



Japanese-style cabinet doors

Mitch Peacock explains why you should turn your woodworking projects Japanese



Shoji

In traditional Japanese architecture a shoji is a door, window or room divider consisting of a wooden frame that holds together a lattice of wood or bamboo covered in traditionally made or modern manufactured paper.

Shoji addiction

Before I go any further, I should perhaps warn of the addictive nature of shoji building – I built my first pair of shoji, as sliding screens, only a few months ago, and yet here I am

choosing them again where simple frame and panel or even solid MDF doors would function perfectly. Eighty seven joints versus none – why not?

Design

My general purpose workbench has for years been gazed down on by ugly gas and electric meters. A recent swap to smart meters gave me the opportunity of boxing them in, as well as building some more shoji. I designed a relatively simple shoji, consisting of a main

frame, hipboard, and lattice. Because the doors were to be overlaid and hinged, the nominal width of each shoji was half the cabinet width, while its height equalled that of the cabinet.

Should you wish to make sliding shoji, remember that the nominal width should be increased so that, when closed, the stiles fully overlap – for two doors that would mean increasing each one's width by half the width of a stile; two thirds for three doors, etc.

Initially I planned for three vertical and three horizontal lattice bars, or kumiko. After mocking this out, I increased to six horizontal kumiko. Quite often what looks good on paper, proves less so when built, so the short time taken to make a model or mock up an idea is well spent.

With the proportions looking right, the stiles would not be sufficiently wide to mount the European hinges I had in mind. However, to allow for tool hanging, and protection from sharp tools, I planned on backing my shoji with 9mm MDF. By supplementing this with additional 9mm-thick MDF blocks, fitted within the lattice work where the hinges fell, it would give me the necessary fixing points for the hinges.

Materials

Shoji are commonly constructed from softwoods such as cedar or pine, with clear, quarter-sawn grain being preferred. That would be my first choice too, but with my stack of reclaimed timber and workshop offcuts getting out of hand, I rummaged through those and found some suitable candidates.

In my eyes, the shoji hipboard is the main star, and I picked out the pine back and bottom of a drawer from a chest that had been savaged by wood beetle. For the most part the beetle had kept to the oak of the carcass and drawer fronts, and the pine had survived intact.

For the frame members, the side rail of an old pine bed yielded sufficient material. This was from the days when knotty pine was in fashion, but thankfully the only significant knot in this piece was sound and I felt happy to work with it.

The kumiko in my design are of a particularly small section, where tiny knots and grain run-out could seriously weaken them, so I was lucky to find an offcut of clear, straight and tight-grained pine from which to harvest them.

Luck was with me again, when I found enough 9mm MDF offcuts for the backs and hinge blocks.

CONSTRUCTION

Hipboards

1 I first prepared the two hipboards. The book-matched centre sections were resawn from the pine drawer back. I use a marking gauge to mark centre all around the board. There



The ugly gas and electric utilities



The removable cover-up tool board



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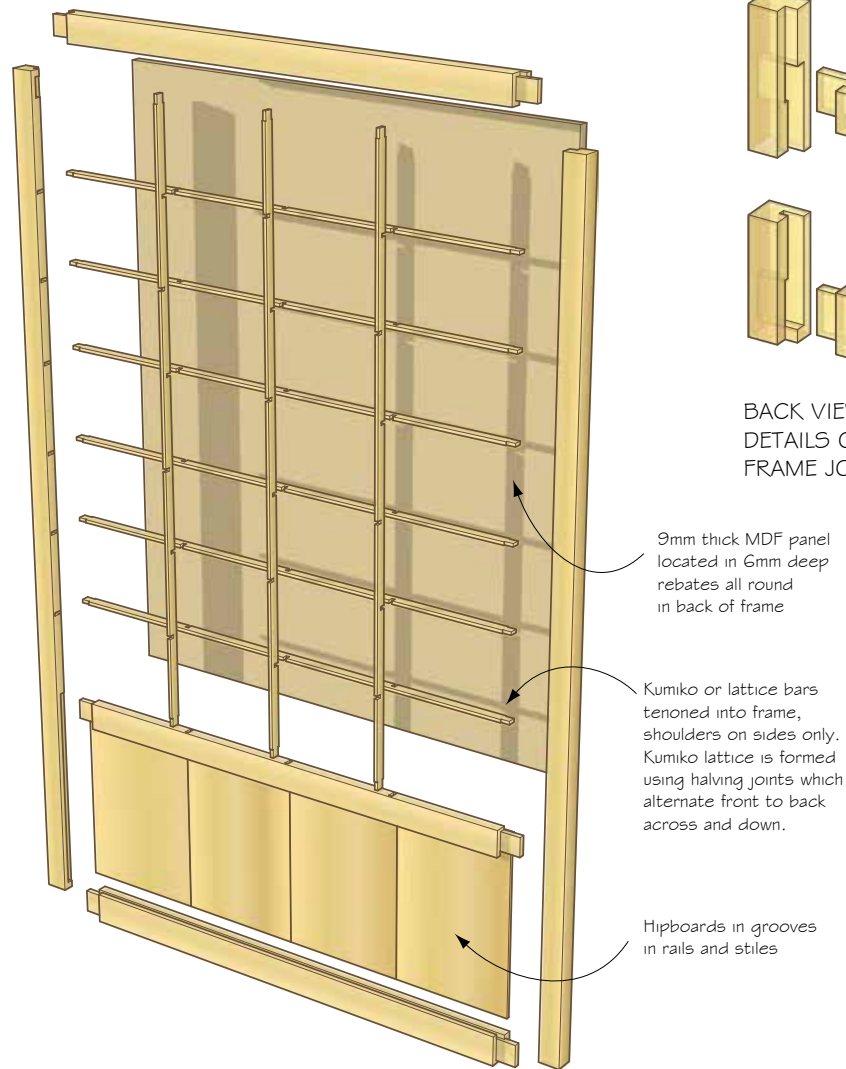
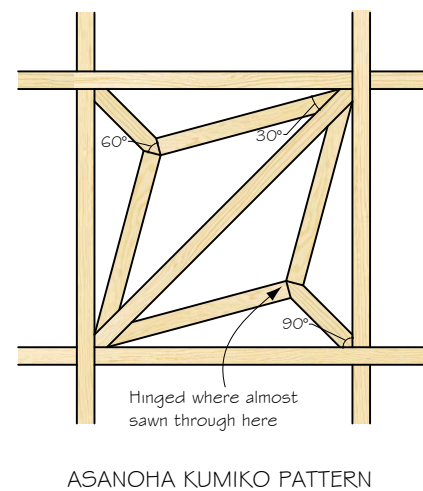
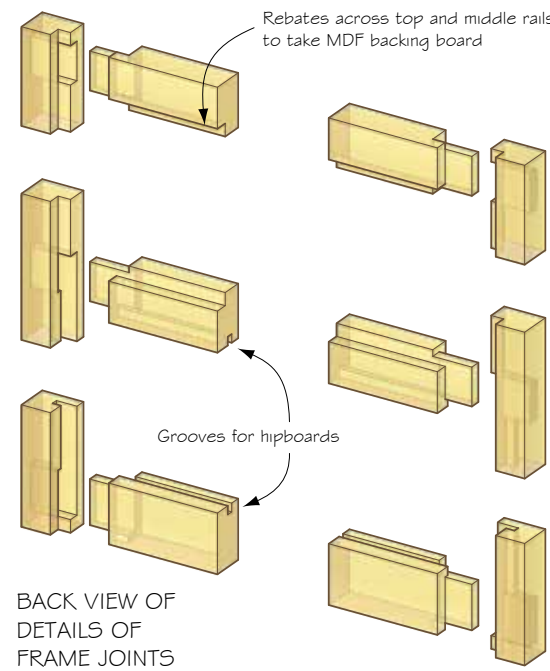
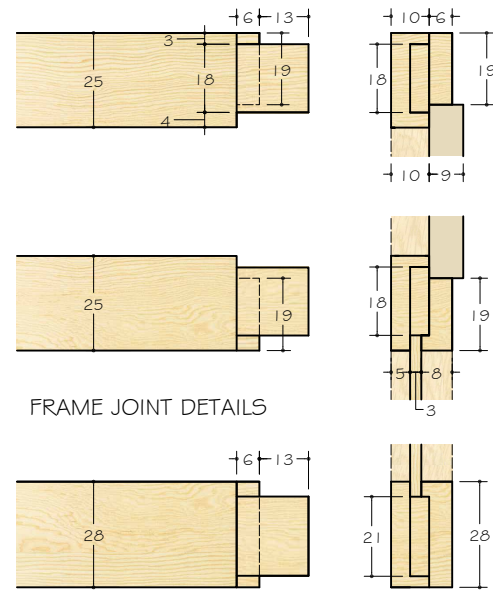
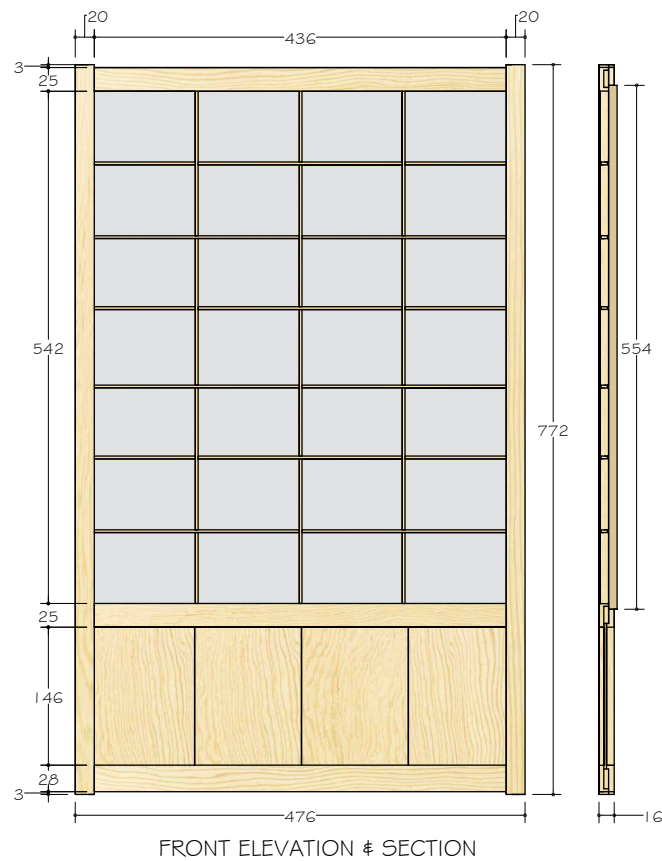
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wasn't much thickness to play with, so I checked the setting from both faces. The gauge gave me a little V where the pin spread the fibres each way. This would guide the saw blade initially.

2 A bandsaw might be the obvious choice now, but instead I used my ryoba saw. I sawed the corners first, deepening the cuts until I had joined up all around the board. These cuts helped guide the blade while the remaining diamond in the centre was sawn through to reveal the book match.

3 I smoothed these book match pieces with a Japanese plane, and thickened the drawer bottom to match them. A planing stop was dogged and clamped to the bench to cope with what were now quite thin boards. I was able to retain the high colour contrast, on the show side, with judicious use of the smoother.

4 The boards were butterfly jointed on my Japanese planing board (a longitudinal edge shooting board with a stop) ensuring a flat panel when glued up. ➤



5 One large panel was glued up, using masking tape hinges on the front to maintain alignment and reduce glue squeeze-out on the show surface.

6 Once crosscut into two hipboards, any glue and slight out of alignment was removed using a card scraper. The slightly oversized hipboards were shot to fit the frame later, leaving plenty of room for expansion in their width.

Frame

7 The frame parts were cut well oversized in length to allow horns on the stiles, and in section, due to the risk of warping, from the pine bed rail. A bin-full of shavings later and the blank stiles and rails were finally dimensioned square and true. I finished them smooth, lest I forget before assembly, after which the internal faces would prove very awkward to smooth.

8 Frames were laid out with the blanks, and the pieces arranged for the most pleasing effect. To me, this is where the grain appears as puffed-out, rather than sucked in.

9 The lattice area is usually covered on the back with shoji paper let into a very shallow rebate (paper deep, and kumiko thickness wide). I chose to cut 6mm rebates to seat the MDF backs, and these were run in by hand using a wooden rebate plane in the stiles and the top and middle rails.

On larger shoji, I would prefer to joint the frame with twin stub tenons, although it is perfectly acceptable to use a single one, especially with today's adhesives. Single stub tenons were chosen here.

10 The mortise and tenon locations were marked out on the stiles and rails respectively, ganging the parts up to ensure consistency. Shoulders were marked from the blanks' centres, leaving horns on the stiles, and overly long tenons, which could be cut to fit later. Rebates, for the MDF back mean that the tenon shoulders are stepped.

11 Traditional Japanese practice is to chop and scrape the mortises until you can see daylight through the bottom, and so I stropped my mortise chisel to obtain a very keen edge first. With careful use of a light hammer >



and depth gauge, it's possible to get very close to depth without breaking through, after which the bottom can be delicately scraped flat with a good chisel edge.

12 To hold the hipboard, a groove was made in the bottom and middle rails, and between mortises at the bottom of the stiles. The latter stopped grooves, being chopped and then finished flat with a router plane.

13 Tenons were prepared next, sawing the shoulders and cheeks with a dozuki saw, and cleaning up the shoulders by paring.

14 I always saw tenon cheeks a little shy so they can be cleaned up smooth with the router plane. Tenons are cut to length using a depth gauge to ensure just a little gap remains at the base of the mortise. The tenons also receive a small chamfer around the end to ease assembly once glue is applied.

15 A dry-fit of the frame with the hipboard demonstrates how small these shoji are compared to those in my workshop windows.

Lattice

16 The kumiko for the lattice are ripped from the quarter-sawn pine board. After each one is separated, the edge of the board is jointed so that each kumiko will have a clean face side with square edges.

17 Having such a small section, the kumiko can be ganged for planing to dimension, which greatly eases plane control and speeds up the job. Extreme care is taken since the kumiko want to bend up off the bench, and could easily snap in half.



18-19 Kumiko prepared, the mortises for them can be laid out on the frame stiles and rails. With only shoulders to the front and back, a piece of kumiko is used to offset one side of the mortise from the other.

20-21 Chopping the mortises is greatly aided by boring the centre out. However, chopping and removing the remaining waste from the 36 tiny holes still required a lot of patience.

22 The kumiko are ganged up as verticals and horizontals, between stiles and rails respectively, to copy the layout for halving joints and tenons. A woven kumiko lattice, with halvings alternating front and back, tends to remain tight and flat. To avoid mistakes I lay the kumiko in position and lightly pencil in the notch positions before knifing and cutting these joints.

23-24 Once again ganged, the halving joints and tenons are sawn and pared. I prepared a notched jig to both hold the kumiko and gauge the halving depth.

Assembly

The lattice weave of the kumiko can appear quite a challenge to assemble, but laying the horizontal pieces on their sides, one at a time as they are woven in, and twisting them upright as the joints mate, works well.

25 A successful dry fit is soon followed by a glue-up. Less is more when it comes to the halving joints and lattice mortises, as clean-up of any squeeze-out could be a time-consuming and tricky job. The frame joints should be well fitted, and require just enough glue to cover their surfaces.



Backing

26 Now would normally be the time to paste shoji paper over the back of the lattice. Rice glue is traditional, and I used that on my workshop shoji, pictured here at that stage.

27-28 Instead, I prepared a fitted MDF back, painted black for contrast, and glued in place with two lattice infill pieces. Finally, I trimmed the stile horns, leaving a little proud for appearance. On sliding shoji, bottoms are left slightly proud to avoid wear.

Finishing

Apart from the backboard, I have left the shoji bare. The finish off the smoothing plane is like glass in most places, and I am loath to apply any polish. Simple handles will avoid dirty paw prints, and the pine can continue to age naturally.

IN CONCLUSION

I'm pleased with the result, and I would certainly make more cabinet doors like this in the future. I worked unplugged, up to the point of hanging the cabinet and enjoyed every minute. Using reclaimed timber can throw up challenges, such as knots in awkward places, as I found here. It can also supply an instant patina, very difficult to mimic. Although the joinery is quite basic, the small size and large number of joints makes for excellent practice. Finally, I would encourage anyone to try making a shoji, but reiterate the addiction warning. ■

SAFETY NOTE

If you box in your services, then it is wise to ensure your main gas shut-off valve and meter, electric supply fuse, meters and distribution box, all remain easily located, accessible and ventilated.

MORE INFORMATION

I recommend the book *Making Shoji* by Toshio Odate (ISBN 0-85442-090-8)

The build of my workshop shoji is available on my YouTube channel (https://youtu.be/mvI_cRbT2Hw)



OPTIONS

- Kumiko patterns could be added.
- Hipboards could be dispensed with.
- Glass back could be installed.
- Feet to make a room divider.

