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On the Case

Commissioned to build some bookcases **Gordon Fry,** our Country Carpenter in Normandy, reveals 10 key tips for building fitted furniture in the workshop

Pic.1 The 15mm-thick ply back stabilises the bookcases because at 18mm the shelves are relatively thin and could flex without good support. They are glued and screwed to the back with long 50mm screws to stop bowing (above right)

Pic.2 The L-shaped section is delivered on site in two parts. In the workshop Gordon glues and screws the shelves to the backs, and in each case biscuit joints one end panel to the ends of the shelves. The back panel is glued and screwed into a rebate down the back edge. The rebate (left) is extra long so that it can be scribed into the wobbly wall. With one lot of shelves screwed to a back, and an end panel fixed, you can present the second unit up to position the shelves. The ends of these shelves (vertical on the right) are biscuited into the front edge of the horizontal shelves, and will be glued in place on site

Through an Anglo-phone website forum I'd come into contact with a couple of American historians who were renovating their 17th Century house situated in the centre of Argentan, not far from my workshop in Normandy. The house was situated in one of the few medieval streets remaining in this ancient town, most of which had been destroyed by bombing in WWII. Part of the house dates back to at least 17th Century, and incorporates a tower at the back of the house, although the whole look of the front and interior of the property is mostly Directoire, a period that came immediately after the Revolution, so around 1795-1800.

In the room above what was once the bakery, my clients were creating a study which needed to house a set of three bookcases to hold a large collection of literature. They provided me with a couple of photos from a book to illustrate the essence of the style they preferred. The bookcases were to appear as if they were free-standing and to have a paint finish after fitting. The shelves were to be fixed. Within the room, there was a Louis XVI fireplace and surround, the style of these period mouldings was to be echoed in the bookcases. The greatest emphasis was to keep the period look, but to make the furniture functional.

A couple of weeks before the beginning of the job, I'd torn ligaments in my knee and had been advised by my GP to avoid stairs as much as possible, and that complete rest was probably the only way I'd avoid surgery. But as always, my bank manager advised that cash flow couldn't be ignored either! The access to this job couldn't be any more challenging; a busy street for parking, several corridors in the house to negotiate and a staircase to climb. So I set about making as much of the project as possible in my workshop, and here are 10 tips on preparing fitted furniture before going on site.

1 Study the features

In total, there were three complete units: a large single section, a smaller single piece and a large double-corner bookcase. A site visibility study revealed a number of challenges. In the room, between the small

Pic.3 Presenting the second set of shelves to form the L-shape in the workshop. The vertical back is screwed to the end of the horizontal shelves during this dry assembly

unit and the corner unit (Pic.7), there was a double window which was skewed. The units either side of this window needed to be parallel on the front face and squared, so the window had to be ignored. Perhaps the window opening was understandably misshapen due to its age.

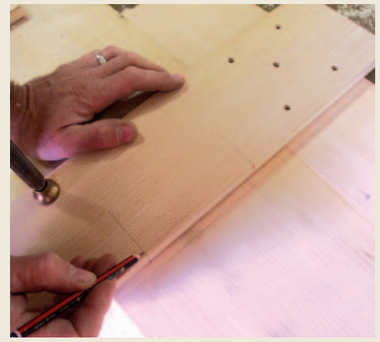
2 Timber choice

I sourced beech-faced blockboard for the carcase construction for its grain and stability. The tightness of the grain means it works well with a paint finish and being a stable material the shelving would be less likely to warp as much as MDF. I try to avoid using MDF since my workshop isn't equipped with suitable extraction. The shelves needed to retain a light appearance

Jig for biscuit jointing

To speed up construction of shelving make a simple jig

The biscuit jointer is marvellous for this sort of carcase work, especially as the shelves are all fixed, and not adjustable. Biscuit slots are cut in the ends of the shelves and into the inside face of the end panels. It is easy to cut the slots centrally in the ends of the shelves, but the slots in the inside face of the end panels must be very accurate, otherwise the shelves will twist. There is no margin for error. So Gordon has made an enlarged set square as a guide for his biscuit jointer to cut the slots on the inside face of the end panels. Two marks show where the slots have to go, and are consistent for all the joints. The shelf centre lines have already been marked on the end panels to drill holes for fixing screws, so Gordon just has to line up the centre of the biscuit jointer on those lines.



Pic.4 **The jointer set square is screwed and glued. Apply glue and insert one screw first, then check for square and insert the other screws. That way the shelves will be flat**

Pic.5 **The jointer set square also gives you an 18mm stop against which to rest the biscuit jointer for more stable working (above left). Gordon does a lot of his assembly and large work on his tablesaw top (above right). He has a swing arm crown guard, which cost £300-400, but has saved him huge amounts of time in his smallish workshop. He thinks it used to take him 20 minutes to remove the crown guard and riving knife to lower the blade so that he could use the tabletop for other uses. Now it takes him seconds. The riving knife is never removed, but stays just a fraction below the height of the top teeth**

Pic.6 To create this short length of cornice, Gordon used a series of cutters. First he uses straight ones to form the three steps (or quirks). Then he removes as much of the waste as possible with straight cutters from the concave section until he has to use radius cutters to follow the curve. Then he planes away the convex section. It's a bit trial and error, but cheaper than getting cutters made

and I was afraid 18mm MDF shelving, with the weight of numerous books and artefacts, might have a tendency to bow.

3 Simple jointing

The carcase construction was jointed using biscuits. The large expanse of the fixed shelving meant screws were needed at the carcase ends to pull the joints tight. This is a fast approach that works in both the workshop and on site.

4 False back

I decided to use a thicker back panel than usual (10mm instead of 6mm) to give additional stability to the shelves. The shelves were screwed in place through the back panels (Pic.1). All screw holes were then plugged and filled where necessary.

5 DIY decoration

The 18mm-thick fluted columns and shelf beedings are from solid beech to protect the carcase at the frequent contact points. The profile shapes give a period look.

The flutes on the columns are easy to rout, but the beeding that lips the shelves required more intricate profiling. The lengths were approximately 2m by 18mm square. Profiling such small sizes can be dangerous and inaccurate. So I routed beeds on wider pieces, which were then cut down, and the edges were planed by hand. My home-made router table came in very handy at this point as I was able to pass these larger sections through without my hands getting close to the cutter.

6 Manhandling

The corner bookcase was particularly challenging as it required three of us to lift it into position. If it's difficult to dry assemble in the workshop it will be harder on site and you may well want to take a friend or two for fitting.

7 Fitted or not?

After fitting the main carcases, my client had chosen factory-made pier legs to give the impression that the pieces were free-standing. These were carefully cut into the skirt using a bridle joint and each was trimmed to a marginally different height to allow for the sloping wooden floor.

8 Alone with cramps

On site you may well be working alone without cramps. So be prepared to screw and plug parts together.

9 Be prepared to scribe

To say that the walls were 'not square' was rather an understatement! There was around 75mm of difference in plumb, not forgetting the wobble in between. Most old properties will have wobbly walls, so you will need to scribe and cut (probably with a jigsaw) end panels or returns to fit. Leave rebates at the back of end panels overlong to give yourself room for scribing (Pic.2).

10 Fixed or adjustable

Fixed shelves make for a much more stable bookcase because you can fix them from behind. However, make sure your customer knows the spacing they want and realises they can't be changed afterwards. I've learnt this at my cost!

TIP

Pic.7 Unlike on site where you often can't use cramps, at least in the workshop you have access to all your tools. Even then, you have to improvise sometimes. With the L-shaped bookcase dry assembled (left) Gordon has to fix the end panel onto the vertical set of shelves. He can put long sash cramps at the back (facing us), but cannot do so for the internal edge of the end panel. So he uses Go Bars. These are lengths of wood, just a bit too long, which are wedged between the beam and the top face of the end panel

Mitred columns

Gordon adds decoration with mitred columns

Perhaps the trickiest part of the bookcases is making the cover strip that runs down the internal join between the two shelf sections that form the L-shaped unit. This is fluted just as the cover strip on the end panels is fluted. Gordon wanted to repeat the three flutes you see on the end cover strips (Pic.6). To do this he mitred the two parts of the L-shaped cover strip using Wealden's Mitre Joint Glue Jointing Block (below) for a spindle moulder. It forms a very strong mitre joint. Gordon bought it for a special job where he had to 'wrap' bark-edged boards around a beam to mimic a log. It is a bit tricky to align, but the greater challenge was in getting the join line to cut a flute in half (Pic.9) along its length.

Pic.8 Using the Wealden block, the first half of the mitre is cut vertically on the spindle moulder (there are similar cutters for router tables, called mitre lock cutters), and the second half horizontally. You have to get the height of the cutters exactly right. The halfway point between the peak and trough (above, centre of the joint) must lie on the centre line of the thickness of the workpiece. A further complication is that it is best to keep the pieces thicker than necessary so that there is extra support while you are running them through the spindle moulder or router table (particularly the first part, which is held vertically, and ends up resting on a feather edge otherwise). The solution is to take all your references off the inside face of the joint (which is against the fence for the first piece and face down for the second), and then thickness the outer face after the joint has been cut. It's not easy to fathom! Sorry.

Pic.9 Aligning the mitre lock joint with the flutes. The first half of the mitre has been cut down the centre of one flute. Gordon has marked out where the second mitre cut will go, straight down a flute on the other piece. Once the L-shaped cover strip has been assembled (below) only three flutes will be visible, to match the three flutes on the end cover strips (Pic.6)

Pic.11 Wealden's Mitre Lock Joint Glue Jointing Block takes time to set up, but can cut amazing joints (above left). It costs about £183. Gordon routing the flutes (above)