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# Welcome from the Editor

Hello, Everyone. Welcome to *Woodworking Plans & Projects*, issue 67 and the very first issue I can truly claim to be my own, as Editor. I must welcome Simon Frost, the new member of the *WPP* team and extend my thanks to everyone here who have helped me get this far: Mark Baker our Group Editor and Jan Morgan who has done a fantastic design job on this latest issue. Why the plaudits? I won't give too much away but let's just say it was inevitable that I would want to make some changes and that is just what we have done. There are still as many projects as ever, but more technical information covering different subjects.

We look at different aspects of woodworking away from the home workshop. In short, I think there is, or will be very soon, something for everyone, as not all the changes have happened in this issue. There is more to come next time. What we have put in the magazine is very much of interest to me – I hope it will interest you too, and you can take something of it away with you when you tackle the next project or piece of work. Take a look through the following pages and see if you agree; I would welcome your comments. The weather has improved now, so there isn't a better time to get in the workshop and be productive.

Take care, Anthony

**Anthony Bailey,** Editor
Email:anthonyb@thegmcgroup.com

**LEFT: An example of a chair from the Wycombe Museum. See the feature on High Wycombe – a brief history of furniture making for more examples**

## SAFETY MATTERS

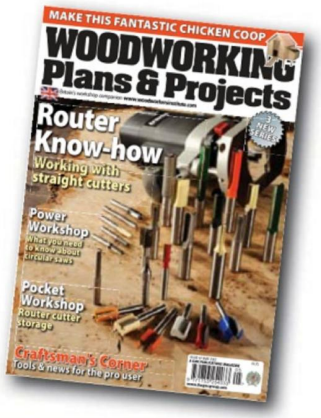
Woodworking is an inherently dangerous pursuit. Readers should not attempt the procedures described herein without seeking training and information on the safe use of tools and machines, and all readers should observe current safety legislation.

## *Problem finding Woodworking Plans & Projects magazine?*

You can reserve a copy from your newsagent or call Tony Loveridge, our circulation manager, on 01273 477374 or email him at tonyl@thegmcgroup.com. Alternatively save money and take out a subscription (see left hand panel)

This month in

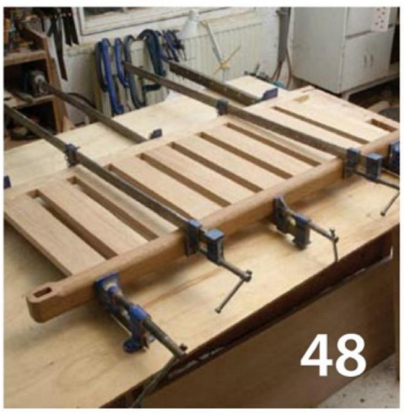
# WOODWORKING Plans & Projects





## PROJECTS





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### Woodwork on the web

To find more great projects, tests and techniques like these, visit our fantastic website at:
www.woodworkersinstitute.com

# Noticeboard

We bring you all the latest news from the world of woodworking and also share tips, letters and images from the Woodworkers Institute forum

## DOWNDRAFT TABLE

In reply to a recent forum discussion regarding dust extraction/homemade filters, etc. Neil Lawton decided to make this downdraft table to house his Dremel rotary tool. It allows him to use the rotary tool as a router or bobbin sander, and without it, it can hold odd shaped workpieces that need sanding, finishing,etc.

Connected to a wet/dry workshop vacuum cleaner, this really is effective at removing the dust. The air holes double up as mounts for the workholding blocks – which are rebated – as are the fences, so the workpiece sits above the table keeping the rest of the air holes unobstructed.

Editor Anthony Bailey thinks this is an excellent solution on several counts. He thinks that more woodworkers could create downdraft solutions for removing dust when machining. In fact, Anthony will be creating one for *WPP* in the not-too-distant future, so make sure to watch this space.

Two views of the downdraft table, made by Neil Lawton

PHOTOGRAPHS BY NEIL LAWTON

PHOTOGRAPH BY MAKER

**Cankered oak drawers, by Bullstiff**

## CANKERED OAK DRAWERS

We were thoroughly impressed with these cankered oak drawers, made by Bullstiff, which were actually posted in the *F&C* forum. In fact, we were so impressed that we thought we would share them with you here.

According to the maker, the piece was created from a couple of boards of cankered oak and the drawers have slightly sculptured fronts and cedar of Lebanon linings.

The handles were created by a blacksmith friend. The piece is finished with raw linseed oil. We're sure you'll all agree that this is a stunning piece of craftsmanship.

## The ToolPost Spring Open House

This year, the ToolPost open house event takes place from 25–26 May at the Didcot premises. The event features demonstrations from Phillipe Bourgeat (France); Gerry Marlow (UK), and Heinz Wiedemann (Germany). See the website below for further details.

**WHEN: 25–26 May 2012**
**WHERE: The ToolPost, Unit 7, Hawksworth, Southmead Industrial Park, Didcot, Oxfordshire, OX11 7HR**
**CONTACT: The ToolPost**
**TEL: 01235 511 101**
**WEBSITE: www.toolpost.co.uk**

## GREENWOOD DAYS COURSES FOR 2012

Greenwood Days are offering a wide variety of courses this year in everything from steam-bending, willow sculpture, pole-lathe turning, all the way through to longbow making.
A full list of the dates, prices and courses can be found on the website. A 10% discount is offered to all those booking two different courses in the same year.

**CONTACT: Peter Wood – Greenwood Days**
**TEL: 01332 864 529**
**WEBSITE: www.greenwooddays.co.uk**

## TOOL SHOW 2012

Tool Show 2012, a brand new woodworking show, is set to take place from 7–8 July this year. Hosted by PR Industrial Tools, the event will be held at the Amex Community Stadium, Brighton, which is the brand new home of Brighton & Hove Albion FC.

PR Industrial Tools have years of experience in the industry and aim to bring one of the largest gatherings of suppliers to one venue for the ultimate tool show.

The show benefits from free parking, free entry, free demos and a host of great show deals for you.

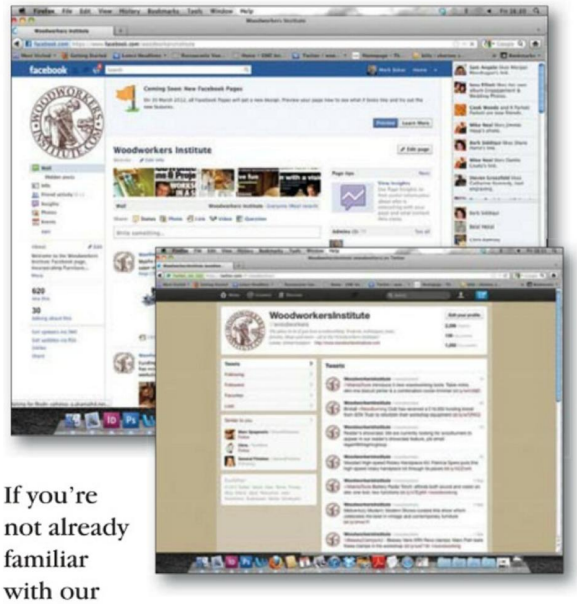
Among the exhibitors already confirmed are the likes of FEIN, Metabo, Trend, BriMarc, DeWalt, Makita, Festool, Bosch and many others. Visit the website below for more information and to register for regular updates.

PHOTOGRAPHS COURTESY OF PR INDUSTRIAL

**Aerial view of the Amex Community Stadium**

**WHEN:** 7–8 July 2012
**WHERE:** Amex Community Stadium, Brighton, East Sussex
**CONTACT:** PR Industrial Tools
**WEBSITE:** www.toolshow2012.co.uk

## Social media & competitions




If you're not already familiar with our Facebook and Twitter pages, then do take the time to have a look and follow us. On Facebook, search for 'Woodworkers Institute' and on Twitter, we're @woodworkers. You can keep up-to-date with everything that's happening on the website, in terms of new article uploads, the latest press releases, weblogs, as well as special features. Also, keep your eye on our Facebook and Twitter pages to meet other woodworkers, interact, socialise and get news of regular competitions.

## Welsh Tree Festival

Taking place from 18–19 August at the Botanic Garden of Wales, the Welsh Tree Festival will feature a range of woodcraft demonstrations and trade stands as well as family fun, guided walks, a tree trail and music. See the website for further details.

**WHEN:** 18–19 August 2012
**WHERE:** National Botanic Garden of Wales, Llanarthne, Carmarthenshire, Wales, SA32 8HG
**TIMES:** 10am–5pm
**CONTACT:** Botanic Garden of Wales
**TEL:** 01558 667 149
**WEBSITE:** www.gardenofwales.org.uk

## TANKARD WITH HANDLE

Here's a photo of Paul Hannaby's tankard with handle, all made from apple wood. Paul says that there was a fair bit of hand carving needed to shape the lugs for the handle, but that was preferable to leaving the wall thicker than it needed to be. According to Paul, it doesn't look like it from the photo but the sides taper toward the top. Perfect for sipping your cider from!

PHOTOGRAPH BY PAUL HANNABY

## SASH WINDOWS

**Q** Hello all,
I'm a newbie to this forum. I am making sliding sash windows for my house – 28 in total – and I was wondering about the thickness of the sash box stiles and top rail. I was going to mill them up at 32mm. Does anyone else know the correct/standard measurement?
Thanks in advance,

**Shane**

**A** I made windows for 10 years and although we had a standard size for all our boxes, all the others did not. It has been two years since I made a sliding sash box but I will have a work out and get back to you.
Are you using single or double glazed moulding? Do you have any planning restrictions?

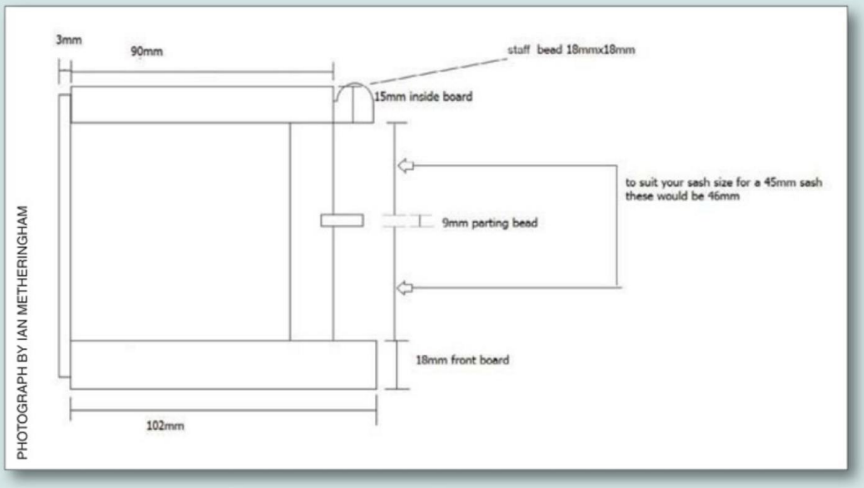
**Ian**

**A** Thank you for your reply. There are no planning restrictions with these windows and I will be using double glazed mouldings.

**Shane**

**A** If I can be of any more help then let me know. I'd love to see some progress pics of these when you get started.

**Ian**




**The dimensions and plans for making sash windows**

## Bowl made from old railway sleeper

PHOTOGRAPH BY MAKER

Brian W found this old rotten piece of railway sleeper in the garden which measured about 255 x 150 x 100mm. He was going to burn it when he remembered a post not so long ago about how under all that rot there could be a nice piece of wood trying to get out. So he thought he would see. It had a large split running diagonally through it so he split it completely and from one half this is what came out. There was a fair amount of sponge to get rid of before getting down to something useable. The final piece measures 125 x 50 x approximately 3mm thick. Sanded to 1,200grit and finished with shellac.

## European Woodworking Show 2012

The 2012 dates for this exciting event have been announced as 22–23 September. The show this year will include a host of demonstrations from a variety of disciplines, a mixture of trade stands and something for every woodworker. We will bring you further details regarding the line-up when this is made available to us. We can confirm, however, that the show will once again be held at Cressing Temple Barns, Braintree, Essex. Keep checking the website for further announcements and more information.

**WHEN: 22–23 September 2012**
**WHERE: Cressing Temple, Witham Road, Braintree, Essex, CM77 8PD**
**CONTACT: Classic Hand Tools**
**TEL: 01473 785 946**
**WEBSITE: www.europeanwoodworkingshow.eu**

## ISCA WOODCRAFTS ANNUAL SHOW

The show will be held on Saturday 12 May for one day only. Entry is free, although car parking charges apply in the grounds. A range of enthusiastic demonstrators will be on hand to give friendly advice on woodturning, woodcarving, box making and stickmaking.

On sale will be beautiful handmade crafts as well as large stocks of exotic and native woods in board and plank form. The General Tool Store of Abergavenny will also be attending. Isca Woodcrafts look forward to welcoming you to this fun event.

**WHEN: Saturday 12 May 2012**
**WHERE: Tredegar House, Newport, South Wales, NP10 8YW**
**CONTACT: Isca Woodcrafts**
**TEL: 07854 349045 or 01633 810148**
**WEBSITE: www.iscawoodcrafts.co.uk**

Send in your letters, tips, advice, digital photos and questions relating to woodworking to: WPP Readers' Forums, 86 High St, Lewes, East Sussex. BN7 1XN Alternatively, email miriamb@thegmcgroup.com

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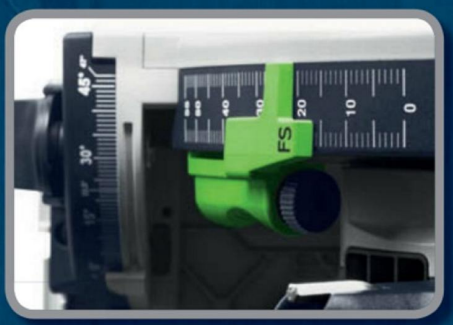

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Pocket Workshop Project

# Router cutter storage

When it comes to 'fitting a quart into a pint pot' **the Editor** finds a way to get all his beloved router cutters into the shed and still have room to swing the proverbial cat

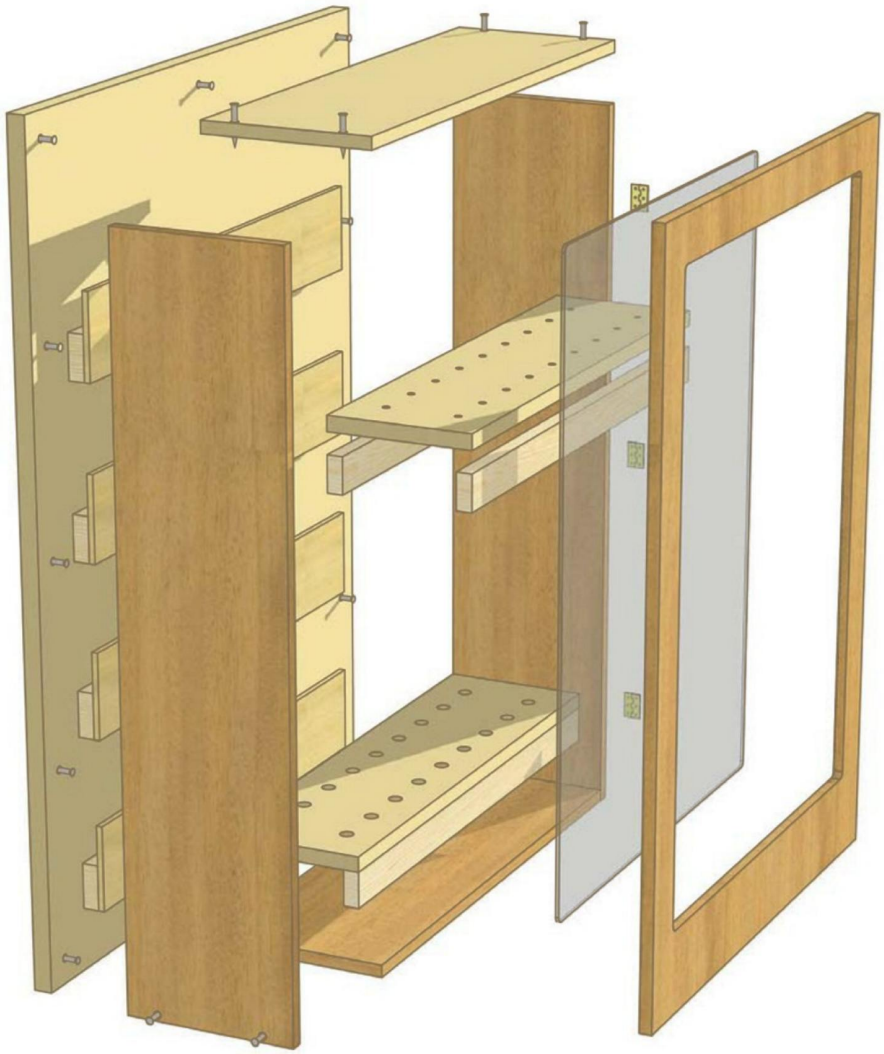
The Pocket Workshop has come along nicely but I couldn't help feeling there was something missing – my router cutters of course! Matt Long hadn't given me much space to play with, until my gaze settled on the door… well why not? I could fix a board on it and then a cutter cabinet on top of that. So there was my cunning plan, all I had to do was put it into effect.

**View of the Pocket Workshop before the new router cutter storage rack was installed – the only space left is the door**

## Cutting list

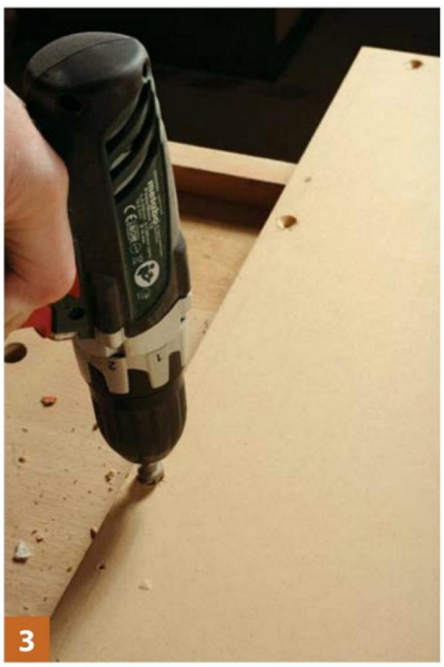
| | | |
|---|---|---|
| 1 | Door | 725 x 520 x 12mm |
| 1 | Top | 520 x 153 x 12mm |
| 2 | Sides | 713 x 153 x 12mm |
| 1 | Bottom | 496 x 153 x 12mm |
| 4 | Hanger battens | 496 x 45 x16mm |
| 4 | Hanger fronts | 496 x 85 x 6mm |
| 4 | Tray tops | 492 x 140 x 12mm |
| 8 | Tray sides | 492 x 35 x15mm |
| Perspex | to fit, see drawing | |

PHOTOGRAPHS BY GMC/ANTHONY BAILEY



**I used the circular saw and a clamp-on guide for cutting out the door panel**


**A notch out at the corner accommodates the lock**



**The panel was then held in place and the holes drilled and countersunk, to avoid splitting the door framing**

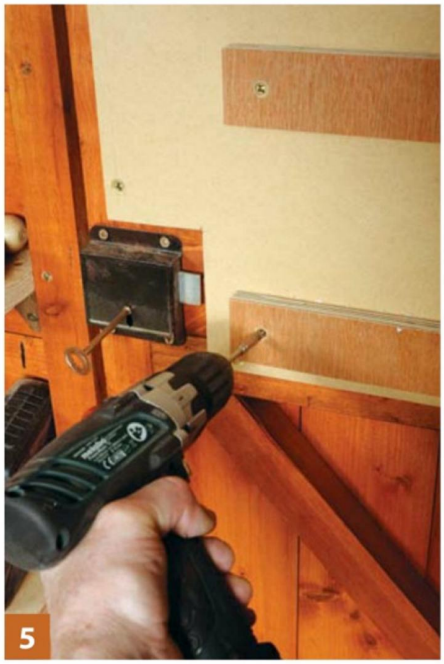
**I cut some waste pieces of foil wrapped polyurethane foam board to fit behind, before screwing it in place**

**1** I had various odds and ends of board to play with so I set up the circular saw and a clamp-on guide for cutting out the door panel, remembering the correct blade offset distance, of course, for each cut.

**2** A quick notch out at the corner accommodates the rather basic surface mount lock case allowing for the bar when it is retracted.

**3** I drilled and countersunk all the necessary holes for mounting it to the door. The panel was then held in place and pilot holes drilled to avoid splitting the door framing.

**4** It is my eventual aim to insulate and line the shed so as I was boarding this section of the door I cut some waste pieces of foil wrapped polyurethane foam board to fit behind, before screwing it in.

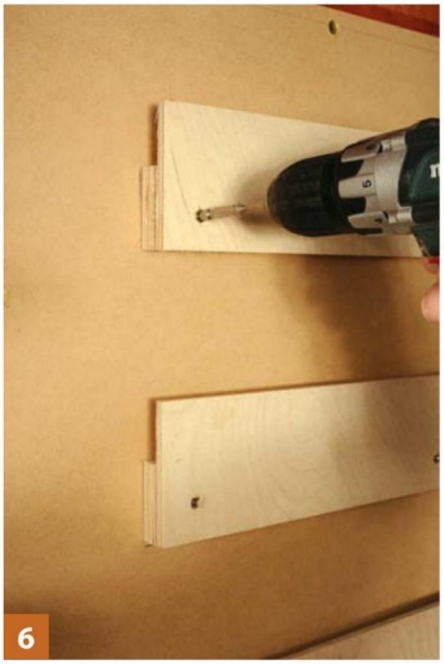


I screwed four strips of 15mm ply to the board about 125mm apart

**5** The next job was to screw four strips of 15mm ply to the board about 125mm apart. They are less than the panel width as I didn't want a really big cabinet.

**6** Next, some ply upstands were glued and screwed in place. These 'L' pieces hold the cutter racks securely on the door.

**7** Each cutter rack is an inverted 'U' shaped trough, glued and screwed together. The MDF needs to be at least 15mm thick to accept cutter shanks in blind holes.



Next, I glued and screwed some ply upstands in place

The uprights must be slightly thinner in section than the ply strips screwed to the board on the door. The length should be 10mm less than the 'L' pieces on the door.

**8** The cutter racks simply drop into the 'L' shapes and stay there. When choosing cutters you can lift the selected rack down from the door.

**9** To keep the cutters safe and dust-free I made a cabinet around the racks. The sides were glued and screwed to the ends of the 'L' pieces.

The MDF needs to be at least 15mm thick to accept cutter shanks in blind holes

The cutter racks simply drop into the 'L' shapes and stay there

**10** The top and bottom are fixed in the same manner – all with pre-drilling to avoid any splitting. It's beginning to look more like a cabinet.

**11** I returned to the cutter racks because, as you may have noticed, they don't have any shank holes yet. I made a series of lines at 50mm centres along each board.

The sides were glued and screwed to the ends of the 'L' pieces

The top and bottom were fixed in the same manner all with pre-drilling to avoid any splitting

I made a series of lines at 50mm centres along each board

I fitted the desired cutter to drill the shank holes and set the depth of cut to no more than three quarters of the board thickness

**12** You can make up a simple hole drilling jig to do one or both holes on each line. I reused an old jig I happened to have. Choose a suitable drill to make a hole for the guidebush needed, in this case it was 16mm. Then fit the desired cutter to drill the shank holes and set the depth of cut to no more than three quarters of the board thickness.

**13** Each rack was given a quick sanding and the edges smoothed off at the same time.

**14** There are four racks, two of which are loaded here. I drilled three racks to take ¼in shank cutters and one to take ½in cutters as I have less of those. In the future the ¼in rack would take even more cutters if I do an offset middle row of shank holes.

**15** The cabinet door is quite unsophisticated as I simply cut a piece of ply to fit the cabinet front and then routed a frame shape to take glazing. I used Trend Loc

It is easy to just fix hinges flat on the outside

I gave each rack a quick sanding and smoothed the edges

I used Trend Loc Blocks to keep the cutter above the bench

Blocks to keep the cutter above the bench, moving them so they didn't get cut as I progressed around the door.

**16** A rebate cutter then made short work of the glazing rebate, again with supports under the frame.

**17** Purists will hate this: I just fixed hinges flat on the outside, they weren't even the right width but it didn't matter as it simply moved the pivot point back a bit.

**18** The polycarbonate glazing was marked with a black

I marked the polycarbonate glazing and then used a knife to score it repeatedly

I then drilled three racks to take ¼in shank cutters and one to take ½in cutters

A rebate cutter then made short work of the glazing rebate

marker pen, then a straight edge and knife were used to score it repeatedly until it neatly cracked on the line when pressed down hard.

**19** The finished cabinet full of cutters already. The cabinet keeps the dust off and I can still see which cutters are which without having to open the door. ■

The cabinet keeps the dust off and you can see the selection of cutters

# Write for Us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**The High Street with some of its Georgian buildings extant, such as the Guildhall, shown on the left. Over the past few years, I seem to have got to know High Wycombe and Bucks New University rather well, as the result of several visits for sister magazine *Furniture & Cabinetmaking*, and also because my youngest daughter is now studying at the University. So it seemed like a good place to start this series**

# High Wycombe – a brief history of furniture making

**Anthony Bailey** takes a trip down memory lane on a visit to High Wycombe and learns a great deal about its furniture making past, present and future

For the very first time in ***Woodworking Plans and Projects*** we bring you a series of features on all aspects of wood and woodworking. Here at the WPP headquarters, we firmly believe in life beyond the confines of our own workshops. Indeed, there are many aspects of working with wood that resonate with how we put our own practical skills and interest in the subject into action.

Month by month, we will take a look at a whole range of woodworking craft skills and processes that not only show the versatility and endeavour of craftsmen and women, both today and down the ages, but the very source material we depend on – trees – and the magnificent timber they yield. We hope you find these articles informative and above all, useful. We have certainly taken great pleasure in writing them.

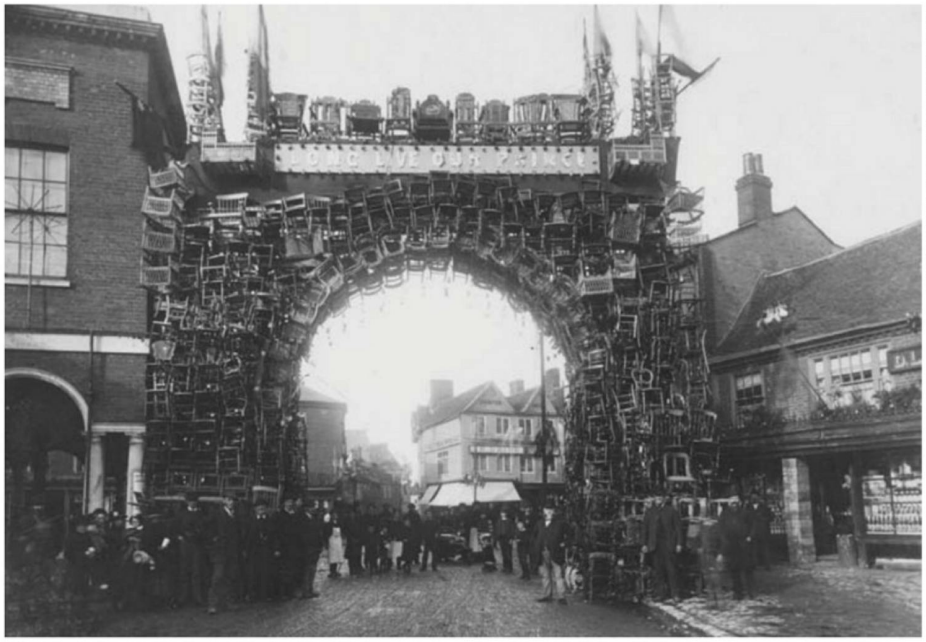
## History of High Wycombe

The story of High Wycombe and furniture making is really the story of the rolling Chiltern Hills which surround it. Furniture has been made in all parts of the country down the ages but this part of Buckinghamshire plays a special part in the history of furniture and chairs in particular.

High Wycombe or Chepping (Chipping) Wycombe, as it was known until 1946, has always been a place of industry – it was mentioned in the Domesday Book as having six mills. The name Wycombe is derived from the River Wye, now hidden underneath the town centre and 'combe' meaning wooded valley, so the landscape has not changed so very much in that respect. In common with many medieval and Tudor towns, its wealth was based on cloth making –

PHOTOGRAPHS BY GMC/ANTHONY BAILEY, UNLESS OTHERWISE STATED

Trees growing in Bradenham Woods, part of the National Trust Bradenham Estate






The fabulous 'Arch of Chairs' built between the Guildhall and the shops opposite for the 1880 visit of the Prince of Wales. Several more arches have been built since then to commemorate important occasions, the last being the Millennium

in this case lace and linen. It was also a stopping point for weary travellers to and from London. In the 17th and 18th centuries paper making took over as the mainstay of industry.

## Rise, decline and fall

The town's major claim to fame was its newly developing furniture industry in the 19th century. Furniture factories sprang up all around 'Wycombe' with terraced houses built in large numbers to accommodate all the factory workers. In 1875 it was estimated that approximately 4,700 chairs were being made each day. In 1881, there was a population of 13,000 rising to 29,000 in 1928. However, because this industry dominated the town so completely, when there was an industrial decline in the 1960s it created mass unemployment, and attendant social problems.

Thankfully, High Wycombe today is a friendly, vibrant multicultural community with more diverse industry and businesses than ever before, albeit not at the same extreme levels of manufacturing seen during the peak of furniture activity.

## The hub

One of the things my family and I like about the town is the way everything that matters is drawn together somehow by gravitational pull. The University started out in 1893 as a science and art school, becoming the Wycombe Technical Institute in 1920 to aid disabled servicemen in metal and woodworking skills, followed by a transition to a College of Art and Technology until its current status as 'Bucks New Uni' as it is popularly known. It sits right in the middle of town with the fire station, hospital and the new Eden Centre shopping mall close by, yet still cheek-by-jowl with the Georgian high street, complete with its fine architecture and interesting 1920s classical revival style buildings a little further out. All of this is within easy reach of the less picturesque Victorian workers' housing relegated to the outskirts.

## Wycombe Museum

Just a short walk from the town centre is Wycombe Museum and this is a good place to start if you want

This fisheye view just manages to squeeze in the entire frontage of 'The Gatehouse', the new part of 'Bucks New University' designed to add all the facilities its newfound university status demanded

An example of modern outdoor seating designed by Philip Koomen in the gardens of Castle Hill House, the current home of the Wycombe museum


**The cramped interior of the copiously filled Chair Store. The upper level has some of the more unusual examples displayed**

*"...the records show that, in total, between the late 18th and late 20th centuries, there were more than 1,000 furniture factories, large and small, in the area"*

to research the history of furniture making in the area. I was given access to the Chair Store which can only be viewed by special appointment. It is a treasure trove of chairs and other furniture. The Museum management are anxiously waiting to see if their Lottery funded bid that would enable a move into the middle of town is successful. It would allow all these chairs to be displayed as a 'wall' for everyone to see.

There are early examples of Windsor chairs as well as quite modern ones in a similar style. In fact there are quite a diverse range of furniture styles evident, including pieces by famous names such as Ercol and E Gomme – G-Plan – plus less well-known ones, such as Edwin Skull and William Birch Ltd. In fact, records show that in total, between the late 18th and late 20th centuries, there were more than 1,000 furniture factories, large and small, in the area and the Museum's collection can only capture a snapshot of this vast industrial activity.

**A design known as a Goldsmith chair, after writer Oliver Goldsmith who owned one similar; this is made of ash with an elm seat**

**One of a set of five chairs made by Robert Prior of Uxbridge in the 1800s, featuring a triple splat back with Prince of Wales feathers**

**A folding chair by William Birch, dated 1850, and featuring marquetry inlay with a bird design on the splat and a glass eye inset**

**Left:** An easy chair by E Gomme Ltd dating from 1939. It has been re-covered three times in its life

**Right:** Tola dining chair by G-Plan with a tola wood veneer back, black lacquer frame and red uncut moquette upholstered seat, in production from 1956 to 1960

**The shave horse traps the roughly split timber just by the action of sitting on it, then a drawknife is used to round it off sufficiently to mount it on the lathe. The timber is 'green' i.e. wet**

**A reconstruction of a sack-lined hovel in the Wycombe Museum showing the pole lathe and shave horse – used to roughly shape the legs before turning – a large timber filled mallet, an iron wedge and a stack of finished components. Bodgers lived in 'hovels' or huts in the Chiltern hillside**

## Chair bodging

Anyone with a sound knowledge of older woodworking practices will know that the derogatory Shakespearean term 'bodging' means the complete opposite of what chair bodgers actually did. Although not confined to the Chilterns, chair bodging or the production of chair legs for Windsor chairs was a significant woodland industry right up until the 1940s with only one or two bodgers lingering on beyond that time.

The seat form, however, a product skillfully and laboriously made with an adze, eliminates this problem; the ash hoop is a masterful use of the wood's ability to bend to an incredible degree while retaining its strength, especially if split with a 'froe' following the grain



**A chair bodger at work in very neat orderly surroundings. No doubt pleasant working conditions on a fine day but not so if cold, wet and windy**

**Turning doesn't get any simpler than this crude but effective pole lathe. The rope turns the blank backwards and forwards with cuts on the forward stroke using foot pedal pressure to operate it. Technically a Windsor chair is one with a separate back leg and back whereas most wooden chairs have a unified back leg and chair back. The seats were made of elm because unlike most timbers, the wide seat could be made from one piece of wood without it splitting, although elm has a tendency to wriggle out of shape**

**Right: The adze or 'old shinbreaker' as it was known. You would swing this blade tool between your legs when forming the seat. Leather spats were pretty essential for a degree of safety**

path, rather than by cutting through the grain by sawing it. Another feature of many Windsors is the 'cartwheel' splat in the middle of the back. I have personally been able to watch similar splats being machined on multi-headed CNC routing centres at Ercol's modern multi-million pound factory. I wonder what the bodgers of old would have made of such technology against their skilled but weary efforts?

## The future

With the demise not just of small furniture makers but large companies like E Gomme, it would be easy to think it was all over. Thankfully it is not. Ercol moved into their stunning new factory and showroom at nearby Princes Risborough in 2002, producing timeless classics that have developed from the original inspiration of their founder, Lucien Ercolani, while Hands of High Wycombe produce executive desks and have also incorporated Gordon Russell contract furniture into their range. Gordon Russell of course being a famous 20th century furniture designer. There are also smaller concerns in the area such as Richard Williams, an ex 'Buck's Uni' student, now running quite a large workshop and teaching. Then of course there is 'Buck's New Uni' itself, with a very diverse range of subjects on offer but still with furniture design, restoration and conservation courses going as strongly as ever. ■

**While the workers worked, the rich stayed rich of course. This is the southern aspect of West Wycombe Park, home of the Dashwood family. Francis Dashwood in the 18th century held his infamous 'Hellfire Club' in the hillside caves opposite**

NIGEL COX: UNDER CREATIVE COMMONS LICENSE

**The clean, bright architectural lines of the Ercol factory with its light airy showroom, offices and pleasant factory environment, show that furniture making in this part of the world is far from dead**


**Just one mile from the new Ercol factory in Princes Risborough, this residential cul-de-sac gives up some of the secrets of its past**

## Further information:

**Wycombe Museum**
Wycombe Museum
Priory Avenue,
High Wycombe,
Bucks,
HP13 6PX
www.wycombe.gov.uk/museum
Tel: 01494 421 895
Opening Hours
Mon-Sat: 10am-5pm
Sunday: 2pm-5pm
Bank Holidays closed
Admission to the museum is free

**Chilterns Open Air Museum**
www.coam.org.uk
A 'living' museum with many events throughout the year

**Buckinghamshire New University**
www.bucks.ac.uk
Details of BA and MA courses in furniture design, restoration, conservation and decorative arts. Public open days for BA and MA degree shows

**National Trust**
www.nationaltrust.org.uk

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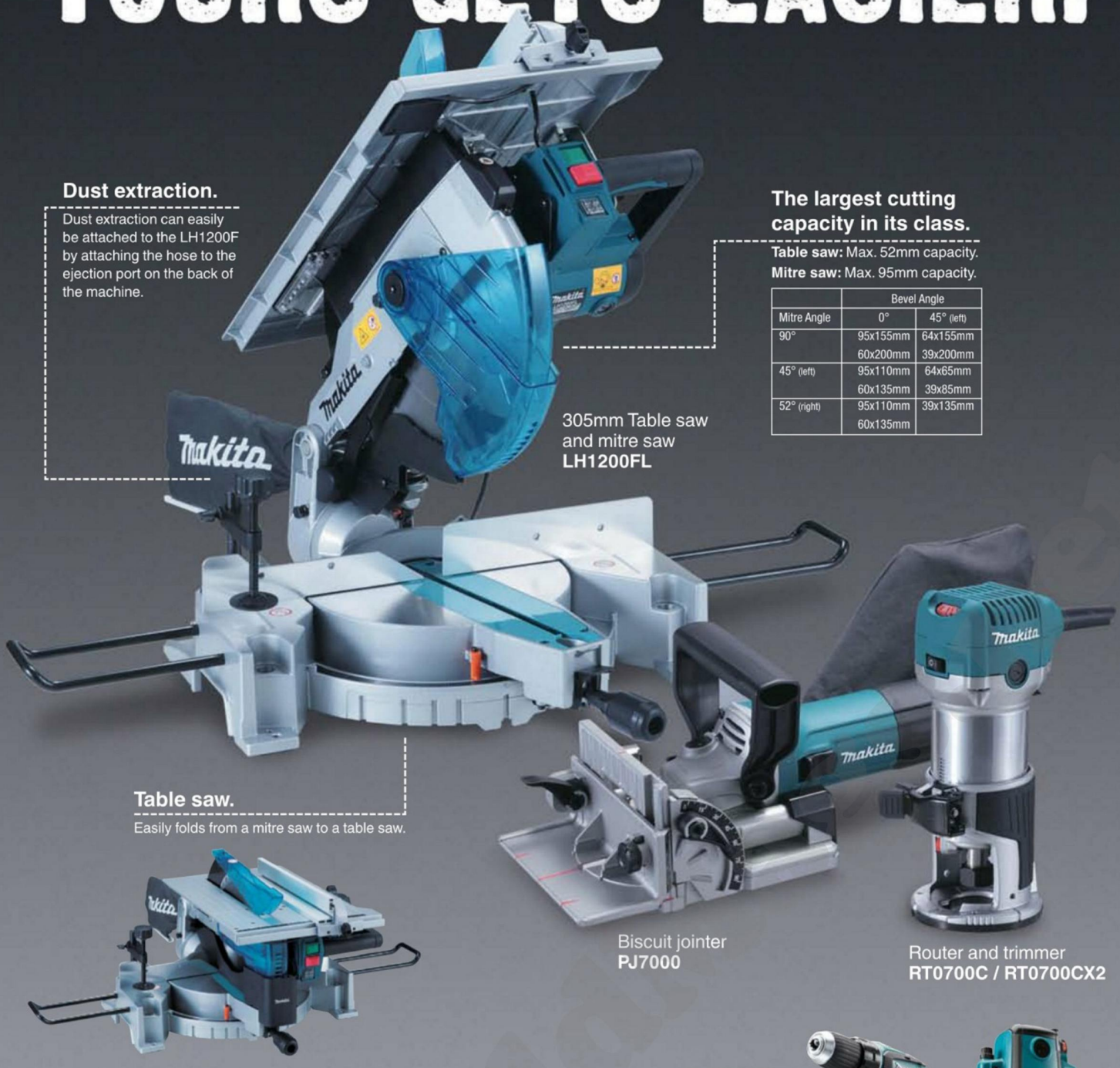
| 52° (right) | 95x110mm<br>60x135mm | 39x135mm |

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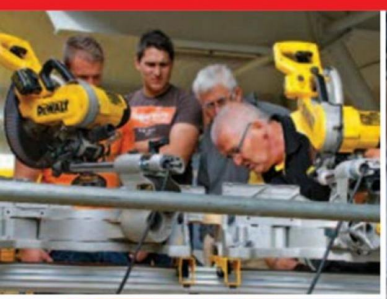



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## Router Know-how

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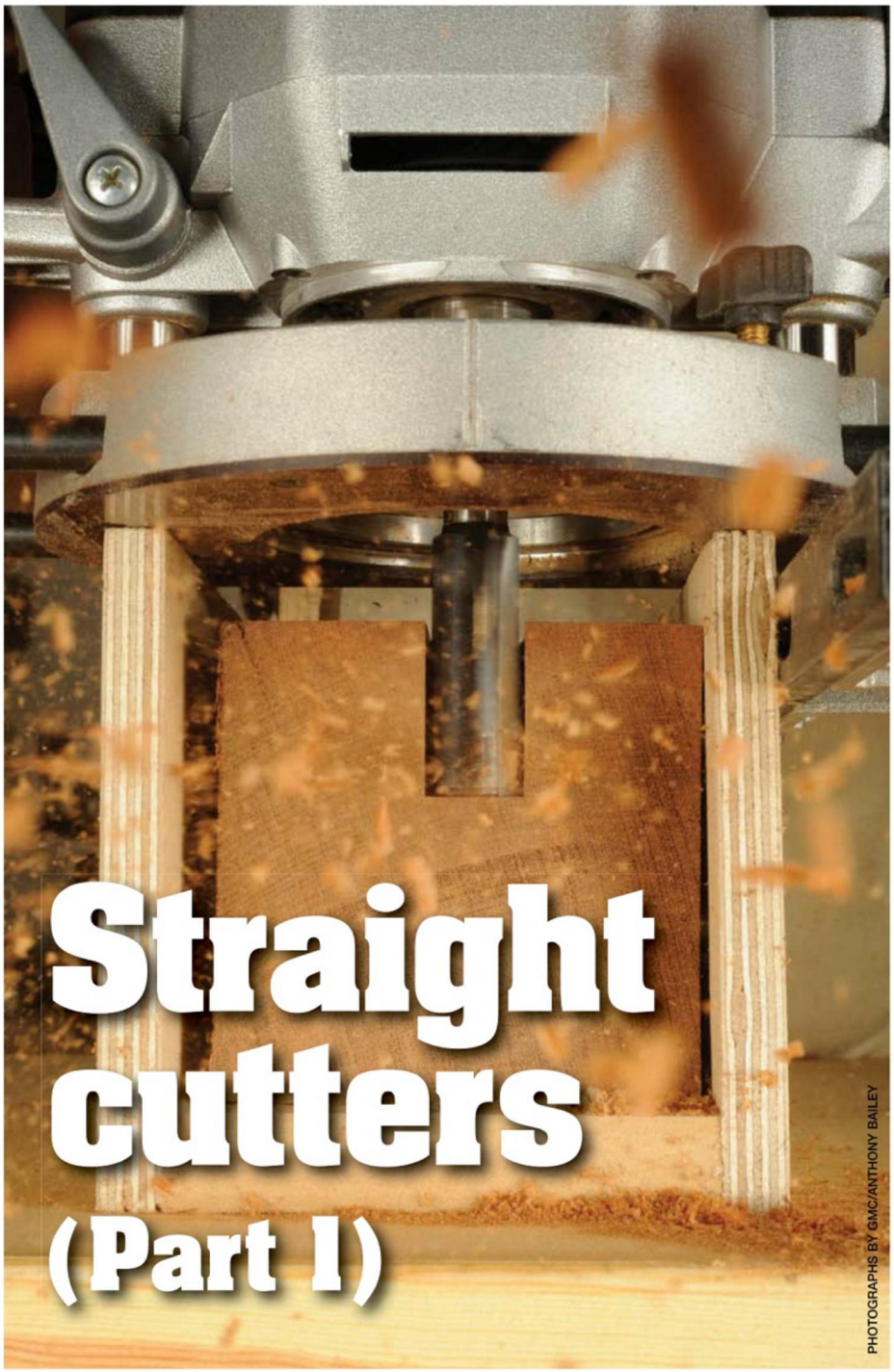


# Straight cutters (Part 1)

PHOTOGRAPHS BY GMC/ANTHONY BAILEY

In the first part of this brand new series, **Anthony Bailey** introduces you to a variety of cutters

Welcome to 'Router Know-how', a new series devoted to routing by our very own router devotee Anthony Bailey, otherwise known as 'the Editor'. Following on from Router Class, Anthony now looks at the subject more from the 'sharp end'; telling you all that he knows about cutters, how to use them, care for them, and the best routers and jigs to use with them. As always, Anthony would like to hear your questions and views on this very broad subject, and who knows, you may get published in our brand new 'Community' pages. Read on...

There are certain things that are guaranteed to wind me up, and one of them is the average 'starter' cutter set; a manufacturer's perception of what a new router user needs in the way of cutters, tempered by the 'price point' of these sets which tends to partially determine the contents. Cutters that are all shank and not much carbide or random dovetail cutters with no jig to match, are just two 'no-nos' as far as I am concerned.

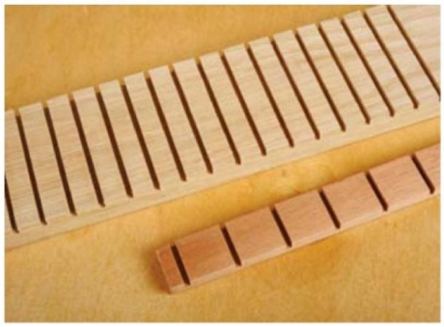
## MANY APPLICATIONS

Even the most low budget router supplied with a cutter or two will have a straight cutter, and that is where we need to start. If we consider how many things a straight cutter can do which other cutters cannot – because they are for more specific tasks – it becomes apparent as to why the simple-straight is the router user's best friend in cutters.

Overleaf are a few applications for standard one- or two-bladed TCT – tungsten carbide tipped – straight cutters.

**Left: A good quality starter cutter set. However, it may not contain all of the profiles you really need**


**Slotting using a T-square**

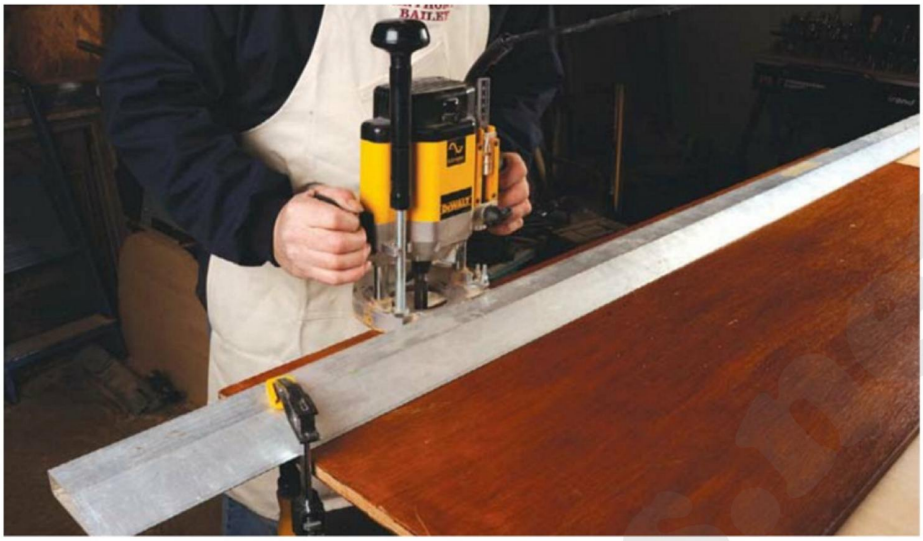


**Dentil mould and frieze can be done using a jig**

**Discreet shelf studs**


**A mortise box makes joints easy to do**

- Slotting (short grooving)
- Grooves (continuous machining)
- Trenching (wide grooves)
- Drilling and counterboring (limited size range but exactly perpendicular)
- Rebating (with guidance)
- Biscuit jointing (mid panel slotting)
- Template making
- Inlay lines and bandings
- Shelf stud holes
- First stage machining before bearing guided moulding
- Dentil (toothed) moulding
- Mortising
- Trimming sawn edges
- Hinge recessing
- Kitchen worktop joints
- Lock mortising
- Honeycomb worktop machining
- Kitchen hinge sinking



**Trimming a board edge smooth**

## CHOOSE YOUR CUTTERS

I'm sure you can think of more applications I haven't mentioned, but you can get the idea; the plain old straight cutter is exceptionally versatile and the one that should be most popular in your cutter set. However, most of us just have a few when we should have many.

The standard sizes such as 6.4mm, 9.5mm, 12.7mm, 16mm and 19mm tend to get a pounding and often end up rather scorched and worn. It makes sense to have duplicates or even triplicates of the most used

**Standard straight cutters looking worse for wear**

This jig makes hole drilling very easy

Board thickness is variable

sizes so you never run out of a sharp cutter. Kitchen worktop installers can buy sets of three or four cutters of the same size for this very reason.

You also need to consider whether you have the right diameters or lengths. Most shelf stud holes are 5mm diameter, so why not make up a hole drilling jig for use with guidebush and 5mm cutter, rather than resorting to a less neat and predictable 5mm bradpoint mounted in a drill?

A standard 6.4mm cutter is nearly 0.5mm wider than 6mm MDF or ply so it can be loose in a panel slot – maybe a 6mm cutter would be a good investment? If it is veneered sheet then check the thickness before selecting a cutter as it may be thicker than 6mm, in which case a 6.4mm might be correct. However, veneered ply is 'sanded back to thickness', unfortunately leaving rather more glue than veneer.

Standard cutters – especially in sets – tend to be short but you can get longer versions in all diameters, which are invariably needed; another reason to eschew a starter set and build your own custom set of cutters.

Left: Single flute
Right: HSS and twin flute

## CUTTER TYPES

### TCT single flute

These have better chip clearance but as they only cut once per revolution, do not give quite such a good finish. These are normally available in smaller sizes where cutter construction and chippings clearance rate make it more useful and practical.

### TCT twin flute

Twin flute cutters are available in sizes from 1.5mm diameter upwards to a monstrous 50mm diameter, with every size variation in between. Of course, you should buy good quality cutters of any description; you cannot expect cheap sets to last well or even be safe, and it is very true of straight cutters. Many cuts are not very deep, such as shallow grooving, while things like mortising will require much longer shanked and bladed cutters; so it pays to have some variety to suit different situations while keeping your budget under control.

### HSS (High Speed Steel)

While TCT is pretty universal among router cutters there are times when HSS has the edge, so to speak. It is primarily used with softwood or at least softer wood. It is intrinsically sharper than TCT but that finer cutting edge is lost much more

A variety of straight cutters

A good thin, even brazing line

Safe working shank depth mark

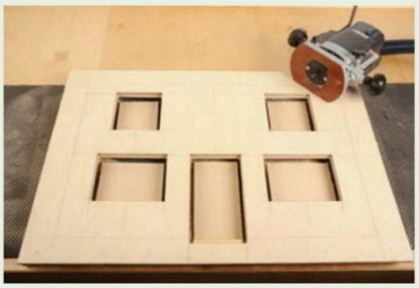
Proper cutter storage

quickly. Because the cutting edges are machined from one piece of solid steel these cutters will often have a swept waveform from the cutting edge to the middle of the cutter which helps the chippings escape easily. However, English manufacturer Titman make a range of TCT cutters intended for softwood; this is done by altering the cutter geometry so the cutting edges are more acute and slice the wood better. These cutters should fare better than HSS if they hit a knot or other defect.

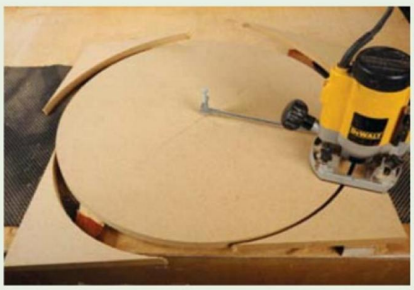
## WHAT TO LOOK FOR

These comments pretty much apply to all cutters irrespective of type. Ideally all cutters should carry laser etched shank markings including a collet depth mark. The carbide blanks that form the cutting edges should be of reasonable thickness in relation to the size of the cutter. Very cheap cutters usually have thin carbide that may fracture in use. Cheap cutters often lack a bottom cutting insert which is essential for plunge cutting. The slightly golden coloured brazing line where each blank is secured to the cutter body should be bright and without any holes in the brazing that could indicate a joint weakness. Better quality, well designed cutters will often have a chip limiting feature in the form of a 'shoulder' of body metal opposing the cutting edge and its supporting shoulder. All in all, this makes for safer machining. Small straight cutters are one of just a few types that are sometimes made from solid one-piece carbide – the darker metal shank without blade inserts is the giveaway here.

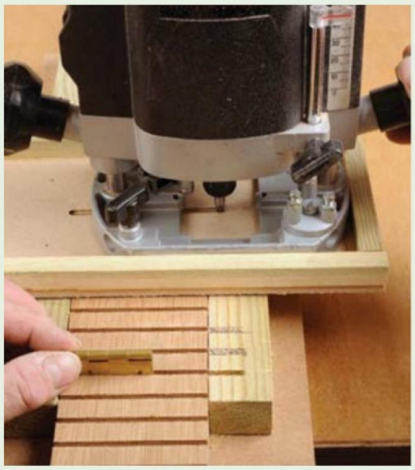
## STRAIGHT CUTTERS IN USE



Using a template to make a dolls' house



Quick circle cutting with a trammel



A frieze jig in use

Edge slotting with an L-jig

Use a longer shank cutter in a table

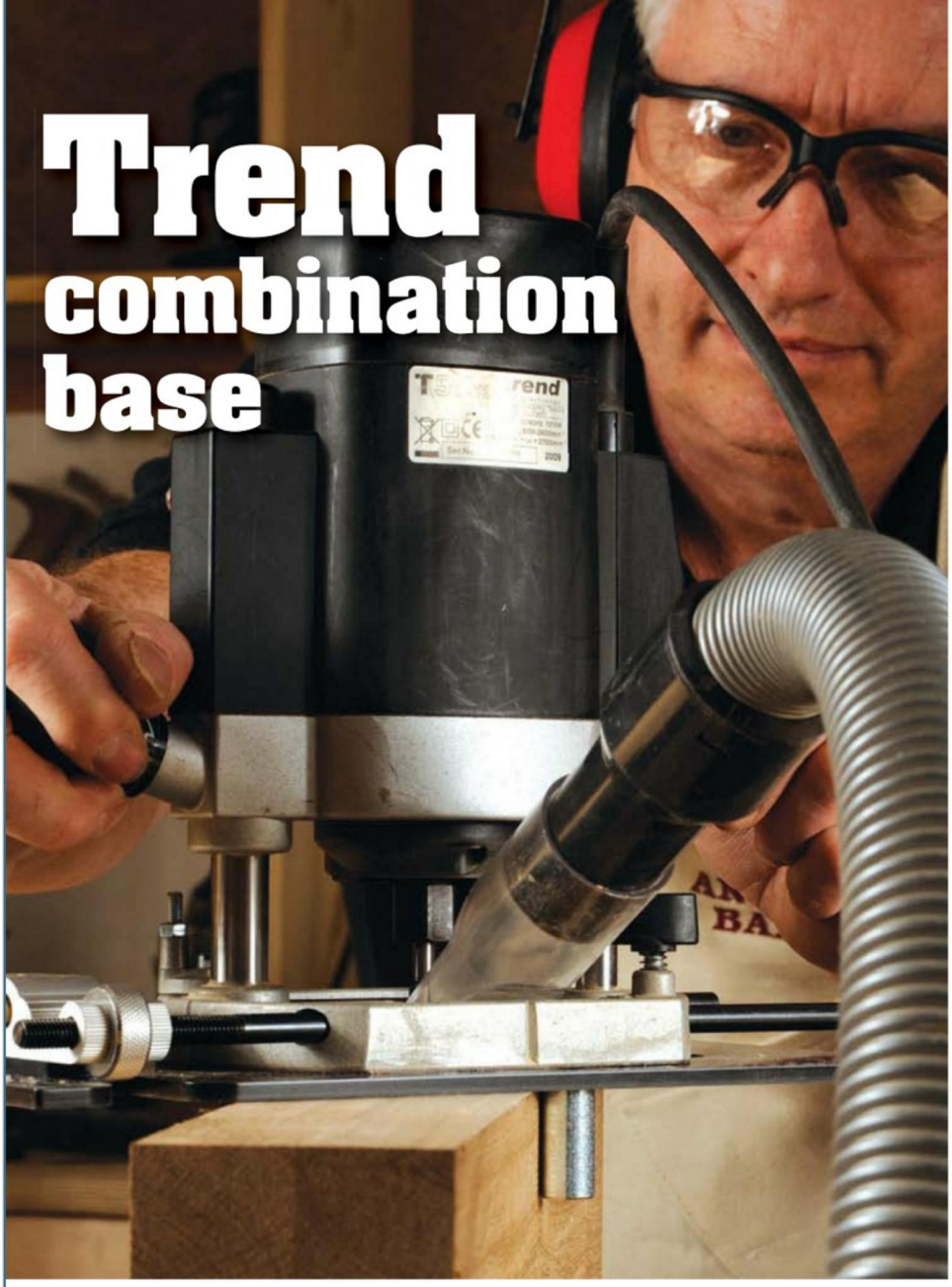

Scraping deposits off a cutter

## GETTING THE BEST FROM YOUR CUTTERS

- Store cutters correctly so they cannot touch and damage the carbide
- Insert the correct amount of shank in the collet (usually about 19mm)
- Choose a longer cutter instead of not mounting the cutter in the collet sufficiently
- Take limited depth passes especially with ¼in shank cutters – no more than the shank diameter
- Keep cutters clean as resin and dust will cause a blunting effect and make them heat up
- Have several cutters in the most used sizes – never run out of a sharp cutter
- If they seem blunt, hone cutters using a diamond hone
- When housing, use a straight cutter for a primary cut before a dovetail cutter

We will look at more specialised straight pattern cutters in the next issue but hopefully this opening article will persuade you of the value of the humble 'straight' in your cutter arsenal. ■

# Trend combination base



PHOTOGRAPHS BY GMC/ANTHONY BAILEY

## AT A GLANCE

- Multi function
- Works with clone routers
- One cost solution

## THE NUMBERS

- Trend Machinery & Cutting Tools Ltd
- Model: combination router base, typical price: £82.80 (inc VAT)
- Edge trimming base – typical price: £28.80 (inc VAT)

## PROS & CONS

- ✔ Versatile
- ✔ Fits many models
- ✘ Small loose parts

## WHERE TO BUY

- www.trend-uk.com

## 5 STAR RATING

Value for money: ★★★½☆
Performance: ★★★★½
Build quality: ★★★★½

New and nifty from Trend comes the combination router base – is it the answer to our routing needs? **Anthony Bailey** takes a sideways look

Trend have come up with this crafty gadget that claims to do many things. Here is the list: an offset base for trimming edge lippings, router compass for circle cutting, working with a clamp guide giving micro adjustment, anti-tilt support, offset and centred mortising, repeat panel grooving and anti-tilt – when working with the Trend Varijig.

Well it does do everything it says, but the instructions need a little tidying to be clearer, and the five claimed shims for raising the 'bridge' section, when mounting different routers, turns out to be just three. However, Trend have no doubt worked out that you can stack shims for the same effect. I used it with a Trend T5 – which it has been primarily designed to work with – although it should fit other clone models. When tried with several different operations it was very useful – able to not only fit 'mortise pillars' which press against the workpiece when you swing the base so you can mortise accurately, but you can also slide the router across to do offset mortises.

A large optional bearing is provided with the accessory offset base kit. This allows you to set up for trimming solid or veneer lippings. This works well, my only slight disappointment being the fractional divot created by the router at the start of the run, not by the offset base itself.

By swapping bits and pieces you can have a large knob to control base movement or a leg where you need levelling support. However, the rubber tip does mark the work slightly. The micro adjustment knob gives easy, precise sideways settings with a stick-on scale to show just how much movement there is.

## Verdict

Once you get your head around the way this multi-function accessory works, it is actually very useful. It can be quickly altered to do a variety of tasks but the various bits and bobs threaten to get lost, such as the trammel pivot pin which is located in a magnetic recess in the 'bridge'. You will need to acquire a plastic snap-top box to prevent losing all these parts. However, this kit is well worth investigating if you want many solutions in one router accessory. ■


PHOTOGRAPHS BY GMC/ANTHONY BAILEY

# Hitachi CJ 18DSL jigsaw

**The Editor** gets his mitts on a funky looking jigsaw and finally realises why cordless versions make so much more sense

## AT A GLANCE

- Trade brand
- Mains-free working
- Tough build quality

## THE NUMBERS

- Manufacturer: Hitachi UK
- Model: CJ 18DSL
- Battery type: 18V 3 Ah Li-ion
- Maximum cut depth: 135mm wood, 10mm mild steel
- No-load speed: 0-2,400spm
- Stroke length: 26mm
- Min. cut radius: 25mm
- Weight: 2.4kg
- Price: £335.95 (inc VAT)

## PROS & CONS

- ✔ Li-ion power
- ✔ Not reliant on mains
- ✘ Powerful
- ✘ Struggles with thick hardwoods

## WHERE TO BUY

- www.hitachi-powertools.co.uk
- Tel: 01908 660 663

## 5 STAR RATING

Value for money: ★★★☆☆
Performance: ★★★☆☆
Build quality: ★★★☆☆


Hitachi products once looked staid in appearance; but like the jungle beasts they seem to emulate, the current Hitachi machines look impressive and generally are in use, too. The CJ 18DSL is an 18V cordless Li-ion jigsaw that is similar in capability to a mains version. Hitachi also have a 14V version and two mains powered models in their UK range.

## In use

First, plug a battery into the charger. The fan is very noisy during charging, although on a busy building site it matters less. The jigsaw body has plenty of rubber overmould for comfort, and a smoothly sculpted profile. The trigger switch is locked by a very positive side push button and released by pressing it the other way. A button and lights above the battery fitting show the charge. The motor and gearbox are quite noisy, in a reassuring way. Blades are fitted with the now ubiquitous pull out lever which opens the blade clamp that springs shut when the lever is released. The standard blade is a viciously sharp 90mm up-cut blade. The baseplate appears to be a machined aluminium casting with nickel plating to give a smooth sliding action and prevent surface marking for which bare aluminium is notorious. An Allen key, stowed on the base by a rubber bush, is used for adjusting the baseplate for bevel cutting. The plastic guard must be removed to swivel the base, leaving the waggly wire guard for safety. An anti-spelch insert is supplied and there are three cut-orbit settings for varying thickness and for curved or straight cuts.

## Verdict

The charger is noisy but quick. It is not the slickest jigsaw I've tested, but it cuts well in softwood and manufactured board which most jigsaw work consists of. Hitachi supply various high quality blades for different uses. It lacks extraction or a blower, but they rarely work so I didn't miss that. A good site tool, helped by a lack of mains lead which is a particular pain with a jigsaw, especially when you need portability and unfettered curve cutting. ■

# Craftsman's corner

**Mike Barter** puts the heavy duty Milwaukee 28v cordless range through its paces

PHOTOGRAPHS BY GMC/ANTHONY BAILEY

**The Milwaukee 28V cordless range is a comprehensive set of tools aimed at craftsmen who need the power and ease of use coupled with a rugged build to cope with demanding situations**

Welcome to Craftsman's Corner, the special place in our magazine where you can find all the kit you need if you're in 'the trade'. Each month we take a look at some of the more specialised or unusual tools and equipment that can help you do your job better. Not only that, we'll also alert you to new developments in the professional woodworking and building trades so you can be the first to pick up on new trends, health and safety notices and handy hints. As always, your feedback on the magazine is always welcome!

## Milwaukee 28V Cordless Powertools

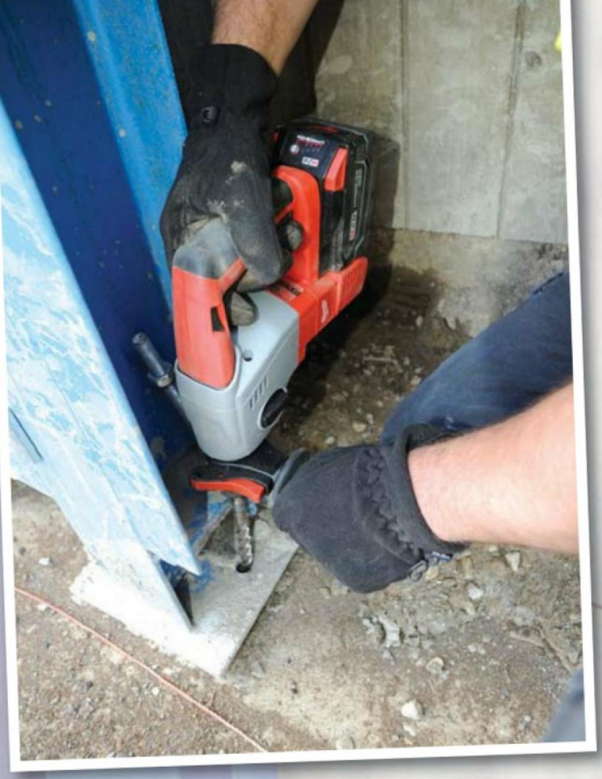
This is a top trade brand; never cheap, but heavily built and designed to take the brunt of site work. We gave the Milwaukee M28 Pack G plus circular saw to our resident 'rottweiler' Mike Bartter to give it a hammering as he and his men put a new light industrial building next to the GMC workshop. A tricky job at hand; putting the shell of a new building over the old one complete with new services – while the old building inside is still in use – then demolishing it and extracting it safely. A bit of a challenge as Mike is first to admit.

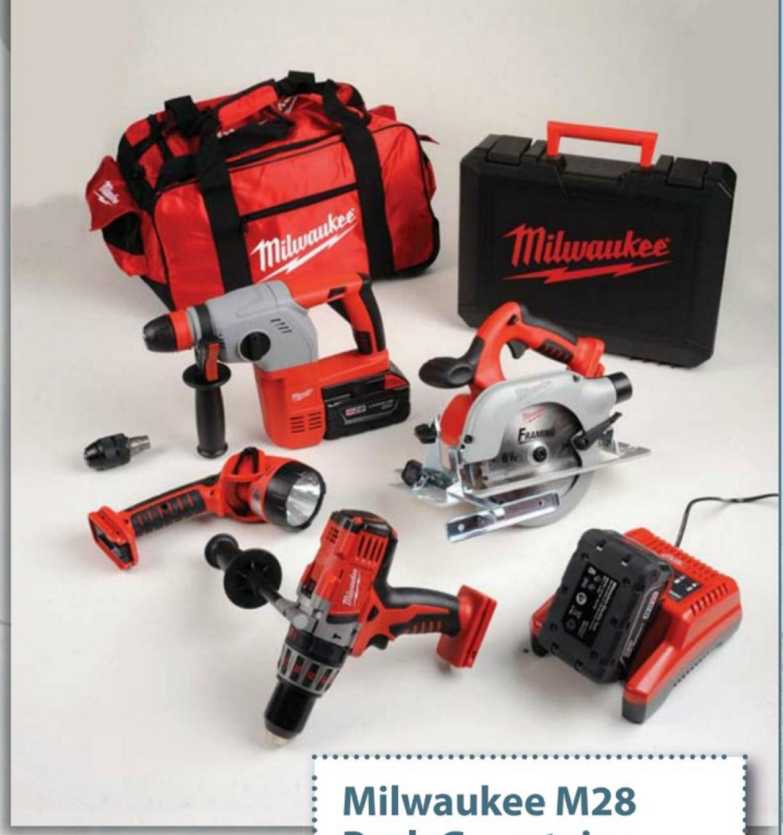
## HD28 HX Hammer Drill

We needed to get the steels bedded down properly on to the concrete so that the new shell was completely secured before the concrete side panels were completed. This drill with extra welly was just the job in lieu of the usual 110V drill we would use. The optional standard chuck wouldn't get a lot of use I suspect, this really is just an SDS beast.

## HD28 CS Circular Saw

A nice bit of kit but I was disappointed it didn't have greater cutting capacity. It's fine for light trimming work but if Milwaukee do a really big corded circular saw then I'd have to choose that most of the time. I did notice that the charging time on the batteries is quick.






**The SDS drill makes light work of drilling concrete**

## HD28 PD Percussion Drill

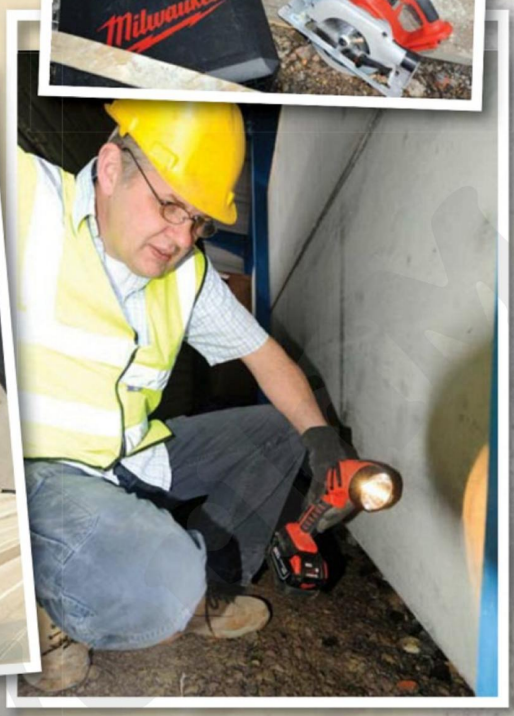
This a good one. Up on the roof here we're fitting these lightweight metal clad dense foam roof panels; there is an endless number of bolts to drive in so the long life on the battery is welcome, only a few thousand to go! The side handle comes off easily as we wouldn't have that in place up on the roof – it's safer without.

## M28 Worklight

I'm afraid we've boxed ourselves into a bit of a corner here; the new building is close to the old one and we have an office and toilet with drainage and service pipes to consider, so being able to see into dark corners is essential. I like the way this light just sits there aimed wherever I need it; it'll be interesting to see just long the battery lasts.

## Milwaukee Kit Bag

I keep telling them to keep their vans tidy even though they are properly partitioned; being able to stow all this gear in one bag it gives them no excuse, and it's got wheels on it, too!

## Milwaukee M28 Pack G contains

- HD28 HX Hammer drill:
  SDS-plus
  Impact stroke 2.8J
  Drilling capacity in concrete 26mm dia.
- HD28 PD Percussion drill:
  No load speeds 0-450/0-1800rpm
  Drilling capacity 16mm steel/ 65mm wood/ 20mm stone
- M28 Worklight
- 2 x 28V 3Ah batteries
- Fast charger
- Kit bag
- Price: £1,018.80 (inc VAT)
- HD28 CS Circular saw:
  - 4,200rpm
  - 54mm cut depth
  - 50° bevel capability
- Price: £622.80 (inc VAT)

## Where to buy

- www.milwaukeetool.co.uk
- Tel: 01628 894 400

# Lamello Zeta biscuit jointer

**Derek Jones** does the maths as he tests Lamello's latest offering, the dual purpose Zeta

**DETAILS:**
**MOTOR: 800W/210V or 110V**
**6 pre-set depth stop adjustments**
**PRICE: £1,159.50 (inc VAT)**
**Pack 80 Clamex P connectors – £132 (inc VAT)**
**FROM: www.brimarc.com**

Lamello's latest development called the Zeta is something special, and requires a little explanation to fully understand how it works.

It is fitted with a totally new blade with hammer shaped teeth designed to cut a 'T' slot along the back edge of the biscuit slot. Specially designed two-piece connectors have been created with a 'T' profile to slide into the joint from either end. Once in place, any lateral movement directly away from the slot is impossible.

A corresponding slot is machined into the opposing part of the joint and the second half of the connector is slid into place.

Marry the two together and lock in place using a small Allen key and the joint is complete.

## Two-in-one

The system, called Clamex P, apart from adhering to the rudiments of the biscuiting process also requires selecting a location for a 6mm diameter hole in which to insert the Allen key. Presumably this would be the blind side of a carcass component or worktop. Conveniently the wooden boxed kit comprises a drilling jig and drill to facilitate this part of the process.The Zeta can be used without modification to cut slots for standard biscuits and all the main functions of a standard jointer are catered for. What makes this possible is a device that Lamello have called Vertical Mechanical Drive (VMD). Located externally on the main body casing, the VMD is a component that, when engaged, permits the blade to oscillate at the appropriate time to create the 'T slot' required for the Clamex P connectors. Jointing mitred edges seemed particularly effective and the Clamex P system negates the need for clamping when used in this way.

**With the corresponding connector in place and a hole drilled, the joint can be assembled**

## Verdict

The Zeta is everything we've come to expect from Lamello; premium products at a premium price, which is a fair deal in my book. The Zeta will set you back around £1,160. That's around £325 more than their TOP20S4 biscuit jointer. So does it represent good value? It's quite conceivable that the extra expense could be recovered in a single job because of the reduction in time spent clamping. The machine is engineered to exacting standards, built to last and adds another string to your bow.

**Lamello supply a drilling jig to make location of the 6mm hole precise**

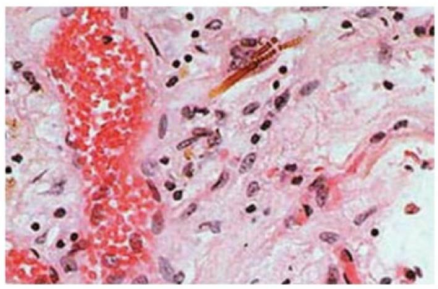
**The detachable plate runs on rubber wheels in machine ground grooves**

**Connectors can be slid into the 'T' slot from either end**

# Asbestos
## – A Lesson from History


How often we have made an amazing discovery and put it to use only to find out some time later just how harmful that wonder material really is – tobacco and uranium being just two diverse examples that threaten the human race, the latter capable of destroying the entire planet. On a more mundane level that ubiquitous material asbestos – which was used at least 4,500 years ago and became used on an industrial scale in the late 19th century – claimed its first documented death in 1906 – there were obviously many more unrecorded deaths before that. Thankfully, this alleged 'wonder material' was completely banned in 1999 but illness and deaths resulting from working with this material still persist to this day with approximately 3,500 workers dying each year as the result of activities such as building maintenance, refurbishment work, IT, telecomms and cabling installation as well as the more obvious contacts such as plumbing, electricians and carpenters. Here is a basic list of do's and don'ts from the HSE. The link below will take you directly to the asbestos risk leaflet. **www.coshh-essentials.org.uk/assets/live/indg289.pdf**

**Anthophyllite asbestos fibres (U.S. Geological Survey)**



**Lung damage caused by asbestos fibres (U.S. Geological Survey)**

WIKIPEDIA COMMONS

**This is a typical asbestos enclosure constructed by Trinitas Contracts in the UK for the removal of asbestos sprayed coating from beams**

## Asbestos info from www.hse.gov.uk

1. Asbestos is the single greatest cause of work-related deaths in the UK, responsible for around 4,000 deaths each year.
2. The four main diseases caused by the inhalation of asbestos fibres are mesothelioma (which is always fatal), lung cancer (almost always fatal), asbestosis (not always fatal, but it can be very debilitating) and diffuse pleural thickening (not fatal).
On average four plumbers, six electricians, eight joiners and 20 tradesmen die each week due to asbestos
3. Can be found in cement products, textured coatings, sprayed coatings, insulating boards, lagging, loose in ceiling or floor cavities.
4. Any building built before 2000 can contain asbestos. It was extensively used as a building material in the UK from the 1950s through to the mid-1980s. It was used for a variety of purposes and was ideal for fireproofing and insulation.
5. Asbestos related diseases won't affect immediately but later on in life, so there is a need for you to protect yourself now to prevent you contracting an asbestos-related disease in the future.
6. Always ask your boss if the building has been checked for asbestos, it's your right to be protected from this dangerous substance.
7. You should try not to work with asbestos at all, and must not do so if you have not been trained to do non-licensed work with asbestos. Basic awareness training is not enough. If you do have to work with asbestos, make sure that you:

- Use hand tools – not power tools
- Keep materials damp – not too wet
- Wear a properly fitted, suitable mask (eg. disposable FFP3 type). An ordinary dust mask will not be effective
- Don't smoke, eat or drink in the work area
- Double-bag asbestos waste and label the bags properly
- Clean up as you go – use a special (Class H) vacuum cleaner, not a brush
- After work, wipe down your overalls with a damp rag or wear disposable (Type 5) overalls
- Always remove overalls before removing your mask
- Don't take overalls home to wash
- Wear boots without laces or disposable boot covers
- Put disposable clothing items in asbestos waste bags and dispose of them properly
- Don't carry asbestos into your car or home

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## Clarke 4" BELT/ 6" DISC SANDER

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£95.98 INC.VAT

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- 4" x 36" belt tilts & locks 0-90°
- 225mm x 160mm table, tilts 0-90°
- 370w, 230v motor

## Clarke 6" BELT/ 9" DISC SANDER

CS6-9C

£219.00 EX.VAT
£262.80 INC.VAT

- Includes stand
- 1 Hp/ 230v/ 1ph motor

## Clarke TABLE SAWS

LEG STANDS AVAILABLE FOR CTS11 - £21.99 EX VAT £26.39 INC VAT
CTS10D - £21.99 EX VAT £26.39 INC VAT

FROM ONLY £64.99 EX.VAT £77.99 INC.VAT

CTS10D

INCLUDES LEFT & RIGHT TABLE EXTENSION

*Moulded base

| MODEL | MOTOR | BLADE | EX VAT | INC VAT |
|---|---|---|---|---|
| CTS800B | 600w | 200mm | £64.99 | £77.99 |
| CTS11* | 1500w | 254mm | £129.98 | £155.98 |
| CTS10D | 1500w | 254mm | £139.98 | £167.98 |

## Clarke 1" BELT & 5" DISC SANDER

CBS1-5

- 5" dia. circular sanding disc runs at 2,800rpm
- 1" x 30" sanding belt operates at 13.5 metres/sec.

£59.98 EX.VAT
£71.98 INC.VAT

## Clarke RANDOM ORBITAL SANDERS

CONTRACTOR

INC 6 DISCS

CROS2

£49.98 EX.VAT
£59.98 INC.VAT

- For fast removal of paint or for fine swirl free finishing
- 6 x 150mm diameter sanding discs
- 4000-7000 rpm

## EVOLUTION RAGE5 255mm MULTIPURPOSE TABLE SAW

£269.98 EX.VAT
£323.98 INC.VAT

- Powerful 1800w/ 230v motor
- Max depth of cut (45°/90°) 55/79mm • Includes TCT blade, mitre fence, wheel kit, folding stand, push stick, steel extensions • Available in 110v & 230v

## Clarke CIRCULAR SAWS

GREAT RANGE IN-STORE

FROM ONLY £49.98 EX.VAT £59.98 INC.VAT

CCS-2

| MODEL | MOTOR | MAX CUT 90°/45° | BLADE BORE DIA. | EX VAT | INC VAT |
|---|---|---|---|---|---|
| FURY | 1200w | 54/35mm | 185/20 | £49.98 | £59.98 |
| Clarke CCS-2 | 1300w | 60/45mm | 185/20 | £64.99 | £77.99 |
| Makita 5704RK | 1200w | 66/46mm | 190/30 | £94.99 | £113.99 |
| Rage | 1050w | 54/35mm | 185/20 | £89.98 | £107.98 |

## Clarke SHEET SANDERS

£14.99 EX.VAT
£17.99 INC.VAT

CON300

| MODEL | SHEET SIZE | MOTOR | EX VAT | INC VAT |
|---|---|---|---|---|
| COS200 | 190X90mm | 150w | £14.99 | £17.99 |
| CON300 | 230X115mm | 330w | £29.98 | £35.98 |
| Makita BO455 | 112X102mm | 200w | £49.98 | £59.98 |

## Clarke DISC SANDER

£119.98 EX.VAT
£143.98 INC.VAT

CDS-300

- Fine finishing, accurate sanding & shaping • 750w input power • Disc Dia. 305mm
- 45° tilting table • Dust extraction facility

## Clarke STATIC PHASE CONVERTERS

- For use with drills, lathes, milling machines, circular saws • Variable output power to match HP of motor to be run

ROTARY PHASE CONVERTERS ALSO AVAILABLE

CONVERT 230V 1PH TO 400V 3PH

PC60

FROM ONLY £229.00 EX.VAT £274.80 INC.VAT

| MODEL | MAX. MOTOR HP | FUSE | EX VAT | INC VAT |
|---|---|---|---|---|
| PC20 | 2Hp | 10amps | £229.00 | £274.80 |
| PC40 | 3.5Hp | 20amps | £269.00 | £322.80 |
| PC60 | 5.5Hp | 32amps | £319.00 | £382.80 |

## Clarke LIGHTWEIGHT ALUMINIUM QUICK RELEASE ALUMINIUM SASH CRAMPS

FROM ONLY £6.99 EX.VAT £8.39 INC.VAT

| MODEL | SIZE | EX. VAT | INC. VAT |
|---|---|---|---|
| CHT374 | 600mm | £6.99 | £8.39 |
| CHT375 | 900mm | £7.99 | £9.59 |
| CHT376 | 1200mm | £9.69 | £11.63 |

## Clarke CONTRACTOR RECIPROCATING SAW

INCLUDES 3 WOOD & 3 METAL BLADES

- Multipurpose saw for cutting wood, board, metal pipes etc. • Max. Depth of cut 210mm
- 850w motor

CON850

NEW

FROM ONLY £46.99 EX.VAT £56.39 INC.VAT

## Clarke DOVETAIL JIGS

- 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

Router not included

CDTJ24

FROM ONLY £49.98 EX.VAT £59.98 INC.VAT

| MODEL | SIZE | EX VAT | INC VAT |
|---|---|---|---|
| CDTJ12 | 300mm | £49.98 | £59.98 |
| CDTJ24 | 600mm | £89.98 | £107.98 |

## Clarke RANDOM ORBITAL SANDERS

£24.99 EX.VAT
£29.00 INC.VAT

CROS1

- For sanding & polishing • 125mm diameter sanding discs • 4000-11000 opm

INC 5 DISCS

## Clarke BISCUIT JOINTERS

- 10,000rpm no load speed • 600w motor • 16mm max cutting depth • 100mm cutting dia.

BJ600

£49.98 EX.VAT
£59.98 INC.VAT

## Clarke CONTRACTOR CR2 ROUTER

£109.98 EX.VAT
£131.98 INC.VAT

INCLUDES 15 PIECE ROUTER BIT SET WORTH OVER £20 INC.VAT

- Powerful heavy duty machine ideal for trade use • Variable speed control from 7,400-21,600 rpm • 2100w motor • 0-60mm plunge depth 1800w **CR3 Router with 15 Piece Bit Set also available only £89.98 £107.98**

## Clarke ROUTER TABLE

Router not included

CRT-1

£49.98 EX.VAT
£59.98 INC.VAT

- Converts your router into a stationary router table • Suitable for most routers (up to 155mm dia. Base plate)

## BLACK & DECKER POWERFILE

£49.98 EX.VAT
£59.98 INC.VAT

KA900E

- Great for hard to reach areas
- 13mm wide belt, 120mm long arm • 350w motor

## RECORD POWER LATHES

CL3-CAM

- Cast Iron construction
- 36" Max between centres

LEG STAND FOR DML36SH £49.98 EX VAT £59.98 INC VAT

FROM ONLY £249.98 EX.VAT £299.98 INC.VAT

5 YEAR GUARANTEE

| MODEL | MOTOR (HP) | NO. SPEEDS | TURNING CAP OVER BED /OUTBOUND | EX VAT | INC VAT |
|---|---|---|---|---|---|
| DML36SH | 1/3 | 4 | 9"/12" | £249.98 | £299.98 |
| CL3-CAM | 3/4 | 5 | 12"/30" | £429.00 | £514.80 |

## Clarke 13" MINI WOOD LATHE

PRICE CUT £119.98 EX.VAT £143.98 INC.VAT WAS £155.98 inc.VAT

CWL325V

- Ideal for enthusiasts/ hobbyists with small workshops • 325mm distance between centres • 200mm max. turning capacity (dia) • 0.2Hp motor

## Clarke POWER PLANERS

Makita

- 82mm cutting width

FROM ONLY £22.99 EX.VAT £27.59 INC.VAT

CON1020

| MODEL | INPUT POWER | DEPTH OF CUT | EX VAT | INC VAT |
|---|---|---|---|---|
| Clarke CEP1 | 650w | 2mm | £22.99 | £27.59 |
| Clarke CON1020 | 1020w | 3mm | £36.99 | £44.39 |
| Bosch PHO20-82 | 680w | 2mm | £62.99 | £75.59 |
| Bosch GHO26-82 | 710w | 2.6mm | £109.98 | £131.98 |

## Clarke ROUTERS

RYOBI freud

FROM ONLY £39.98 EX.VAT £47.98 INC.VAT

* DIY # PRO

| MODEL | MOTOR (W) | PLUNGE (mm) | EX VAT | INC VAT |
|---|---|---|---|---|
| CR1C* | 1200 | 0-50 | £39.98 | £47.98 |
| Ryobi ERT1400RV# | 1400 | 0-55 | £87.99 | £105.59 |
| Trend T5# | 1000 | 0-50 | £169.98 | £203.98 |
| DeWalt DW622K-GB# | 1400 | 0-55 | £229.98 | £275.98 |

## RYOBI ROUTER & TABLE KIT

ERT1400G Router

- 1400w power input
- 14,000-31,500rpm
- 1/4" & 3/8" collet capacity

INCLUDES ROUTER

ART03HG Router Table

- Table dims with extensions 355mm x 1010mm • Mitre gauge
- Adjustable blade guard

£149.98 EX.VAT
£179.98 INC.VAT

## Clarke WORKBENCH

£89.98 EX.VAT
£107.98 INC.VAT

CWB1250

- Robust steel workbench
- Extra thick, reversible plywood faced worktop • Large lockable cabinet with storage shelves • Tough steel drawer

## Clarke HARDWOOD WORKBENCH

- Includes guide holes and bench dogs • 2 heavy duty vices • Large drawer for tool storage
- Dims: LxWxH 1520x620x855mm

CHB1500

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500EL

| MODEL | TYPE | NAIL SIZE | EX VAT | INC VAT |
|---|---|---|---|---|
| 181EL* | Nail | 10-35mm | £37.49 | £44.99 |
| 191EL# | Nail/Staple | 10-35mm | £44.99 | £53.99 |
| 400EL | Nail | 20-40mm | £69.98 | £83.98 |
| 500EL | Nail | 20-50mm | £79.98 | £95.98 |

PRICE CUTS! *was £47.98 inc.VAT #was £57.59 inc.VAT

## Clarke CORDLESS DRILL/DRIVERS

BOSCH Power Tools

PSR18

FROM ONLY £34.99 EX.VAT £41.99 INC.VAT

| MODEL | VOLTS | BATTS | EX VAT | INC VAT |
|---|---|---|---|---|
| CCD180 | 18v | 1 | £34.99 | £41.99 |
| CCD240 | 24v | 1 | £44.99 | £53.99 |
| Bosch PSR18 | 18v | 1 | £66.99 | £80.39 |

## Clarke JIGSAWS

Makita BOSCH Power Tools

CJS380

FROM ONLY £14.99 EX.VAT £17.99 INC.VAT

*DIY #Professional

| MODEL | POWER (W) | DEPTH OF CUT (WOOD/STEEL) | EX VAT | INC VAT |
|---|---|---|---|---|
| Clarke CJS380* | 420w | 55/6mm | £14.99 | £17.99 |
| Clarke CON750# | 750w | 80/10mm | £29.98 | £35.98 |
| B & D KS600* | 450w | 60/5mm | £32.99 | £39.59 |
| Bosch PST700* | 500w | 70/4mm | £44.99 | £53.99 |
| Makita 4329# | 450w | 65/6mm | £59.98 | £71.98 |
| Bosch GST135BCE# | 720w | 135/10mm | £159.98 | £191.98 |

## Clarke BOLTLESS SHELVING BENCHES

- Simple fast assembly in minutes using only a hammer

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ALSO EXTRA WIDE INDUSTRIAL UNITS AVAILABLE

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RED, BLUE, BLACK, SILVER & GALVANISED STEEL

150 KG PER SHELF (evenly distributed) Strong 9mm fibreboard shelves

350 KG PER SHELF (evenly distributed) Strong 12 mm fibreboard shelves

| MODEL | SHELF DIMS WxDxH(mm) | EX VAT | INC VAT |
|---|---|---|---|
| 150Kg | 800x300x1500 | £29.98 | £35.98 |
| 350Kg | 900x400x1800 | £49.98 | £59.98 |

## Clarke PLANERS & THICKNESSERS

CPT600

- Ideal for DIY & Hobby use • Dual purpose, for both finishing & sizing of timber

FROM ONLY £124.99 EX.VAT £149.99 INC.VAT

*Max planing width 152mm

| MODEL | MOTOR | MAX THICK. CAPACITY | EX VAT | INC VAT |
|---|---|---|---|---|
| CP-6 | 1100w | * | £124.99 | £149.99 |
| CPT600 | 1250w | 120mm | £169.98 | £203.98 |
| CPT800 | 1250w | 120mm | £189.98 | £227.98 |

## Clarke WOODWORKING LATHES

3 PCE CHISEL SET INCLUDED WITH CWL1000

CWL1000

SEE CATALOGUE FOR ACCESSORIES

| MODEL | CENTRE TO CENTRE (mm) | TURNING CAP. | TURNING SPEEDS | EX VAT | INC VAT |
|---|---|---|---|---|---|
| CWL1000 | 1016 | 350mm | 4 | £99.98 | £119.98 |
| CWL12D | 940 | 305mm | 5 | £189.98 | £227.98 |

FROM ONLY £99.98 EX.VAT £119.98 INC.VAT

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## Clarke MORTISING MACHINE

£129.98 EX.VAT £155.98 INC.VAT

- Accurately creates deep square recesses
- Table size 150 x 340mm
- Maximum chisel cap.76mm

CBM1B

CHISELS AVAILABLE FROM £6.99 EX VAT £8.39 INC VAT

| MODEL | DEPTH OF CUT | EX. VAT | INC. VAT |
|---|---|---|---|
| Clarke CBM1B | 95mm | £129.98 | £155.98 |
| Record RPM75 | 76mm | £219.98 | £263.98 |
| Record BM16 | 120mm | £259.98 | £311.98 |

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## Clarke DRILL PRESSES

- Tables tilt 0-45° left & right
- Depth gauge
- Chuck guards

B=Bench mounted
F=Floor standing

FROM ONLY £64.99 EX.VAT £77.99 INC.VAT

| MODEL | WATTS/ SPEEDS | EX VAT | INC VAT |
|---|---|---|---|
| CDP5DD | 250/5 | £64.99 | £77.99 |
| CDP101B | 245/5 | £74.99 | £89.99 |
| CDP151B | 300/5 | £99.98 | £119.98 |
| CDP-10B | 370/12 | £139.98 | £167.98 |
| CDP301B | 510/12 | £184.98 | £221.98 |
| CDP451F | 510/16 | £224.99 | £269.99 |
| CDP501F | 980/12 | £399.98 | £479.98 |

## Clarke SCROLL SAWS

CSS16V

FROM ONLY £59.98 EX.VAT £71.98 INC.VAT

- 120w, 230v motor
- 50mm max cut thickness
- 400-1,700rpm variable speed
- Air-blower removes dust from cutting area

| MODEL | MOTOR | SPEED RPM | EX VAT | INC VAT |
|---|---|---|---|---|
| CSS400B | 85w | 1450 | £59.98 | £71.98 |
| CSS16V | 120w | 400-1700 | £79.98 | £95.98 |

## Clarke DUST EXTRACTOR/ CHIP COLLECTORS

FROM ONLY £129.98 EX.VAT £155.98 INC.VAT

METABO ALSO AVAILABLE

- Powerful 750w motor
- 57 litre bag capacity
- Flow rate of 850M3/h

| MODEL | MOTOR | FLOW RATE | BAG CAP. | EX VAT | INC VAT |
|---|---|---|---|---|---|
| CDE35B | 750w | 850 M3/h | 56Ltrs | £129.98 | £155.98 |
| CDE7B | 750w | 850 M3/h | 114Ltrs | £139.98 | £167.98 |

## Clarke DUST EXTRACTOR CDE1000

- 50 litre tank capacity
- 183 m³/h flow rate
- 1100W input wattage

OTHER MODELS AVAILABLE

£99.98 EX.VAT £119.98 INC.VAT

## Clarke BELT SANDERS

FROM ONLY £29.98 EX.VAT £35.98 INC.VAT

BOSCH Power Tools

BS1

| MODEL | WATT | M/MIN | EX VAT | INC VAT |
|---|---|---|---|---|
| Clarke BS1 | 900w | 380 | £29.98 | £35.98 |
| Bosch PBS7A | 600w | 250 | £64.99 | £77.99 |
| Clarke CBS2 | 1200w | 480 | £64.99 | £77.99 |
| Makita 9911 | 650w | 75-270 | £89.98 | £107.98 |

## Clarke 12" CONTRACTORS SAW

INDUCTION MOTOR

CCS12

£229.00 EX.VAT £274.80 INC.VAT

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# Chicken coop

**Alan Holtham** shows you how to make a house for your hens

FOR PULL-OUT PLANS SEE P39

To watch this project being made and to download the plan visit **www.facebook.com/BoschProfessionalPowerToolsUK**, and click on the **'Build it with Bosch'** icon.

PHOTOGRAPHS BY ALAN HOLTHAM

**The materials for this project are all available off the shelf at a DIY store or builder's merchant**

**Start by cutting the legs to length**

**You cannot beat a decent mitre saw for getting the cuts clean and accurate here**

**Set your mitre saw up for sizing the framing material**

**To get the joint flush, hold it all firmly on a flat surface**

**Set the torque on your drill driver to ensure the screws are seated properly**

It seems that the idea of keeping a few chickens in the garden is becoming more and more popular – we all have a bit of the self sufficiency urge buried deep inside us somewhere. Not only do you get a supply of tasty free range eggs, but they provide endless entertainment and recycle a lot of kitchen waste as well.

This very sturdy coop is a fairly conventional design that will take 6-8 birds, but I liked the idea of lifting it off the ground for several reasons. Firstly, it gives them somewhere to shelter. Secondly, it prevents vermin such as rats and mice burying underneath and nesting, and thirdly, it maximises the space available for them to run about in. Anything goes as regards coop design, the only fundamentals after security are to provide plenty of ventilation, and a suitable perch for the birds to roost on.

## Getting started

**1** The materials for this project are all available off the shelf at a DIY store or builder's merchant, so there are no complications there, and you don't have to spend a fortune on top quality wood either. I settled on fifths redwood which is a lot cleaner than the cheaper whitewood but not as expensive as 'best red'. Most of the framing is made from 50 x 38mm and you will also need some 75 x 75mm for the legs, some tongue & groove for the cladding, some exterior 15mm ply and some treated featheredge boards for the roof.

**2** Start by cutting the legs to length, but take a close look at them first and make sure you cut away any splits or cracks on the ends as these will trap water and accelerate the rotting process.

**3** The top slope on each leg needs to be cut at 40° and it is this situation that you cannot beat a decent mitre saw for getting the cuts clean and accurate. If you can rig up some sort of length stop you can cut each component to the exact same length. Accurate cutting is the key to getting everything to assemble properly and care spent at this stage is well rewarded later.

**4** My Bosch mitre saw has integral length stops for shorter pieces so I set these up for sizing the framing material and cut the whole batch at once to ensure consistency of matching components. It is surprising just how much material you need even for a relatively small project.

**5** The frames are screwed together and you can speed this job up considerably by using a combined drill and countersink bit; I used an adjustable one made by Colt. Two screws in each corner will produce a solid joint and stop the frame components twisting. Hold it firmly on a flat surface to get the joint flush.

**Remember to assemble the best boxes in the right sequence**

**6** Next, you need to set the torque on your drill driver to make sure the screws are seated properly, but don't pull in so far that they damage the wood.

**7** The two side frames have a different layout, the one for the nest boxes having another internal frame. Do remember to assemble this in the right sequence so you don't block access for your driver, i.e. start from the inside and work outwards. The cladding is standard tongue and groove material with a chamfer on the joint. This makes a much more solid job than shiplap but it is a little more expensive.

Cutting matching lengths of the tongue & groove in batches to save time

Fix each board with a single nail through the bottom

The top board will need cutting to fit the remaining gap

Neaten it all up using a straight bearing guided cutter in the router

Run this anti-clockwise round the outside of each frame to trim back the overlap

Remember to work clockwise on internal openings

**8** Cut matching lengths of the tongue & groove in batches to save time marking and cutting each one individually, don't worry about getting them spot on for length at this stage, leave them 2 or 3mm oversize at each end. Nail them onto the frames leaving a small amount of overhang at each end, but make sure you get the first one dead level as all the others follow off this one.

**9** To allow the cladding to move with changing temperatures just fix each board with a single nail through the bottom as this will also hold the top of the board below but still allow it to move.

**10** The top board will need cutting to fit the remaining gap, so mark and cut this roughly to size with a jigsaw, again allowing some overhang.

**11** The trick now is to neaten it all up using a straight bearing guided cutter in the router, you will need one with a bottom bearing.

**12** Now you need to run this anti-clockwise round the outside of each frame to trim back the overlap, you should be able to do this in a single pass provided you haven't left too much overlap. The result is a perfectly flush finish that is much quicker and easier to achieve than trying to cut and fit each board individually. One side is very straightforward, but the other needs a cut out for the nest boxes.

**13** Rout this out in the same way, but remember to work clockwise on internal openings.

**14** If you leave enough waste material in the corners when cutting the boards, the finished routed result is a very neat radiused corner.

**15** The end frames are made in much the same way, but there is an opening in each and you need to add the angled top to support the roof. Just think carefully about screw placement here so they don't coincide at the corners where the three components meet.

The finished routed result is a very neat radiused corner

Think carefully about screw placement here so they don't coincide at the corners where the three components meet


16

Careful planning is essential here


17

You need to make sure the smaller pieces stay parallel and in line on either side of the opening


18

Repeat this for the apex board


19

Using the router, trim back both the external and internal overhangs


20

Do this around the ventilation holes as well


21

The back opening door is another framework clad in tongue & groove

**16** I ignored my own advice about planning the assembly properly and ended up having to use a tiny drill/driver for some of the internal joints. I almost had to resort to using a hand screwdriver at one stage. These end frames are clad in the same way as the side frames, but the large openings allow you to use up some of the short offcuts of tongue & groove.

**17** The smaller opening on the front of the chicken coop will form the pop-hole for the chickens to access the coop, but, you don't have to be too fussy fixing the cladding here. However, you do need to make sure the smaller pieces stay parallel and in line on either side of the opening. Plenty of ventilation is essential in the coop, so drill some large holes in the cladding boards near the apex. I drilled three at 38mm using a sawtoothed bit.

**18** Repeat this for the apex board at either end to ensure a good through flow of fresh air.

**19** Repeat the routing trick to trim back both the external and internal overhangs...

**20** ...and also repeat this round the ventilation holes to leave a much neater finish.

**21** The back opening door is another framework clad in tongue & groove, but there is plenty of overhang to ensure there are no draughts when it is shut. You can't trim back with the router on this one so cut the boards as a batch to make sure they are identical.

**22** The final job before assembly is to rout a radius on the three exposed corners of the uprights, again to minimise chipping and also to produce a neater finish. I found it easier to assemble it all on the floor, screwing through the side frames from the inside into the uprights. The nest box side is a bit more difficult as the internal framing gets in the way, so you will have to angle the screws accordingly, just watch it doesn't move when the screws pull up if the angles are too extreme.

**23** Fixing the other end looks a bit more precarious if working on your own, but it is actually easy enough to line everything up with the edge of the leg on the inside.


22

Rout a radius on the three exposed corners of the uprights


23

It is relatively easy to line everything up with the edge of the leg on the inside

Fit the two runners for the base which slides in from the rear

Rout an 18mm groove in the other piece of framing

Screw the locating strip across the front of the coop

**24** Fit in the two runners for the base which slides in from the rear. These are just a couple of lengths of the framing material held in place with four screws.

**25** To locate and secure the floor of the coop at the front rout an 18mm groove in another piece of framing. Although the ply base is only 15mm thick it is better to make any sliding components very loose as they will soon get messed up and swell with the damp, so allow plenty of wriggle room or you will struggle to move it later in the process.

**26** This locating strip now screws across the front of the coop to line up with the two side rails. For the sliding base you will need a piece of the 15mm exterior plywood, again cut so that it is not too tight for fit. Radius the top and bottom edges of this all round as well to help it slide more easily on the runners.

Using the router, produce another piece of grooved material to take the internal divider

You could also use ply for the divider

Screw a strip of 25 x 50mm onto the top of the base board

It is advisable to make up the nest box separately

**27** Screw a strip of 50 x 25mm onto the top of the base board and nail a piece of cladding onto the front; this will act as a handle.

**28** The nest box is made up separately using more framing material screwed together as before, but I reduced the angle of the lid to 25° to give a bit more headroom. The only slight complication is that the front rail needs to be angled but this is no problem with a portable planer.

**29** Use the router to produce another piece of grooved material to take the internal divider.

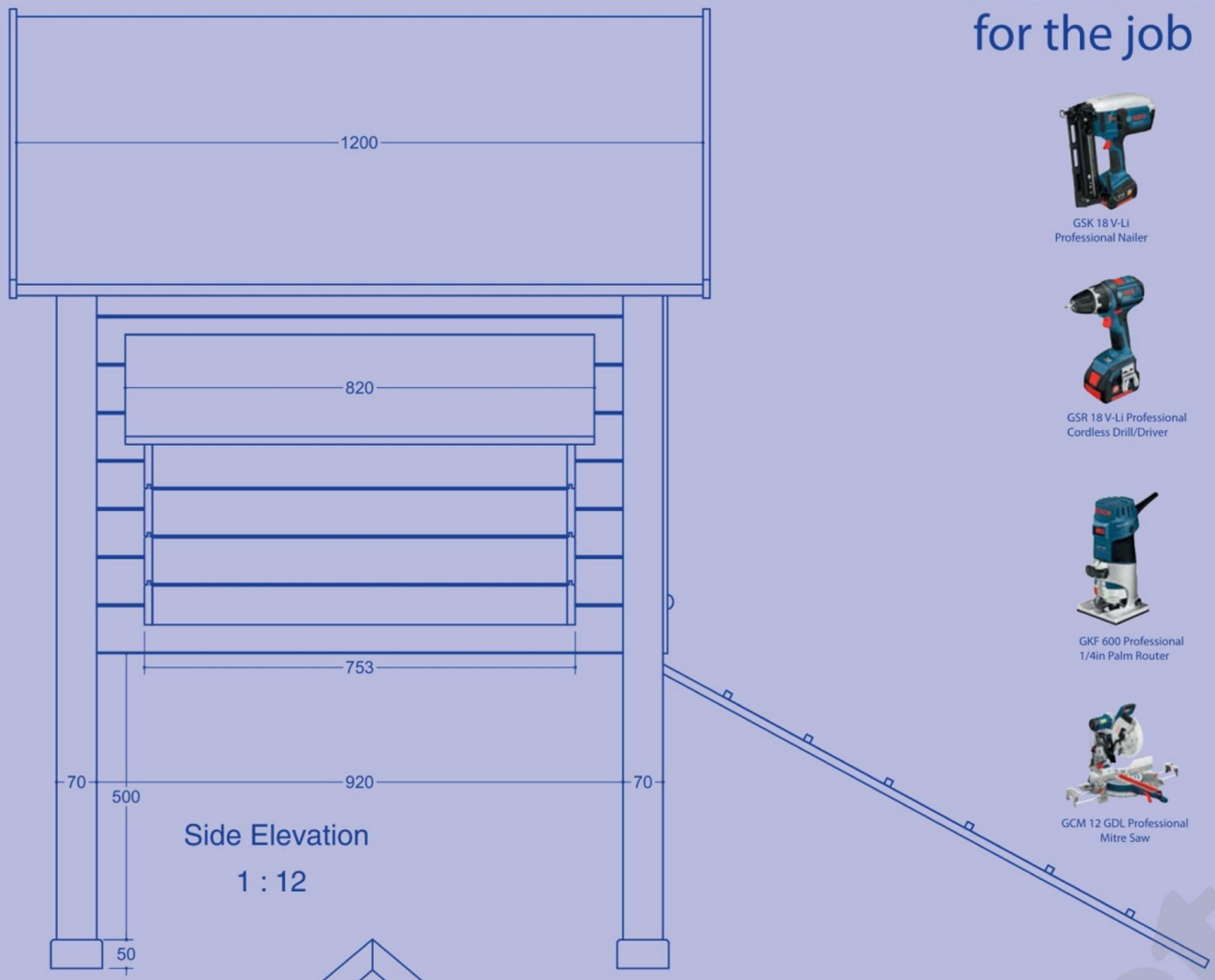
**30** Now to make the divider, which is made up from more short ends of tongue & groove, although you could use a piece of the ply instead. Yet more ply is screwed onto the underneath as the base, but make sure this wood is rated for external use.

**31** Now you can screw the nestbox frame in place; use some Quickgrip clamps to hold it in place while you line it all up. The pieces for the internal divider are cut to length at the 25° angle and then capped off with another piece of the grooved material.

*Project continues on p43 after the pullout plans* ›

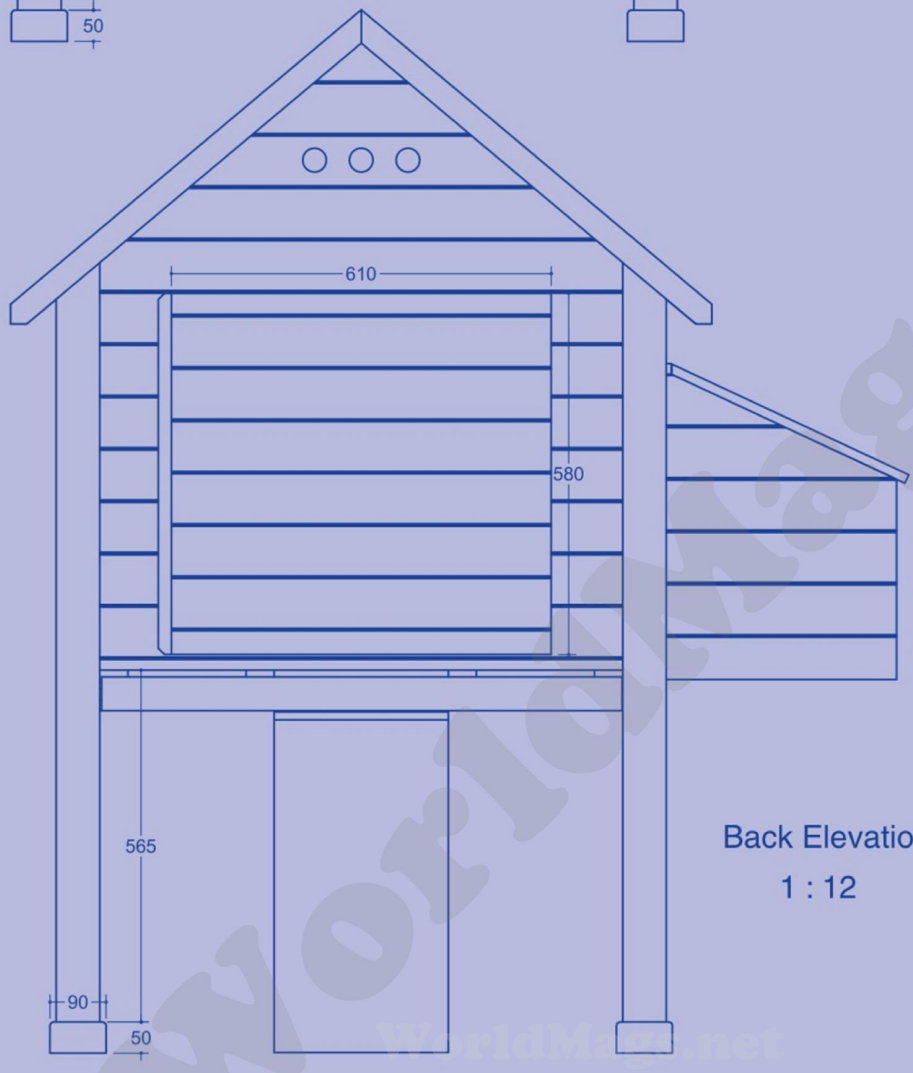
Using some Quickgrip clamps, screw the nestbox frame in place

# Build it with Bosch:




Side Elevation

1 : 12




Back Elevation

1 : 12

## THE TOOLS for the job



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GCM 12 GDL Professional Mitre Saw

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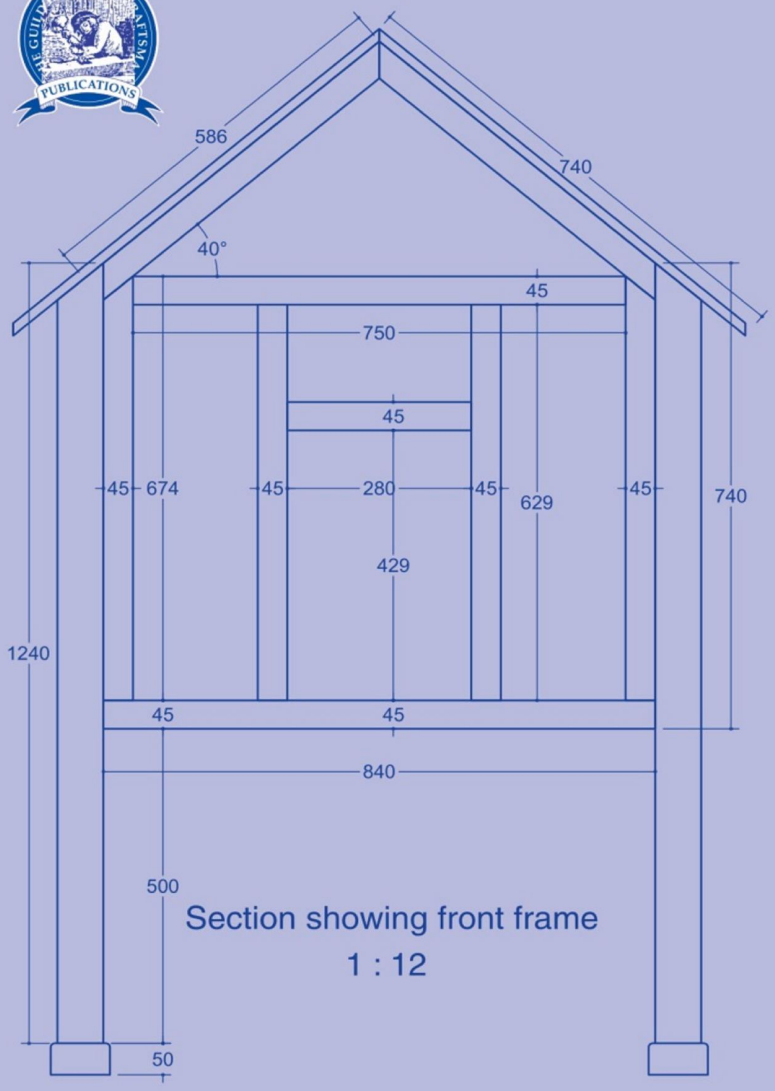
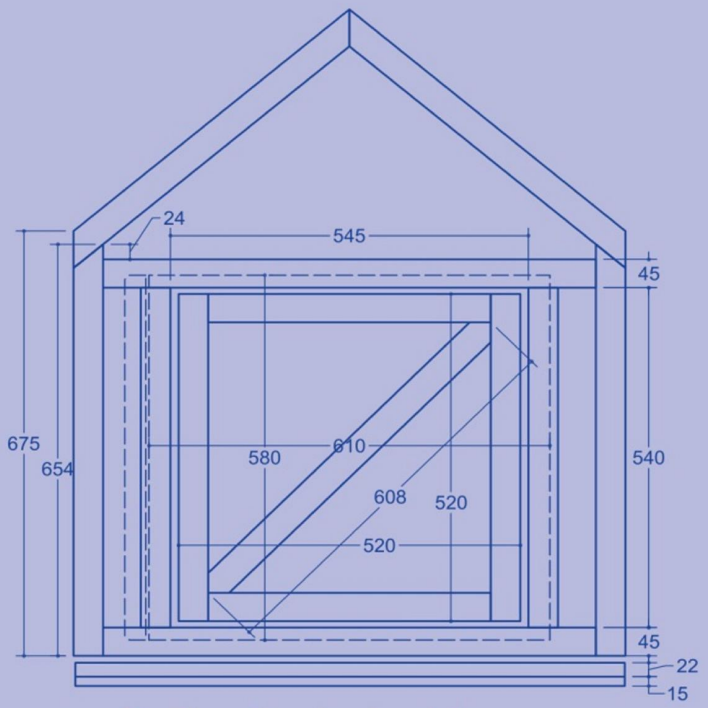
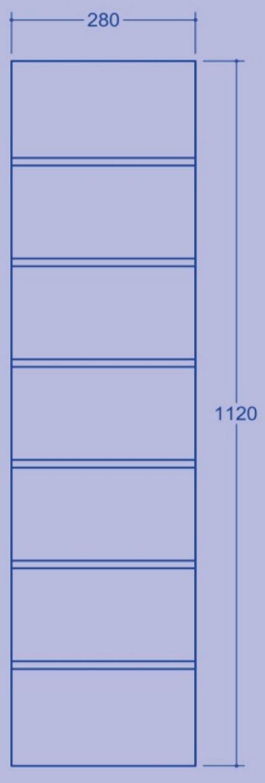


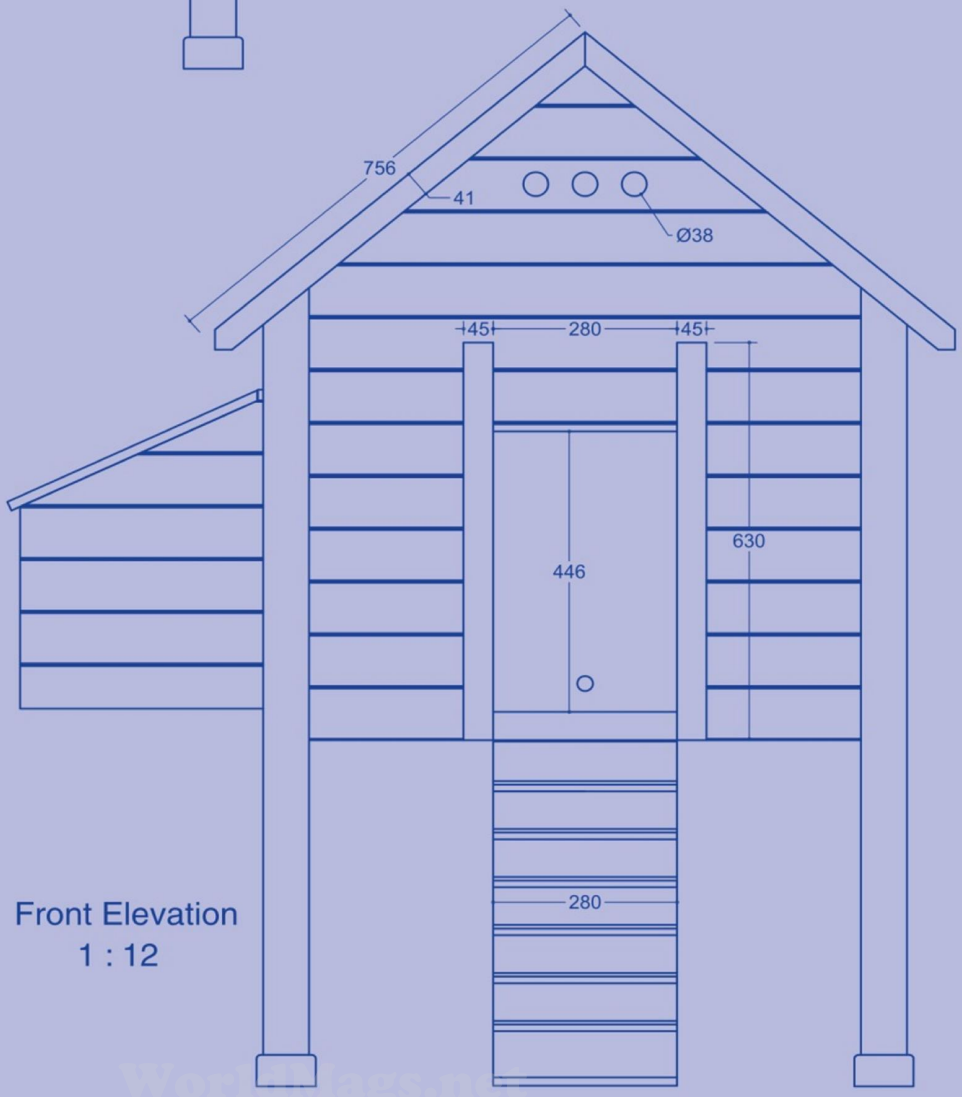

Section showing front frame
1 : 12




Section showing back frame
1 : 12




Ramp Plan
1 : 12




Front Elevation
1 : 12

# Your free chicken coop plan

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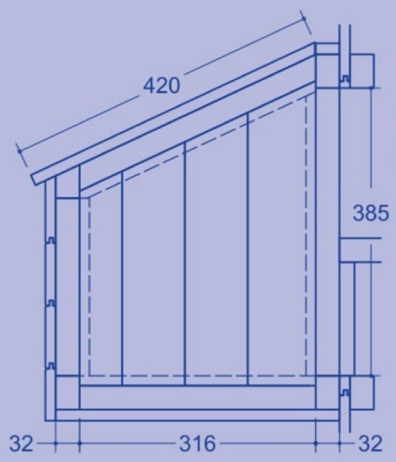
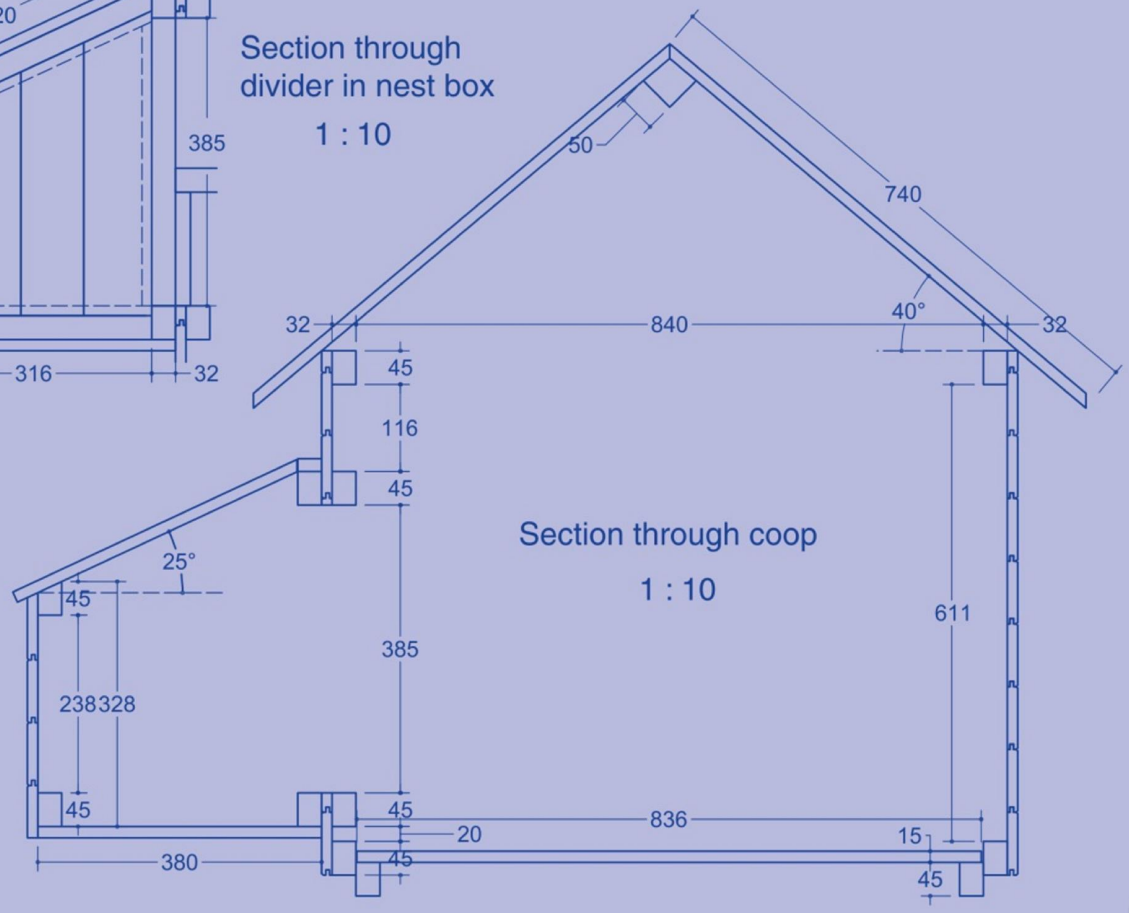


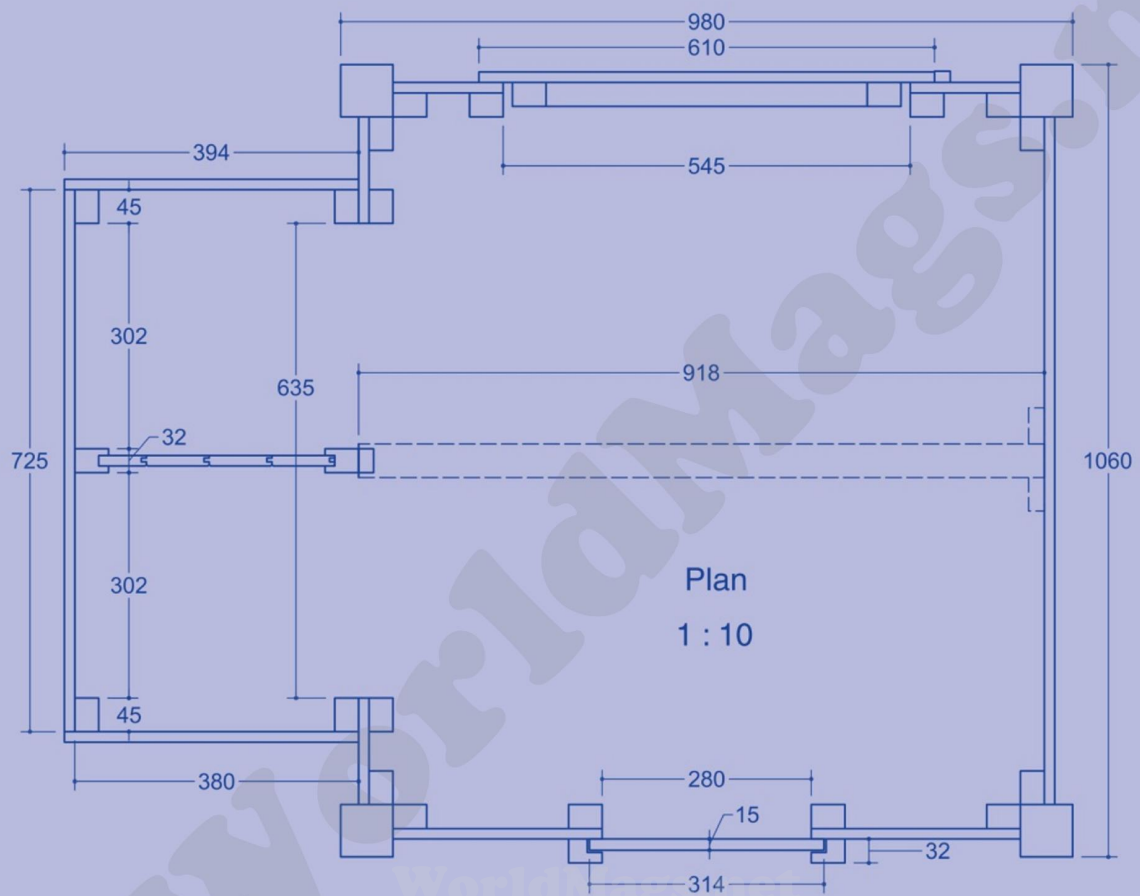

Section through divider in nest box

1 : 10




Section through coop

1 : 10




Plan

1 : 10

WOODWORKING
Plans & Projects

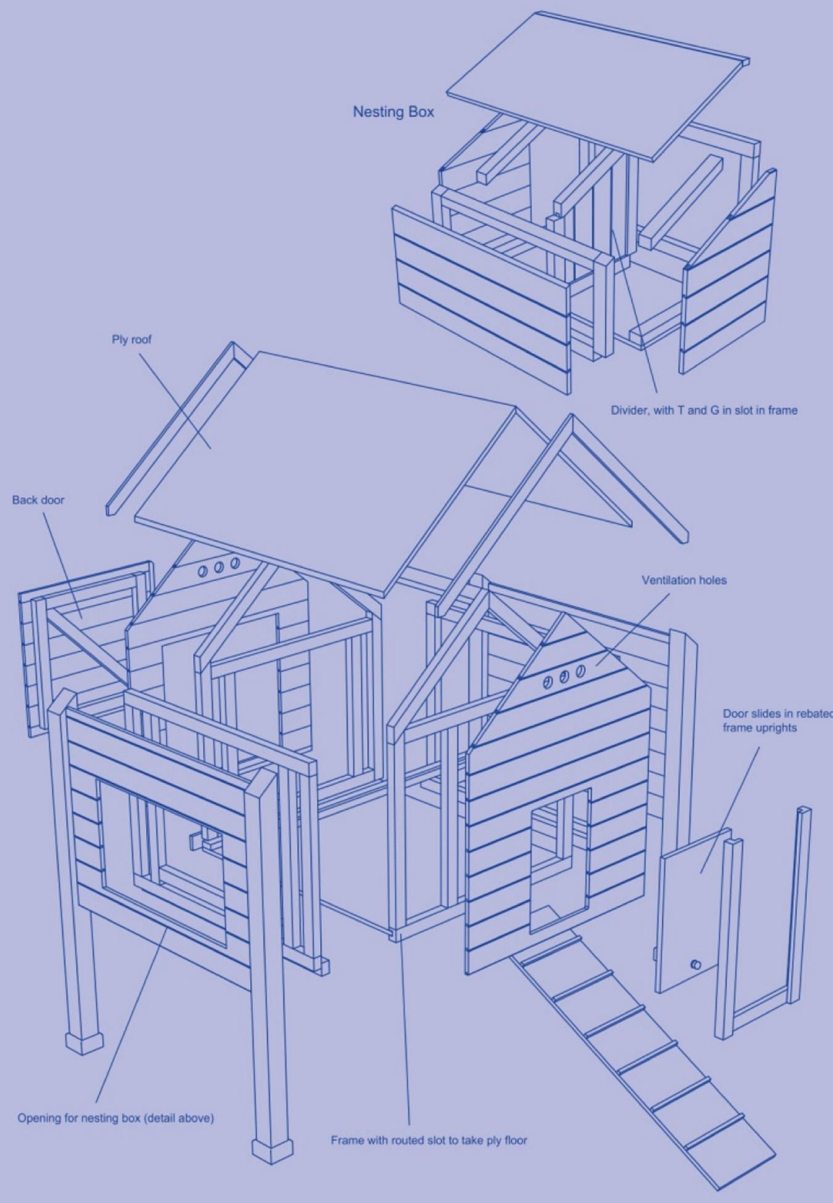
# Your free chicken coop plan

## Cutting List

| | |
|---|---|
| ROOF | 2 @ 1200 x 740 x 15 |
| ROOF TRIM | 4 @ 760 x 42 x 12 |
| CORNER POSTS | 4 @ 1240 x 70 x 70 |
| RIDGE BEAM | 1 @ 920 x 50 x 50 |
| POST PADS | 4 @ 90 x 90 x 50 |
| FRONT FRAME | |
| RAFTERS | 2 @ 586 x 45 x 32 |
| SIDES | 2 @ 674 x 45 x 32 |
| BOTTOM | 1 @ 840 x 45 x 32 |
| TOP | 1 @ 750 x 45 x 32 |
| SIDE INFILL | 2 @ 629 x 45 x 32 |
| DOOR HEAD | 1 @ 280 x 45 x 32 |
| BACK FRAME | |
| RAFTERS | 2 @ 586 x 45 x 32 |
| SIDES | 2 @ 654 x 45 x 32 |
| BOTTOM/TOP | 2 @ 750 x 45 x 32 |
| SIDE INFILL | 2 @ 540 x 45 x 32 |
| SIDE FRAMES | |
| SIDES | 4 @ 635 x 45 x 32 |
| BOTTOM/TOP | 4 @ 920 x 45 x 32 |
| NEST BOX ADDITION | |
| SIDE INFILL | 2 @ 611 x 45 x 32 |
| TOP/BOTTOM TRIM | 2 @ 635 x 45 x 32 |

## Cutting List (cont)

| | |
|---|---|
| NEST BOX FRAME | |
| RAFTERS | 2 @ 366 x 45 x 32 |
| BEAMS | 4 @ 725 x 45 x 32 |
| UPRIGHTS | 2 @ 238 x 45 x 32 |
| UPRIGHTS | 2 @ 385 x 45 x 32 |
| BOTTOMS | 2 @ 316 x 45 x 32 |
| FLOOR | 1 @ 725 x 380 x 15 |
| ROOF | 1 @ 820 x 420 x 15 |
| ROOF TRIM | 1 @ 820 x 35 x 15 |
| NEST BOX DIVIDER FRAME | |
| RAFTER | 1 @ 420 x 45 x 32 |
| SIDE | 1 @ 385 x 45 x 32 |
| SIDE | 1 @ 238 x 45 x 32 |
| BOTTOM | 1 @ 316 x 45 x 32 |
| PERCH | 1 @ 918 x 45 x 32 |
| PERCH SUPPORT | 1 @ 152 x 45 x 32 |
| PERCH HANGER | 1 @ 138 x 45 x 22 |
| BACK DOOR FRAME | |
| SIDES | 2 @ 520 x 45 x 32 |
| BOTTOM/TOP | 2 @ 430 x 45 x 32 |
| BRACE | 1 @ 608 x 45 x 32 |




| | |
|---|---|
| FRONT DOOR | |
| SIDE RUNNERS | 2 @ 634 x 45 x 32 |
| BOTTOM INFILL | 1 @ 314 x 45 x 32 |
| DOOR | 1 @ 446 x 314 x 15 |
| RAMP | 1 @ 1120 x 280 x 15 |
| FLOOR | 1 @ Ex 970 x 836 x 15 |
| FLOOR RUNNERS | 2 @ 920 x 45 x 32 |
| FLOOR TRIM | 1 @ 836 x 22 x 32 |

Cladding not included in cutting list. Plans show 12mm shiplap





GMC Publications Ltd **www.thegmcgroup.com**


The exact angle is not critical here so don't be too fussy


Cut a couple of pieces of the exterior ply to form the roof


Use a hinged off horizontal ply rail for the nest box lid


Use ply with some softwood treads for the ladder up to the pop-hole


Fix this onto the underside with a large Tee hinge


Fix the back door using a couple more Tee hinges

**32** The top roof rail is a length of 50 x 50mm but as the included angle of the roof is now 100° and the 50 x 50mm meets at 90° you will need to plane a slight chamfer on each side with the hand planer. The exact angle is not critical here.

**33** Cut a couple of pieces of the exterior ply to from the roof, but allow plenty of overhang to shed the water well clear of the coop walls and particularly the nest box lid hinges.

**34** Another piece of ply forms the nest box lid, hinged off a horizontal ply rail. To form the sliding pop-hole for the coop you will need to rebate a couple of pieces of the framing and screw these to the front, with a stop at the bottom. The ply slides down behind these, again don't make it too tight or you will struggle to open it on a wet day. A simple hasp and staple secures the lid in the open position. Make sure this does secure properly as you don't want it to drop down accidentally and potentially shut the birds out.

**35** The ladder up to the pop-hole is again ply with some softwood treads pinned across at regular intervals.

**36** I fixed this onto the underside with a large Tee hinge so the ladder can be angled accordingly if the coop is moved around.

**37** The back door is fitted with a couple more Tee hinges. A hasp and staple keeps it secure.

**38** The perch spans the width of the coop and is another piece of framing, but this time flat and with the top two edges well rounded to give the birds a comfortable grip. To protect the softwood legs when they are stood on wet ground I machined up some small square pads from a scrap of 50mm oak, but you could equally stand it up on bricks.

**39** The finishing touches for the project are to fit the hinges for the nest boxes and nail on the barge boards for the roof of the coop. These will hide the cut ends of the treated featheredge board I shall fit when the coop is finally on site. ■


The perch flat with the top two edges well rounded


Fit the hinges for the nest boxes and nail on the barge boards for the roof

# Hot Stuff

Take a look at the tools, gadgets and gizmos that we think you will enjoy using in your workshop

## STANLEY laminate edge trimmer

This laminate edge trimmer from Stanley is easy to use and shaped to fit snugly in your hand. It is an ideal tool for trimming laminate edge banding, giving you the perfect finish. The product features twin blades and is spring-loaded for trimming both sides of the edging strip in one sweep. The spring load gives adjustable cuts from 12-25mm and is suitable for use with thin laminates, veneers and edge banding.


**CONTACT:** Stanley
**TEL:** 01142 917 146
**WEBSITE:** www.stanleytools.co.uk

## DAKOTA set of 170 brad point drill bits

This new drill bit set from Rutlands is ideal for use in hardwoods and softwoods and features 19 different diameters of drill bits from 1mm to 10mm in 0.5mm increments. These sets have 10 pieces of each of the 1mm to 8mm drill bits and five pieces of each of the 8.5mm to 10mm drill bits giving a total of 170 drill bits. So if a bit breaks, another is to hand instantly. Available with either twist drills or brad point drills both types of drill bit are titanium coated for extra durability. These sets are supplied in a handy metal carry case and come supplied with a metal drill sizing gauge.

**CONTACT:** Rutlands
**TEL:** 01629 815 518
**WEBSITE:** www.rutlands.co.uk


**CONTACT:** Makita
**TEL:** 01908 211 678
**WEBSITE:** www.makitauk.com

## MAKITA Pro Worker router bit range

Makita will challenge established suppliers with a new 30-item range of high precision router bits made in Britain. The 30 most popular router patterns have been chosen to match the core demand. The Makita Pro Worker router bit range is currently available with 6mm and 12mm imperial size shanks and a European standard 8mm and 12mm shank range will be available in the future.

This new 30-piece range features tungsten carbide tipped cutters including bearing supported edging cutters, straight and complex patterns. These accurately balanced router bits are ideal for all furniture, cabinet facing and fitting tasks.


Prices are correct at time of printing and inclusive of 20% VAT. Photographs and information courtesy of the manufacturers


## WEALDEN jigsaw blades

Wealden Tools have in stock a range of German-made jigsaw blades – to complement their existing circular saw and bandsaw blades – which guarantee professional results where high demands are made on tooth geometry, blade thickness, blade form and blade material.

There is a wide range of sizes available in two different fitting types and the range is available in pack quantities of 2, 5, 25 and 100 blades. All blades are available to buy online and the website has a selection guide showing the recommended use for each reference number.

**CONTACT:** Wealden Tool Company
**TEL:** 0800 328 4183
**WEBSITE:** www.wealdentool.com

## FOOTPRINT TOOLS block plane

Footprint Tools are made in Sheffield and are high in quality and expertly made.

This block plane is available in 42mm size and is ideal for end grain planing, hence the lower angle of the blade – 21° – or for small scale planing jobs. This plane can be used single handed. The base is machine ground for accuracy and has finger and thumb grooves in the sides for a positive grip.


**CONTACT:** Footprint Tools
**TEL:** 01142 327 080
**WEBSITE:** www.footprint-tools.co.uk

## AXMINSTER BTS10ST TABLE SAW

This table saw is designed for maximum mobility and minimum storage space requirements. Built around a welded steel box section frame, it has a pair of sturdy wheels and a telescopic handle to allow the saw to be wheeled around with complete ease. The saw can also be stored vertically to save storage space, plus it has a folding steel stand which is easy to erect. The saw table is extruded aluminium and has a useful 645 x 140mm sliding table with 695mm of travel, which is great for mitre work. The rip fence has two support rails and a clever flip-over function. It is also powered by a 1,800W braked brush motor.


**CONTACT:** Axminster Tool Centre
**TEL:** 0333 2406 406
**WEBSITE:** www.axminster.co.uk

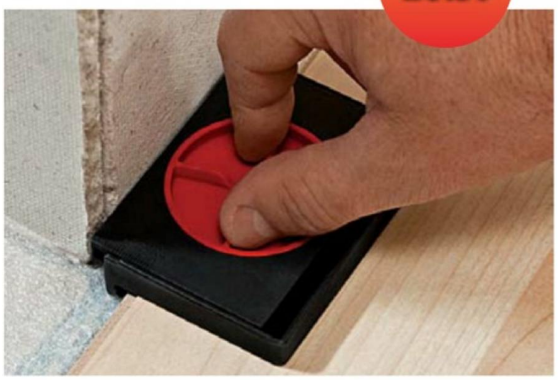
## DEWALT DCD740C1 18V Li-ion right angle drill driver

This latest generation 18V XR Li-ion compact right angle drill driver features new XR Li-ion battery technology. This powerful 18V right angle drill is ideal for drilling and screwdriving applications in confined spaces. Its compact, lightweight design will ensure that jobs can be carried out quickly and efficiently. It features a chuck capacity of 1.0-10mm, no load speed is 0-650-2,000rpm and the maximum torque is 33Nm. From April, this product will also be available as a bare unit, and will be priced at £126 (RRP).


**CONTACT:** DeWalt
**EMAIL:** reply@dewalt.com
**WEBSITE:** www.dewalt.co.uk

# BESSEY AV2 spacer

£6.59



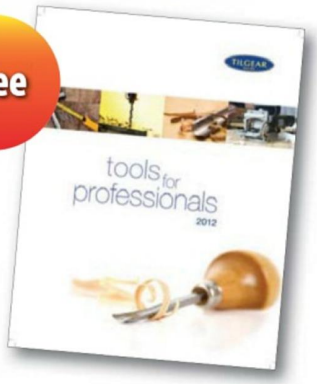
This product is used for the installation of laminate and prefabricated parquet and makes floor installation much easier, even for non professionals. The AV2 spacer keeps a consistent and correct spacing to the wall and is variable and adjustable in use. Set up is fast and simple. Inserted between the wall and the first row of flooring, the distance to the wall can be set simply by turning the red dial. This means that wall surface irregularities of 5-20mm can be compensated for easily. The exact distance required for spacing can be readily seen on the millimetre scale.

Manufactured from impact resistant, break resistant polyamide, the AV2 spacer tool is light and tough and should last for years. It is just about the size of a business card and packaged as a four-piece set.

**CONTACT:** Bessey
**TEL:** +49 07142 4010
**WEBSITE:** www.bessey.de

# TILGEAR 'Tools for Professionals' 2012 Catalogue

Free




Tilgear have recently launched their new full colour 160-page catalogue, full of quality tools and equipment, ranging from the humble screwdriver to CNC machinery. By directly importing, the product range is varied and differs from the standard ranges generally offered; also the pricing is kept competitive.

Specialist lines include Pfeil carving tools, Viper router cutters, Diatec measuring equipment, Borman cutting tools, Sekura workholding, Durabond adhesives, Kanga leather goods, Stromberg hand tools, and Boston clamps and vices.

**CONTACT:** Tilgear
**TEL:** 0845 099 0220
**WEBSITE:** www.tilgear.info

# ELMER'S wood fillers & Krazy Glue products

£various

Elmer's Products Inc, an industry leader in adhesives is pleased to announce a new partnership with Toolstream.

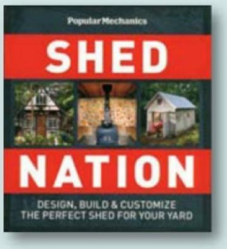
Toolstream Ltd is one of the leading hardware distributors in Europe, offering products to a wide variety of consumers. With this partnership, the company will add Elmer's hardware and Krazy Glue products to its distribution markets in the United Kingdom, Germany, France, Spain, Holland and Italy. The products available include: Elmer's Hardware Glue-All, Carpenter's Wood Glue, Wood Glue Max, ProBond Wood Glue, Elmer's wood fillers and select Krazy Glue products. The glues will complement Toolstream's power and hand tool product offerings as these Elmer's products are specifically designed for carpenters, contractors and do-it-yourself projects.


**CONTACT:** Toolstream
**WEBSITE:** www.elmersglue.eu

# BOOK REVIEWS

## Shed Nation

by Popular Mechanics

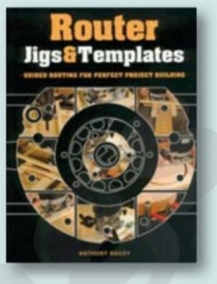



Sheds are becoming far more popular in the UK and are a big talking point in the United States. This book is full of inspiration and do-it-yourself instructions and techniques, as well as inventive design advice.

The illustrations and photos in the book are excellent, easy to follow and are certainly inspirational. *Shed Nation* shows you how to build everything from a storage structure, a children's playhouse, an art studio, all the way through to your own workshop. The book shows you how to site and plan your shed, as well as how to choose durable and attractive materials. In short, it contains everything you need to know and is a fascinating and informative read.

**ISBN:** 978-1-58816-712-5
**PRICE:** £14.99 (RRP)
**FROM:** Amazon
**WEBSITE:** www.amazon.co.uk

## Router Jigs & Templates




This new book from *WPP* Editor and router expert, Anthony Bailey, shows you everything you need to know to get the best out of this effective and valuable powertool. The book explores the basic set-up and fundamental techniques; explores the difference between freehand and table routing; and looks in-depth at the practical uses for functional jigs and templates. The book also includes eight practical projects for the home that vary in difficulty, including a coffee table, a dolls' house and dovetail drawer. Highly recommended for the budding craftsman or seasoned woodworker.

**ISBN:** 978-1-86108-888-8
**PRICE:** £16.99 (plus P&P)
**FROM:** GMC Publications
**TEL:** 01273 488 005
**WEBSITE:** www.thegmcgroup.com

## Bullar Builds

# Coming together

The piece of furniture you will see developing in this series is a settle – a combined seat and storage cabinet, made to stand in a hallway. This series is intended to guide you through the processes of making furniture, and so the settle is just an example. You may want to modify the design or adapt the stages to your own project.

Part six of **John Bullar's** series on building a hallway settle from scratch

In this series we are looking at the furniture making process in detail, using an oak storage seat or 'settle' as a worked example. So far we have seen how to obtain and prepare timber for furniture making, then use hand tools and/or powered tools as options to cut the various joints used in the project.

Now all the parts must come together in the glue-up or assembly stage. In principle, this process seems quite obvious – it might appear that if the joints have been made to fit, all you need to do is dab a bit of glue on and push them all together, but unfortunately it is not like that.

**The horizontal rail around the top of the settle will be one of its most distinctive features. It needs accurate joinery combined with careful shaping if it is to work well**

PHOTOGRAPHS BY JOHN BULLAR

## ORGANISED HASTE

Unlike other stages where you can work slowly to get things right, during a glue-up you will be working against the clock. The whole operation must be carefully planned and rehearsed to make sure it goes smoothly.

Once glue has been applied to joints the clock will start ticking – water from the glue will swell the wood, tightening the fit of the joints, then the glue begins to cure, forming bonds between adjacent wood fibres. This is not the time to find out that things need adjusting!

## REHEARSALS

Rehearsing the assembly procedure with dry fitted joints is a stage I consider essential for two reasons: firstly, it enables me to anticipate problems and make sure I have suitable clamps, already adjusted to size. Secondly, it ensures that all the joints fit, not just individually but as a well aligned set that don't fight against one another. Every set of joints needs checking but here are just a couple of examples.

The horizontal rail around the top of the settle needs accurate joinery combined with careful shaping if it is to work well. Here I am trial fitting the mortise and tenon, joining the back and end rails and checking that the profile flows around the corners.

## Gluing machined joints

Machined joints such as Dominoes, dowels or biscuits have the advantage of being totally consistent so they shouldn't all need individual dry-fitting. It is easy to damage joints like this by pulling them apart so I keep dry fitting to a minimum, just enough to establish the spacing.

**Glue is brushed into the socket on the end of each post ready to mate with the Domino. On this side of the joint I apply a thin layer of glue to the end grain around the socket to ensure it bonds with the top rail**

**The vertical back posts will connect the seat rail to the top rail, so the spacing between them is critical to the position of the joints in the side panels. Here I am setting this spacing to check the joint positions**

**I use a low cost art brush to apply PVA to the sockets of these joints. If glue was applied to the Domino itself it would simply scrape off and end up on the outside edge of the socket**

**Dominoes are tapped into the glue-lined sockets using a small tack hammer. Be careful not to bruise the top end of the domino as this could prevent it entering the mating socket**

**The spacing of the individual posts is largely aligned by the pencil marks drawn to position the sockets. Even so, the sockets are marginally over width, allowing a little side play. I check each individual spacing between posts using a tapered wedge with a pencil line drawn on to mark the position where it should fit**

**Feeding a series of pins on a fixed rail into a series of sockets on unsteady posts can be tricky regardless of the type of joint used. The only way I find this works is to start at one end and feed the sockets in one at a time, jiggling each post around in turn to align it**

## CLAMPING POSTS

Most glued joints, including mortise and tenons, need to be clamped firmly while the glue sets. This ensures that the pieces of wood are set in the correct position so that wood fibres make contact over a large area, not just on the high points.

A sash cramp is the general name for a long steel or wooden bar with a repositionable jaw that slides up and down with an adjustable screw clamp on one end. They come in various designs, some heavier duty than others, and are ideal for pulling together large frames.

7

**In general, using more cramps will create more even pressure for better results. When tightened, the jaws tend to splay out, so to balance the forces try to alternate sash cramps on opposite sides of the assembly**

8

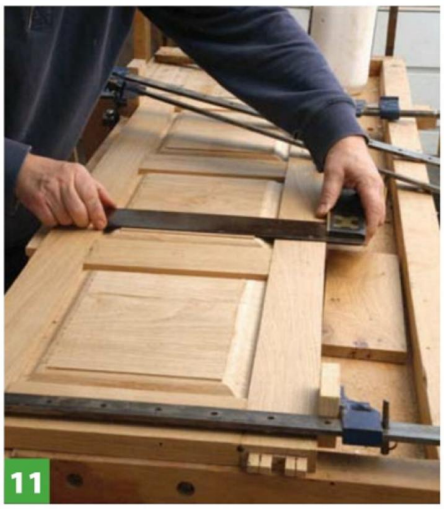
**When the cramps are tightened, each joint is pulled firmly together so there is no visible gap and the glue on the end grain can bond to the long grain surrounding the joint**

9

**The only snag is they can rattle a bit and the panel can move to one side leaving a gap at the other. To stop the middle of the panel moving, I put a dab of glue on the end grain at the centre top and bottom before closing the frame around a panel. This still allows the sides to move with seasonal moisture changes**

10

**The panel is positioned in the slot before the frame joints are glued and closed up. On stub mortise and tenon joints, I put a thin layer of glue on both surfaces of the joint to ensure there are no dry areas when it is closed**



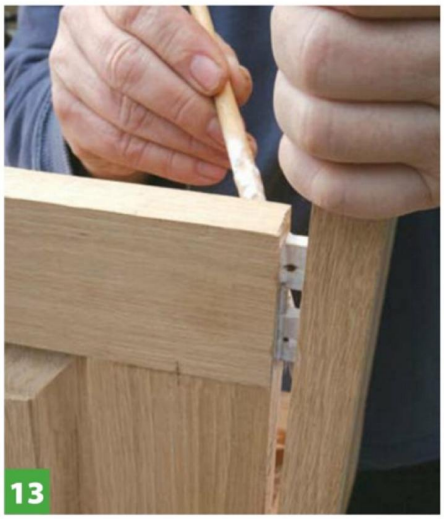
11

**While assembling and clamping together, check that the framework and the panels are correctly positioned and aligned at right angles. The frame and panel are clamped together to make a sub-assembly and the glue allowed to set before joining this to the sides**

## JOINING SIDES

12

**Once its joints have set, the frame can be glued to the sides. I used twin fox-wedged tenons for these joints – a traditional method which cannot work loose even if the glue is weak. In practise, simple stub mortises would be quite adequate when used with strong modern PVA based adhesive**



13

**As well as gluing the tenons on the corners of the frame into their mortises, I applied glue to the edges of vertical posts to bond them to the side panels between the mortises. This large area of long grain butt-jointed to long grain provides considerable strength**

## CABINET DOVETAILS

Cabinet dovetails cut on the ends of the lower back rails are set into sockets in the back edges of the side panels. These brace the rear of the settle together. After trial fitting the sockets I lined them with a liberal coating of glue

The tails are a firm fit in their sockets and need to be tapped into place with a mallet. Light pressure clamping from front to back, will avoid any wobble while the glue sets

## TOP RAIL SLOTS

The long dovetail shaped slots beneath the side top rails are intended to slide on the matching profiled sections on top of the side panels. This allows for a millimetre or two of wood movement with changes in seasonal moisture. Glue applied to the front end of the slot only fixes this to the front of the side panels while allowing movement at the back

The tenons on the top side rails are clamped into the mortises on the top back rail. Some tiny beads of glue can be seen on the edges of the joint. This is ideal as it shows the joint is neither starved of glue nor oozing out excess

One problem every maker of free-standing furniture encounters at some time or other is wobble on floors. Experience tells you that floors and walls are never perfectly flat, in old or new buildings. While you cannot do much about the building, you can make sure that your furniture is assembled level

Both the front and back sub-assemblies were already checked to be square before they joined to the sides. Now the main assembly is checked to be square with clamps applied before the glue starts to set. Measuring both diagonals is a good way to do this as they should be identical. If need be, the clamps can be adjusted or moved a little to pull the framework square

The assembly is now essentially complete. It just requires the underside and bottom rear panel to be fixed and the seat itself to be hinged in place.

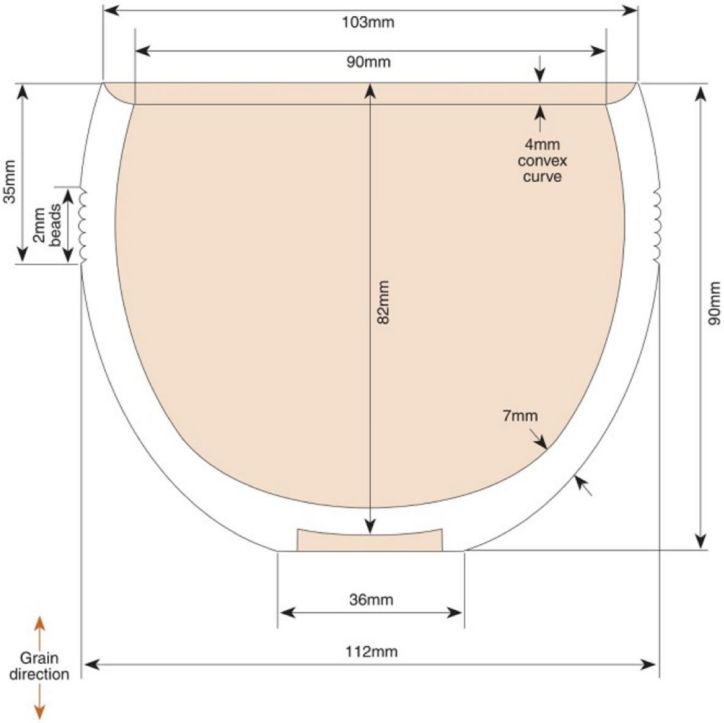
Next time, we will look at the finishing options suitable for use on this hardwood furniture. ■

Mini Projects

# Turned storage

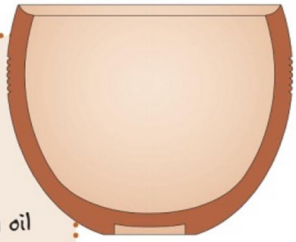
**Mark Baker** looks at four turned items for the home

## DEEP BOWL




### YOU WILL NEED

- 10mm bowl gouge
- 3mm parting tool
- 19mm French-curve scraper
- Abrasives 120-400g & finishing oil
- Four-jaw scroll chuck



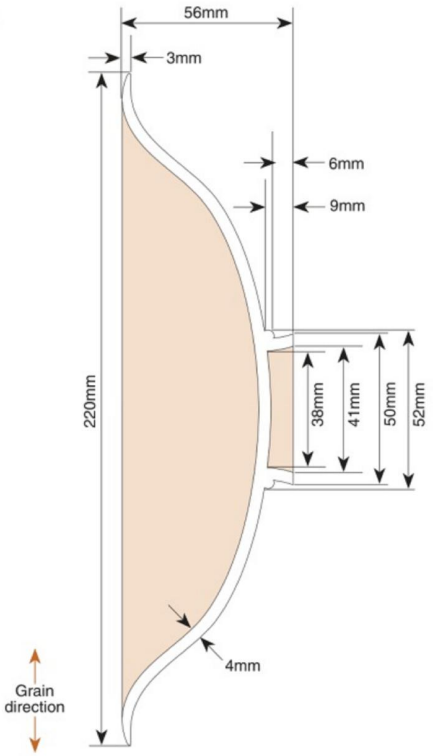
Start by initially mounting the bowl blank on a screw chuck or faceplate and then, with the lathe speed set about 800-1000rpm, take the bowl gouge and shape the outside of the bowl. To ensure you are cutting with the grain, work from the very bottom of the recess up to the widest part and then reverse the gouge and work from the top edge back towards the widest part. Once happy with the shape, use the parting tool to cut the recess to suit your chuck jaws – don't go too deep. Now move to the area where the beads need to be cut. Mark the outer boundaries of the area with a pencil, then, using the parting tool, gently cut, or scrape the beads. They are very fine and you need a gentle cut to keep them whole. Once cut, sand the outside down to 400grit – being careful of the bead detail. Now reverse the bowl and use the bowl gouge to remove the centre area and then, if necessary, use a scraper to refine the internal form. Once happy, sand it and apply and oil finish all over.

## OGEE BOWL

### YOU WILL NEED

- 10mm bowl gouge
- 3mm parting tool
- 19mm French-curve scraper
- Abrasives 120-400g & finishing oil
- Four-jaw scroll chuck

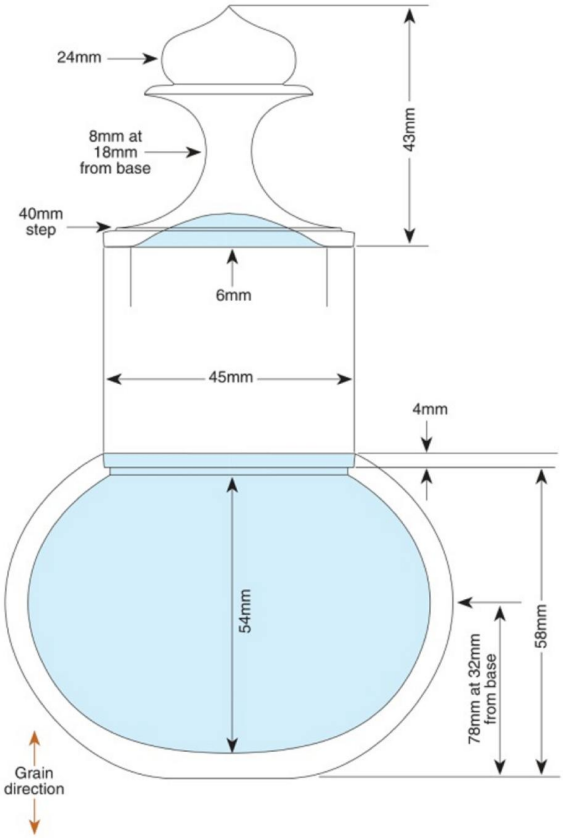
Mount the blank on a screw chuck or faceplate and then use a bowl gouge to shape the outside. Have the flute pointing in the direction of cut and the cut occuring on the lower wing. Use a parting tool to create a holding spigot at the lower section of the bowl, but do not create the internal hollow just yet. Now mark the centre of it – we need this later on. Remove the bowl, mount it in the chuck and use the bowl gouge to remove the waste from the inside. Once you have the ogee curve, refine the shape with a scraper, sand the piece down to 400grit and remove it from the lathe. Now mount a domed-top waste piece of wood in the chuck and put a couple of layers of kitchen towel over it. Place the inside of the bowl on it and bring up the tailstock to locate it in the centre mark. Use the parting tool to create most of the hollow in the spigot leaving just a small taper under the revolving centre. Also, refine the outer spigot to remove the crush marks. Now sand the piece, remove it, carve off the little taper, then apply oil all over the surface.



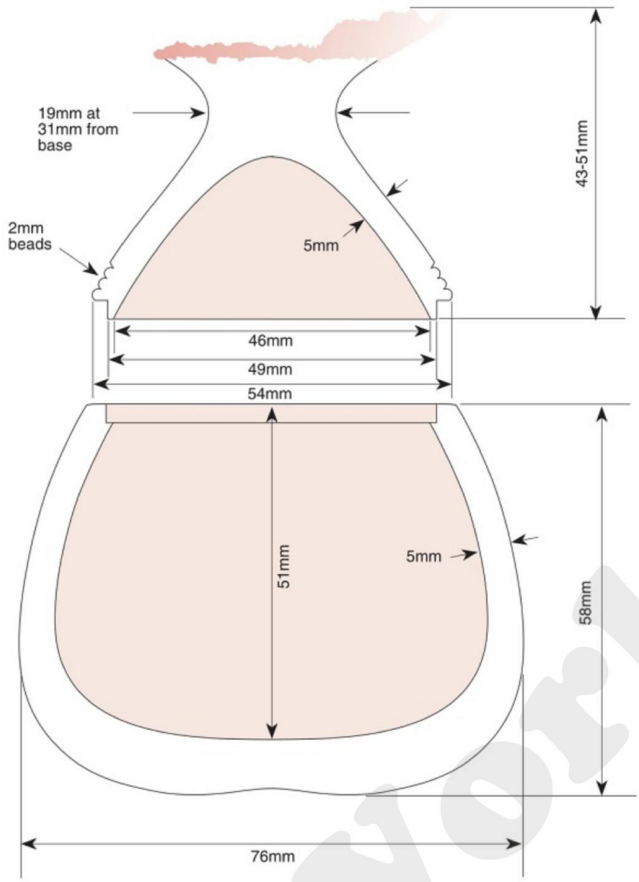
# PERFUME-BOTTLE BOX

## YOU WILL NEED

- 19mm spindle roughing gouge
- 10mm spindle
- 3mm parting tool
- 19mm French-curve scraper
- Abrasives 120-400g & finishing oil
- Four-jaw scroll chuck



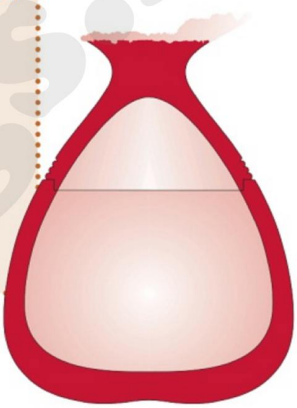

Mount your spindle blank between centres and turn it to a parallel cylinder using the spindle roughing gouge. Next, take the parting tool and create a spigot at either end of the cylinder to suit your chuck jaws. Remove the piece and mount it in the chuck. About 60mm from what will be the bottom of the base section make a parting cut to create a 48mm diameter spigot section – this needs to be about 10mm wide. This will be the section that fits into the bottom part. Take the spindle gouge and roughly shape the box, cutting in all the major shape sections, but ensure not to cut the neck section too thin at this stage. About 2mm up from the base section spigot part through to remove what will be the top part. Now take the spindle gouge and scraper and remove the centre section of the box working from the innner section out to the outer hollow. Once shaped, refine the opening to create that stepped recess with a parting tool, then sand the inside. Remove the piece and fit the lid in the chuck. Use the spindle gouge to refine the meeting section of the lid and check the fit – it needs to be tight. Once shaped, remove it and remount the base, fit the lid in the base and bring up the tailstock. Now refine the external shape and the lid section, then sand it. Use the spindle gouge and take very light cuts to refine the top near to the tailstock centre. With the lathe stopped, remove the tailstock, sand the finial and coat the whole piece with oil. Remove the lid and micro adjust the recess in the base with the parting tool so the lid fit is not too tight, and part through the base area near the chuck; this will create the bottom of the box. You can now sand and finish.




# FIG-SHAPED BOX

## YOU WILL NEED

- 19mm spindle roughing gouge
- 10mm spindle
- 3mm parting tool
- 19mm French-curve scraper
- Abrasives 120-400g & finishing oil
- Four-jaw scroll chuck



This piece is created in the exactly the same manner as the perfume-bottle box, but instead of a finial top, it has a natural edge. So follow the procedure for the last project, but don't create the top finial part; instead leave the natural edge section in place. When you have the tailstock in place to keep the lid and base section together, do not apply too much pressure or this will unduly mark the natural edge top. Once you have shaped the neck, sand all the faces and apply oil to the entire surface, then remove the lid and use a soft wire brush to brush over the natural edge; this will make it nice and clean. Lastly, you can finish the base as for the previous project. ■

# Classic Roman clock face

In this excerpt from *The Big Book of Scroll Saw Woodworking*, **Sue Mey** shows you how to scrollsaw this classic Roman clock face

The fretwork portion of this project, with Roman numerals and scrolls, is simple enough for a beginner to achieve very good results. Paired with a simple backing board of a contrasting colour, it makes a striking wall clock. The overlay can also be used to replace a shop bought mechanism on more complex projects. I use walnut stain to darken the overlay, but a dark hardwood can be used instead. Maple, beech, and light oak are all good choices for the backing.

## YOU WILL NEED

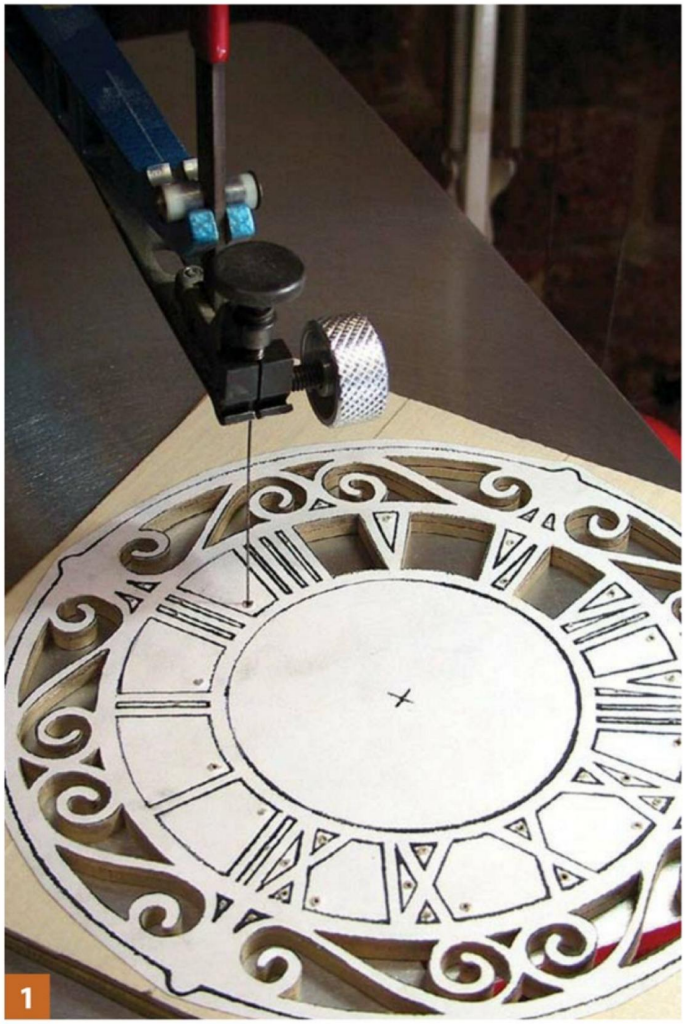
- 25 x 230 x 230mm light-coloured hardwood of choice (backing)
- 3 x 200 x 200mm baltic birch plywood or hardwood of choice (overlay)
- Masking tape
- Spray adhesive
- Thin, double-sided tape
- Sandpaper – assorted grits
- Wood stain – walnut (optional)
- Deep-penetrating furniture wax liquid or Danish oil
- Lint-free cloth
- Wood glue
- Clear spray varnish
- Sawtooth hanger
- Quartz movement and hands

### Tools:

- No. 3 and No. 9 reverse-tooth blades, or blades of choice
- Drill press with 1.5, 3 and 8mm diameter bits (size of the larger bit may vary to match the shaft diameter of quartz movement)
- Disc sander and palm sander
- Router with round-over bit
- Punch and mallet
- Sharp pencil
- Clamps, assorted sizes
- Assorted paintbrushes of choice to apply the finish

**1** Cut the blanks to the size listed in the materials list, then sand with 150grit sandpaper. Sand the wood again with 320grit sandpaper. This reduces the amount of hand sanding you need to do later; you run the risk of breaking the fragile parts of the overlay if you wait to sand after cutting. I find I have better control if I stack cut the clock face. This provides support for the fragile areas and allows me to make several projects at once. Cover the surface of the workpiece with masking tape to allow for easy removal of the pattern after cutting. Apply the pattern to the taped surface. Use a compass to draw a 200mm diameter circle on the

PHOTOGRAPHS COURTESY OF FOX CHAPEL PUBLISHISHING



**Drill the blade entry holes and cut the frets. Use a 3mm diameter bit where space allows and a 1.5mm diameter bit for tight areas**

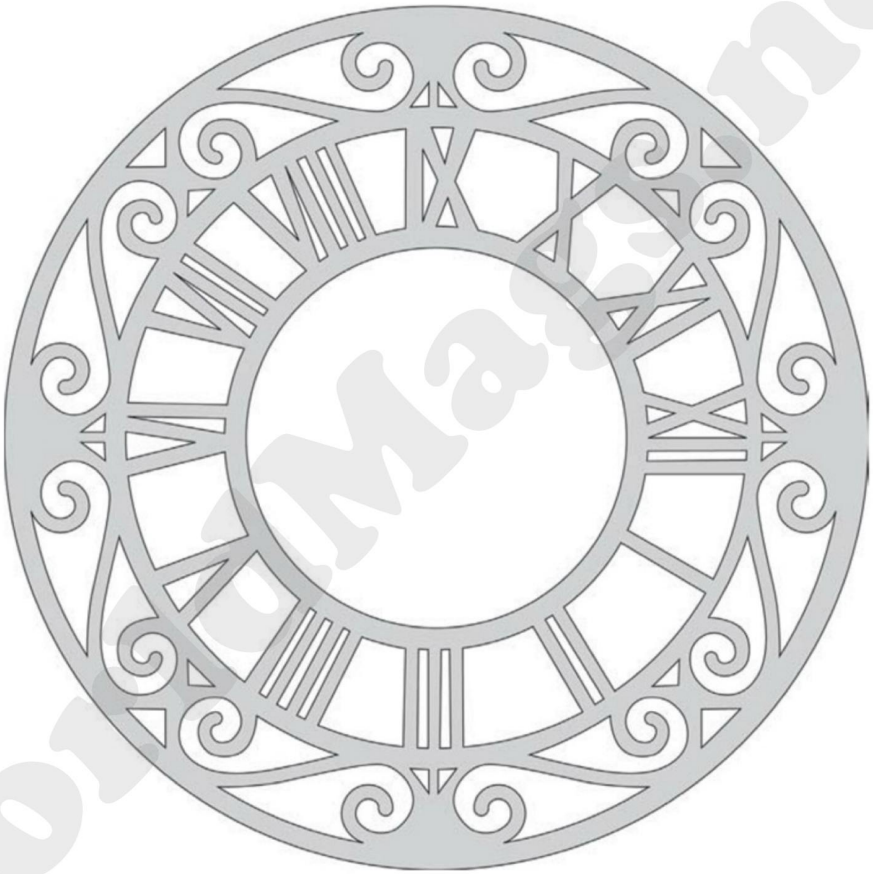
**Sand the edges of the workpieces. After all frets are cut, cut the perimeter on the overlay and backing board with a No.9 blade**

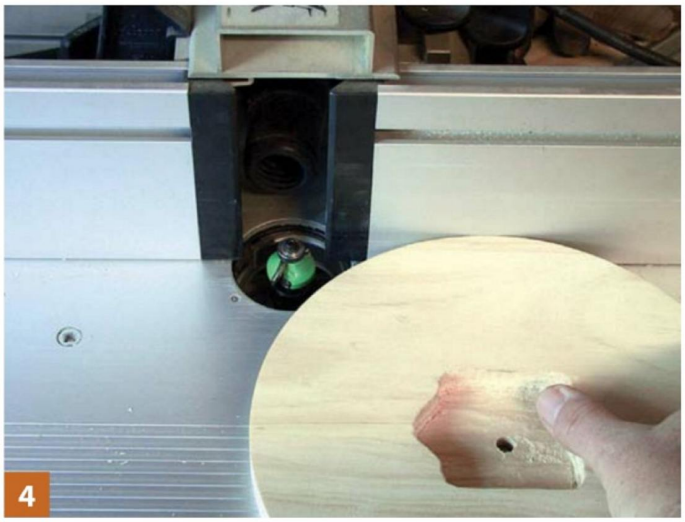
**Prepare the backing board for the clock mechanism**

backing piece. Mark the centre position using a punch and mallet. Drill the blade entry holes and cut the frets. Use a 3mm diameter bit where space allows and a 1.5mm diameter bit for tight areas. Remove any burrs from the back by scraping with the grain of the wood. Use a No.3 blade and reduce the speed when cutting fragile parts.

**2** Sand the edges of the workpieces. After all frets are cut, cut the perimeter on the overlay and backing board with a No.9 blade. Cut outside the line and use a disc sander to sand up to the pattern lines. Turn the workpieces slowly and evenly against the disc. You can also cut the circles with the scrollsaw if you prefer.

**3** Prepare the backing board for the clock mechanism. Drill the centre hole for the quartz movement shaft, using the corresponding bit for your shaft diameter. Place the movement in position on the rear of the backing board and draw the outline.





**Finish shaping the backing board and carve an opening for the quartz movement**

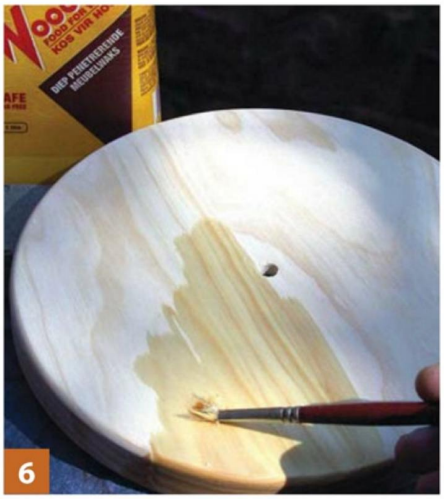
**Remove the pattern and masking tape**

**4** Finish shaping the backing board. Carve an opening for the quartz movement. Create the recess to the proper depth so the shaft will protrude enough in the front. Use carving tools or a router to create the recess. Using a router and a round-over bit, round over the front edge of the backing board.

**5** Remove the pattern and masking tape. Separate the plywood layers by inserting a blade between the two pieces and prying them apart. Sand the pieces by hand with 320grit sandpaper. Switch to 500grit sandpaper to get a smooth finish. Be careful not to catch and break any fragile pieces.

**6** Apply your finish. Use a small paintbrush to apply deep-penetrating furniture wax liquid or Danish oil to the backing piece. Apply walnut stain to the front and side surfaces of the face. A small brush makes it easy to reach all the inside surfaces of the fretwork. Allow the pieces to dry, and wipe all of the surfaces with a dry cloth.

**7** Glue up the clock. Line up the clock face with the recess on the back. Apply small beads of wood glue to the back of the clock face piece.



**Use a small paintbrush to apply deep-penetrating furniture wax liquid or Danish oil to the backing piece**

Position it on the backing board and clamp it in place. Remove any glue squeeze-out with a toothpick. When dry, apply several thin coats of clear spray varnish.

**8** Now to finish assembling the clock. Attach a sawtooth hanger to the back. Place the quartz movement in position, and tighten the nut securely in the front. Insert the clock hands onto the shaft: first the hour, then the minute, and finally the second hand. Insert a battery, and set the correct time. ■

**Glue up the clock and line up the clock face with the recess on the back**

**Finish assembling the clock and attach a sawtooth hanger to the back**

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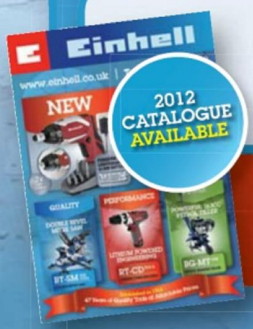


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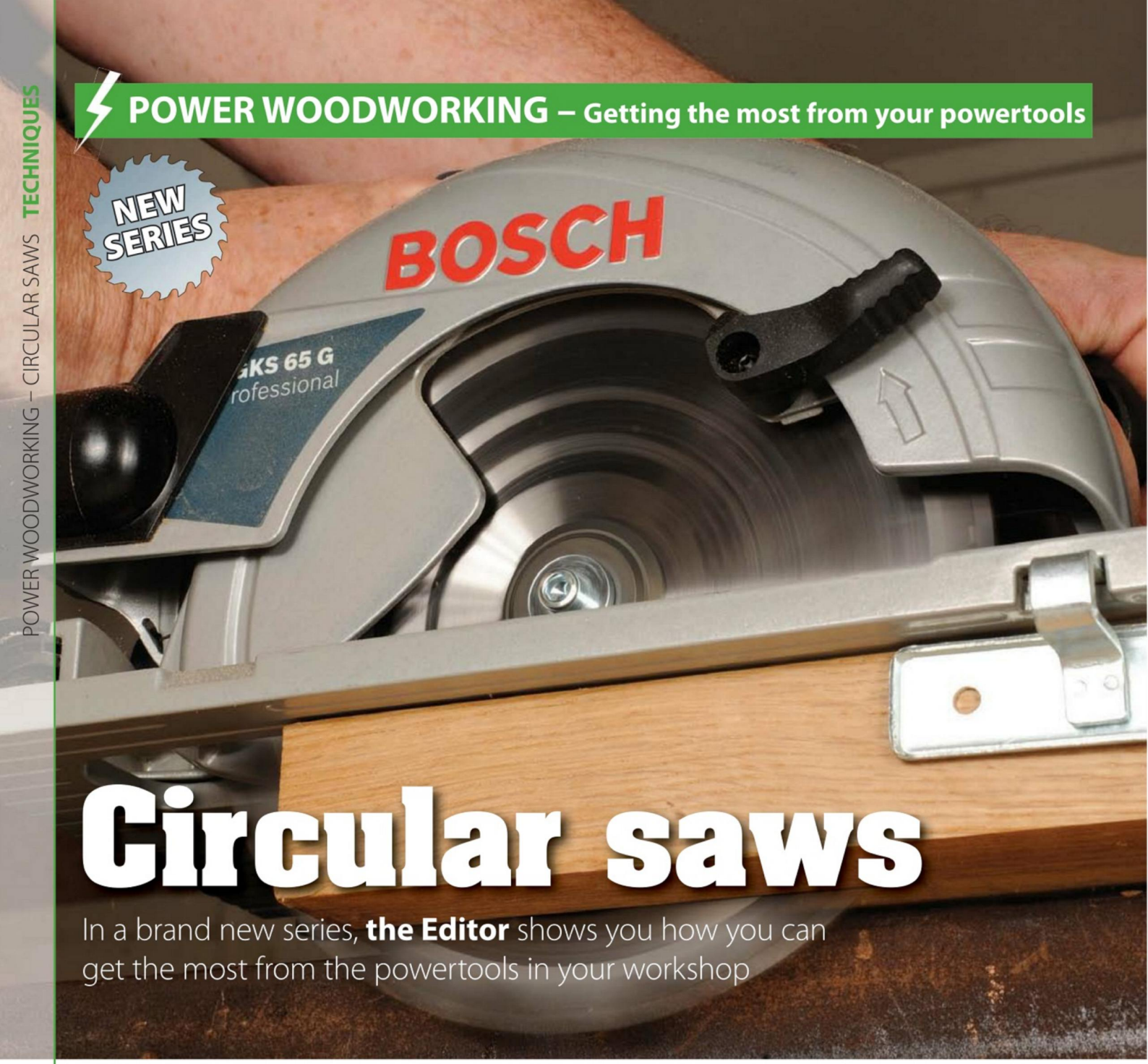



# Circular saws

In a brand new series, **the Editor** shows you how you can get the most from the powertools in your workshop

PHOTOGRAPHS BY GMC/ANTHONY BAILEY

This series is centred around powertools, how they can help us and the various tricks and techniques for getting more from them. Each month we will look at a different powertool – this month it is the circular saw, sometimes referred to as the portable saw, which distinguishes it from all the other powered saw variants – the mitre saw or tablesaw being just two examples. We take using them for granted but there are more and better ways to exploit their potential for work and project building.


**A good quality DIY saw**

## Types of circular saw

Portable saws are not all the same. Firstly they come in different blade sizes and motor powers. A DIY circular saw will often be smaller in both departments and may not be rated for continuous working all day long. A professional tool of any type should be heavier built, have more power, often have larger blade sizes and usually have an extended warranty so the extra cost is offset by greater capability and better service arrangements.

## CHOOSING A SAW

### Basic sawing

I have found a DIY circular saw really good for smaller work, as they are light, portable and easy to set up for use. However, when put under a heavy load cutting thick timber, my experience is that the motor can start to overheat; this is given away by the smell of the motor windings getting hot. If absolute precision is not required then a cheaper tool will do the job. You can do panel cutting using a clamp guide, or a strip of MDF as a guide clamped to the workpiece. The downside is that it must be


A small dedicated guide rail saw

straight and you have to mark the blade-to-fence offset each time, which carries the risk of being inaccurate.

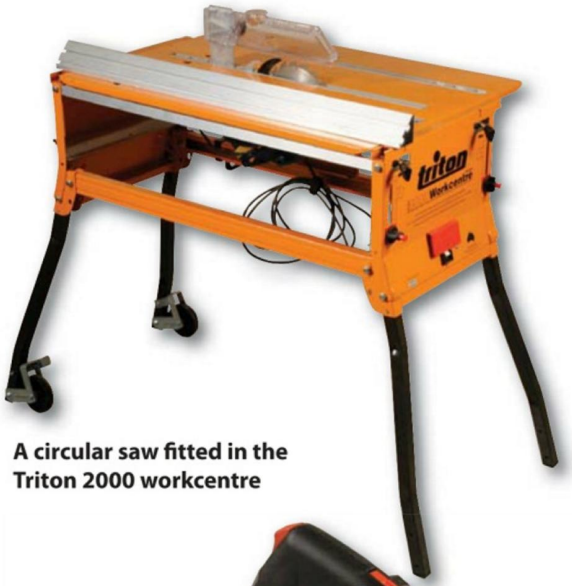
## Guide rail saws

A system saw that works with a guide rail has to be seen to be believed. The simplicity and accuracy of cutting becomes apparent immediately. Since the saw sits on the track it cannot deviate and the rubber track edge is where you line up directly on your cutting marks. The first time the track is used, the blade cuts the rubber, giving a very precise marking line you can rely on. No errors creep in and panel cuts become very quick to do. If you do lots of panel work without the benefit of a professional panel cutting saw unit, it is worth having a smaller circular saw with a guide rail for manufactured board and a larger circular saw with a rip blade for cutting solid timber.

## Table mounting

Another consideration is table mounting. This might seem a bit daft when you can buy a dedicated tablesaw; however, if space and cost are an issue then you may want to mount a portable saw in a workcentre, such as the Triton 2000. For all sawblades in all types of saw unit, whether freehand or table mounted, you can roughly only use one third of the diameter of the blade at 90°. So a 165mm diameter blade can cut 55mm thick material while a 250mm diameter blade can manage 83mm material. The other important thing is that, in the UK, without exception, a riving knife and crown guard must be present. This entails removing the existing riving knife before table installation and fitting the table's own special knife and guard assembly.

The arrow indicates tooth and cut direction




A circular saw fitted in the Triton 2000 workcentre


A plunge saw with a quick release plunge lever

## Plunge saws

To enable plunge cutting, these saws lack a riving knife which would otherwise prevent plunging properly. However, simply removing the riving knife from a standard machine is not safe because the saw has not been rated for such work and will almost certainly lack a plunge lock lever in the correct position where it can be easily accessed. So, if you think plunge cutting suits your work then choose a dedicated machine. These can be more expensive but have been tested so they will work safely. Such machines have an easily accessible control for plunging which can be done with either a swing-down action or special columns, which give a smooth descent. They are extremely useful for refurbishment work or for creating special cutouts.

## Trimming saws

Some circular saws have flat side casing designed to allow the saw

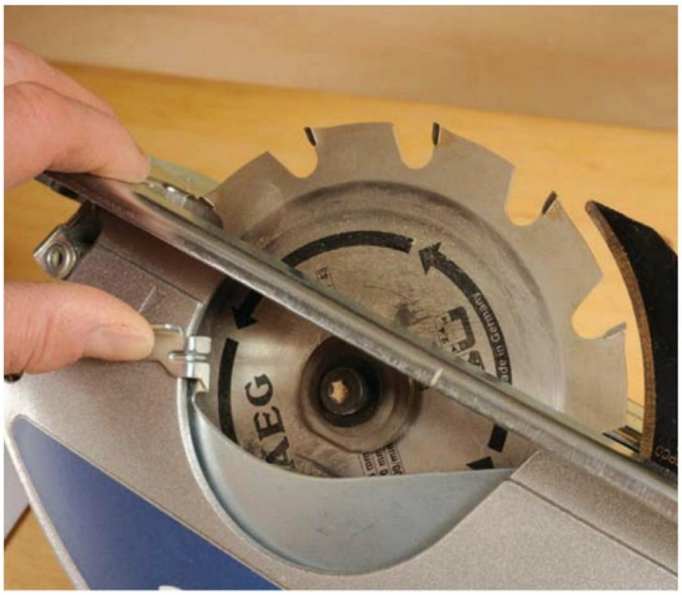

For lighter work away from mains, cordless saws are perfect

to be run along a floor or other surface. Usually this is of benefit when working on site, creating a 'carpet gap' at the bottom of installed skirting board so carpet can tuck neatly under it, or for door trimming in situ or 'shadow' cuts where surfaces meet.

## Cordless saws

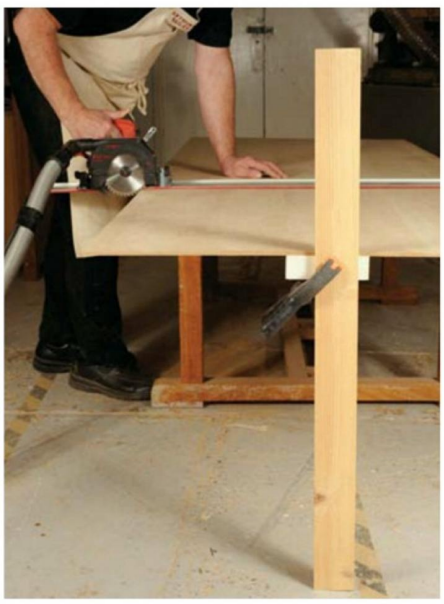
Cordless circular saws have been around for some years but now there is more choice than ever. Good for shorter runs or lighter work but they cannot substitute bigger corded machines. These are very handy when working away from the mains and making quick trimming cuts.


**Using the spindle lock to change the blade**

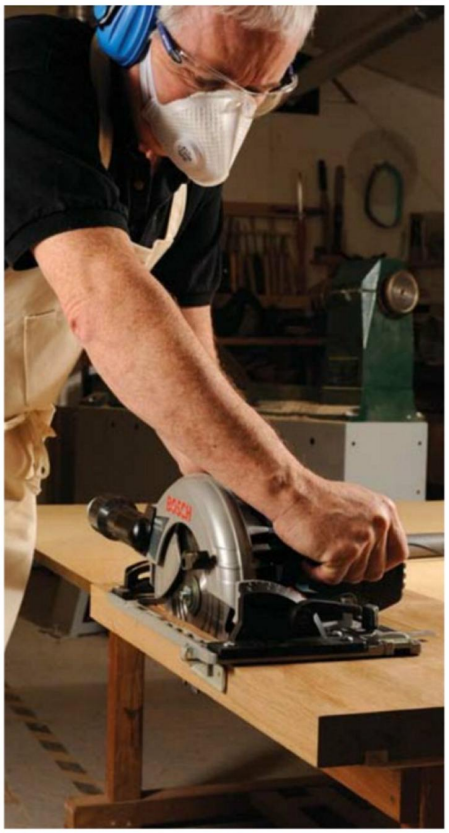



**The riving knife is correctly set**

**The lead and trail hose out of the way**



**The support leg falls away when the cut is finished**



**Wearing PPE and standing to the side of the saw**

**Always use a fence or guide rail**

## SAFE WORKING

Here are some key points to observe:

- Fit the correct size blade and type with the teeth facing the correct direction, as shown by the arrow mark on the blade housing. Use a coarse rip blade for deep, fast cutting and a fine tooth blade for crosscutting, or manmade board to avoid blade and motor overheating.

- Tightening and loosening blade arbor nuts may be in the opposite direction to most threads.

- Check the riving knife and blade are tightened properly and the knife has the correct height and blade clearance according to the user manual.

- Keep the mains lead clear of the blade path and ensure it is not trapped by anything that would restrict the saw's progress. Use extraction whenever possible as circular saws create a lot of harmful dust, especially when using MDF.

- Wear correct PPE when sawing. This advice can be easily ignored, especially when working outside in the fresh air, which may seem a safer environment. Stand to the side of the saw unit in case of a kickback, so you aren't in the path of the blade.

- Use a proper means of guidance so you do not have to try and adjust the cut path during cutting, which can result in kickback.

## WORKING TIPS

**1** Use a suitable means of work support such as a sawhorse or Workmate. If you cut panels, remember you will need support for the section being cut off. This could be a third sawhorse, or try clamping a batten and block at the correct height as a support leg that falls away once the cut is complete, but ensure the board has a soft landing.

**2** Set the blade depth to suit the material and situation. For solid timber, the full blade projection should allow maximum torque at the blade edge and help to push chippings clear of the workpiece. Use a rip blade to assist with cut speed and chip clearance.

**Safe blade storage for easy selection**

**If the cut is too rough then clean up with a router afterwards**

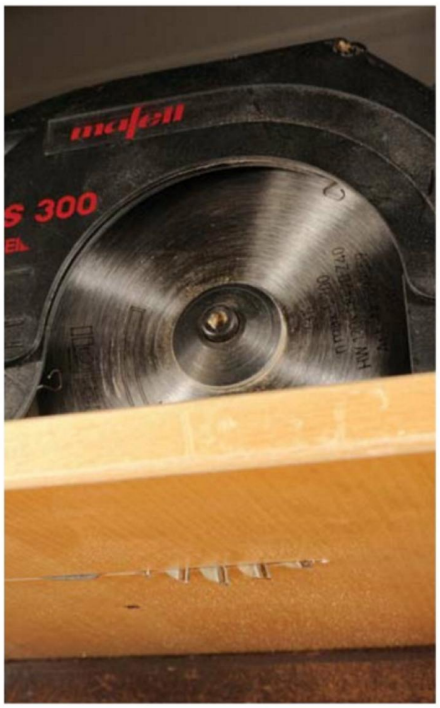
**3** When cutting manufactured board allow the teeth to just break through so half the height of each tooth is cutting through the surface. This should ensure minimal or no spelching – breakout – on the underside of veneered or melamine faced board. Arrange cuts so any spelch on the top face can be hidden in the project construction. Use only a fine-tooth blade suitable for crosscutting or board cutting.

**4** Store spare blades correctly. The easiest method is a large dowel or dowels on a wallboard that the blades can be slid onto for safe storage and easy selection.

**5** For crosscutting solids or manmade board you can make up one or more MDF and softwood 'T' squares that are clamped on to make accurate quick cuts.

**6** If you cannot get a good finish on board edges then cut slightly oversize and use a router and guide rail to do the final cleaning up.

**A homemade 'T' square makes cross cuts easy**



**The teeth should just project when cutting faced board**

## MACHINE PANEL

We used the Bosch GKS 65 G during the course of this article. It is well-built and reliable with plenty of power and can do most of the things you might ask of a circular saw.

**Motor input:** 1,600W
**No load speed:** 5,900rpm
**Speed under load:** 4,200rpm
**Cut depth:** 65mm at 90°/ 48mm at 45°
**Blade size:** 190mm x 30mm bore
**Blade type:** 16 tooth TCT Rip
**Weight:** 5.1kg
**Typical price:** £159.95 (inc VAT)
**Website:** www.bosch-pt.com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PHOTOGRAPHS BY GRAHAM CLARKE

# Garden arbour

**Graham Clarke** rips out a leylandii hedge and replaces it with a two-sided arbour

That leylandii hedge had to come down

Raise your hand if you have ever planted a leylandii cypress hedge only to regret it bitterly three or four years down the line. Witness me, someone who actually trained as a gardener, gingerly lift my right arm! I had four hedges of it, and over the past year have removed two of them – and the days for the other two are seriously numbered!

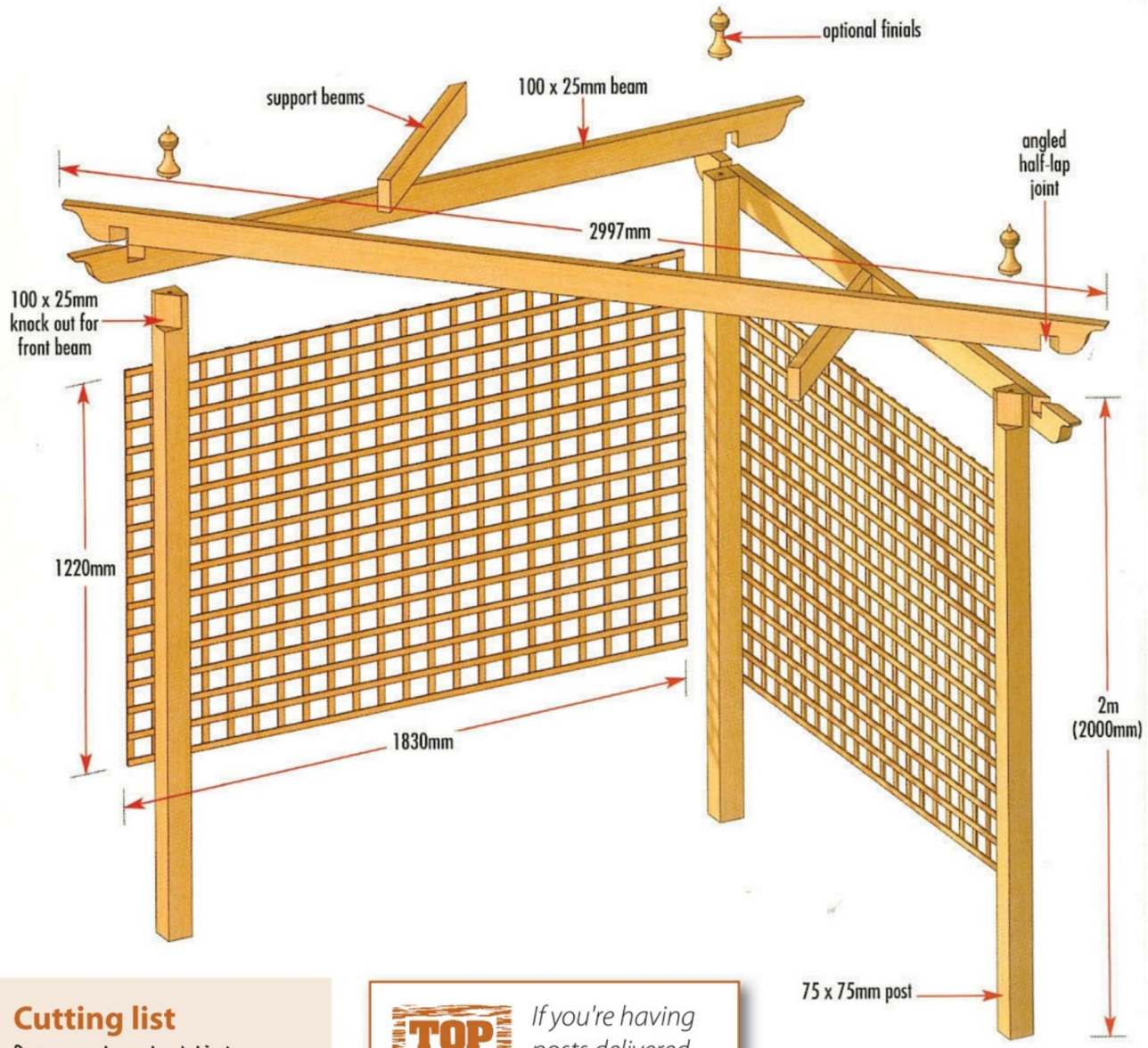
The most recent hedge to be removed was the one at the back of the garden. It was fully square-on to the house and by taking it out we suddenly became exposed to the full glare of the neighbours, so we came up with the idea of replacing it with a sitting area backed by trelliswork – an 'arbour'.

In due course the trellis will have climbing plants creeping all over it, so we shall have our privacy back.

## Design

One of the trellis panel sides will stand alongside the boundary fence, while the second panel will come out at a right angle from it.

The 'L' shaped structure will then be braced by a front beam to complete the triangle. The 'floor' will be gravel. Carefully positioned slabs will act as simple footings for the uprights.




## Cutting list

Pressure treated timber:

Three sawn posts 2m lengths of 75 x 75m

Three lengths of sawn timber 3m x 100mm x 25mm

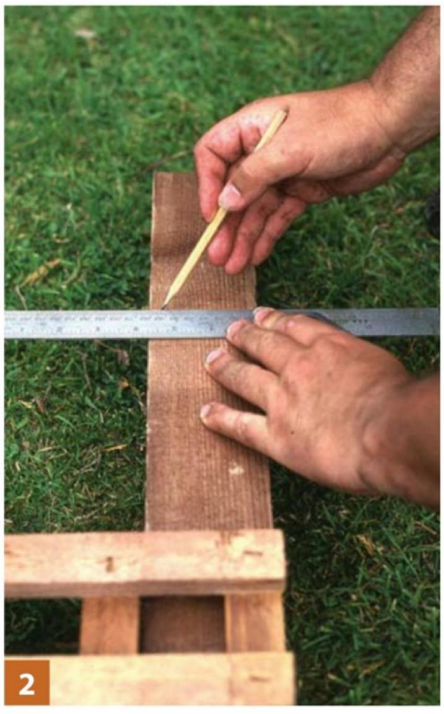
Two trellises & finials 1,830 x 1,220mm

**TOP TIP** Plans & Projects

*If you're having posts delivered, always ensure on delivery that they are the correct lengths as ordered, as it is troublesome and time-consuming to replace them later.*

1

**All delivered items present and correct**



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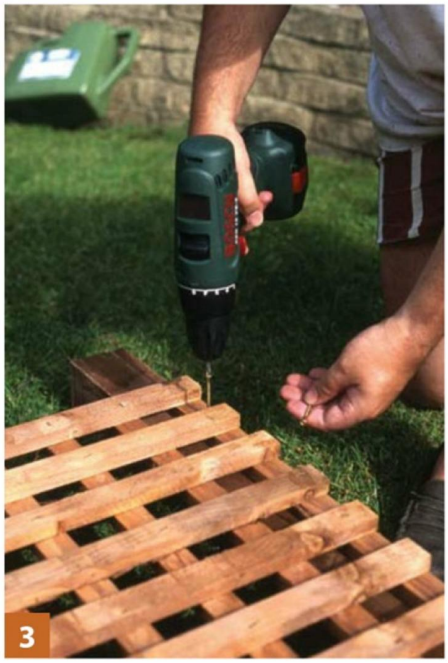
**Marking for the top of the trellis**



Screwing the second trellis panel to the third post

It's all hands to the trellis as Graham's family support the structure

## Diligent hacking

Six stumps were left after the hedge's top growth had been hacked away. I had already measured the area required, and was going to use two 2m trellis panels. However, only one of them was going to be placed along the line of the hedge, parallel to the boundary fence. So, I needed a clear 2m run, plus a bit more for manoeuvring space.

This required the removal by power saw of the four central leylandii stumps, conveniently leaving one stump at either end for fixings for my uprights.

## Creating the arbour

I marked on the posts where I wanted the side and front beams to go. To allow plenty of room for the beams, I left 200mm from the top of the posts. Another mark indicated where the top of the trellis panel would be. From this I was able to screw the trelliswork to the posts. I started by connecting two posts with a trellis panel, and then screwed the second trellis panel to the third post. But before I could do anything else, I needed the assistance of my family to stand these primitive structures upright, in order to be able to screw them together. Lo and behold – I had a free-standing structure that began, in some small way, to resemble an arbour.

With this put to one side, I then needed to attend to the cross beams. Two of these, the 'side' beams, were to stretch across the tops of the trellis panels to provide some security to the structure, and the third 'front' beam was to act as a brace, to lock the whole unit together.

Starting with the two 'side' beams, I needed to determine their overall length. The timber purchased came in 3m sections, but the trellis panels were only 1,830mm, so there was plenty of opportunity for overhangs with detail. Each overhang could therefore be as much as 600mm or thereabouts, but frankly this would look absurd.

I decided on an overhang of just 140mm, which seemed in proportion with the structure. With the 1,830mm panel, two 75mm posts and two 140mm overhangs, this meant that the overall length of each 'side' beam was 2.31m.

As to the detail, this was entirely

Using a mug to create ogee curves for the overhang detail

The detail was cut out with a jigsaw

Creating a flat face to take the beam

Cutting out the front corner of the post to take the trellis

Marking the front beam for cutting out

Fixing the front beam in place

up to me. I didn't want anything too fancy or ostentatious. In the end, I collected a coffee mug from the kitchen and pencilled half-way around the rim of the mug in one direction, and then moved the mug and continued the line, as if I was using a set of French curves. This created a very attractive ogee-like detail – a linked concave and convex curve. The details were then cut out with a jigsaw.

## The maths bit

The structure was now going to take on an entirely different complexity. I needed to work out the length of the 'front' beam or, if you prefer, the long side of the triangle. For this, I had to think back to school days and the theory ascribed to Pythagoras: 'The square on the hypotenuse is equal to the sum of the squares on the other two sides'.

The dimensions were worked out thus: each of the two short sides of the arbour were 1,830mm, so the 'sum of the squares' of these two sides equated to 6ft squared plus 6ft squared (36ft). Two lots of 36ft comes to 72ft.

The 'square on the hypotenuse' becomes the square root of 72ft. Therefore, the front beam, in order to complete the right-angled triangle, needed to be 8½ft long.

Of course, I had to add to this the detail overhang of 140mm at each end, and the width of the posts, making the total length of the front beam 2.997m. This was worryingly close to the 3m (10ft) length of the purchased timber, but we were within, and this was the important point.

Oops, I forgot that it would be better to have a flat face for the beam to fix to, rather than a corner of a post.

## Half-lap joints

Remove one post, mark in 25mm from the front corner of the post. Transfer the lines down to a depth of 100mm. Cut out and refix the trellis. Repeat for the other corner post.

Mark and cut the lap joint in both side panels for the rear section of the arbour. The front ends of these beams will need an angled half-lap joint to accept the front beam.

The easiest way of marking the angle for this is to fix the two side beams and then lay the front beam across the face of the arbour.

We know that the beam needs to be 2,540mm from corner post to the other corner post. To check this, lay this beam across the face and mark the angles where they touch the sides. The 2,540mm marks should touch on the inner faces of the outside beams.

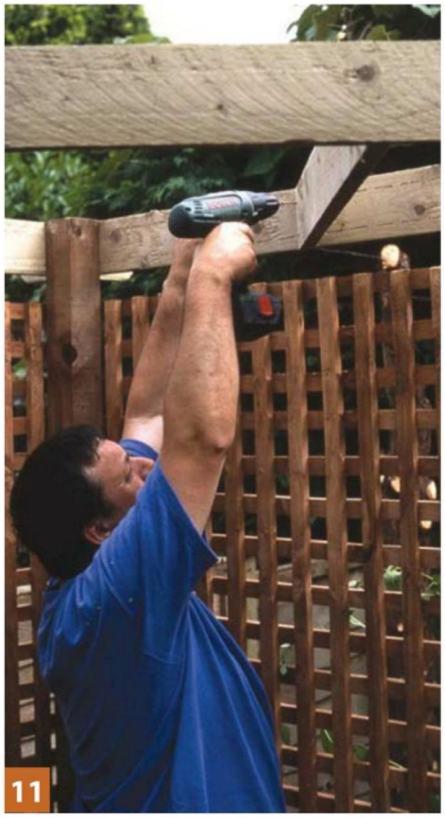
I cut the angled half laps on the outer side beams in situ, and the front beam while holding it in a Workmate. This was then fixed in place.

Cut two cross members to stop the front beam from bowing. These will also allow the climbing plants to form a canopy across the top of the arbour. These were simply laid across the top of the canopy and the angles of the cut marked directly from beneath.

A trellis that was already in the garden was fixed to the new arbour to help tie it in place. The arbour was painted in two different colours from the Cuprinol Woodshade range. The ground area was smoothed and then covered with gravel underlay and gravel, and lastly, the all-important seat was positioned to catch those lovely sun rays.

## Finishing touch

To finish your garden arbour, you may like to add decorative detail with the addition of finials, available from DIY sheds. ■



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**Fixing cross members to stop the beam bowing**

12

**Painting the arbour blue to match the seat**

PHOTOGRAPHS BY GMC/ANTHONY BAILEY

# Dremel DSM20

## Mark Baker tries out a compact saw from Dremel

This brand new slimline unit has a start trigger underneath the body which can only be engaged by releasing a small tab – a very nice safety feature. The various blades are suitable for many different materials, all of which are interchangeable via the use of a threaded machine screw. They fit it into a blade housing which is a shielded section at the front of the unit. There are two styles of blade; the standard flat blade fits in the inner section of the blade housing; the other blade style is a flush-cutting blade which is offset. This allows you to not only cut into the main body of material, but also right up against the edge of items such as flooring up against skirting boards, corners of walls and kitchen tops fitted against a wall. There is a dust port which can be fitted to a vacuum-extractor.

There is an adjustable baseplate which can easily be set to different heights by using the lever locking device. This allows easy and precise depth cutting and stability during the cut, but also allows plunge cutting to be undertaken when needed. The unit also has a powerful 700W motor. As with all things Dremel, there are various attachments available to fit the unit to further enhance its use, including a very handy adjustable side fence.

**The sprung adjustable baseplate**

### In use

The slimline body fits in the hand very well. At 1.7kg in weight it is not a light unit, but the shape, design and balance of it made it easy to hold and use for extended periods of time. The blade changing is quick and easy and the blades are very effective. They are also clearly labelled as to what material they are to be used for. The dust port when connected to a vacuum extractor is very effective for the flat blades which connect in the inner section of the shielded housing, but not as impressive on the flush cut blades sitting on the outer section.

The motor is very powerful indeed and at no stage of this test did the motor baulk at anything being cut at any depth.

### Verdict

I did wonder whether such a unit would be useful or whether it was more of a gimmick, but I have to say that I have been converted to the usefulness of this machine. ■

### AT A GLANCE

- Excellent line of sight for accurate cutting
- Abrasive wheel technology for straight cuts, plunge cuts and flush cuts in wood, metal, tile, plastic and masonry
- Worm drive gearing for durability and power
- Powerful 710W motor for tough applications
- Adjustable depth guide for precision and control
- Dust extraction port for clean working environment

### IN THE BOX

- Multipurpose carbide flush cutting wheel
- Diamond tile cutting wheel
- Multipurpose carbide cutting wheel
- Metal and plastic cutting wheel
- Masonry cutting wheel

### THE NUMBERS

- Manufacturer: Dremel
- Model: DSM20
- Voltage: 220-240V
- Rated power input: 710W
- Maximum cut depth: 21.5mm
- No-load speed: 17,000 1/min
- Weight: 1.7kg
- Price: £119.98 inc VAT

### PROS & CONS

- ✔ Powerful
- ✔ Easy to use & operate
- ✔ Well built
- ✘ Dust port not as effective when using flush cutting blades

### WHERE TO BUY

- www.dremeleurope.com
- Tel: 0844 736010

### 5 STAR RATING

Value for money: ★★★★★
Performance: ★★★★½
Build quality: ★★★★★

# IRWIN sawblades

PHOTOGRAPHS BY GMC/ANTHONY BAILEY

**The Editor** takes a sharp look at IRWIN's new sawblades to see just how good they really are, and if they're for all our readers whether trade or DIY

## THE NUMBERS

- Manufacturer: IRWIN
- Price: 165mm dia. 18 tooth cordless blade £17.30 (inc VAT), 350mm dia. 84 tooth woodcutting blade £105.98 (inc VAT)
  For full price range see website

## PROS & CONS

- ✔ Reliable brand
- ✘ Lacks anti-noise slots

## WHERE TO BUY

- www.irwin.co.uk
- Tel: 01543 447 000

## 5 STAR RATING

Value for money: ★★★★★
Performance: ★★★★★
Build quality: ★★★★★

These blades fall into specific categories. 'Wood' is for wood cutting only and features a positive tooth rake angle suitable for rip sawing in handheld circular saws and table saws.

'Aluminium' however will also handle wood and PVC/ABS materials, but with its fractional negative tooth rake angle can perform fine crosscutting in wood. The 'triple chip' teeth mean they are capable of spelch-free cutting of faced boards such as melamine.

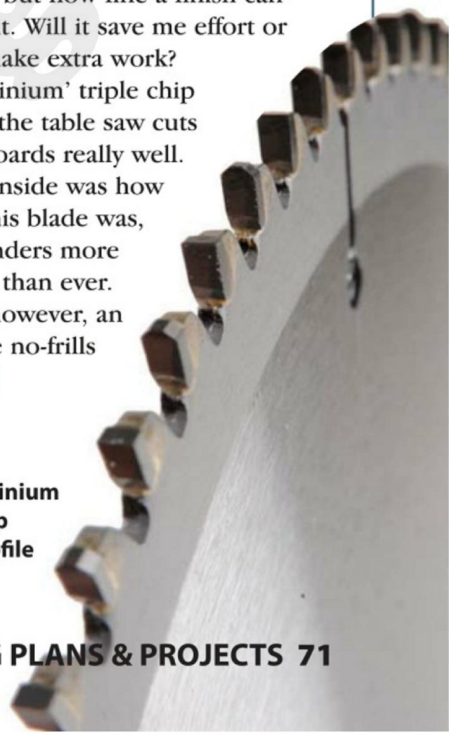
'Multicut' will cut aluminium and wood as well as screws and nails buried in wood such as those found working on site or reclaiming timber. These blades appear to have zero rake on the teeth.

'Cordless' is self explanatory, these have a thin body, thin kerf with a positive rake and are intended for rip cutting and coarse crosscutting.

**The range of IRWIN sawblades**

## Verdict

The build of these blades is good; brazing of TCT teeth is very consistent although generous, but machined away when the teeth are cut to profile. The wood-only blades have an alternating cut to score as they take the wood away. The blade relief slots are quite simple, none of the usual wavy laser cut slots. The acid test as far as I am concerned is not how fast I can cut through a bit of timber or how many nails a blade can chomp through, but how fine a finish can I get off it. Will it save me effort or simply make extra work? An 'Aluminium' triple chip blade in the table saw cuts 'faced' boards really well. The downside was how 'sonic' this blade was, ear defenders more essential than ever. Overall however, an extensive no-frills range. ■



**The aluminium triple chip tooth profile**

One Plank Project

# Towel rack

**Andy Standing** puts his towels out to dry with this portable rack

It can be tricky to dry and store damp towels, particularly if you don't have a towel rail. Here is a design for a portable rail with an integrated storage shelf. It is freestanding and simply leans against a wall. Because of the angle of the legs, it can be positioned over a radiator for more efficient drying. It is extremely simple to make and can easily be modified to cater for any size of towel.

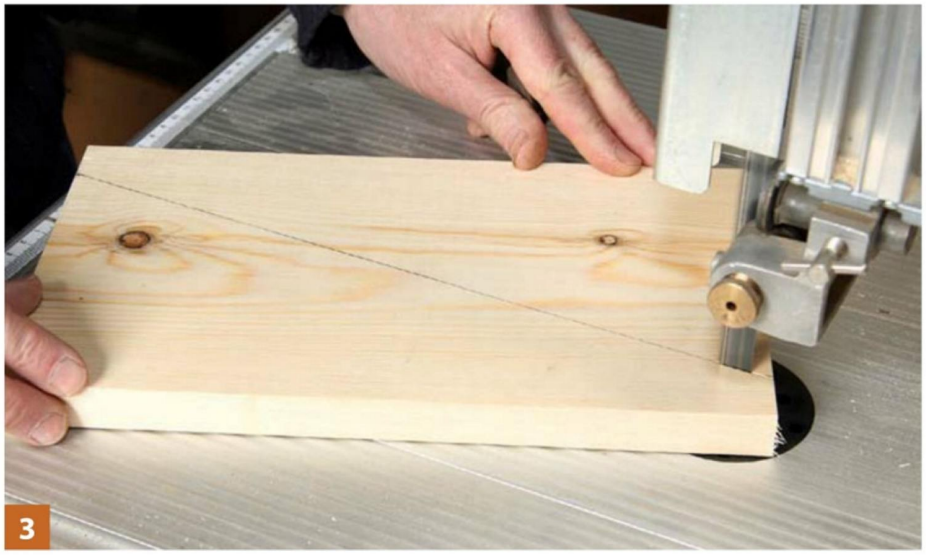

**Begin by marking out your plank**


**Crosscut a length of plank to make the two end panels**

## YOU WILL NEED

- Drill & bits
- Handplane
- Disc or belt sander
- Screws
- Abrasive paper

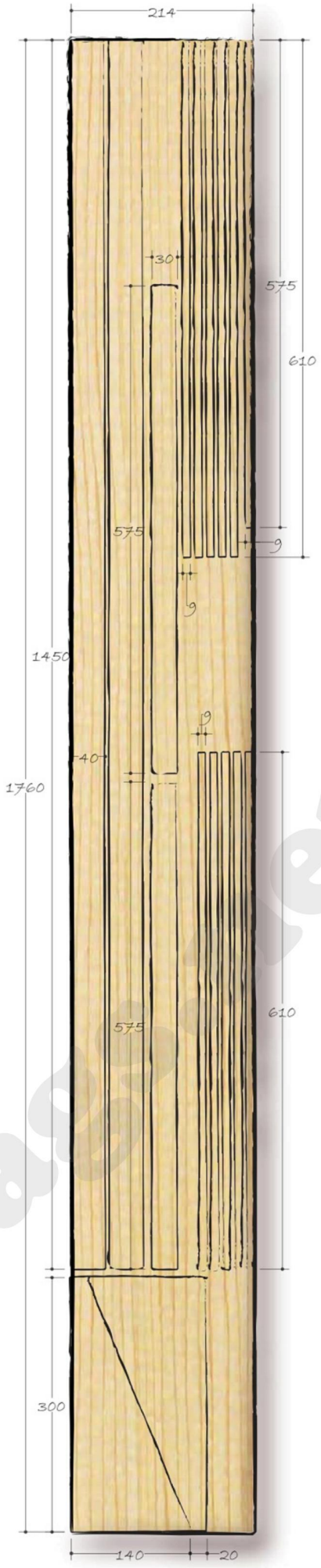
PHOTOGRAPHS BY ANDY STANDING



**Divide the board in two by marking a diagonal line 20mm down from the two opposite corners. A bandsaw is a good tool for this job, but a handsaw will do fine**

**Clean up the sawn edges with a plane. To save time you can clamp both pieces in the vice, side by side, and plane them together**

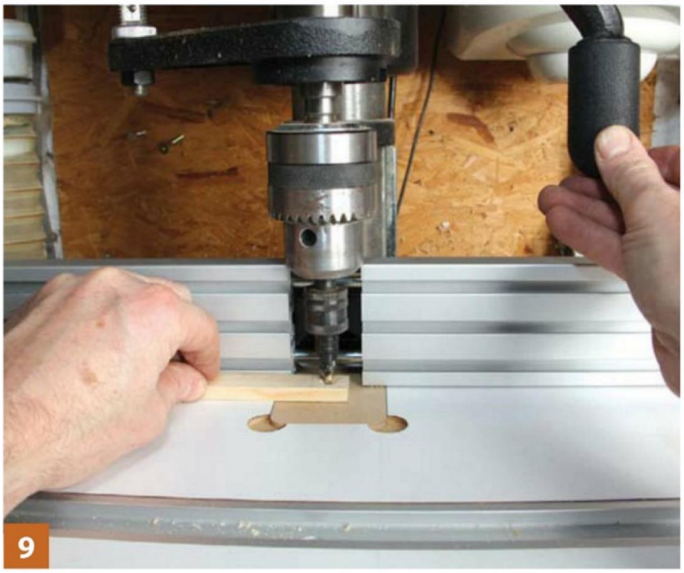
**The front tip and the lower corner of the side panels need to be rounded over. Find a suitable circular object to use as a template and mark the workpieces**



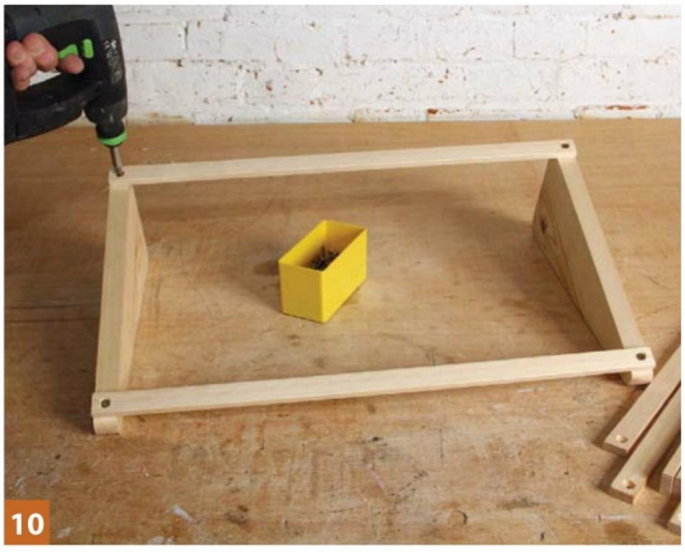

Again, you can clamp both pieces together and round the corners on a disc sander


Rip two lengths for the legs and 10 narrow strips for the slats on the top shelf


Soften the edges of the shelf slats with abrasive paper




Drill and countersink the end of each slat; a pillar drill is ideal for this repetitive job




Assemble the shelf by fixing the slats on both ends first. Make sure that the assembly is square


Arrange the other slats evenly across the middle, you can do this by eye, or, if you are really meticulous, make a spacer to equalise all the gaps

Once the shelf is complete, stand it on edge on the bench with its front tip flush with the bench edge. Use a try square to set it at right angles to the front

Now lay one leg on the rear of the shelf side panel and angle it so that its far end is flush with the front of the bench

Take a sliding bevel and set it to the angle made by the front of the leg and the underside of the shelf. Mark the top of the leg and cut it to this angle. Also mark the other end of the leg and cut it, so that both ends are parallel. Repeat with the other leg

Fix the first leg in position with a pair of screws and do the same with the other leg on the other side

To provide additional support, fix a slat across the shelf at the rear on the back of the legs

Finally fix the crossbars for the towel rails. Two were fitted here, but use as many as you need ■

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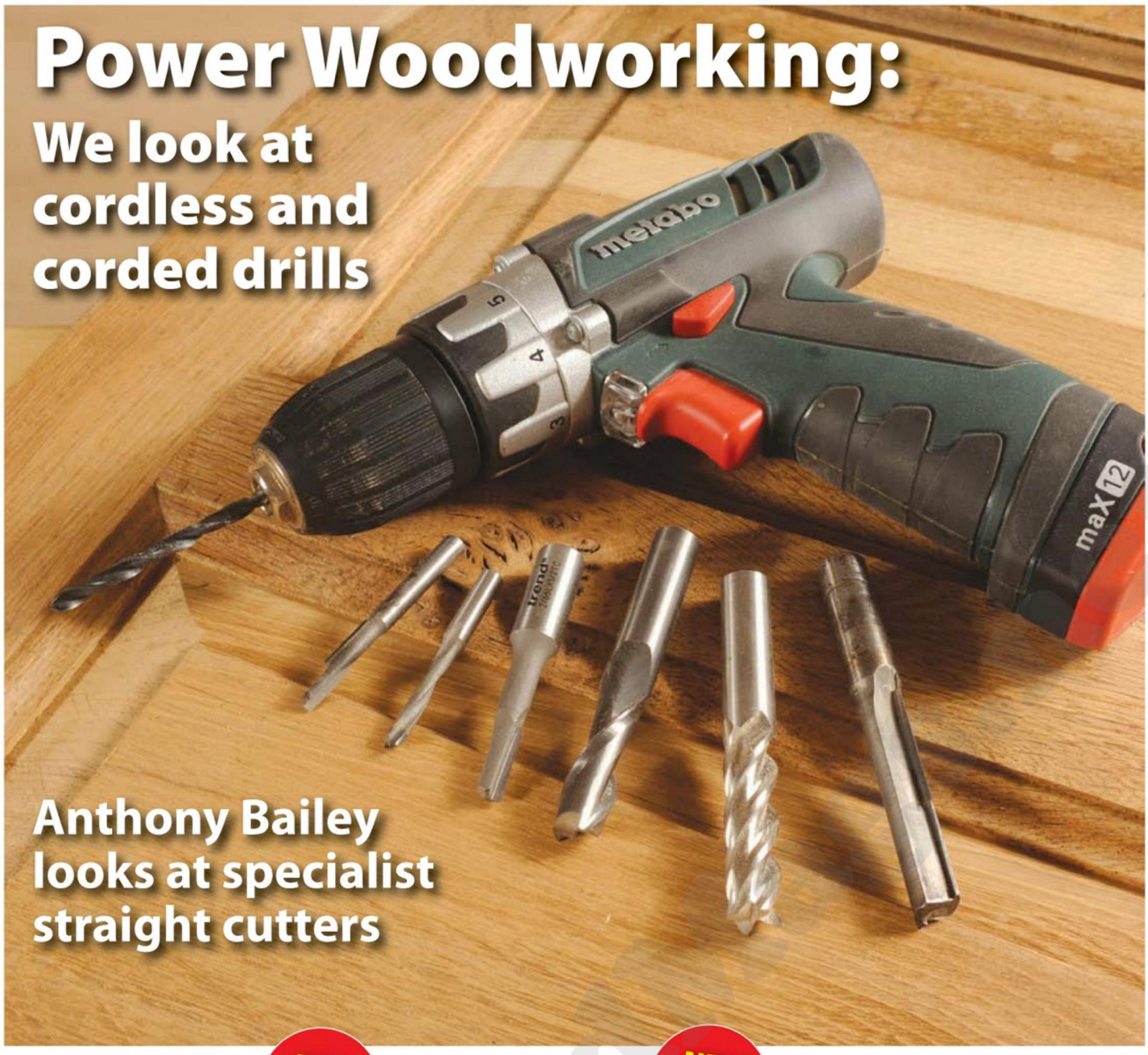


## Power Woodworking:

**We look at cordless and corded drills**

**Anthony Bailey looks at specialist straight cutters**

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- Craftsman's Corner
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- Tools on Test
- Noticeboard

# Tablet stand

**Simon Rodway** creates this great stand for his new iPad

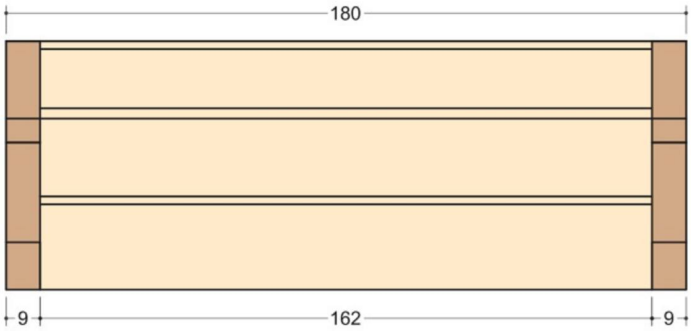
## YOU WILL NEED

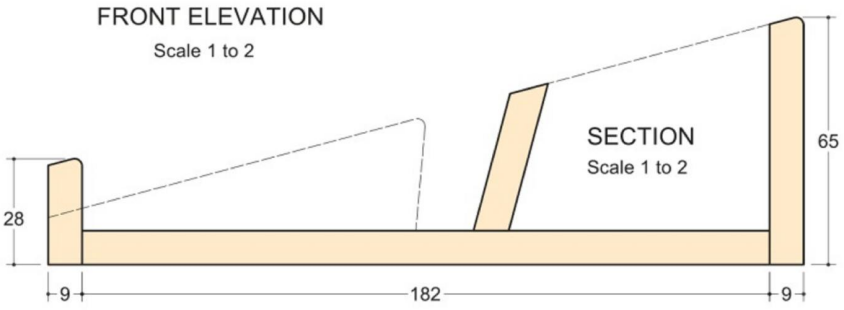
- Prepared oak 9mm thick
- Prepared walnut 9mm thick
- 30mm brass slot head screws
- A low lustre oil finish
- PVA glue
- Medium and fine abrasives
- Cordless drill
- Drill bits

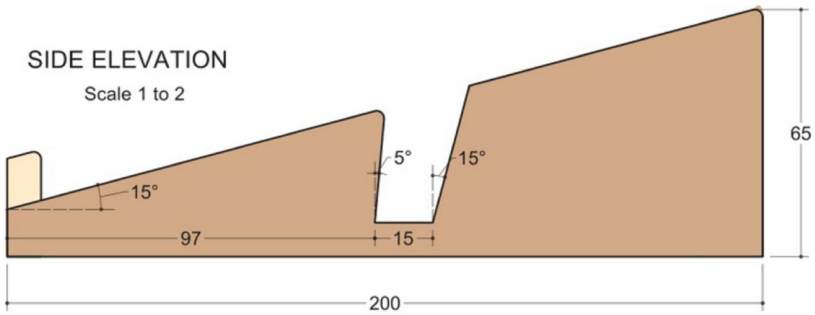
Designed as a sturdy piece of desk furniture, rather than the more portable versions of tablet stand, this will allow you to use your iPad – or other tablet devices, by adapting the dimensions to suit – in two positions: at 75° for watching videos and looking at photos, and with an external keyboard, or laid back for typing on the tablet itself, at 15°. If you want to use the side slot – 75° – position, and you have a protective case for your iPad or other device, you may need to widen it a fraction to allow for the greater thickness. You can use the iPad in either a landscape or portrait orientation in both positions.

The stand is a simple construction, using 9mm hardwood, with oak for the front, back, divider and bottom, and walnut for the angled sides – all glued and reinforced with screws on the side joints. The sharper angles are all rounded over, and you may want to take extra care on any surfaces your tablet will come into contact with, particularly the side slots, making sure they are as smooth as possible. The slot has two different angles at the front and back, to make it easier to insert the tablet safely.

The stand also performs a really useful storage function, for wiring and accessories. ■

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