# Builting of the second second

This custom-built bench offers seating, hidden storage, and a whole lot of charm

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36 FINE HOMEBUILDING

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uilt-ins add functionality to any space, but few types offer as much day-in and day-out utility as a breakfast nook. For this project, the client had a compact kitchen that didn't leave much room for a table and chairs. It was a space just begging for a breakfast nook.

A breakfast nook allows at least half of the seating around the table to be flat against the wall, eliminating the space needed behind chairs. It also allows the table to be tucked closer to the corner, opening up floor space, improving flow, and making the room feel bigger, all while offering additional storage. Unlike bookcases and window seats, a breakfast nook is a built-in that is likely to get daily use and abuse. So besides needing to be aesthetically pleasing, it has to be functionally designed and built to take a beating.

### Dimensions to know

I've built enough breakfast nooks over the years to have a basic formula for dimensions. I usually aim for an 18-in. finished seat height, which includes cushions. Standard thickness for foam is 4 in., and I allow for about 2 in. of compression, so I usually design the bench so that the plywood below the cushions is 16 in. above the finished floor. For seat depth, I like 18 in. from the front lip to the lowest portion of the angled backrest. My designs don't typically include a cushioned backrest, but if yours does, you will need to adjust this number to account for the added thickness.

While a straight back is easier to build (especially in a corner bench), a slight angle—7° is what I used here—adds quite a bit of comfort and visual interest. If I'm tucking the built-in below a window, I prefer to use the window stool height as the top edge of the backrest, which in this case worked out to a comfortable 18 in. from the seat.

It's typical to include storage in this style of built-in—drawers in the side or end of the unit, or lids that lift off or are hinged. I find that drawers and slides eat up a lot of storage space, so I prefer hinged lids.

With the critical dimensions and site specifics noted, I can flesh out the design and then begin fabricating parts in the shop.

## Shop fabrication

The heart of this assembly is the plywood carcases, which not only serve as the storage areas but are the main components onto which the rest of the assembly is fastened.

I like the interior to be as presentable as the exterior, so I use prefinished cabinet-grade maple plywood for the carcases—<sup>3</sup>/<sub>4</sub> in. thick for the sides and back, <sup>1</sup>/<sub>2</sub> in. thick for the bottom—which also eliminates the need for painting the interior. I break the carcases into at least two equal sections (more for long runs) to ensure ample support. I generally avoid going more than 48 in. without adding a vertical support; for this project, a single center divider was sufficient. In the case of a corner unit such as this one, you also need to decide which carcase is going to run long into the corner. I usually run the shorter of the two benches into the corner.

In order to maintain the illusion of a true furniture leg, I set a recessed base assembly 6 in. from the front face. That's far enough

BENCHMARK DIMENSIONS

Compared to other built-Seat back is ins, a bench can be a beveled at 7°. challenge. These pieces need to look good, feel good, provide usable storage, and integrate well with adjacent cabinetry, doors, and windows. Your design may vary based on style and the particulars of 18 in. the room, but I've found these dimensions to be a good baseline. 97 18 in 16 in.

22 in.

35 in.



**Anticipate the unknown.** Although many of the bench parts are fabricated in the shop, all face frames, bracket feet, and moldings are left oversize to be cut and/or scribed on-site for a perfect fit.

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OCTOBER/NOVEMBER 2016 37

back so that you can't see it, but shallow enough so that you can reach dust bunnies and runaway Cheerios. The base assembly is made from <sup>3</sup>/<sub>4</sub>-in. plywood but is later skinned over with <sup>1</sup>/<sub>4</sub>-in. MDF, so it provides a good opportunity to use scrap that has accumulated in the shop.

I build all of the bench-frame components with paint-grade European beech, which isn't quite as soft as poplar but is easier to work than maple. Frames are assembled with pocket screws and are built a little oversize to allow for scribing and unknown site conditions. The same goes for the furniture legs; I cut the decorative curves in the shop but let the ends run long, leaving me wiggle room once I get to the site.

The frame-and-panel treatment on the front of the carcases includes a rabbet for the plywood panel, which goes up against the storage carcase and can therefore be glued and pinned to the frame rather than acting as a true floating panel.

To ensure purposeful reveals and proportions, I factor in the width of any moldings I plan to apply to the boxes once installed. For corner units, I need to consider which side of the front frame and furniture feet will overlap the other at the inside corner. I've learned that if I don't address these matters during the design and shop-fabrication stages, those oversights will haunt me when I'm on-site.

### At the job site

Once I'm on-site, my first step is to remove millwork and other obstacles, such as electrical devices, which are never OK to leave energized if they are to be buried behind a permanent piece of furniture. Next, I mark all the studs in the area by drawing vertical lines on the wall; this reduces the need to hunt them out one at a time later in the process. A little time on the front end saves me a lot in the long run.

I start the actual installation with the storage carcases, which are assembled in the shop with the recessed bases attached. Since all components are built off these boxes, it's imperative that they be installed dead level, plumb, and square to each other (in the case of a corner installation).

With the carcases in place, I add the solidwood frame components—first the frame that will support the lids, and then the frames and panels that dress up the front and sides.

The 7° back assembly is supported by a pair of angled nailers cut from quality, kiln-dried

# **BOXES CREATE A FOUNDATION**

As with any cabinet installation, time spent getting the assembled plywood carcases level, flush along their top edges, and square to each other at the corner pays dividends when installing the components that come afterward.



**Make way for the cap.** If tying the bench seat into a windowsill, strike a level line across the window casing. Cut along the line with a handsaw or multitool, and remove the molding.



**Wedges before shims.** Reusable oak wedges are larger and steeper than typical shims, making them ideal for quickly and temporarily getting carcases into position before shims are added.



Carcases made from <sup>3</sup>/4-in. and <sup>1</sup>/2-in. prefinished plywood

<sup>3</sup>/4-in.-plywood base assembly, fastened to carcase from below





**Help shims stay put.** Stack shims to fit, then remove and coat with glue. Reinsert the stacks, let the glue dry, and trim the stacks flush.





**Flush it up.** Set the top frames in glue, and align all outside edges flush to the face of the carcases before fastening with finish nails.



**Skin the boxes.** Trim each front panel to length, and fasten it to the carcase face with finish nails.



Lid cleat does heavy lifting. This 1x6, referenced off the front edge of the carcase, supports the backrest assembly and the lid hinges.

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# ANGLED BACK SUPPORT

I like to align the bench back with the window sill, which usually means removing part of the existing casing and making a new, deeper stool.



Window locates the top nailer. Clamp the backrest cap in place to set the height of the angled top nailer, then screw the nailer to the wall at each stud location.



Accurate angles. Adjust the bottom nailer in or out at each screw location until a digital level reads 83°—a perfect 7° slope—before fastening the nailer to the lid cleat below.



**Beveled backrest.** To create a sturdy backrest subbase, fasten <sup>3</sup>/<sub>4</sub>-in. CDX plywood with top and bottom bevels to the upper and lower nailers.

### The trick for a tapered stile

For the backrest panel frame, start with an extrawide stile on one end to allow for the tapered cut necessary to meet the adjacent piece in the corner. I prefer to see 3 in. of stile at the narrowest visible point, which matches the width of the straight-cut stiles. To get an accurate measurement for this tricky spot, do your layout and take your measurements on the plywood.



2x stock. The upper nailer is attached to the wall just below the sill, and the lower nailer is fastened to a lid cleat that's on top of the carcases below. Spanning the nailers is <sup>3</sup>/<sub>4</sub>-in. CDX plywood, which creates a stiff subbase for another pocket-screw frame that is then infilled with solid-wood tongue-and-groove paneling for a traditional look.

On the inside corner of the seatback, both stiles are cut at a 7° angle, with one piece lapping the other. I configure the seat-back frames so that they show 3 in. of stile at the narrowest point. The easiest approach to



conquering this tricky layout is to draw a plumb line on the face of the plywood where you want the inside rail to stop and the paneling to begin (drawing above).

The edge cap on the bench should be 5/4 (nominal 1 in.) stock to match the backrest cap, and I like it to overhang the lower panel by 1 in. or so. This piece tends to see a lot of stress, so I like to glue, screw, and plug it.

Finally, I fabricate lids for the storage areas that also support the upholstered cushions. I use MDF with a biscuited and screwed solidwood edge, which offers a stronger base for the piano-hinge screws than MDF alone. A simple finger hole through the top of each lid eliminates the need for hardware, and I rout all edges with an <sup>1</sup>/<sub>8</sub>-in. radius bit to give them a nice feel.

The lids are best left loose until after the whole bench has been painted, which allows the painters access without having to work around the piano hinges.  $\Box$ 

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# FINISHING TOUCHES

To dress up the benches and enhance their built-in, furniture-type look, I apply tongue-and-groove paneling to the backs, traditional furniture-style legs to the lower boxes, and simple detail moldings to ease some of the transitions between pieces. After I fabricate the lids, the piece is ready for paint.



**The base follows the box.** Shim up and scab onto the bracket feet as necessary to keep an even reveal on an out-of-level floor.



**Tongue-and-groove symmetry.** Cut each piece of paneling with a 2° bevel at top and bottom to ensure a tight fit between rails, then dry-fit them and adjust the whole row of pieces until the gaps at the ends are equal. With the end pieces cut to width, fasten each board with pin nails.





The hinge sets the gap. After coming close to the final lid dimensions, set the lids in their openings with the piano hinge slid into place at the rear, then check and adjust the gap at the sides and front.

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