

# Downdraught table

Neil Lawton makes a downdraught table, a valuable addition to any workshop



In the fight against airborne dust, a downdraught table is a valuable addition to any workshop. Small rotary tools and even hand sanding can cause a large amount of dust that is not immediately evident. It is only on the rare occasion when a stream of sunlight hits the workshop window it becomes apparent that you are working in the wood dust equivalent of a 'snow globe'. This project was conceived to help address the problem, but should be seen as an addition and not as a replacement for conventional dust control measures.

The unit is designed to be used with any modern fine filter vacuum cleaner and allows the clamping of workpieces, while carrying out sanding, routing or shaping operations. The dimensions here were entirely dictated by the use of reclaimed timber and offcuts throughout. The reclaimed beech (*Fagus sylvatica*) table legs provided the ideal tight grained timber required,



PHOTOGRAPHS BY NEIL LAWTON

but other materials such as plywood can be used. The dimensions could also be tailored to any given need.

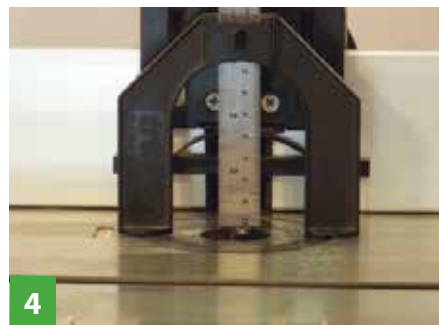
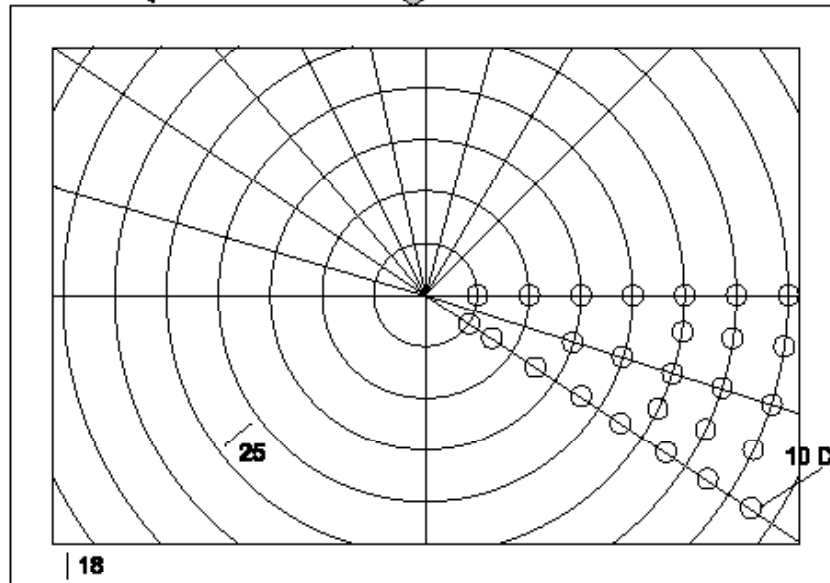
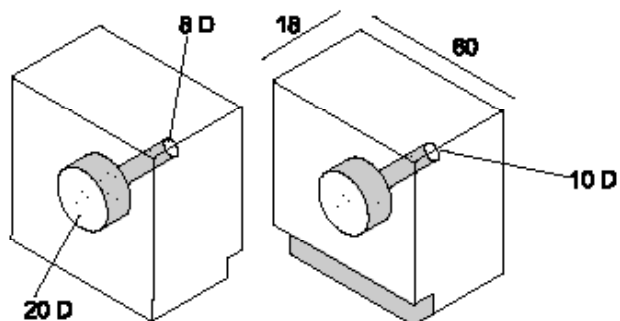
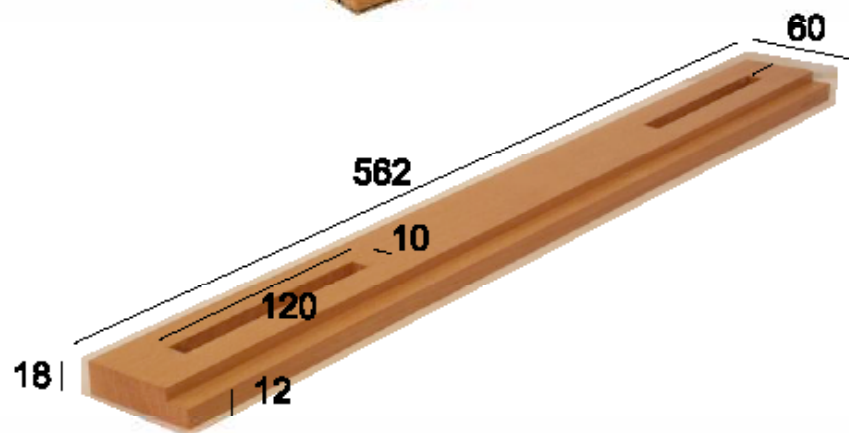
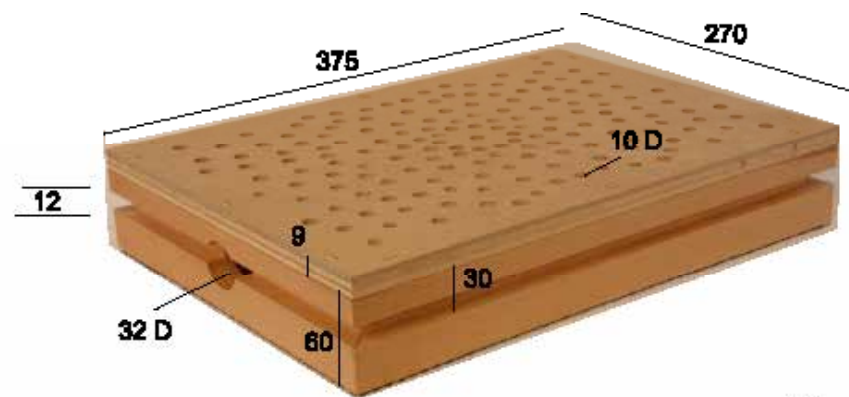
**1** When working with reclaimed wood, a metal detector is a good investment. In some cases, you would never know that a joint has been repaired or reinforced with screws or nails at some point in the past. I know from experience that what looks like an innocent dowel joint can be a screw and plug in disguise. It only becomes obvious when it's too late and the damage is already done to your blades or knives.

**2** Start by rough cutting the legs into lengths 21mm thick, with a view to obtaining a finished thickness of 18mm. A thick walled



carcass is essential for this project, as will become apparent later.

**3** Plane down six lengths of beech to the same dimensions on the thicknesser. These will become the four box sides, fence and clamping dogs. Vary the infeed position with each pass; this will prevent uneven wear on the knives.



**4** With a 12mm straight cutter fitted in the table, set the fence to just under the maximum width of cut. Set the cutter low for ease of cut.

**5** Rebate the two pieces for the fence and clamping dogs, taking shallow cuts and multiple passes until you reach the required depth.

**6** The rebate should be routed until the remaining timber forms a square, on both the fence and clamping block pieces.

**7** Reset the fence to the thickness of the board being used for the bottom. The bottom needs to sit flush with the box sides.

**8** Again taking shallow cuts, run the four side pieces through to form the bottom rebate. The six pieces should now look something like this.

**9** The final router table operation is to cut the clamping rebate. Set the fence 30mm from the top of the sides to the edge of the cutter. Taking note of the orientation of the bottom rebate, pass the sides through. It becomes plain now why a reasonable thickness of timber is required, as the rebate must be deep enough to seat the clamping piece, while maintaining enough timber for structural strength.

**10** Next, mitre the side pieces to length. This can be done by hand or powered mitre saws, or as here, with the tablesaw.

**11** Dry clamp the sides and square up. Measure the rebate and cut the bottom board to suit.

**12** The size restriction imposed by using the reclaimed timber means the extraction hole has to be drilled through part of the clamping rebate. A piece of scrap cut as a tight fit will prevent any breakout while drilling. A good friction fit is required to stop the hose working free during use. On measuring, I discovered that the hose was not entirely round, so I selected a slightly undersized bit.

**13** Using a bobbin sander, enlarge the hole, but a rotary tool sander, or a sanding stick could also be used. Repeatedly check the hose for fit until you reach the desired size.

**14** With the sides and bottom glued and clamped, run a small bead of glue around the edge and then lightly sand in. The bottom needs to be well sealed, but it doesn't have to be pretty.

**15** The top could very easily be made with one thick board, but in my case, the use of offcuts made laminating my only option. For this method, glue two pieces of 6mm ply and a piece of 3mm MDF by combing the glue onto the boards, which can then be twisted into position to ensure an even distribution of adhesive. The boards can then be tightly clamped flat and left overnight to dry.

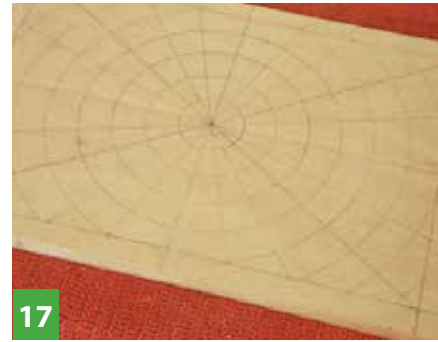




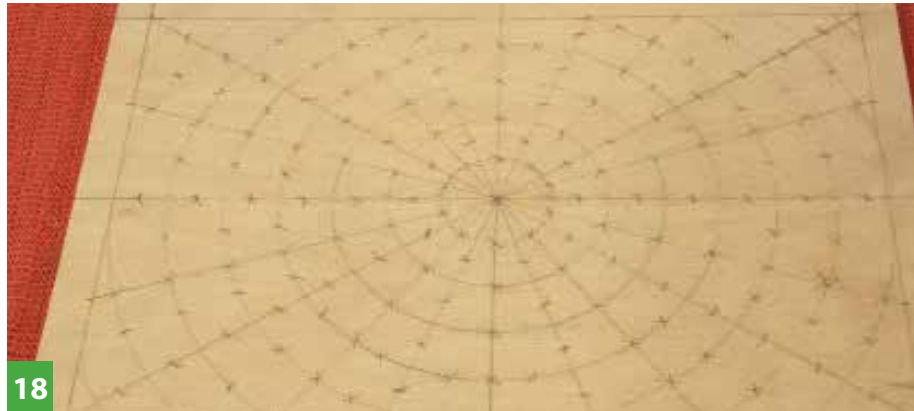
**16** Due to the splintery nature of the offcut ply, I cut the top slightly oversize. It was then clamped to the box and routed to fit with a flush trimming bit in the router.



**17** Mark the grid out on the underside of the top, allowing for the thickness of the box sides. Mark the centre and corner to corner lines first, followed by circles at 25mm spacing. Draw extra lines to the centre until the centre circle has roughly equal segments.



**18** Mark the drilling points out, on and between the circles alternately. Mark extra drilling points wherever large enough gaps occur. These slightly more random points may be useful when clamping workpieces. After drilling a 2.5mm pilot hole through each point, drill the top from both sides with a 10mm Forstner bit, to achieve clean holes.



**19** Any rough spots inside the enclosure will trap dust, so seal the inside and wax before you fit the top.



**20** The top is fitted using screws; this will give easy access to clear any blockage, or if something is accidentally dropped through the holes. The countersinks are deep enough for the screw head to sit just below the surface, so as not to interfere with any clamping process.



**21** Seal the sides and top with sanding sealer. Use a stippling technique on the top; this will prevent excess sealer clogging the holes. Wax and buff the top and sides, taking care to ensure no wax enters the clamping rebate, or gathers in the holes.



**22** Use a proprietary fabric glue to adhere a piece of non-slip matting to the bottom; this can be trimmed to size once dry. Using reclaimed materials does have its advantages, as the glue and matting are the only materials that have to be purchased specifically for this project.



**23** Next, cut one of the clamping pieces to a suitable length, which will be used as the fence. You can then mark out the slots, which will enable the fence to fit across the table at any angle.



**24** The waste can be removed in several different ways, either by drilling or routing. In my case, the mortiser was the easiest option.



**25** You can then cut six squares from the remaining clamping piece. Two of the blocks are centre marked with the rebate facing down; these will become the clamping blocks for the main fence. Mark the remaining four with the rebate facing up; these will become the auxiliary clamps or 'dogs'.



**26** Select a Forstner bit that will match the size of the bolt heads and drill to an appropriate depth to countersink them in. Drill the blocks through with drills that match the thread diameter. Fit the dogs with M10 x 50 bolts and the clamping blocks with M8 x 75.



**27** Fit the clamps to the fence and tighten them up into the rebate. If there is too much play, the clamps can be packed by adding extra material. Here I have added some cloth abrasive; which helps to provide extra grip. Wear should not really be a problem, as the blocks are placed into the rebate before tightening up and are not run along it.



*"The combination of the fence and dogs allows a wide variety of shapes to be held securely"*



**28** The combination of the fence and dogs allows a wide variety of shapes to be held securely.



**29** The rebates on the clamping pieces hold the work above the table, allowing the extraction holes to do their work more efficiently.

**30** This project can easily be tailored to your own needs. The table on the left was made to accept a rotary tool set as either a router or a sander. As a belt and braces approach, the rebate was reinforced with mild steel, though this has since proved to be unnecessary. In continued use there is little evidence of wear on either the clamping blocks, or the rebate. ■

