Designing and Installing Baseboards

With stock moldings and simple milling, you can create a variety of designs, but they all require careful fitting

by Joseph Beals

Scribing ensures a good fit between baseboard and floor. With the baseboard shimmed up parallel to the floor and about 1 in. above it, the author uses his scribe to trace the contour of the floor along the bottom of the baseboard.

A jigsaw follows the scribed line. After tilting the jigsaw's shoe to create a back cut, the author cuts close to the scribed line but never into it.

Baseboards are so called because they derive from the base of a pedestal, the lowest part of the stand upon which classic columns are placed. Almost all the interior trim in a home is modeled on classical antecedents: Many great period houses reproduce classical models in every magnificent detail, while less elaborate trim echoes the form with a range of derivative elements. Column capitals and the entablature above become frieze and cornice of ceiling molding, and columns themselves become door and window casings. Pedestals are represented by a paneled wainscot under a chair rail: When the paneling is eliminated, the baseboard remains.

The clamshell (or ranch) base in a tract house shows how the economies of construction have reduced baseboards to a thin shadow of their former grandeur. But with simple shop detailing and stock molding, handsome baseboards can be built in a variety of designs and styles.

First the floor, then the baseboard—Wooden floors, particularly strip and plank floors, require room to move with seasonal changes of humidity. A small gap between the flooring and the wall allows this movement, and baseboard covers the gap. A tight joint between the floor and the baseboard requires that the floor be installed first, and the baseboard scribed to it.

In a room to have a wall-to-wall carpet, the baseboard should be installed first, laid to the subfloor without scribing. It isn't necessary to tuck carpet under the baseboard: Carpet installers will fit the carpet tight against it, hiding the bottom edge entirely. Sometimes, narrow-stock baseboards, such as clamshell, are installed ½ in. or so above the subfloor, but that's only to keep the carpet and pad from obscuring too much of the shallow profile.

Layout lines ensure that scribed baseboards line up around the room—In its simplest form, a baseboard is really a foundation for the more detailed profiles that can be devel-

A block plane fine-tunes the scribe. Having back-cut the baseboard with the jigsaw, planing (with the plane held square to the face) is easier because there's less stock to remove.

Glued-up plinths are more efficient. To save time and material, the author glues up plinth blocks two at a time, back to back. Then he rips them apart on the table saw after the glue cures.

oped from it. But a simple baseboard is an ideal model for reviewing installation. This design calls for a 1x8 baseboard with a stock cap,

I start by marking a pair of reference lines along the walls, parallel to the average floor plane. The lower line represents the top edge of the installed 1x8. The lower line must therefore be no more than 7¼ in. (the width of stock 1x8) above the floor at any point around the room. In practice, setting the lower line at 7 in. ensures a tight fit in case you miss a dip in floor.

I use a long straightedge to establish the line location, but I do not make the mistake of working to a level reference. Baseboard is effectively floor trim, and the floor plane is the critical ref-

Plinth blocks and baseboard design

The first element in baseboard design isn't the baseboard, it is the door casing. Baseboards should sit at least ⅛ in. behind the face of the casing to create a crisp reveal because a true flush joint is almost impossible to make. Often, the best way to create this reveal is with plinth blocks.

A plinth block is just that: a block slightly wider and thicker than the casing, and slightly taller than the baseboard (photos below).

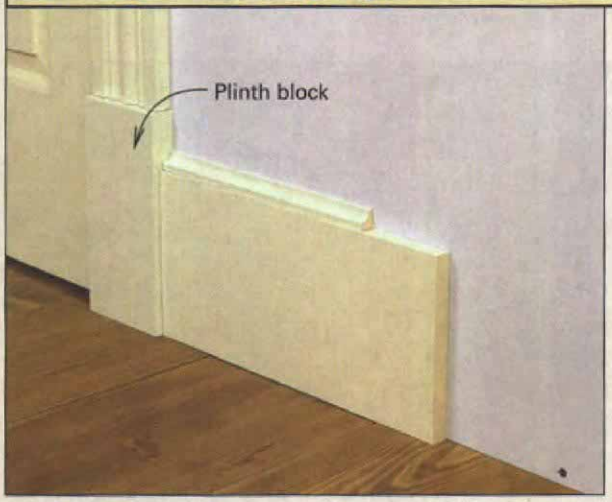
Once you are accustomed to plinth blocks, casings will look awkward without them, rather like legs with the feet missing.

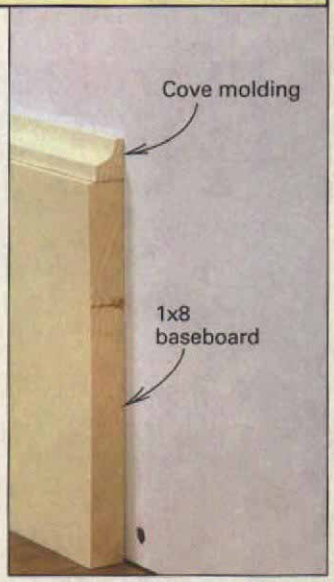
Plinth blocks can be made of solid stock, but it is easier to use ¾-in. stock packed out with a pair of strips glued on the back. This avoids having to find thick stock, and the packing provides a relief that straddles any irregularities where the wall meets the door jamb.

Blocks can be made up in pairs with ¾-in. square strips interposed between them. The pairs are ripped apart after the glue cures (bottom photo, far left).

Once you've settled on the door casing, you can turn your attention to the baseboard itself. The photos below and those on pp. 59 and 61 illustrate how you can easily alter baseboard design with stock moldings and simple shop millwork.—*J. B.*

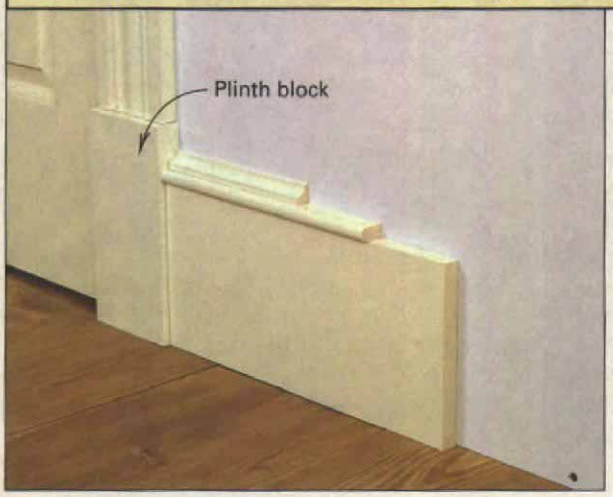
Basic 1x8 with a cove cap.

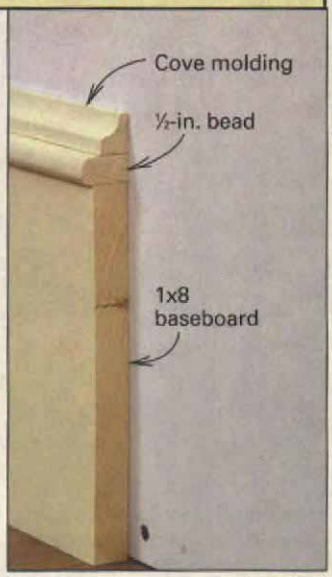




Although 1x4 or 1x6 may work fine, the height of 1x8 baseboard distinguishes it from the narrow baseboards common today. Here, the 1x8 is capped with a stock cove molding.

Adding ½-in. bead shifts the design to semiformal.





The author makes this bead in his shop by resawing 2-in. wide stock to ½ in. thick. He routs a bead on both edges and then rips two ⅜-in. wide beads from each piece.

Mark baseboard in place when outside corners aren't square. Pencil lines on a piece of tape show where the baseboards intersect at the floor. A line connecting this point with the point of intersection at the top of the baseboard (being marked here) establishes the outside edge of the miter. Similar lines on the back of the baseboard determine the bevel angle.

Base cap is nailed on last. Besides adding a decorative profile, the base cap conforms to irregularities and hides any gaps between the wall and the baseboard. The cap can be nailed either to the wall studs or to the baseboard.

erence, level or not. Making the baseboards level in a room that is not level merely draws attention to the deficiency.

The upper line is a scribe line, parallel to the baseline and 1 in. or so above it. An inch is usually sufficient, but for a really erratic floor, you must ensure that the space between the two lines is greater than the maximum variation in floor height.

Once I've located the base and scribe lines, I snap them along all walls with a chalkline. You may think this is far too complicated for baseboard work. But the layout is not difficult, nor time-consuming. It may be possible to avoid it if simple base is being fitted in new construction, but the antique houses where I do most of my work never allow that degree of convenience.

Why not use shoe molding instead of scribing?—A shoe molding is a low-profile trim piece—like quarter-round, but a little taller—nailed along the bottom of the baseboard. Shoe moldings have been specified for their looks alone, but their origins are undoubtedly functional, where they cover some defect in the joint between the baseboard and the floor. A shoe molding is generally not a good alternative to scribing, because it will follow only gentle curves. The molding itself is much too small to scribe, so it cannot be used on a highly irregular floor with any success.

Good design requires that a shoe abut the sides of the plinth blocks (sidebar p. 57) along with the rest of the baseboard. In most cases, though, a plinth block thick enough to accommodate the addition of a shoe will be aesthetically impractical. It's common practice to deadend the shoe with a simple bevel or a mitered return. This condition alone is enough to make the shoe look like a badly planned afterthought.

Fit one end, scribe the bottom—I like to start with a short, inconspicuous piece of baseboard, if there is one, to get focused on the demands of the job. Before I can scribe the bottom, I need to fit one end. Otherwise, shifting the baseboard horizontally to fit an end will ruin the accuracy of the scribe. The shift may be only a small fraction, but on an irregular floor that will spoil the scribed fit completely.

If my first piece is trapped between two walls, the end cuts are not critical because the abutting baseboards will cover them. But if I must fit one end to a plinth or to a piece of installed base, the end cut needs to be perfect. I hold the base as low as possible, keeping it parallel to the scribe line. I can't use the baseline, because until I've removed the scribe waste from the bottom of the baseboard, the baseline will be hidden behind it. I scribe the critical end and re-

move the waste with a jigsaw. Then I trim to the line with a sharp block plane at a slight angle, perhaps 5°, to relieve the back of the joint.

Now I hold this run of base tight against the end I've just fitted, aligning the top edge on the scribe line. If the untrimmed end runs past an outside corner or over a plinth block, I leave this several inches long. I'll scribe right out to the end and trim it afterward.

I shim each end of the base so that its top edge lies exactly on the scribe line. Then I set my scribe, or compass, equal to the distance between the two layout lines.

I run the scribe along the floor (photo left, p. 56), being careful to keep the two legs in the same vertical plane. I set the baseboard across sawhorses and remove the waste with a jigsaw, tilting the shoe to relieve the back of the cut (photo right, p. 56). Because this is hidden, the relief can be strong, perhaps 10° to 15°. I cut close to the line, but never into it. After sawing, I trim tight to the line with a sharp block plane (top photo, p. 57). I do not angle the plane; by keeping the plane perpendicular, it trims only the sharp edge of the sawcut and makes the fine-tuning fast and accurate.

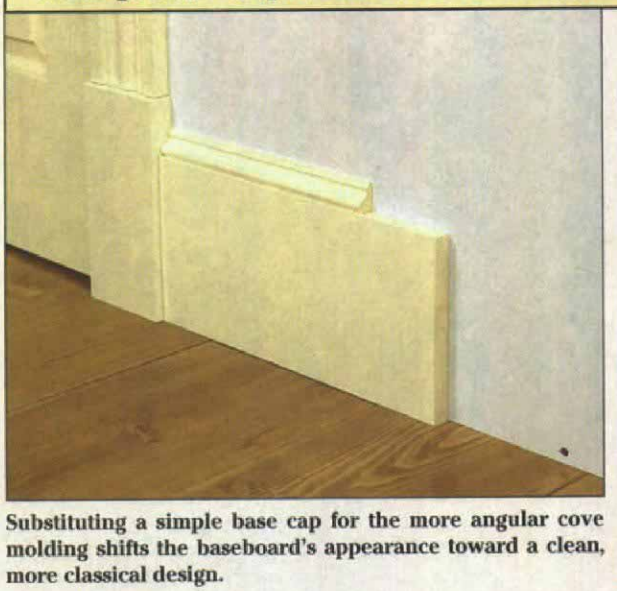
With one end already fitted and the bottom now tight to the floor, a long end that is to abut a plinth can now be trimmed. I mark the top of the cut off the plinth. A line on the floor, extended off the bottom of the plinth with a square, shows the bottom of the cut. I saw the end as described previously, saving the line. I attempt a trial fit before I plane the cut because sometimes the baseboard wants to spring home directly off the saw. Failing that happy circumstance, a glance at the fit before final trimming is good protection against trimming short.

Mitering an outside corner—An outside corner won't necessarily be square, nor will it necessarily be perpendicular to the floor. A square-cut, 45° miter almost always seems the right thing to do, and it almost never fits. Here's how I mark and cut outside corners for an accurate fit every time.

I fit either piece of base tight to the floor and to its far end and let it run a few inches past the comer. Then I hold a piece of base stock against the wall on the other side of the comer so that its bottom edge rests across the top of the first piece (top photo, facing page). I draw a sharp pencil line along each side of the bottom edge, making a pair of marks across the top edge of the first piece. Then I draw one more sharp pencil line on the floor along the outside bottom edge of the first piece, just where it runs past the corner. If you don't care to draw on the floor, stick a piece of tape at the corner beforehand.

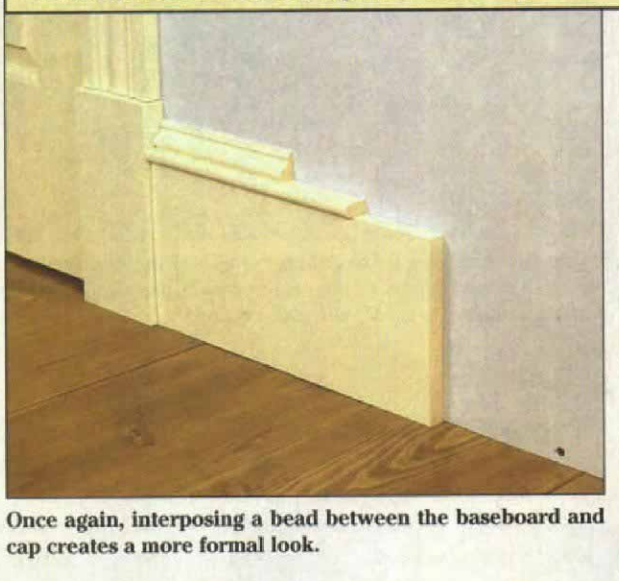
Next I fit the second piece and mark it in the same way. When I mark a line along its outside

A simple base cap creates a more classical look.



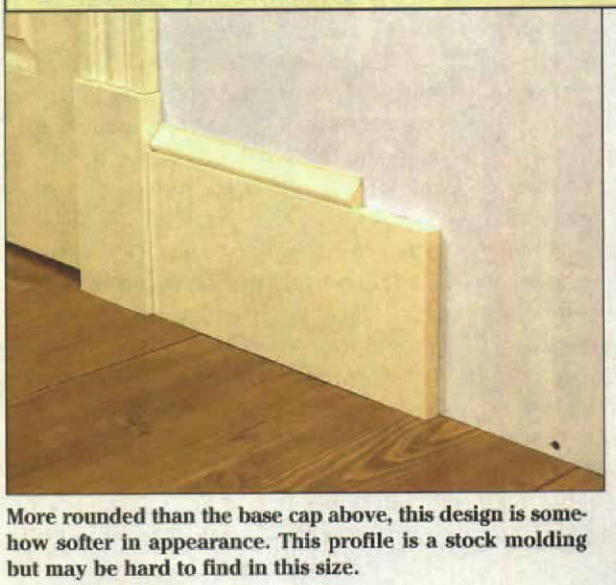
Substituting a simple base cap for the more angular cove molding shifts the baseboard's appearance toward a clean, more classical design.

A ½-in. bead dresses up the base cap.

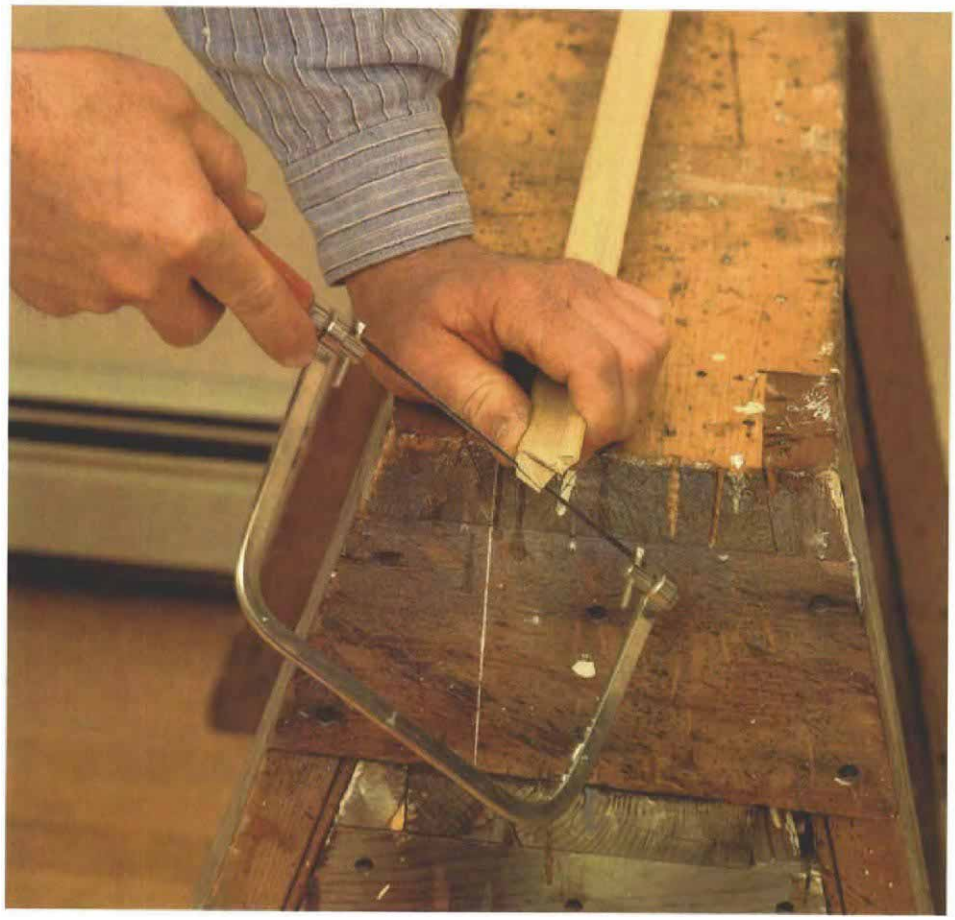


Once again, interposing a bead between the baseboard and cap creates a more formal look.

An alternative base cap has softer lines.



More rounded than the base cap above, this design is somehow softer in appearance. This profile is a stock molding but may be hard to find in this size.



That's why it's called a coping saw. After making a 45° cut on the end of the molding to expose the profile and highlighting the profile with a pencil, the author cuts along the pencil line with a coping saw, scribing the end of the molding to match the piece it abuts.

Coped joints work better than miters. Rather than mitering inside corners, coping (as shown here) works well even if the corner isn't square, hides inconsistencies in molding profiles and stays tight with seasonal movement.

bottom edge on the floor, this line will intersect the one drawn previously. I mark this point on the bottom edge of the second piece of base. Then I set the second piece aside, replace the first piece and mark the same intersection on its bottom edge. The miter cutlines can now be drawn on both pieces by connecting all of the lines.

Unless the miter happens to be a 45° angle square to the floor, it isn't worthwhile setting a power saw to cut the line accurately. It takes too long to set up a compound-angle cut, and a mistake that spoils the piece can happen easily. Instead, I cut close to the line with a power saw or use a sharp handsaw: I leave 1/16 in. or so proud of the line and trim with a sharp plane. I trim the top edge accurately to the diagonal line, but relieve the back of the miter below the top edge because this part of the joint will be hidden.

I test the fit and fine-tune the miter as necessary. Then I apply a bead of yellow glue to the miter, and nail both sides in turn, keeping the miter tight by alternating the nailing as necessary. Nail to the framing studs in the corner, and finally, nail through the miter with 4d or 6d finish nails to lock it up.

Nailing it all home—Each piece of base should be nailed in turn because the fit of adjoining pieces depends on it. Nailing tall base can be a problem, especially in old houses where studding is often irregular. The bottom of the 1x8 base can always be nailed into the sole plate. I use an ultrasonic stud finder when there are no obvious signs of the studding, but this doesn't help when there is no stud.

Wide door casings often extend past the rough framing. To fasten the top corner of the baseboard, an 8d or larger finish nail can be sharply angled to catch the stud behind the casing. Where this doesn't work, the nail can be driven through the top edge of the base, toenailing it into the side of the plinth. A bead of construction adhesive behind the base is a good way to back up marginal nailing and can be invaluable at inside corners. There is no practical way to pull the top of the baseboard tight to the wall between studs. But a gap between the baseboard and the wall can be hidden by cap molding.

Putting a cap on it—I prefer to install the baseboard cap molding counterclockwise round the room because this puts the coped cuts at the right-hand end of each piece, which is easier for me as a right-handed person.

Coped joints (photo above right) have three distinctive advantages over miters: First, a coped joint will accommodate small variations off square with little or no fine-fitting; second, coped joints tend to stay tight even as wood moves with seasonal changes of humidity; third, a coped joint can be made tight even if there is a small variation in the profiles of the mating moldings, which is an unfortunate but not uncommon condition. By comparison, a mitered joint is a fussy creature that can do none of these things, and it has a bad habit of opening up when the mating pieces are nailed tight.

The first length of cap is cut square at both ends and fitted tight. The second length of cap is cut long with a miter on the right-hand end. I darken the front, profiled edge of the miter with the side of a pencil lead to highlight the line. Then I make the coping cut with a sharp, fine-toothed coping saw (photo above left), and hold the cap so that I can visualize the joint as I cut it. The coping cut is made square across the top, but immediately below the top the cut is angled to relieve the back of the joint. I saw ac-

curately to the line if possible, and this may require approaching parts of the profile from both top and bottom. I use a half round rasp and a coarse, rat-tail file to dress the cope tight to the line and to clean any parts too awkward to saw.

In a typical room, the last piece of cap must be coped at both ends. On a long length of cap, a spring fit will offer enough latitude to fine-tune each cope for a good fit, but short runs coped at both ends are notoriously difficult.

I nail the cap as I go (bottom photo, p. 58) so that each piece is fitted to a right-hand neighbor already nailed tight. Some carpenters argue about whether the cap should be nailed to the base or to the studs. My goal is a clean, tight fit, and I'll nail in whatever manner produces it. Where the cap spans a length of wall that is concave between two studs, toenailing into the back corner of the base will often pull the cap tight to the wall, or tight enough that caulking hides any remaining deficiency.

Priming is better than plywood—Wide base stock that can be used to advantage with formal and classical caps may raise questions about wood movement, and you might wonder if hardwood veneered plywood is preferable to solid stock. I used birch-veneer plywood to make the tall baseboards in a small, paneled dining room. The results were excellent, but the plywood was not cost-effective. All runs in the dining room were under 8 ft.; but longer runs would have required end joints, which are difficult to hide. All pieces must be gotten out of 8-ft. lengths of stock, which leads to a high waste factor. Trimming the scribe is tedious because the end-grain veneers fight the plane, and the thin face veneer is prone to breakage.

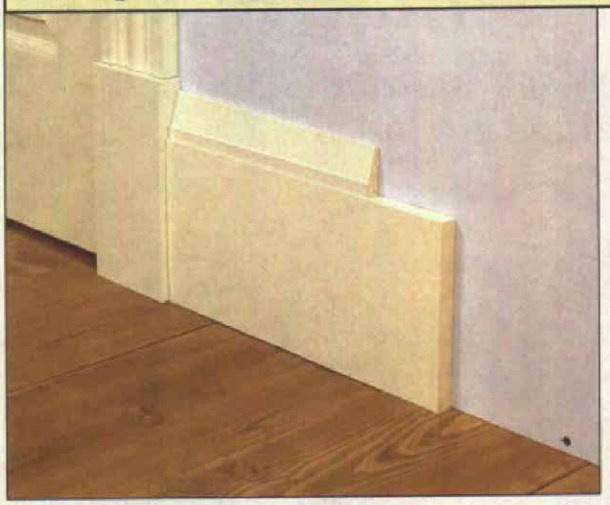
I've installed tall baseboards in solid stock without any problems, and I attribute this situation to the rigorous use of primer. I always back-prime baseboards with a top-quality, heavy-bodied oil primer, and I seal all ends.

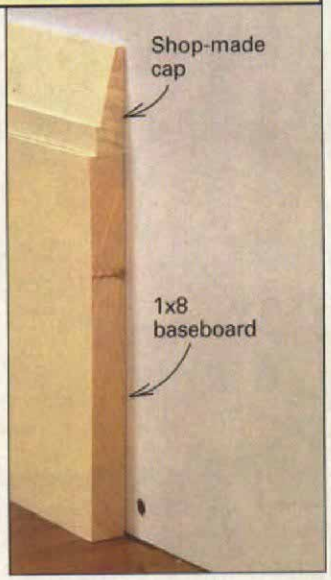
For species, clear pine is too expensive. No. 2 pine, picked to avoid obvious defects, is inexpensive and finishes well. Poplar is a good choice. It's a relatively clear, fine-grained hardwood that works easily and takes paint well. Some lumberyards offer poplar as dimensional stock; for a better price, see a hardwood dealer.

All the designs shown here feature 1x8 baseboard stock, but 1x6 or even 1x4 may better suit your intentions or the room itself. If you want to experiment, prepare a trial run of baseboard and cap at least 2 ft. long that you can place in the room where it will be installed. Designs that look good on paper can look different on site, viewed from 5 ft. or 6 ft. away. □

Joseph Beals is a designer and builder in Marshfield, Massachusetts. Photos by Kevin Ireton.

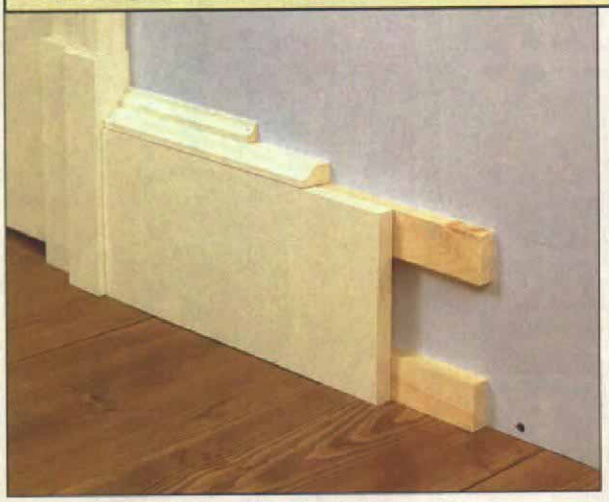
A shop-made cap works with both colonial and Craftsman styles.

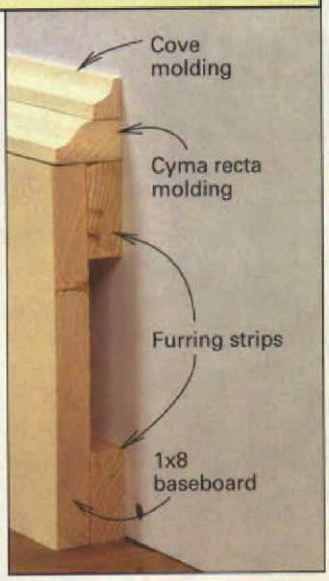




This base cap was made on the table saw and was cleaned up with a hand plane. The molding is 2 in. tall by ⅝ in. thick.

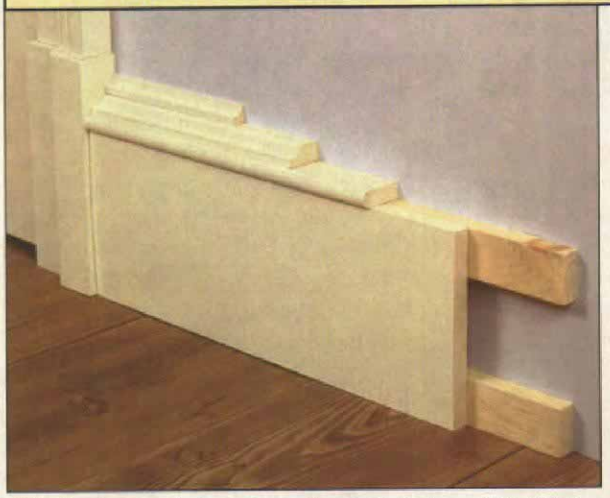
Furring out the baseboard allows more formal designs.

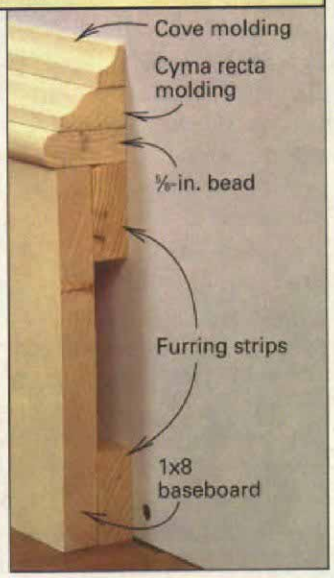




A pair of ¾-in. furring strips hold the baseboard out from the wall, creating space for a shop-made cyma recta molding between the baseboard and a cove cap.

Extra depth makes room for still more layers.





With the deeper design, the author substitutes a ⅝-in. thick bead (instead of ½ in.) but cautions against the temptation of using full ¾-in. stock, which would look clumsy.