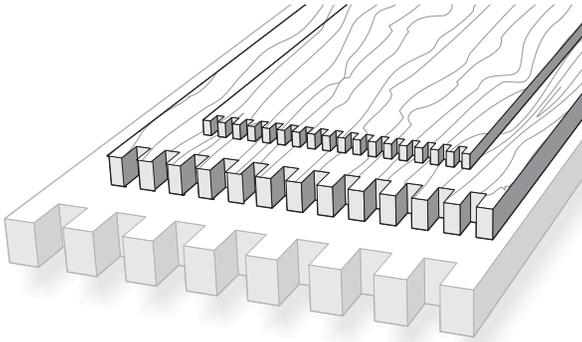


F2, F1600 **CHAPTER 10**

Small Box Joints

These instructions are based on the assumption that you have mastered the routing of the basic box joint, and are thoroughly familiar with those procedures, and that you have read the Hints and Tips Chapter 11.

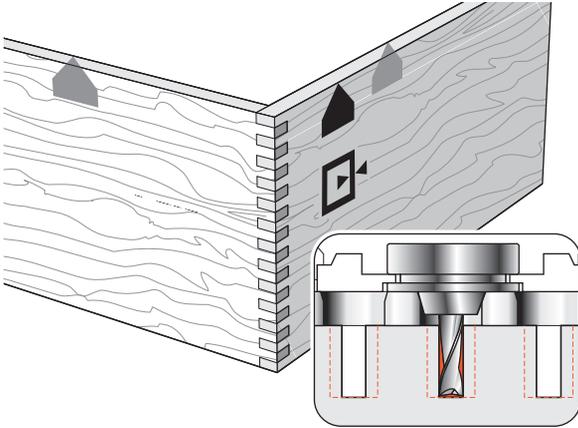




10-1 About Small Box Joints

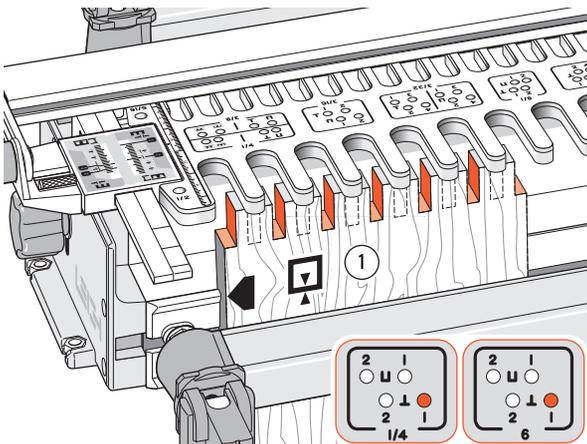
The template pin positions for half and quarter size joints are clearly marked on the template. These allow routing of half-size, and even quarter-size box joints (but not rounded joints). You get the advantage of routing thicker, wider boards with for example, $\frac{1}{4}$ "[6mm] box joints on the $\frac{1}{2}$ "[12mm] template ... or as small as $\frac{1}{16}$ "[2mm] joints on the $\frac{1}{4}$ "[6mm] template.

To calculate board widths for small box joints, see page 68.



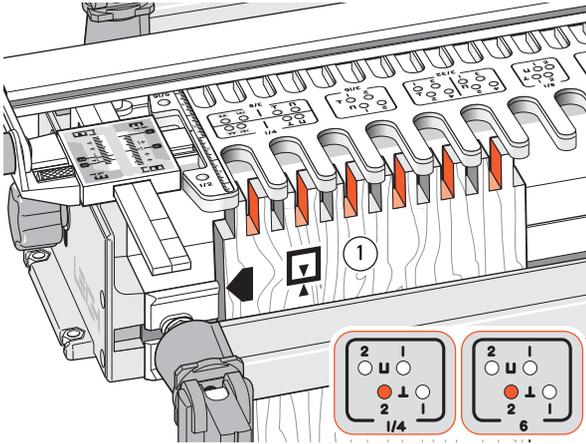
10-2 Routing Half-Size Joints

An example half size joint layout is $\frac{1}{4}$ "[6mm] joints on the $\frac{1}{2}$ "[12mm] comb. Use the same size guidebush for the selected comb, but use a cutter of half the nominal size. In this example, use the 716V bush with a $\frac{1}{4}$ "[6mm] cutter.



10-3

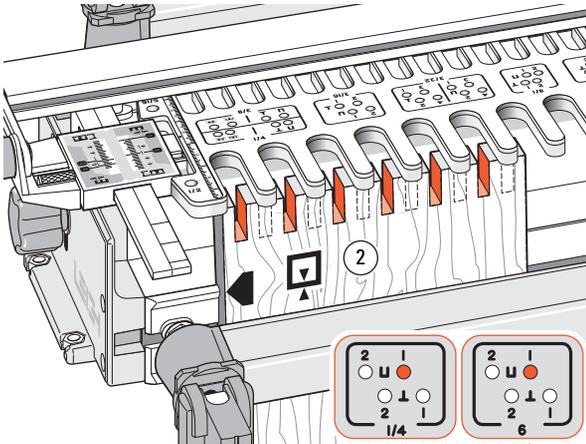
Clamp board ① in the jig against the side stop. Using the $\frac{1}{4}$ "[6mm] pin-hole panel (on the right-hand side of the template), place the template pin in the \blacktriangledown No.1 hole. Rout the half size $\frac{1}{4}$ "[6mm] sockets and leave the board ① in the clamp.



10-4

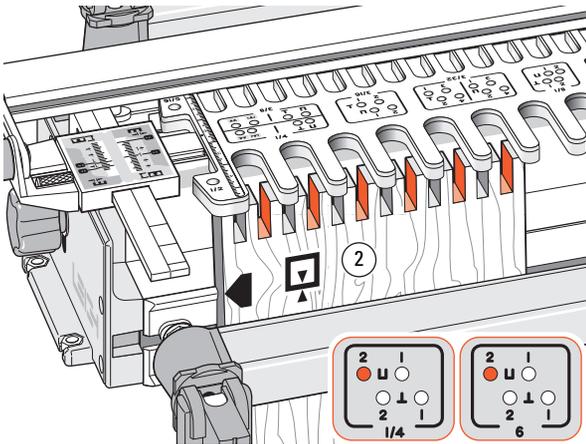
Move the template and put the template pin in the **↓** No.2 hole. Rout the rest of the half size sockets and remove the board. This board ① will now have fingers and sockets half the nominal size.

Repeat instructions 3 and 4 on the other end of board ①, and on both ends of board ③, making sure at each step to keep the same side edge against the side stop.



10-5

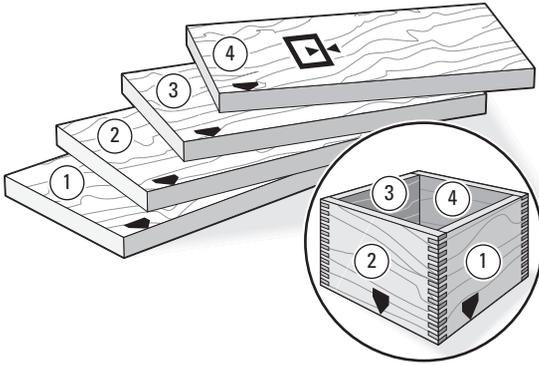
Mount the mating board ②. Put the template pin in the **U** No.1 hole. Rout the first set of sockets and leave the board in the clamp.



10-6

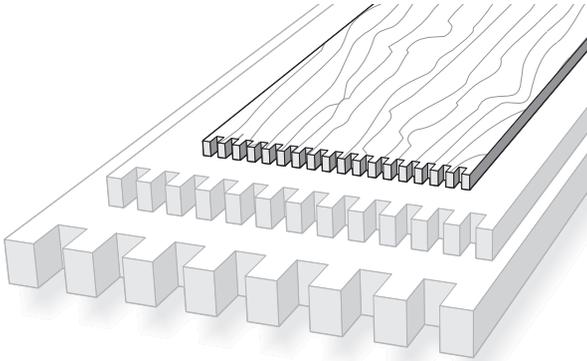
Move the template and put the template pin in the **U** No.2 hole. Rout the remaining half size sockets and remove the board.

Repeat instructions 5 and 6 on the other end of board ②, and on both ends of board ④, again making sure to keep the same board side edge against the side stop.



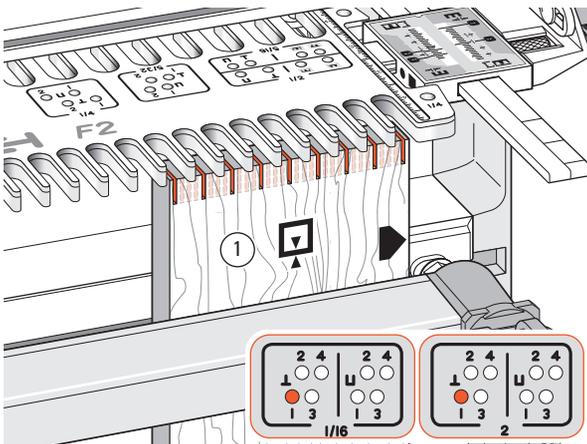
10-7

During assembly of the box, always keep the side stop edges of the boards either to the top, or bottom of the box.



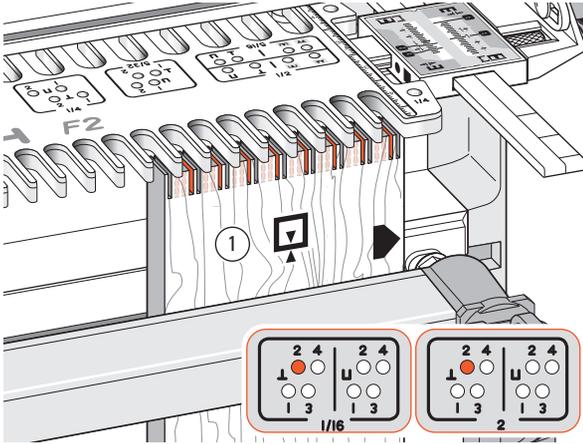
10-8 Quarter Size Joints

An example quarter size joint layout is $\frac{1}{16}$ "[2mm] joints on the $\frac{1}{4}$ "[8mm] comb.



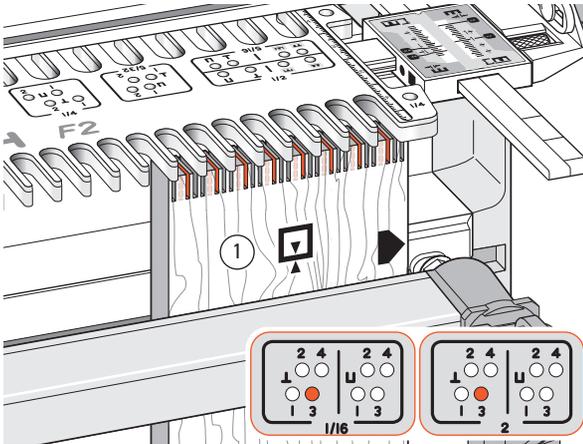
10-9

Clamp board ① in the jig against the right-hand side stop. Using the $\frac{1}{16}$ "[2mm] pin-hole panel, place the template pin in the \blacktriangledown No.1 hole and rout the quarter size $\frac{1}{16}$ "[2mm] sockets. Leave the board in the clamp.



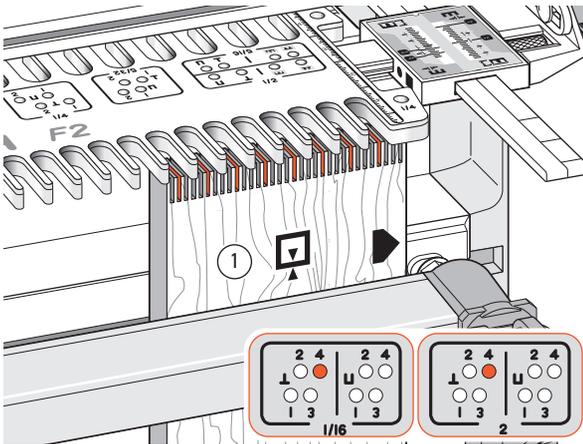
10-10

Move the template and put the template pin in the **⬇** No.2 hole and rout again.



10-11

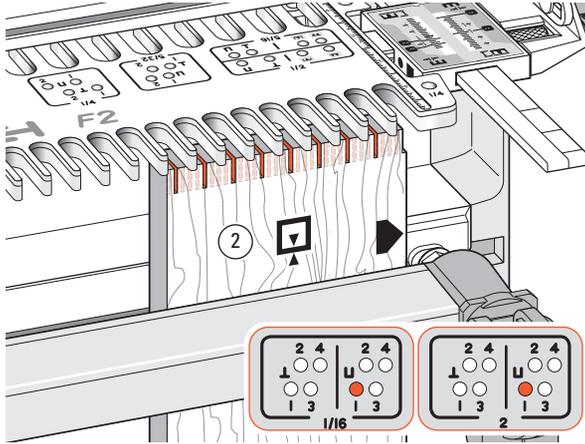
Move the template and put the template pin in the **⬇** No.3 hole and rout again.



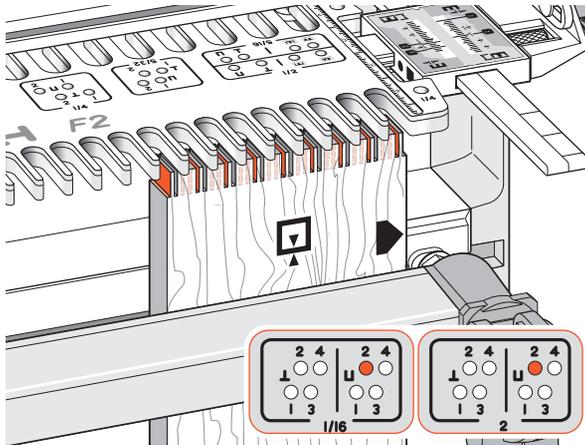
10-12

Last, move the template and put the template pin in the **⬇** No.4 hole. Rout the last sockets and **remove the board**.

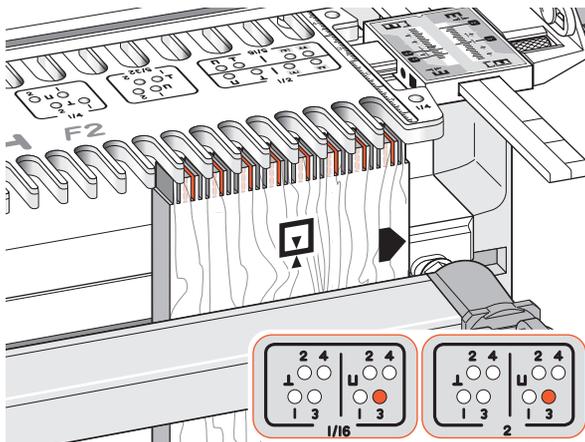
Repeat instructions 9 through 12 on the other end of board ①, and on both ends of board ③, making sure at each step to keep the same side edge against the side stop.

**10-13**

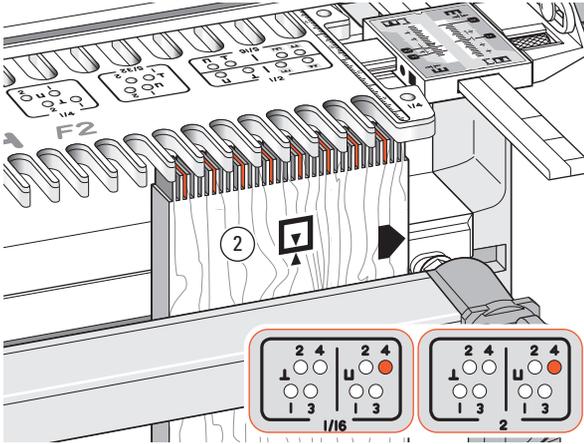
Mount the mating board ②. Put the template pin in the **U** No.1 hole and rout the first set of sockets. Leave the board in the clamp.

**10-14**

Move the template and put the pin in the **U** No.2 hole. Rout the second set of sockets.

**10-15**

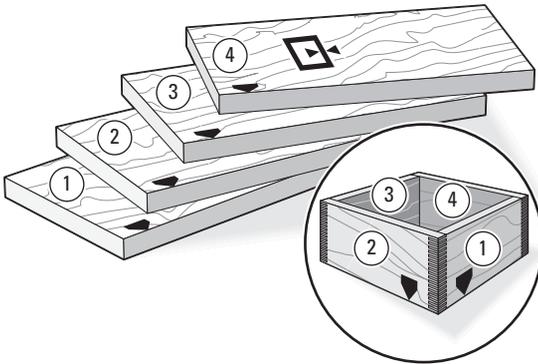
Rout again in pin position **U** No.3.



10-16

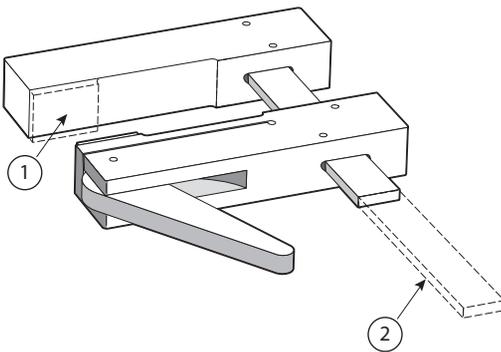
Then rout in pin position **U** No.4.

Repeat instructions 13 through 16 on the other end of board ②, and on both ends of board ④ making sure at each step to keep the same side edge against the side stop.



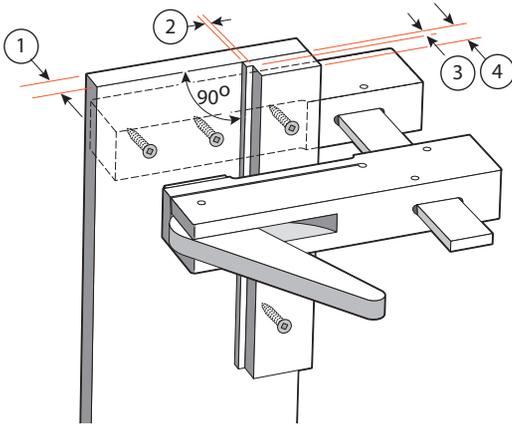
10-17

During assembly of the box, always keep the side stop edges of the boards either to the top or bottom of the box.

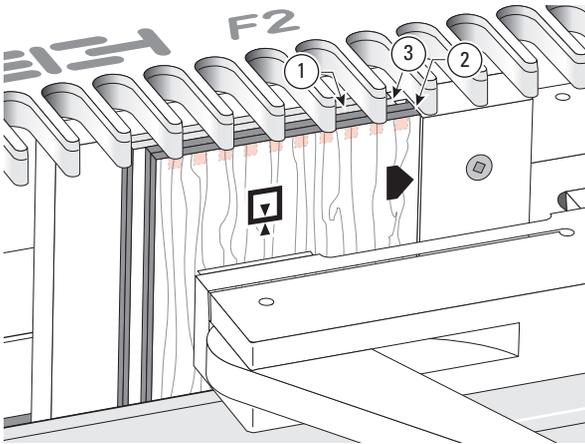


10-18 A Fixture for Routing Multiple Pieces

For very thin or short boards, make up an auxiliary clamp with its own *stepped* side stop by adapting a stock clamp. Remove the grip pad ① flush to the fixed jaw face. Remove the excess metal bar ②. These useful wooden clamps are generally available from most good woodworking tool stores.

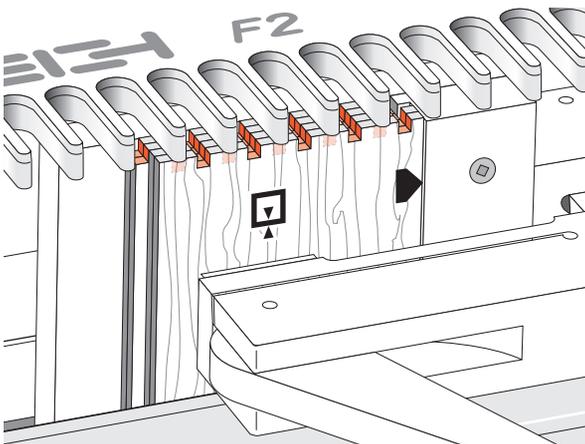
**10-19**

With this shop made fixture you can rout up to four pieces at once and speed up small box joint production. You will need to adjust the scale settings to allow for the backboard thickness, e.g. a $\frac{1}{2}$ " [12mm] backboard ① will require moving the template $\frac{1}{2}$ " [12mm] further toward you. Number ② is a step, equal in width to the small cutter diameter used. The step depth ③ is slightly less than one, or two board thicknesses, depending on whether two or four pieces are being routed at one time. The overall side stop depth ④ is greater than all board thicknesses combined.

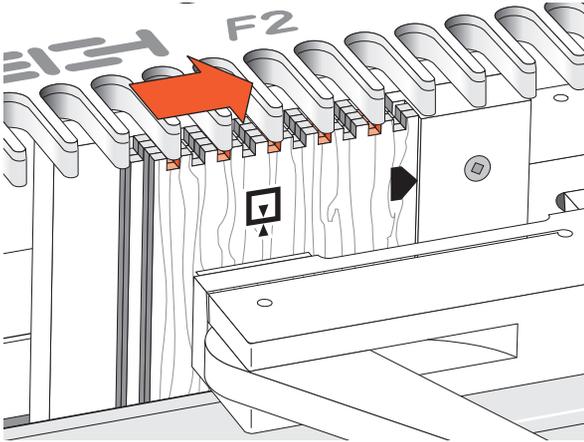
**10-20**

The front jig clamp holds the auxiliary clamp by its stepped side stop. The small boards may slide behind the jig front clamp bar if necessary. The rear two boards ① are offset from the front two boards ② by the stepped side stop ③, at an amount equal to the **small cutter diameter used**.

Adjust the auxiliary clamp left and right in the jigs front clamp to allow for the correct side edge finish.

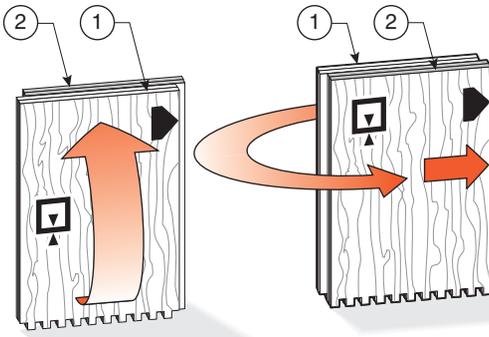
**10-21**

In this example, a half-size joint is being simultaneously routed in all four box board ends. First in one pin position...



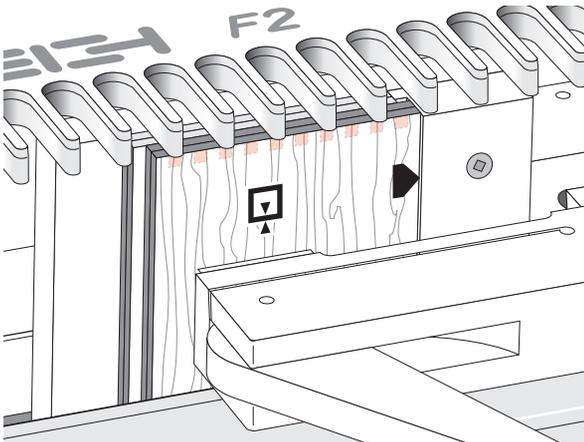
10-22

...then in the next.



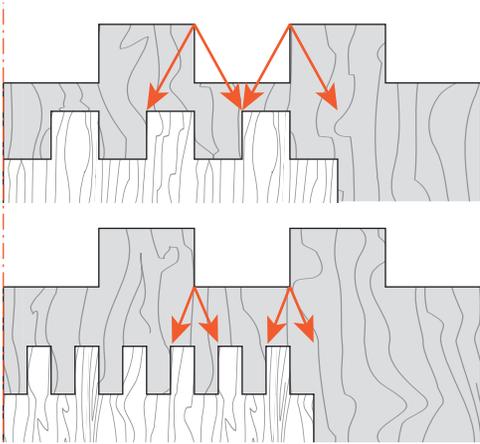
10-23

Remove all four boards together, and turn end for end, keeping the same edges to the side stop. Move boards ② back to the front before re-clamping.



10-24

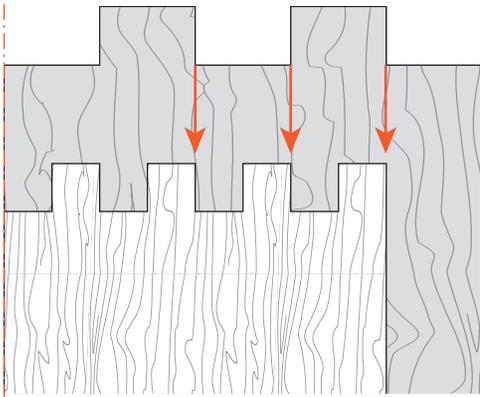
Now rout these four ends in the same two template pin positions as before.



10-25 Board Widths for Small Box Joints
Small joint board widths are calculated from the board width charts on pages 32 and 33.

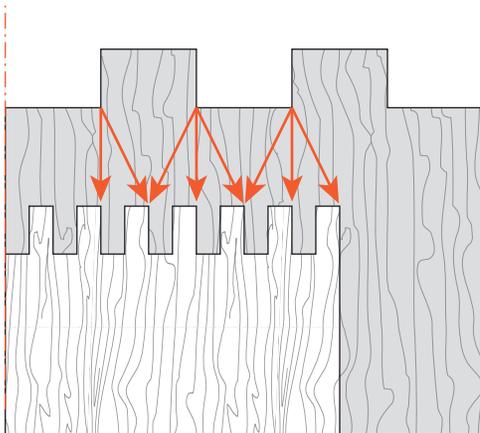
All Symmetrical Joints

Use chart width plus or minus the diameter of the small cutter used.



10-26

Asymmetrical Joints, Half Size
Width as per chart.



10-27

Asymmetrical Joints, Quarter Size
Chart width plus or minus 2 diameters of the small cutter used. ■