat to take hold, rather than wick away down the fibres.

The tenons had all been fettled to give an easy sliding fit and the assembly came together reasonably well with only a few taps from the



Glue-up with angled clamp head packers to allow clamping without bruising the timber

rubber mallet. Before assembly I'd made up some angled clamp heads and taped them to the clamps to allow clamping of the sides without bruising the timber. With the sides clamped tight and all the mortises completely closed the wedges were glued and hammered in to the same depth in each mortise.

After the glue had set the tenons were trimmed with a flushcut saw and the sides were planed smooth. Finishing was left until after the other moving sections had been test fitted.

Trimming the tenons flush with a flushcut saw before smooth planing the outsides of the ladder section



Building the handrails, uprights and back section

The small upright sections and the diagonal handrails are simply rounded sections with holes and counterbores at the appropriate locations. The ends were rounded in a similar way to the top of the ladder section with a bandsaw and disc sander. A pleasing oval cross section was achieved using a thumbnail profile bit in the router table followed by blending of the surfaces with hand sanding.

The back support is where the remaining joinery is and first of all the pieces were roughly shaped leaving a little overlength at the base for fine-tuning. The top sections were taken to the oval profile as for the handrail sections above and the lower sections given the same roundover as the ladder section. The areas to be jointed were left square at this point. A test assembly of the whole piece determined the final length and angle of the back piece. By shimming the main ladder up by 6mm and levelling the whole structure it was possible to scribe the angle and length on the back pieces using a 6mm spacer.

A simple cross halving joint was cut on the two oak battens for the rear brace. This assembly was dry fitted and clamped to the ladder section to mark out the shoulders for the joints. The shape of the dovetail was marked out in pencil and cut with a tapered wedge on the bandsaw. The bandsaw was chosen as it's difficult to start a cut with a handsaw on a corner. The pieces were cut back on the bandsaw to reduce the thickness of the dovetail to half the thickness of the stock. This was to maximise strength in the rear uprights. The dovetails were cleaned up with chisels and router plane ready for marking out the sockets. The acute angle on the inside of the tails was cleaned out using a combination of knife, saw and the raker tooth on the end of a Japanese pull saw. The cross brace was dry assembled again and laid onto the back section of the steps for marking the dovetail sockets. The components were prefinished as far as possible prior to final assembly to give an even finish in the tight angles of the brace section.



The ladder section shimmed up by 6mm to allow the angle and length of the rear section to be scribed to exact length and angle with a 6mm block



Marking the dovetail sockets with the rear section clamped to the ladder section over 2mm spacers for clearance in the final assembly



Cutting the sockets and kerfing the waste prior to chopping out



Cleaning the base of the dovetail sockets with a router plane to final depth



Dovetail socket cleaned out ready for dry fitting



Dry fitting a pair of dovetails together changed the fit of the joint slightly and tightened everything up



Dovetailed back brace being glued up

Final assembly

After final sanding and polishing all the components one dry fit was needed to determine the locations of the stops. These prevent the steps from closing up in use and the location is critical to allow it to open and close but stop at the required angle. These were

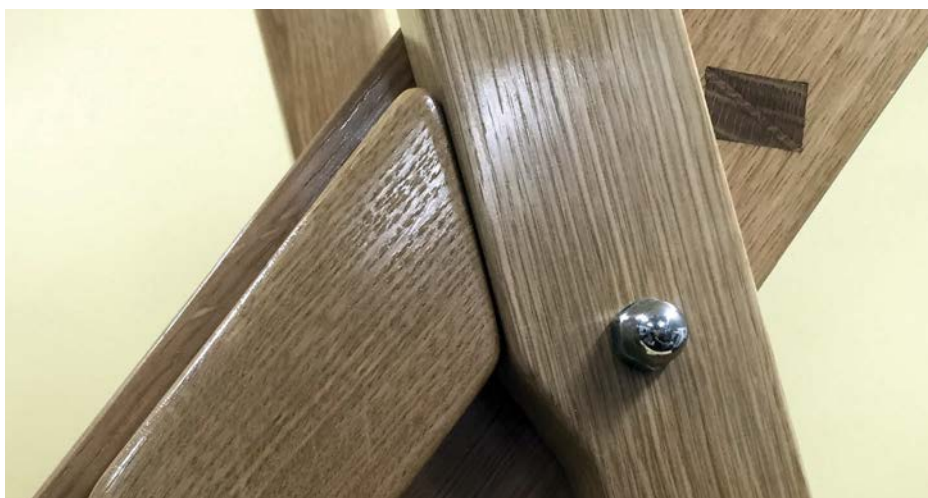
located, cut and shaped and jointed with two 14mm Dominoes each. Clearance cutouts were needed in the back brace to give maximum bearing on the stops and allow clearance for folding. These were cut with a crosscut saw and chisels and refined with abrasives.



Fitting the stops with Dominoes and hide glue



Final assembly with nylon bearing washers



Detail of the stops and clearance cutouts

Conclusion

Making these steps pushed the boundaries a little for me with the angled mortises and diagonal wedging. The models and the prototyping made it a similar project to designing a chair – the first one takes all the time! Next time I would make sure I had quartersawn stock for the main components

for a better visual match. I'd also take better care of the dovetails and sockets as the very delicate points on two of them became softened with handling.

Overall a success and delivered on the day of the deadline in time for a surprise 70th birthday present! *F&C*

Sources

Hardware: M10 carriage bolts, M10 dome nuts, M10 nylon bearing washers all from www.orbitalfasteners.co.uk

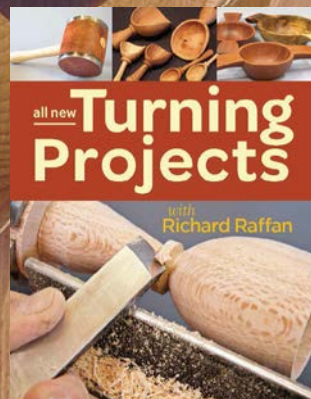
Timber: European oak from Sykes Timber, Atherton
Thread locker and Titebond liquid hide glue from www.axminster.co.uk
Shellac and finishing spirit from www.restexpress.co.uk
Abranet abrasives from www.agwoodcare.co.uk



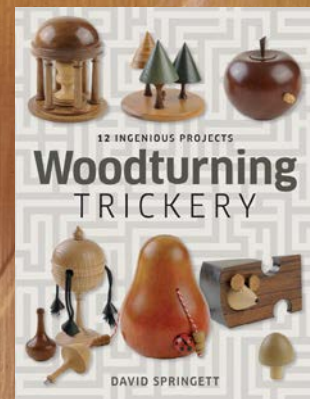
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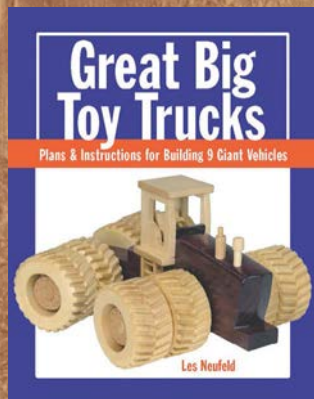
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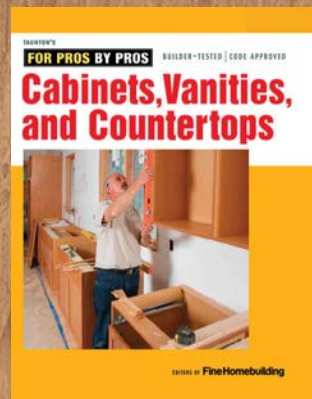
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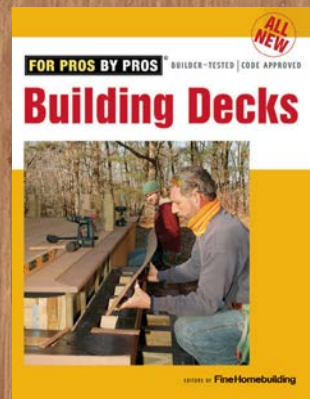
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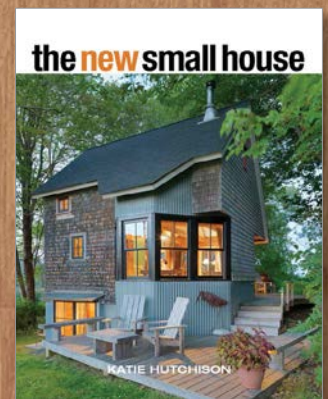
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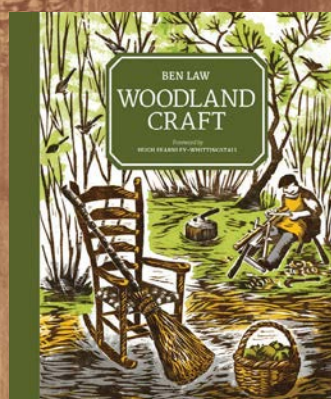
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**Dennis Zongker talks
you through the steps
for bending wood for
curved furniture**

PHOTOGRAPHS BY DENNIS ZONGKER

Bending hardwood for a table apron



Furniture makers have used wood bending techniques for centuries producing astonishing curves and twists for furniture legs, edges and aprons. Having the ability to bend wood will open your mind to unlimited possibilities creating anything you can imagine. Gluing layers of hardwood together is called lamination, which, if done properly, can make an apron, leg or edge very strong leading to your project becoming a true, long lasting, heirloom quality piece of furniture.

For cold bending hardwood you re-saw your stock into thin strips and plane it so the thickness is even across the laminates. The thickness of the strips depends on the radius of the curve. The tighter the radius, the thinner the strips. The other factor to also keep in mind is the amount of spring back you can tolerate after the glue-up. This is the term used to describe the amount of deviation from the original shape of the formers when the glued-up section has been removed. If this amount can be reliably predicted, usually by experiment, this can be factored into the shape of your former. For these two aprons there was very little spring back on the smaller radius and the larger one had none at all. This has a lot to do with how many layers were used and the larger radius. For this dining table the aprons are long and wide so they need to be very strong and accurate.

Making the jigs



Cutting the radius with a small circle



Routing out the large radius clamping jig



Building up layers of plywood to make the clamping jigs

First you need to make two master templates that will be used to make a sandwich former to join the apron layers together. These table aprons are 32mm thick and 75mm wide. The radius of the sides and ends were different so I required two complete sandwich formers. To get accurate templates, screw the plywood to your bench or sacrificial board first. Then with a 1/2in diameter straight cutting router bit rout through the plywood into your sacrificial board with the convex radius first, then the concave cut, making sure they are exactly 32mm apart from each other. This is where the layers of hardwood will be glued together to equal a full apron.

The next step is to build up the height of each former to around 10mm more than the actual size of the finished aprons. Scrap MDF or plywood is usually adequate for this. Transfer the radius by placing the master template on the top of the scrap pieces and follow the radius edge with a pencil. Cut off the waste material approximately 3mm away from the pencil line, then from the bottom up build up the thickness by adding one piece at a time. Glue and pin each layer in turn, then rout off the excess with a flush trimming router bit with a bottom bearing 1/2in diameter router bit. Repeat this step until all four formers are completed. You'll have two sets of male/female clamps.

Making the aprons

I used genuine mahogany (*Swietenia macrophylla*) for the aprons because it is a strong, lightweight hardwood with a small to medium grain, which is good for gluing veneer over the face. To re-saw this hardwood, first cut the 85mm width then re-saw the thickness to 5mm. If your tablesaw doesn't have the capacity for deep re-sawing a well set-up bandsaw is a good alternative. Before I make the next re-saw cut I use a jointer to flatten the cutting face and remove the saw marks. For each apron, cut a total of 10 pieces, for an overall total of 40 pieces. The lengths of the long side apron on this project are 1370mm and the shorter end is 660mm long.

After running both faces of each layer through the thickness planer to equal 3mm thickness, screw the concave side of the former down to the bench. Then add three small cleats to the top of the jig with one screw on one end so you can rotate them to hold down the layers of hardwood while you are clamping the cauls together. It's always a good idea to first dry fit the 10 layers of the apron to make sure everything is working. Use a clean dry rag to wipe off any dust, it's also a good idea to remove any dust particles trapped in the pores. Use yellow glue such as Titebond and a roller to apply glue to all the faces except the two faces that will be against the jigs.



Rolling yellow glue onto the layers of hardwood



Clamping the layers of the apron together with the clamping jig

To clamp the layers together in between the two formers, screw down two blocks of wood right next to the concave former to help hold the apron in place while slowly tightening two or more bar clamps across both formers. Then rotate the three small cleats on top of the concave former over the top of the layers of the apron. Keep tightening the bar clamps until the layers are pressed together and you have applied as much pressure as you can to the bar clamps. Next, remove the three small cleats and wipe away any excess glue that has eased out of the layers. Let the glue completely cure before removing from the clamping jig.



Close-up of the 3mm layers clamped between the formers. The broken pencil line shows a slight but acceptable deviation in alignment of the strips

Cleaning up

To clean up and flatten the top and bottom edges of the aprons, use a jointer to trim off approximately 0.75mm at a time until the apron's width is slightly wider than 75mm. To make sure the aprons are square and flat cut a template of 3mm or 10mm bending plywood



A cautionary note about adhesives

Not all adhesives are suitable for laminating so select one that has a long open time. On pale timbers each glue line could result in a dark pinstripe line between laminates. You may find a similar issue with some adhesives on dark timbers. Two-part epoxy resin glues can be stained to reduce this effect.

Jointing both edges of the aprons



Hand plane the aprons square and flush to the template

Joining the curved parts...

To joint the curved aprons to the straight angled sections, I start by projecting the mitre lines from a full scale drawing with a square and pencil. Use a mitre saw to cut the mitres into the ends of the curved aprons. To set up for the cut, use two large shims on the back side of the radius to where the shims match up to the mitre fence and the radius apron. Line up the saw blade to your pencil line and adjust the apron for the perfect cut, then press the apron firmly to the fence and shims before making the cut.

For joining the aprons together, I used dovetail splines. First, by using the convex former, cut off one end to where the end of the radius apron will sit at a 90° angle to the former. Screw the former to the bench then screw a straight edge block to the edge of the former to where the router bit will be centred to the end of the radius apron. This block is used for the router base edge to follow while routing in the dovetail dado. Then clamp the apron to the former and rout in the dovetail dado following the straight edge at a slow and steady pace.



Layout the mitres



Cut the mitres with a mitre saw



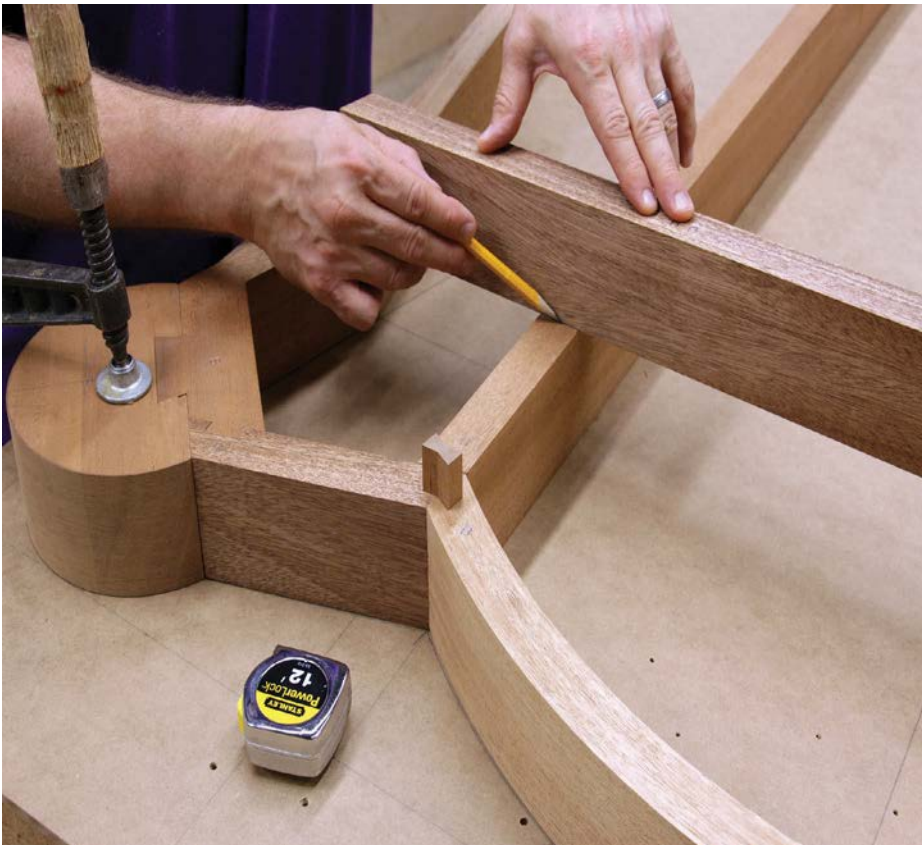
Routing in the dovetail dado into the radius aprons

Joining the straight sections...

For routing in the dado into the straight aprons make an angled jig that works the same way with a straight edge block screwed into the edge of the jig that the router follows. To make the dovetail spline, first cut on the tablesaw a piece of hardwood the thickness of the dovetail router bit (which is a 1/2in for the bit that I used for this joint) times the length total of both cuts into the ends of the aprons (which is 25mm) making the spline 1220mm long.

This is plenty of length to get all eight splines. Next, use a table router and set the height of the router bit to split the spline in half at 12mm. Then set the fence to where the wide part of the dovetail section of the spline is flush to the bit and doesn't trim off any wood. Finally, run all four sides of the spline through the router bit. After all the dovetail splines are fitted into the aprons, you need to make sure the table is square. Make four cross supports to connect the

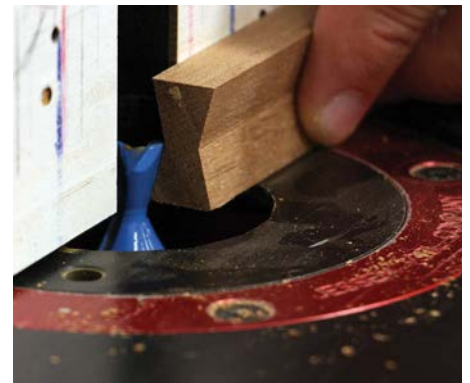
whole apron system together for strength and support the top. These can be fastened in place with Dominoes, dowels or, as I prefer, with traditional half lap joints. There are restrictions in some areas on the use of dado cutters mounted on tablesaws, but they can easily be cut using a router or by hand instead. Set the dado blade height to 38mm, which is equal to half the width. Take a few passes to equal 32mm thickness of the cross support and to all four corners.



Marking the cross support aprons for cutting lap joints



Routing the dovetail dado into the ends of the straight aprons



Making the dovetail spline

Conclusion

When learning to bend wood it can take you into a whole new direction whether it is for a table apron like this or any piece of furniture that has curves or twists. When a board is re-sawn and glued back in sequence, the end result is that it looks like the solid wood it came from. It's possible that the components you create could have been shaped from a single board and perhaps this would result in less material being wasted. However, laminating will always result in a stronger and more stable construction. *F&C*



Table aprons and supports



The finished apron

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Component-built sideboard

In an abridged extract, taken from *Great Designs from Fine Woodworking: Furniture*, furniture craftsman Seth Janofsky looks at making a component-build sideboard



As odd as it may sound at first, I think the finest furniture is the result of a lot of compromise. Not the kind of compromise that leads to cutting corners and doing less than the best possible work, but rather the compromise that's involved when you strive to balance three things: the aesthetic needs of a piece, the requirements of function, and construction that is sound and efficient. There should be a back-and-forth between aesthetics,

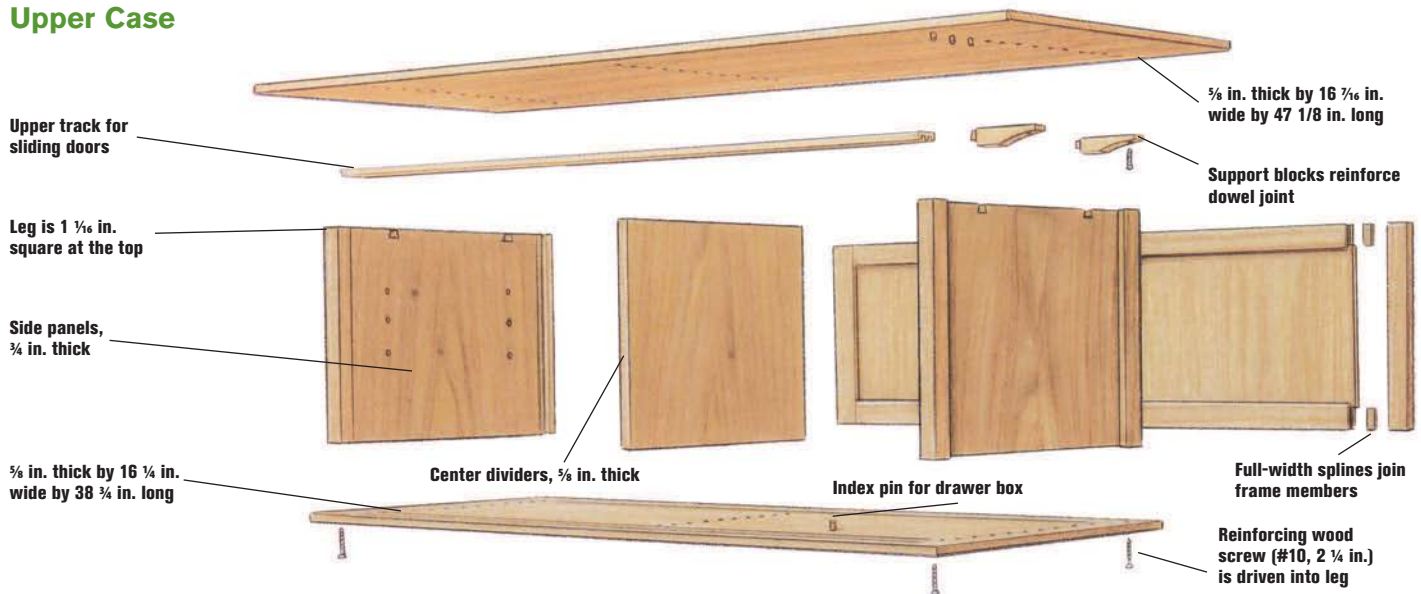
function and construction during the design process; the craftsman has to see to it that all three purposes are well served and that none of the three dominates at the expense of the others. With skill and conscientious effort, and a little luck, the end result will be a piece of furniture that sits, as it were, at the best possible balance point of these three demands. When I set out to make this sideboard, I had a number of considerations in mind. In terms of function, I wanted a useful

piece with a serving surface; compartments for dishes, probably with some adjustable shelves; and drawers for silverware. I didn't want a piece that was limited to use as a sideboard, however. I wanted one that could also function as a display cabinet for pottery or other decorative objects. Aesthetically, I had in mind something light and delicate looking, even as it was strong and durable. Nothing flamboyant but rather a quiet, refined kind of thing.

Two cases on a base

For convenience of construction, the sideboard is built in stacking components. The upper case is indexed on the lower one by a pair of pins, and it can be lifted off; the base is screwed to the lower case. All parts are solid wood. To avoid wood-movement problems, the grain is run vertically on end panels and center partitions and end-to-end on horizontal panels.

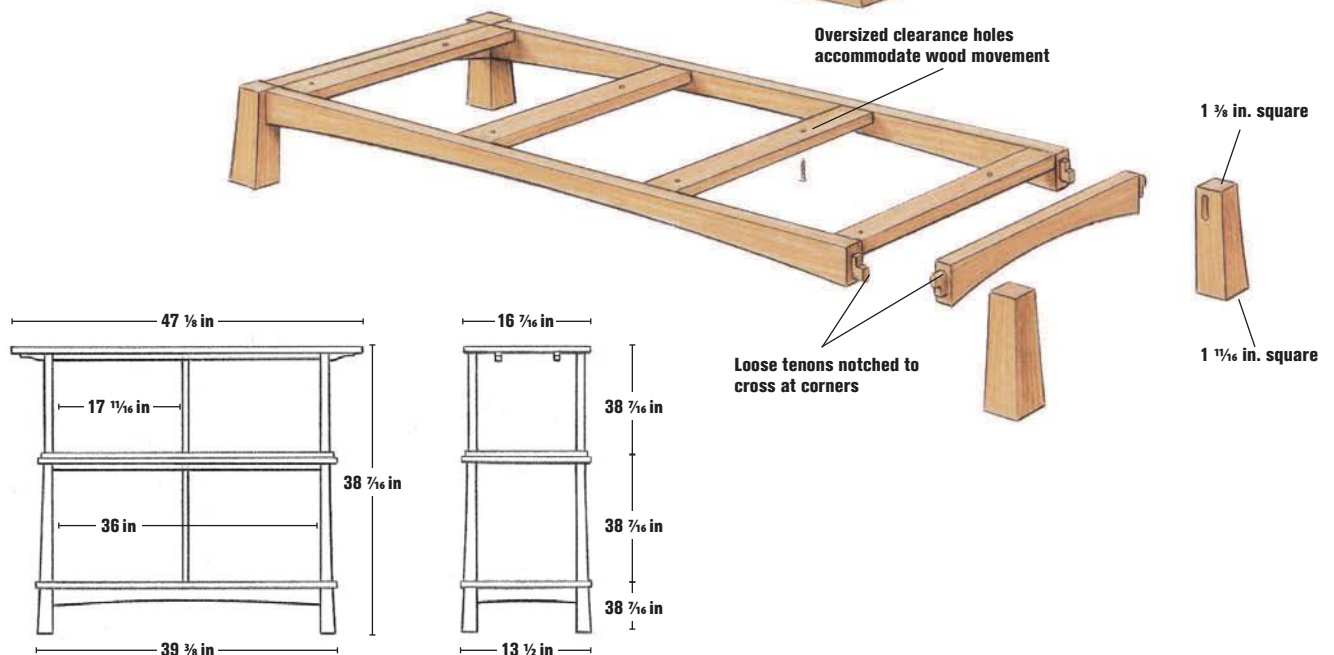
Upper Case



Lower Case



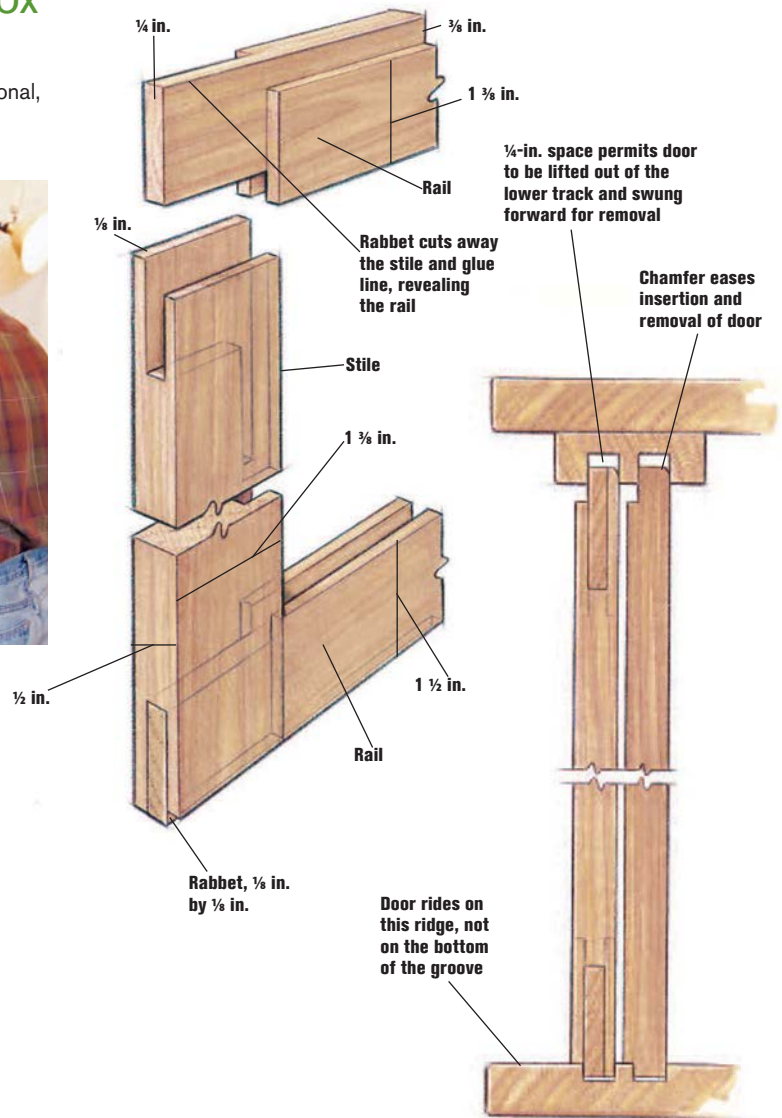
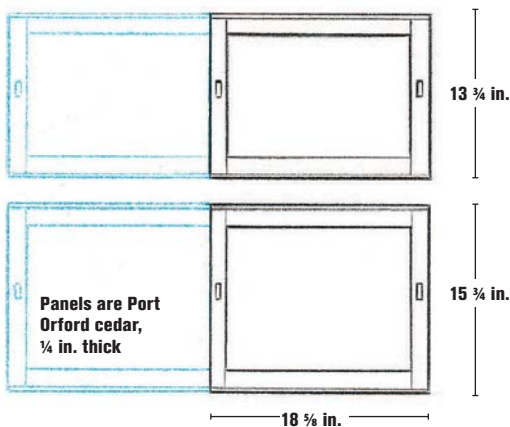
Base



Sliding doors and the drawer box

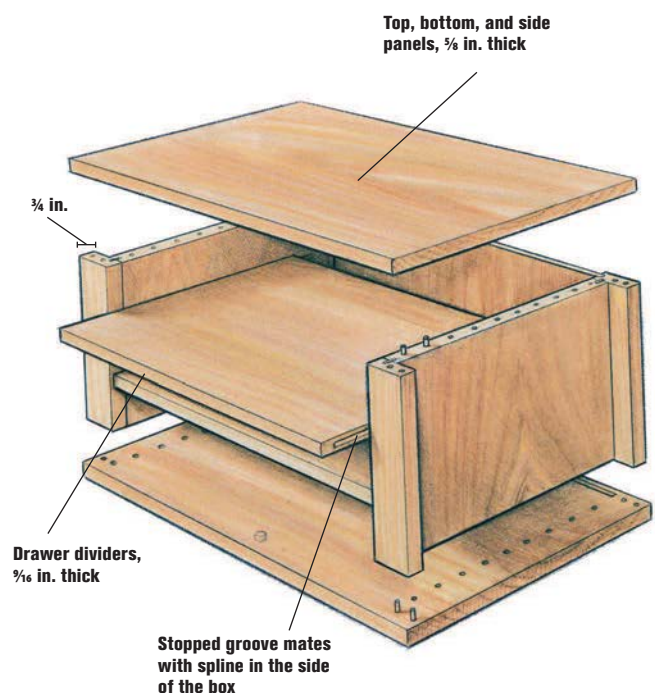
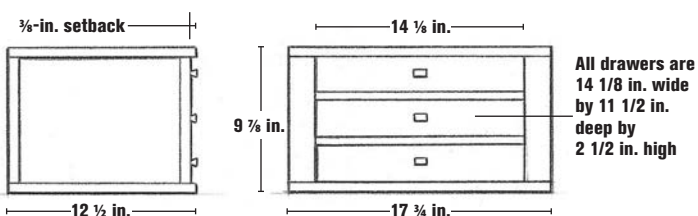
Sliding doors

Providing closure without hardware, sliding doors are simple, functional, and elegant. Bridle-joined white oak frames surround cedar panels. Handles are scooped out on a router table against a high fence.



Drawer box

The solid wood box is a separate component, which is indexed on a pin, and can be removed, if necessary. Inset sides facilitate fitting and create clearance on both sides of an opened drawer.



Drawers

Seth Janofsky doesn't argue the effectiveness of the dovetail joint, but for a change of pace he sometimes substitutes a handsome, half-blind, multiple through-tenon joint of his own devising.



Minimortises.
Using a horizontal mortiser and a 1/8-in.-dia. end mill bit, the author cuts through mortises in the drawer sides.



File it away.
A file is used to square up the round corners left by the mortiser. This takes time, so be sure to use a sharp file small enough to maneuver easily.



Book details

Great Designs from Fine Woodworking: Furniture
by The Editors of *Fine Woodworking*

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Web: www.thegmcgroup.com



Mark through the mortises.
To mark out the tenons, the author pushes the tongues into the grooves. Then he traces the mortises with a sharp pencil.



Quick saw.
A thin saw makes quick work of cutting the tenons.



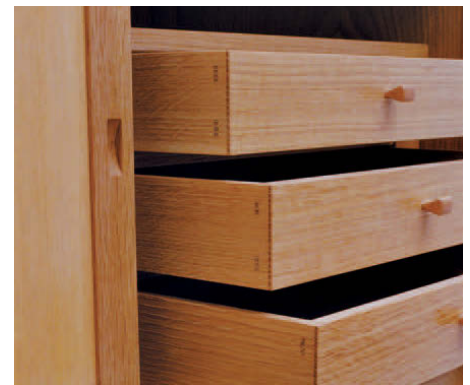
Chisel out the middle.
Between the tenons where the handsaw won't reach, the author chops out the waste with a bench chisel. The waste can also be removed with the part held upright on a tablesaw crosscut sled.



Going home.
The completed drawer, ready to be glued up and then veneered front and back.



A new face.
Thick, shopsawn veneers are glued to the front and back, tidying up and strengthening the joint.



Apt joinery.
Squared-off tenons suit the author's largely rectilinear sideboard.

As for the specific style, I explored in the general direction of other cabinets I've made, which blend traditional Japanese and Scandinavian-modern influences. In terms of construction, I wanted solid, straightforward joinery—structurally sound, efficient to make, subjugated to the quiet design I envisioned. Putting these factors together, I came up with a solid white oak sideboard that is, in its essence, simply two boxes on a base. To best use the beautiful wide boards I found,

I opted for a solid wood structure, which is a hybrid of simple plank construction and post-and-panel construction. A top surface with long overhangs on both ends showcases the single-board top and establishes the visual tone of the piece. To give the separate boxes visual unity and to create a vertical sweep to balance the strong horizontal line of the top, I designed curved legs that extend up through the piece. The legs have a powerful impact both on the aesthetics of the

sideboard and on the method of construction. They provide just one example among many of how an aesthetic decision dictates to the technical, and how the technical responds to the aesthetic and exerts its influence. Likewise with the functional requirements. Back and forth, as the design comes together.

Seth Janofsky is a furniture craftsman in Fort Bragg, California. F&C

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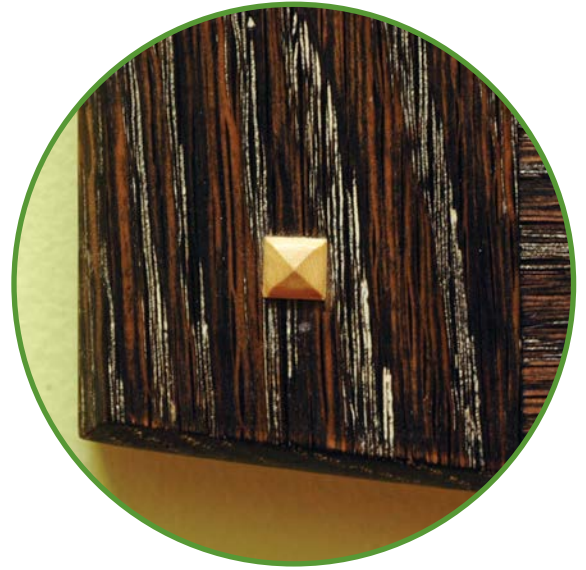
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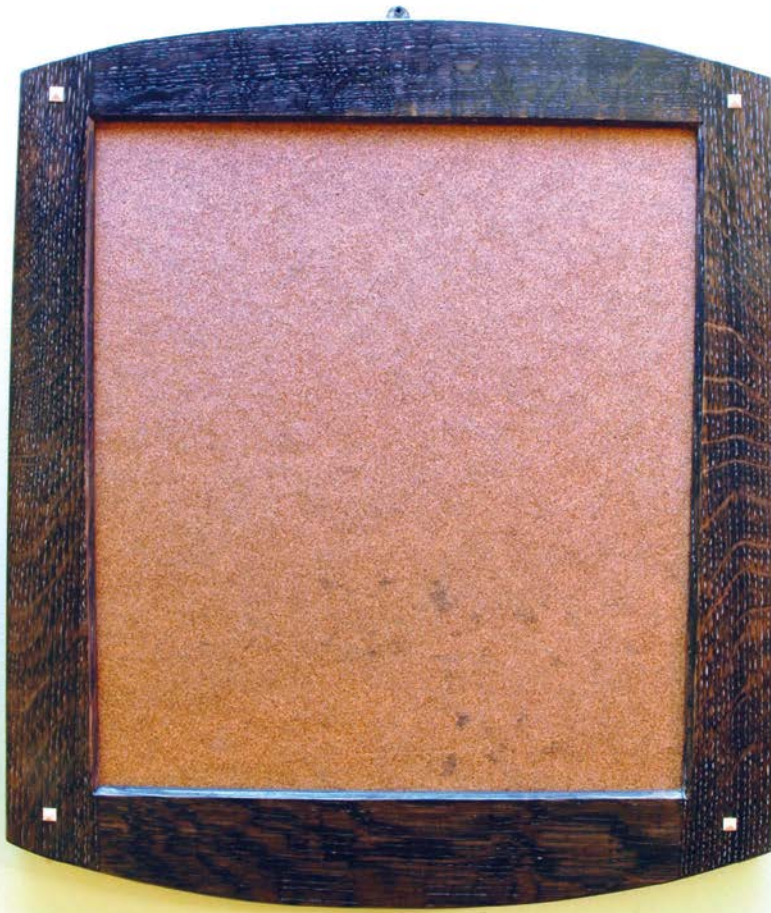
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Mirror mirror

Gary Rogowski makes a deceptively simple mirror frame with tapers, curves and half-lapped joints



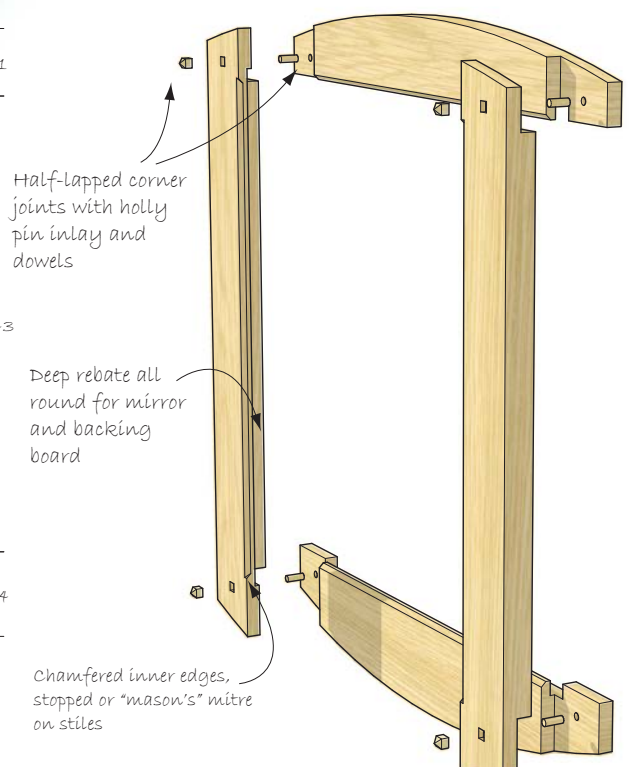
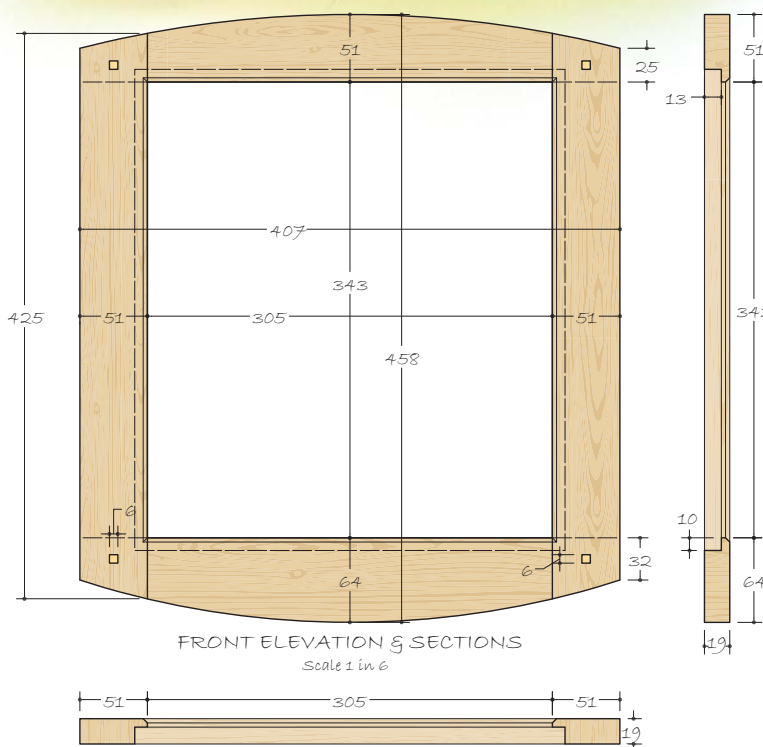
Detail of the ebonised oak frame with holly plug



Being 'fairest of them all' won't help you with the success of this mirror project. Think instead: planning, precision and pure contrast. Simple half-lapped frames like this one are easy to cut and have plenty of long grain gluing surface for strength. This makes it easy to shape into the frame and still leave plenty of joint area behind. Plan out your frame shape beforehand and just keep all your parts square or rectangular to make joinery and clamping simpler.

Wood used

White oak (*Quercus alba*), red oak (*Quercus rubra*), holly (*Ilex spp.*)



Cutting the shoulders



Rough out the cheek on the bandsaw down to the gauge line

It seems like the only tool I cannot cut a half-lap joint on in my 'shop is the spindle sander. Two cuts are required, one for the shoulder and one for the cheek. Mark all these shoulder cuts out with a marking gauge, then rough out the cheek on the bandsaw. Make a quick crosscut on the bench close to the shoulder line, about 1.5mm away from it and down to the cheek.



Clean up the cheeks and cut the shoulders of the half-lap

Next I set up the router table with a wide straight bit with its height at half the thickness of my stock. I clamp the fence so the distance to the far end of the bit will give me a cut right at my gauge line. Use a frame member and a backer when making the final shoulder cut. The backer board will help to make a wider package to move across the bit and help to prevent blow-out.

Assembling the frame



Get your clamps together first and practise the assembly process before any glue goes on

Simple frames like this make for some of the more complicated glue-ups because there are so many directions in which to pull. I set the long rails on my pipe clamps first. This raises the assembly off the bench. The short ends go on and then the pipe clamps pull them in tight, but with room for the two C-clamps that pull the cheeks in tight to one another. Practise this assembly once or twice to get the hang of the process and it will go smoothly. Those off-cuts from roughing out on the bandsaw come in handy as clamping pads too under the C-clamps. Once the clamps are in place, check the diagonals of the frame to see that it's square and use a long clamp on the longer direction to correct it to square.



Use a hand plane to clean up the frame surface

Once the frame has dried, I clean up both faces of the frame with my No.5 jack plane. If the grain is with me and not too difficult, then this job goes quickly. However, if the grain gives me any trouble, a cabinet or card scraper will remove any tear-out issues. Be careful at the joints where the grain changes directions and move into the board changing your cutting direction to minimise tear-out.

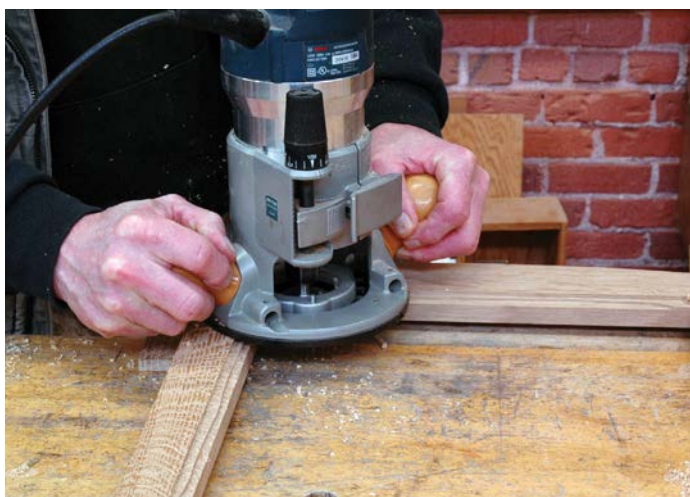


Mark out the frame tapers on the stiles with a straight edge



A thin piece of red oak works well as my template to mark out the shape of the rails

Next, mark out the frame stile tapers. Measure at the top and bottom of them for the required set-in, lay a straight edge down and mark out the taper. I cut tapers on the bandsaw freehand as it's simple and quick – no tablesaw blade spinning close by my hands and it's easier to push the wood through the bandsaw cut. Stay close to the pencil line to minimise clean up. I plane the cuts with a No.4 or No.5 hand plane being careful not to blow out any end grain at the end of the cut. A simple chamfer cut into the back edge of the rail minimises this issue. Plus I still have the rail shapes to mark and cut. I mark out the curved rail shapes using a bent piece of red oak with clamps in place to hold it while I mark out the shape. I true up the rail cuts with a spokeshave and scraper.



A rabbeting bit on the router cuts the mirror rabbet. A bearing that allows for a 10mm deep rabbet is good

The rabbet cut is next for the mirror and backer board. I clamp my frame between my vice and bench dogs raising it up to allow the bearing to move freely along. I almost always climb cut the edge of the rabbet first moving right to left on the edge. This eliminates tear-out when I finish the rabbet cut up moving left to right. Make the rabbet deep enough for the mirror thickness and a 3mm or 6mm piece of hardboard behind it to protect the mirror. This will necessitate making a series of 3mm deep cuts to get down to depth. The corners, of course, have to be cleaned up with a chisel. Use a wide chisel to mark out the cut and then chop to depth.



The corner left by the chamfering bit has to be cleaned up by hand with a mason's mitre

At this point if I'm happy with the shape, it's time to cut the chamfer on the inside edge. A 45° chamfering bit works great to get the bulk of the work done topside with the router. You will inevitably run into the problem with routers and corners – they don't fit together very well. The bearing mounted chamfering bit can't cut into the corner so this has to be finished up by hand. This mason's mitre, as it's called, takes some careful work with a chisel. Best to take your time here for a good look.



Clean up the corners of the rabbet cuts with a sharp chisel

Finishing



Raise the grain with a damp rag before the finishing work begins

Clean the corners of the frame with a block plane and a bit of sanding. Then it's time to focus on finishing. If you've sanded, you have to raise the grain before finishing. The ebonising finish is water based so raise with a damp rag. Let the fibres dry before sanding them off with a fresh sheet of 180 grit. Do this several times.



Use an old brush to push the filler down into the pores of the ebonised frame

The grain fill is an inert whitish paste mixed with mineral spirits (white spirit). Cut the paste by $\frac{1}{3}$ with more mineral spirits to make it easier to work with. Mix this well and then paint it on with an old brush. Move the brush in all directions, especially across the grain. Your goal is to get filler down into the pores. Pound it in if you have to with



Wet down the frame with the ebonising solution

My ebonising solution is made of 114ml white vinegar and rusted metal. Of course, a vinegar from the north side of an Umbrian hillside will give a better colour but leave off searching for provenance on the vinegar to others. Use white vinegar and some rusty steel wool. These steel fibres are small enough that they will break down quickly in the acetic acid solution. Put this concoction in a plastic container as the acid fumes will eventually eat away a metal lid on a glass jar. Let it sit for several days, then glove up and wash down the surface of the frame.

I have found with white oak that a new ebonising solution works best for the darkest colour. If the staining is uneven then a tannic acid wash can go over the ebonising to darken it. I use the acid powder found at shops specialising in wine making supplies. Mixed with water it helps to darken the wood. Put on a coat or two, sanding lightly between coats. Also be aware that a coarser surface ebonises better with this approach than a finely sanded one. Sealing off the surface pores reduces the stain's penetration.



Give the filler paste time to glaze over



Rub off the excess dried filler with a piece of burlap first. It is soft but easily picks up a load of debris from the surface. Then finish off wiping with a piece of brown paper

the brush but push it into that open pore structure.

Wait about 15 minutes to let the filler dry and glaze over. Then wipe off the excess filler from the surface, corners and edges with a piece of burlap first to get the most of it off. Keep wiping out the surface until it's clean.



Measure across the diagonal of each joint and find centre on that line.
Use a pencil or scratch awl to mark the point to drill



Drill with a 5mm bit for the pin hole



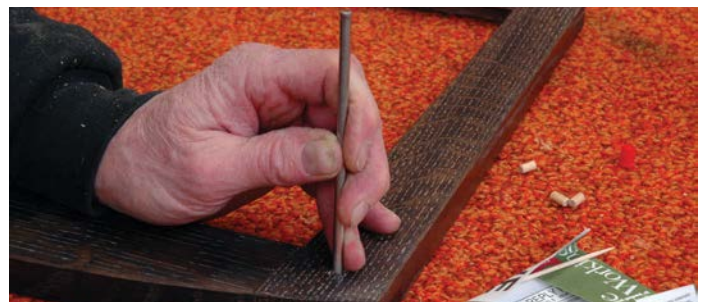
Press the dowel through the dowel plate rather than hammering, unless your therapist recommends the exercise

Next, drill out for the dowel to pin the joint. A 5mm pin works fine. I don't drill all the way through the joint but stop just short of the back face. Use a dowel plate to size the dowel so it enters more easily. Instead of hammering it through however, mount the plate on two sticks and use the vice to press them through. This saves everyone the consternation of the hammer blows. Use the hammer of course if your therapist recommends.



Chop straight down around the hole to create a 6mm square hole

Pin the joints next and then place your inlay. I mark out each of the corners on the diagonal, find centre on this line and use a scratch awl to place my mark. Drill for a 6mm hole for the inlay first about 3mm deep. Chop these holes out square.



A steel rod will act as a drift to push the pin down to depth

Drive and glue the 5mm pin in and use a drift to put it below the surface of the frame so that the inlay can enter. A steel rod works well for this.



Shoot the edges of the holly on a bench hook using a sharp bench plane

The square plug inlay stock I used is holly. I shoot the edge of the stock on my bench hook to get it to size after bandsawing it close. I chamfer the end of the inlay, cut it to length and then glue and hammer it in place. Using a sharp chisel, I then shape the plug to the desired profile. In this case, I made Gothic-style peaks to my plugs. *F&C*



Commissioning this custom hammer from Black Bear Forge helped me find solutions to the problem of 'dancing about architecture'

PHOTOGRAPHS BY KIERAN BINNIE, UNLESS OTHERWISE STATED



Our correspondent...

Dancing about architecture – part 2

Are you still dancing about architecture, or have you managed to find a new way to describe and explain what you do in the workshop?

In my last Our Correspondent article (*F&C* 242) I questioned whether we, as craftspeople, need to develop a new vocabulary to clearly communicate what we make and how we make it, to spouses, prospective customers and any other non-woodworkers, without relying on the crutch of technical and esoteric terminology.

Over the years, *F&C* has acquired readers from all four points on the compass and since going digital in 2013, that trend has increased.

You can find us anywhere in the world with a link to the web. As the content of the magazine is a true reflection of our readership, we like to take you on a workshop tour of the globe. Our reporter this month is Kieran Binnie, who has written on various topics. Here, he picks up where he left off in *F&C* 242 as he considers how makers and customers communicate.

It's... hammer time?

Almost immediately upon hitting 'send' for my last article I found myself in the unusual position of being a customer who needed to describe a specific set of requirements in a field where I didn't have any technical knowledge and didn't necessarily understand the specific terminology. This experience, while initially uncomfortable, forced me to think more carefully about the communication problems I'd just written about, and to formulate strategies to overcome them.

Because, you see, I wanted to commission a custom hammer from blacksmith John Switzer of Black Bear Forge (www.blackbearforge.com). John's work is nothing short of incredible, and this would be my third order from him, albeit the first custom tool I've asked him to make me. And because I know very little about blacksmithing, I had to find a way to set out very clearly what it was I wanted from this hammer – I knew that John would be able to make me exactly what I asked for, but the challenge was giving him a precise and clear brief so that what he made was really what I wanted. This commission would live or die by how well I (the customer) was able to communicate what I wanted. It also got me thinking about hammers far more than is strictly healthy.



PHOTOGRAPHS BY CHRISTOPHER CLARKE, ANTIQUES

Campaign furniture is one of my favourite forms, how would you describe this piece using the information funnel technique?



Octagonal head, with domed face and a balance of decorative file work with 'raw' metal still showing the signs of forging. Just what I asked for

Funnelling the 'ill communication'

When it came to describing my ideal hammer to John I took the approach of using an information funnel, describing each aspect of the tool starting with the most generic description and then drilling down into more of the detail, in order to build a comprehensive picture of the hammer. The generic description was for a 16oz hammer for driving 4d and 6d cut nails in casework. More particularly, I specified a Lancashire pattern cross-pein head, with a domed face to avoid 'Frenching' the work, and for the head to be of square or octagonal cross section. I also wanted some decorative file work on the head, but balanced against plenty of unfinished metal so that I could see traces of where John had forged and worked the head. The handle was to be octagonal, as I prefer the handles of striking tools to tell me by touch which way the head is facing.

This gave a clear description of every aspect of the hammer for which I had specific ideas or requirements and I also provided an engraving from a pattern book showing the Lancashire pattern head I was looking for.

So the information funnel works for hammers, but would I use it to discuss my lutherie with potential customers and laypeople? Absolutely, and providing care is taken to avoid technical language, this is actually a very practical way of describing an object, or process, to a layperson. It sounds obvious really, but I think that we all have a tendency to reach straight for the technical terms – because who doesn't like to wax



This parlour guitar is braced to have a 'clear, balanced and warm' sound. But how would you use the metaphor pool to describe the same sound?

lyrical about houndstooth dovetails, or the resultant angles of chair legs? So, my three-point plan for communicating about what I do in the workshop now looks something like this:

- Use the information funnel
- Avoid technical language
- Use pictures to discuss and illustrate the more subjective, and ephemeral, aspects of furniture or guitars.

For conversations about lutherie, where possible I also use recordings that feature similar guitar tones to the one being discussed, either common touchstones that I share with the other party to the conversation, or where we don't have similar music tastes encouraging them to recommend records that demonstrate the sort of sound they are describing.

Take a dive into the metaphor pool

Although very practical, the information funnel is not the only way to avoid technical language when describing furniture. I recently discussed this problem with Raney Nelson of Daed Toolworks, who prefers to use a more impressionistic method of communication, which he describes as "finding the metaphor pool that you both share, and then drawing on it". So how does the metaphor pool work as a means of communicating about furniture?

Raney suggested that the metaphor pool can work on several levels. With someone

"whose background I don't know, I can tell them that the desk (for instance) is rough and ready, but with a sense of understatement, not in-your-face. The drawer details incorporate some touches of really high refinement, but without distracting from the strong utilitarianism and confidence of the piece in its function". So far, so straightforward; but what I find really interesting about the metaphor pool is the deeper level, where there is a common language pertaining to a field other than furniture. When Raney works 'with someone

I know well, who has a deep modern music lexicon, I can tell them it's like Jon Spencer doing early Elvis Costello covers, but with a Jim Morrison affect. Much more Joey Ramone than Iggy, but also showing real refinement at the edges. Sort of a Norah Jones in the details, but without losing that Bonnie Raitt authenticity'.

While the metaphor pool does nothing to describe the actual appearance of furniture, it can be a very effective method for describing the feel of a piece and its more ephemeral qualities, which Raney believes then predisposes the other person to understanding what he has made. So my hammer from

Black Bear Forge would be precise where necessary, but still raw – like Jeff

Buckley dueting with Janice Joplin, an honest working tool but with some real flair, like Bruce Springsteen covering Prince.

No need for a 'communication breakdown'

Although the development of a universal, non-technical vocabulary seems far-fetched, I believe it is an ideal towards which we should strive. Without such a vocabulary, it is incumbent upon us to take the initiative when describing our crafts to non-woodworkers. There are many techniques for achieving clearer communication, from the precise information funnel to the impressionistic metaphor pool, and the benefits are an increased understanding with non-woodworkers, ultimately making woodcrafts more accessible.

And the hammer itself? Well, John captured everything I had asked for, and delivered a hammer that far exceeded my expectations. The balance is perfect and the hammer drives 4d and 6d cut nails almost effortlessly. The handle is comfortable and the octagonal faces give a clear indication of the direction in which the head is pointed. The contrast between the mirror polish on the face, the decorative file work and the 'raw' unfinished elements of the head make for a wonderfully tactile tool, which proudly displays the processes that made the head. My only dilemma is how long I wait until I order an 8oz version for driving smaller nails. *F&C*



Would you use the information funnel or metaphor pool techniques to describe this campaign bookcase?

From boxwood to Bakelite

Jo Morgan uses her polishing skills to replicate the missing parts of an Art Deco cocktail cabinet

The handles of this Art Deco cocktail cabinet were made of Bakelite. Some of the long profiles were broken and parts were missing. It was possible to cut and glue some of the broken parts together to form new handles, but it still left a number that were missing completely. One option was to make a mould and create the handles using modern resin, but this would most likely still have had to be coloured and aged in some way to match the old ones. A second option was to form the handles out of a fine grained wood such as boxwood (*Buxus sempervirens*) and then colour them. I decided to try this and see how things developed. The challenge was to produce something that would give the effect of Bakelite by using the materials readily available to a furniture restorer.

One of the most notable qualities of Bakelite is the blending of colours that can happen within the resin. This means that any paint applied needs to have a wash effect using something that allows the colours to blend and disperse. A background colour is needed and then the addition of the colours seen in the handle with something that is neutral to give the wash effect.



PHOTOGRAPHS BY JOHN HARTNETT



A handle before being taken apart



A handle reformed using pieces that have been cut and then glued together

Bakelite

Bakelite, also known as polyoxybenzylmethylenglycolanhydride, was an early form of synthetic plastic developed by Leo Baekeland in New York in 1907. Baekeland was attempting to find an alternative to shellac and experimented with strengthening wood by impregnating it with a synthetic resin. By controlling the pressure and temperature applied to phenol and formaldehyde, Baekeland produced

a hard mouldable material, which he named 'Bakelite'. The material's electrical non-conductivity and heat-resistant properties made it suitable for use in electrical insulators and radio and telephone casings, as well as kitchenware, jewellery and toys. Bakelite items are highly collectible and there is even a Bakelite museum in Somerset.

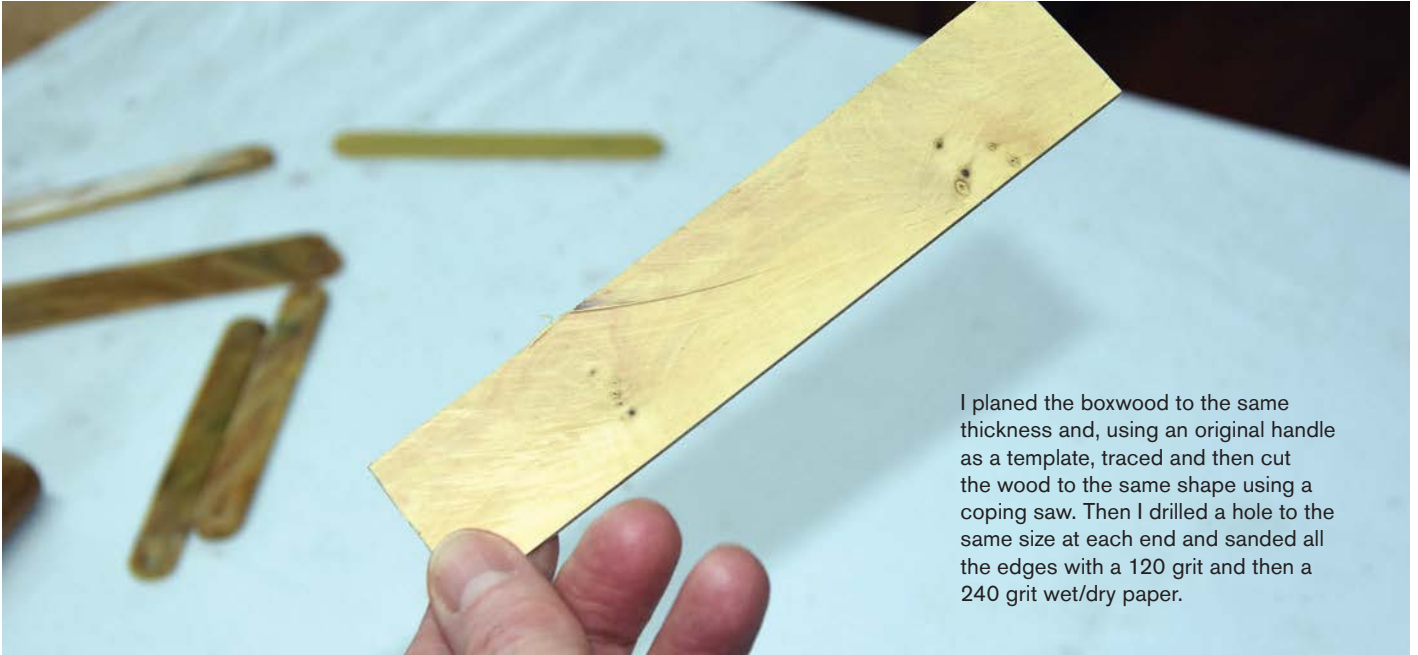
www.bakelitemuseum.net



Bakelite pendulum clock

PHOTOGRAPH BY OUTSCENEN/SUTTERSTOCK

The wood



I planed the boxwood to the same thickness and, using an original handle as a template, traced and then cut the wood to the same shape using a coping saw. Then I drilled a hole to the same size at each end and sanded all the edges with a 120 grit and then a 240 grit wet/dry paper.

The background colour



Buff Titanium and Yellow Ochre Paints before they are mixed



Mixing the acrylic paints to match the lighter background colour in the original handle



Applying the acrylic paint with long brush strokes

I used acrylic paint as it forms a good strong base and does not react adversely with the sanding sealer and powdered colours to be used later in the process. The handles varied slightly in colour and pattern, but there was a common, light background to them all. I matched this background by using Yellow Ochre and Buff Titanium.

With a fairly wide, flat profiled brush I painted the handle with long, even strokes until the top and sides were covered. When the paint was dry I did the same with the back. Once that was completely dry I lightly sanded the handle with a fine 600 wet/dry grit paper to give a smooth finish.

Mixing the colours

I mixed all the colours I could identify in the Bakelite in separate containers using sanding sealer as the mixer for the powder colours, which were brown umber with a little red oxide, flake white with a little yellow ochre and black. When practising this process on spare wood pieces I came to realise that time was of the essence as sanding sealer dries quite quickly on the brushes, on the handle and even in the jar lids I was using as mixing plates. I found that drying times could be increased if larger quantities were mixed, but then there was some wastage. I also found that each colour and the sanding sealer needed its own brush in order to avoid colour cross-contamination.



Use a separate container and brush for each colour



Mixing the flake white with a little yellow ochre and sanding sealer

Applying the colour



Applying the spots and streaks of each colour to match the original handle



Using light brush strokes in a diagonal direction to blend the colours using sanding sealer



Drier spots of colour may need a little time to loosen

Using an original handle as a template I put small spots or streaks of colour in the same places as the original. I then used the sanding sealer to wash the colours into the streaks and blurs seen on the original. Where the dot or streak of colour had dried a little too much, a little patience and wiggling of the brush over the spot loosened it. As the sanding sealer dried, some spots that had seemed very

small, grew more in size than I had expected, but as every Bakelite handle is individual this didn't matter too much. I also found that I could carefully add more colour while the sealer was still wet, so if a lighter area needed more brown or a black area had become too dark I could change this fairly readily. It did tend to cause a slightly lumpy effect in the sealer, but allowed me to increase colour where needed.

Drying and painting the sides

Depending on the air temperature, the sealer dries over a number of hours. Once dry, I was able to add corresponding colour to the sides, for example, where the edge of the handle showed brown I continued the brown over to the side.

Laquer

When the handles were completely dry I gave them a light sand with a 600 grit wet/dry paper to reduce the lumpiness in the sealer. Then I did two coats with an acrylic lacquer allowing it to dry with a fine sand between coats. *F&C*



Apply coats of lacquer allowing each one to dry



The finished product next to an original handle

Jo Morgan

Jo Morgan is a part-time furniture restorer and works for John Hartnett of John Hartnett and Sons in Henfield, East Sussex. She specialises in colouring and matching.



WORKSHOP



schepach

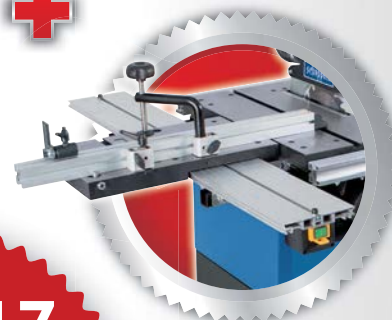


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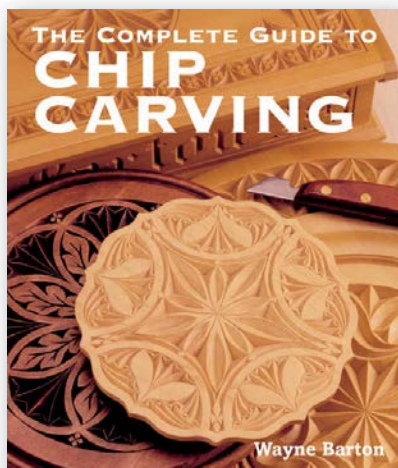
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Workshop library

We review three books, *The Complete Guide to Chip Carving*, *Hammer Head: The Making of a Carpenter* and *The Anarchist's Design Book*, plus new DVD *Handcut Dovetails*

BOOKS



The Complete Guide to Chip Carving

by Wayne Barton

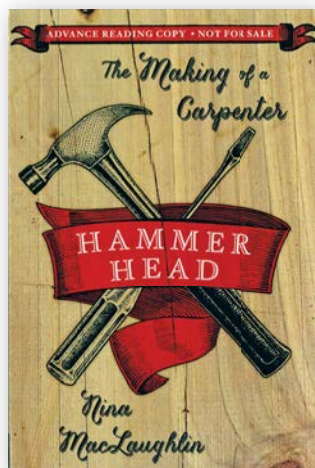
If you are looking for a comprehensive guide to chip carving then this might be the book for you. Wayne Barton, who travelled to Switzerland to complete formal study before taking up teaching in the USA, is obviously a big talent in the world of chip carving and this heavily illustrated book is packed full of detailed and intricate examples of his carving.

This book claims to be able to teach a beginner chip carving, but you may find yourself overawed by the complexity of some of the designs on offer. Worry not, Barton holds your hand through the basics. With easy to follow instructions and clear photographs he sets out the best tools for the job, sharpening techniques and the best grips for different knife cuts. The book also provides a wide selection of carving patterns covering subjects such as border designs, grid designs, rosettes, freeform designs and lettering. All good to learn and provide inspiration for a wide range of chip carving projects. The book also includes detailed drawings and instructions for designs, mainly covering rosettes but also for lettering, borders and freeform designs.

I think this book is not just for the aspiring beginner but also for the more accomplished carver looking for a good resource. For the most part the imagery is good, with a minor hiccup of a few fuzzy images, but this shouldn't put you off if you are interested in this subject.

Tricia Pearson

Published by Sterling
ISBN: 9781402741289
144 pages £12.99



Hammer Head: The Making of a Carpenter

by Nina McLaughlin

Hammer Head is the personal account of Nina McLaughlin's journey from desk-job journalist to on-site carpenter. The author was a newspaper editor until, after a period of restless dissatisfaction, she found her calling by answering a job advert on Craigslist. Nina documents this transition with honesty and humour and her writing is eminently readable, although readers of a delicate disposition should be warned, it is earthy in places.

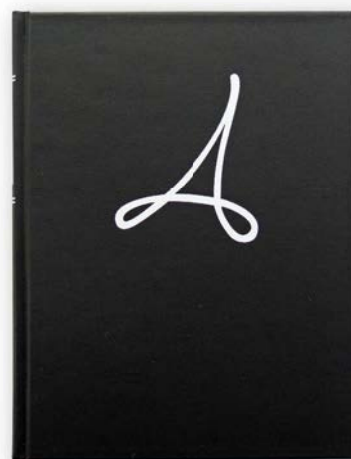
This is a book about the search for meaning and fulfilment in the everyday and in this respect the woodworking is incidental. The author provokes the reader to consider and reflect and she poses the question, 'what shape do we want our lives to take?'. Nina has a degree in Classics and the book is interspersed with thought-provoking quotes from Ovid and others throughout. The effectiveness of this literary technique varies and at times the contrast between kitchen-fitting and philosophical quotations can feel awkward, but interesting nonetheless.

Readers of *F&C* will identify with Nina's battles for patience while being thwarted by inanimate objects, as well as the pleasure and satisfaction of crafting something well.

In a modern world that is increasingly digital and transient the purpose in building something tangible and lasting is perhaps more precious and appealing than ever and to this end Nina has tapped into a rich vein that could, just maybe, inspire others to take up hammer and chisel.

Susan Chillcott

Published by W. W. Norton and Company
ISBN: 9780393239133
240 pages £9.99



The Anarchist's Design Book

by Christopher Schwarz

With *The Anarchist's Design Book* Christopher Schwarz extends the ideas he first wrote about in *The Anarchist's Tool Chest*. For Schwarz the concept of 'anarchy' can be summarised as owning one's own tools and having the skills to use them to make furniture, and so stepping off the constant buy/upgrade/replace cycle of store-bought furniture. If *The Anarchist's Tool Chest* helped aspiring furniture makers build a compact kit of 'essential' tools, *The Anarchist's Design Book* shows how an even smaller tool kit can be used to build most of the furniture commonly needed for a house. Schwarz makes this achievable by abandoning complex construction methods and focusing on two key techniques – staked joinery for chairs and tables, and boarded furniture (using nails and rebates) for casework.

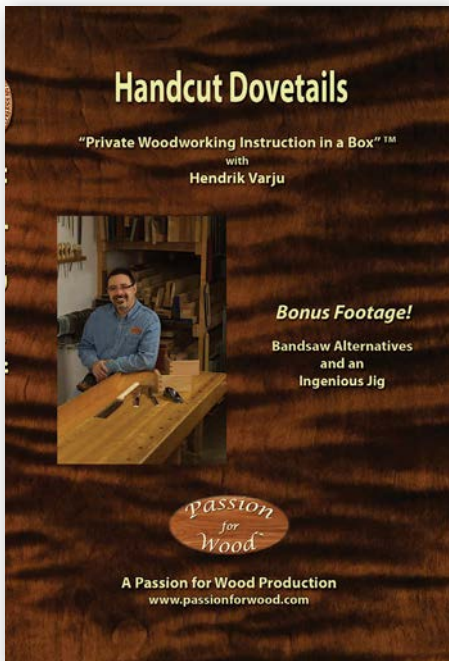
The 11 projects include a bed, desk, tables, chairs, bookcases and chests, and Schwarz covers each step of construction in his usual clear and precise style. *The Anarchist's Design Book* also gives the reader the skills to produce new designs using the staked and boarded techniques discussed.

The hardback, casebound book itself has all the high-quality production values we have come to expect of a Lost Art Press publication. The photos are gorgeous, drawings of the furniture are reproduced from original copperplates by artist Briony Morrow-Cribbs, and the black painting of page edges is an understated but very classy touch.

Kieran Binnie

Published by Lost Art Press
ISBN: 9780990623076
475 pages £37.45

DVDS



Handcut Dovetails by Hendrik Varju

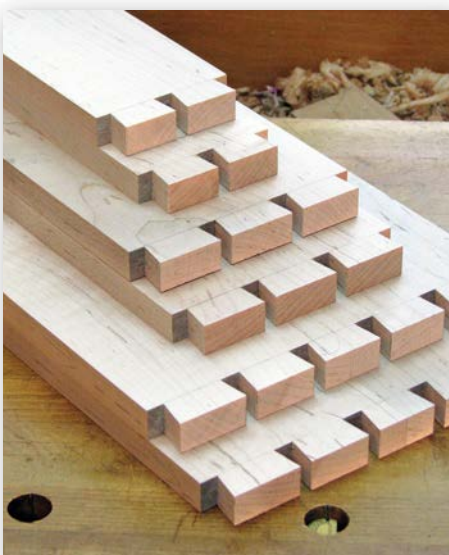
This new seven-hour long DVD course, on four discs, is another great Passion for Wood production. It covers the tools you're going to need as well as how to mark out and cut the joinery completely by hand using a Japanese dozuki saw and chisels. Also covered is final paring and hand planing of the finished joinery. Both through and half-blind dovetails are explained in great detail.

The bonus footage shows some bandsaw shortcuts, which are handy when cutting joinery in super thick project parts. The author, Hendrik Varju, also shows you his own invention – a jig that gives you a precise shoulder line when chiselling by hand. Highly recommended.

Derek Jones

Published by Passion for Wood
passionforwood.com/woodworking/dvds.htm
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Website of the month Craft Courses



From animal husbandry to willow work, the Craft Courses website has it all! The site was founded in 2011 by Kate Dewmartin and lists thousands of craft and artisan courses taking place around the UK. The courses are listed by category but are also searchable by keyword and postcode. Of particular interest to readers of *F&C* are the courses on Furniture Painting, Upholstery, Box Making, Woodcarving, Furniture Restoration and Traditional Wood Crafts. Students are encouraged to write their own reviews of the courses, which are available to read alongside the course descriptions. The students' ratings contribute towards the Students' Choice Awards, which offer another helpful way to choose between courses.

If you're a craft teacher, it's free to register your course with the site.

After browsing the course listings, it's worth taking a look at the thought-provoking 'Philosophy of Craft' article in the 'About Us' section where you'll learn about Aristotle's appreciation for craftsmanship. The 'News' section of the site also contains plenty of interesting reading material and will help keep you up to date with what's going on in the craft world. The main site includes links to Craft Courses' social media, the Pinterest page is especially good as it includes more great photos from various courses.

The site is very easy to navigate and provides an incredibly useful resource. A great place to turn for inspiration the next time you want to learn a new skill!



Website: www.craftcourses.com

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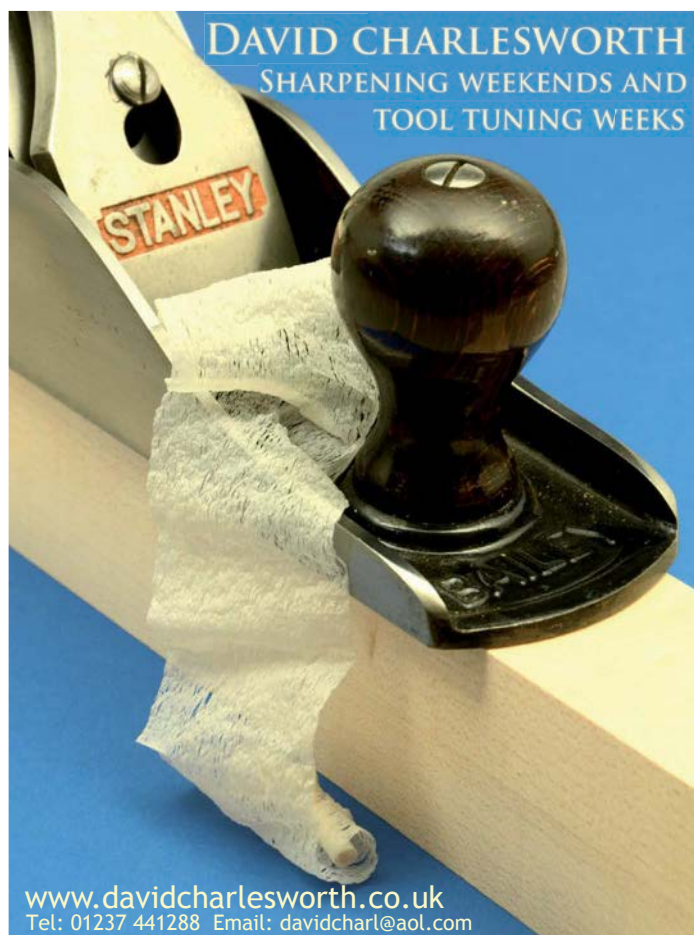
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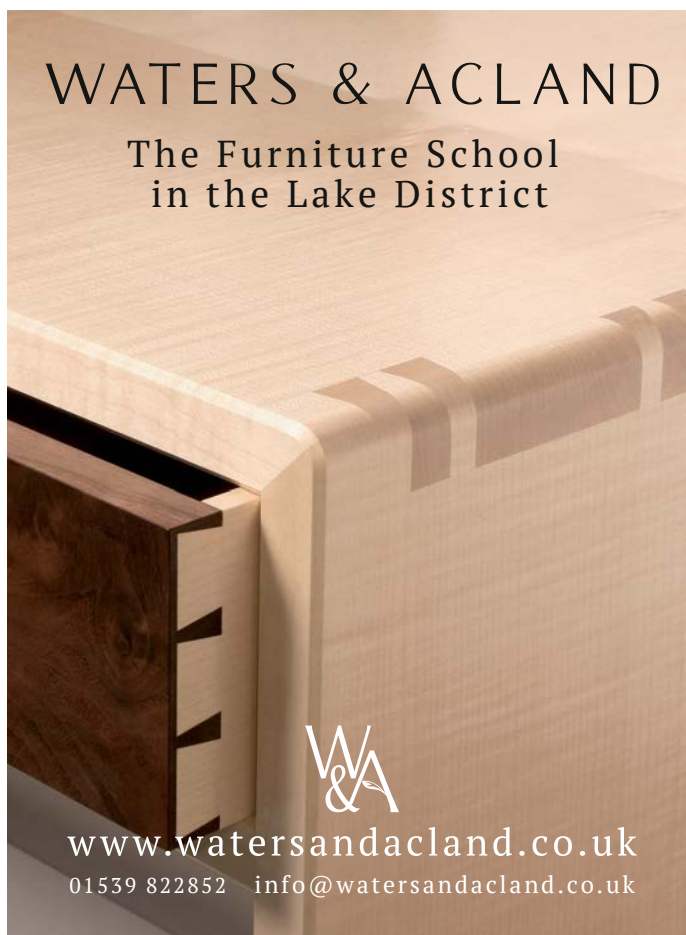
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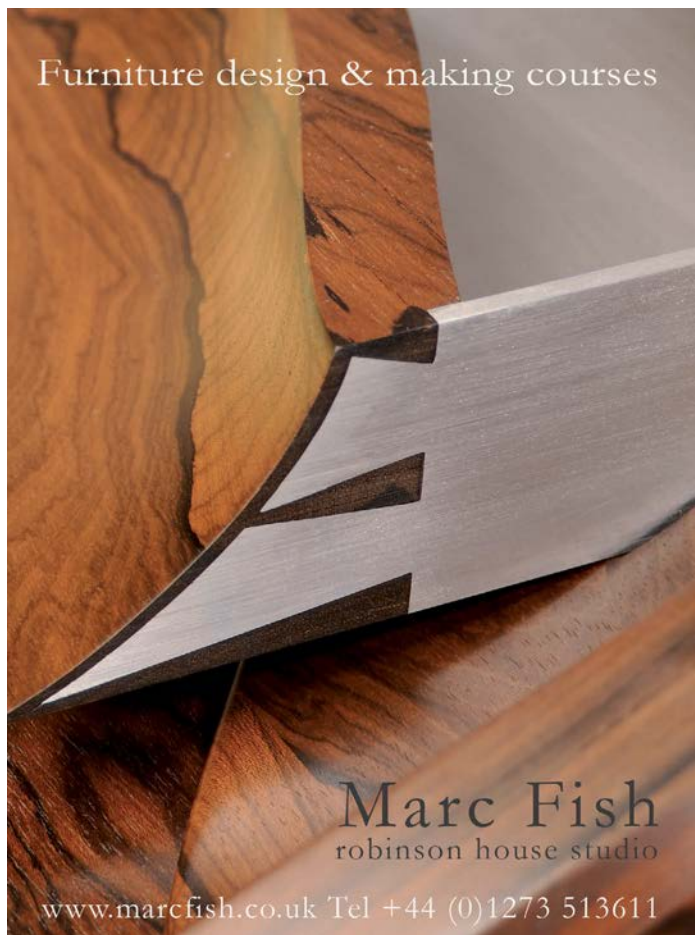
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UNDER THE HAMMER:

Decorative side cabinets

This month we look at three examples of ornamental furniture



£8000-12000

Pair of Edwardian side cabinets

These three side cabinets all featured in Bonhams' recent 'Home and Interiors' sale at their London auction rooms.

The 19th-century cabinet is decorated with gilt-bronze mounted tortoiseshell and brass boulle-style marquetry. It is inlaid with floral and acanthus strapwork, an ornamental technique that used flattened strips of metal to create a stylised representation of leather straps. The central glazed panelled door encloses one shelf. The cabinet measures 1190 x 470 x 1150mm.

The pair of Edwardian side cabinets are made from satinwood (*Chloroxylon swietenia*), banded with rosewood (*Dalbergia* spp.) and polychrome. Each cabinet has a demi-lune form – crescent shape – with a central door decorated with an idyllic rural scene. They each measure 1130 x 500 x 910mm.



£3000-5000

19th-century marquetry side cabinet



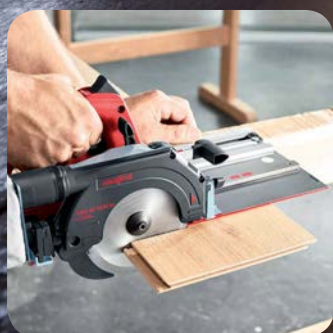
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KSS60	408mm	61mm	47mm	-60° to $+60^{\circ}$	Yes (36v)
KSS80	370mm	82mm	55.5mm	-60° to $+50^{\circ}$	No

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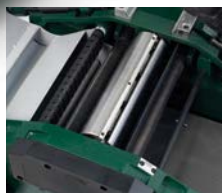
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The Woodworker

"**Top Quality** - This is a very well made machine with full adjustment of both infeed and outfeed tables. This is unusual in a home workshop machine and allows very fine adjustment to eliminate any gouging at the end (snipe)...Results are excellent, chip clearance is good and the changeover from planing to thicknessing is quick and easy."



DesmondW, Online Review

What They Say...

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