Bed Alcove

Convert wasted attic space into a bed that has drawers, bookshelves and a vanity

By Tony Simmonds

When the middle one of my three daughters grew too old for the loft bed I built for her, the youngest, Genevieve, was happy to inherit it. The loft is in a small bedroom on the second floor of our house in Vancouver, B. C., Canada. Like many second floors of old houses, this one is really a half story, with sloped ceilings where the rafters cut across the intersection of wall and roof. The bedroom has only about 80 sq. ft., so its bed had to be on a raised platform to leave space for a dresser and a desk below.

Soon after she moved into the loft, however, Genevieve started bumping her head on the ceiling over the bed. When she eventually moved the mattress to the floor, I knew it was time for the old bed to go and for a new one to take its place. The bed alcove shown in the photo on the facing page was the result.

Will It fit?—The kneewalls that defined the sides of the room had originally been a little over 6 ft. high, leaving a great deal of wasted space behind them. I proposed to recover this space by moving the kneewall over 4 ft. to accommodate a 3-ft. wide mattress and a bedside shelf beyond that. Given the 12-in-12 pitch of the roof, this would bring the ceiling down below 3 ft. at the new kneewall. Would this be claustrophobic? To answer the question, I mocked up the space with packing crates and plywood to make sure there would be room to sit up in bed. A high ceiling is not a necessity over a bed—within reason, the reverse is true: A lower ceiling increases the sense of shelter and enhances the cavelike quality humans have always favored. Furthermore, a bed in an alcove that can be closed off from the rest of the room has qualities of privacy and quiet that are difficult to achieve in any other way. To get that extra layer of privacy, Genevieve and I decided that her bed alcove should have four sliding shoji screens.

The 9-ft. length of the space would provide room for a dresser and a vanity of some sort, as well as the bed. Drawers underneath the platform would triple the existing storage space. Light and ventilation would come from an operable skylight over the bed.

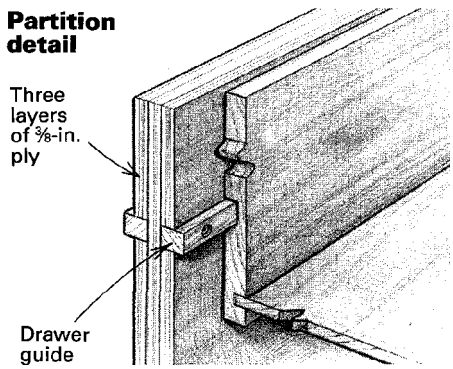
I had some misgivings about the location of this skylight in spite of the obvious benefits it would confer in terms of light and space. Having never slept directly under one myself, I didn't know whether a skylight so close to a bed would make sleep difficult. But *in* the end I was seduced by three arguments. First, the skylight would face north and therefore would not be subject to heat-gain problems; second, it would illuminate the shoji from behind; and third, there was the emotional pressure from my client-some drivel about the stars and the treetops and falling asleep to the sound of rain on the glass.

Tight layout—Juggling existing conditions is the challenge of remodeling. None can be considered in isolation. For example, I had to decide whether or not to keep the existing 7-in. high baseboard. I could have moved it, but I wanted to leave it in place, partly for continuity and partly to avoid as much refinishing as possible. Starting the drawers above the baseboard also meant that the baseboard heater already on the adjoining wall wouldn't have to be moved to provide clearance for the end drawer.

Four drawers fit into the space between the baseboard and the mattress platform. The drawers are 7 in. deep (6½ in. inside), which is ample for all but the bulkiest items. This brings the mattress platform to a height of about 18 in. With a 4-in. thick mattress on top of it, the bed still ends up at a comfortable sitting height.

In plan, the mattress takes up almost exactly three-quarters of the 9-ft. long space. The leftover corner accommodates a makeup table with mirror above and more drawers below. I imagined that the shojis would draw a discreet curtain over the wreckage of eyeliners, lipsticks, mousse and everything else that was supposed to go in the drawers but never would.

I knew that this vanity area, and especially the mirror, would need to be lit, but beyond making sure there was a wire up there somewhere, I didn't work out the details during the preliminary planning. I was in my fast-track frame of mind at this stage of the project.



Site-built cabinet—The underframe of the bed is a large, deep drawer cabinet. You could have it built by a custom shop while you get on with framing, wiring and drywalling. Custom cabinets are expensive, though, and after nearly 10 years in the business of building them, I appreciate the virtues of their old-fashioned predecessor, the model A, site-built version. It's economical in terms of material and expense, and you can usually get a closer fit to the available space.

The partitions supporting my daughter's bed are made from ⅜-in. plywood sheathing left over from a framing job (the rewards of parsimony). Each partition is made from three layers of sheathing (drawing below). The center layer runs the full height of the partition, but the outer ones are cut in two, with the drawer guide sandwiched between the top and bottom pieces. The guide is simply a piece of smooth, fairly hard wood, ¾ in. thick and wide enough so that it projects ⅜ in. into the drawer space.

Unless circumstances demand the use of mechanical drawer slides, I prefer to hang drawers on wooden guides. I have provoked derision from cabinetmakers because I use wooden guides in kitchens, but when it comes to bedrooms I am almost inflexible. Even large drawers like these will run smoothly year after year if they are properly fitted and if the guides are securely mounted. And for me there is a subtle but important difference between the sound and the feel of wood on wood vs. even the finest ball bearings.

I attach the guides with screws rather than with glue and nails so that they can be removed, planed and even replaced without difficulty should the need arise. A groove in the partition to house them is not necessary, but it's a way of ensuring that they all end up straight and exactly where you want them.

For this job, the pairs of guides on the three middle partitions had to be screwed to one another, right through the core plywood. I drilled and counterbored all the screws and clamped the partition to my workbench to make sure everything stayed tight while I drove the screws. Then, with the partition still on the bench and after inspecting every screw head carefully for depth below the surface, I set the power plane for the lightest possible cut and made three passes over each guide: first over the back third only, then over the back two-thirds and, finally, over the whole length of the guide. Tapering the guides so that they are a fraction farther apart in

Drawings: Bob La Pointe

Tight fit. **Into this 9-ft. long space, the author squeezed a single bed, a row of 30-in. deep drawers, a bookshelf and a vanity. A recessed fluorescent fixture illuminates the mirror from above while the vanity table is lit by a lamp behind the mirror. The baseboard reveals the line of the original wall. Above it, drawer fronts cut from a single 1x10 are screwed from behind to the drawers. Photo by Charles Miller.**

the back allows the drawer to let go, rather than tighten up, as it slides home.

Partition alignment—Installing the partitions is the trickiest part of a site-built cabinet job like this one. I said earlier that you could save on materials by building the cabinet in place, but you can't save on time. After all, anyone with a table saw can build a square cabinet in the shop, but building one accurately in a closet or in an unfinished space under the rafters takes patience and thoroughness. The key to success is to establish a datum line, then lay out everything from this line, leaving the wedges of leftover space around the perimeters to be shimmed, trimmed, fudged and covered up as necessary.

In Genevieve's room, the existing baseboard provided a datum line in both horizontal and vertical planes. First, I divided the baseboard's length so that the four drawer fronts would lie directly below the shoji screens. I ran one screw into each supporting partition, about 1 in. below the top edge of the baseboard. Then I plumbed the front edge of the partition and secured it with a second screw near the bottom of the baseboard. With the front edges located and the partitions standing straight, the next job was to align them to create parallel, square openings.

I built the new kneewalls 48¾ in. back from the inside face of the baseboard. This allowed me to run a couple of 1x4 straps horizontally across the studs to provide anchoring surfaces for the 48-in. partitions (drawing next page).

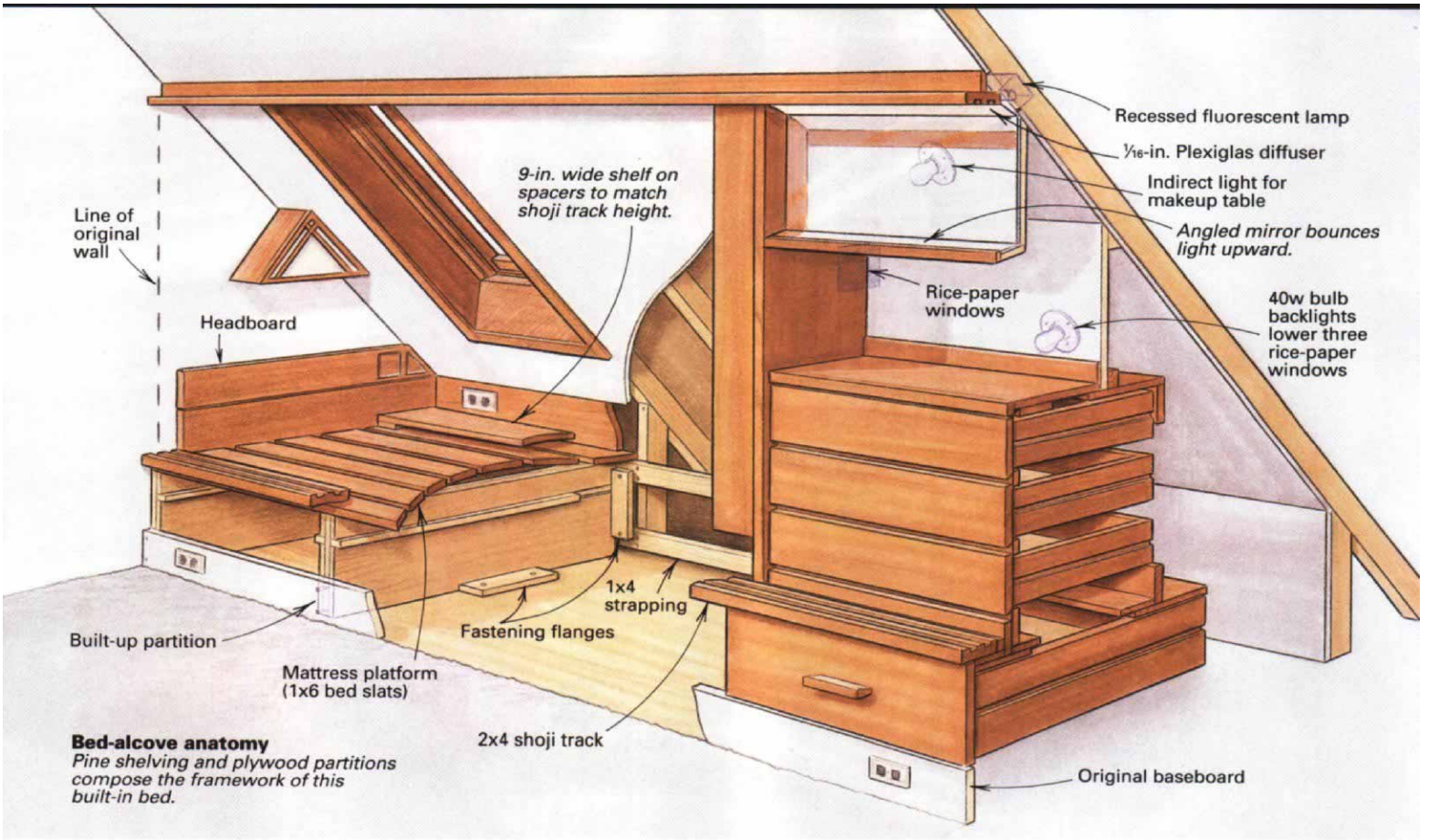
To align the partitions, I used hardboard cut to the full opening width (top left photo, p. 44). As long as the hardboard is cut square, and the partitions are secured so that the hardboard fits snugly between them, the resulting opening will also be square. I used screws to fasten the plywood flanges that held my partitions in place, just in case adjustment should be necessary.

When all the partitions were in place, I cut pieces of 1x2 to the exact dimension between each pair of drawer guides. Centered on the drawer fronts, the 1x2s are gauges that show how deep the grooves need to be in the drawer sides.

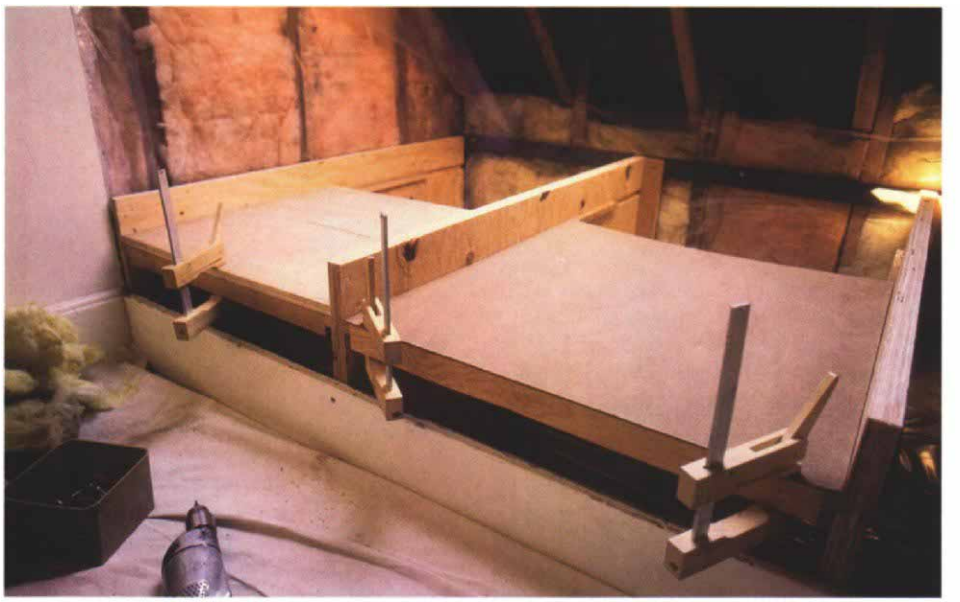
The bed slats also act as ties to link all the partitions together (bottom left photo, p. 44). I used dry 1x6 shelving pine for the slats, but almost anything that will span the distance between supports will do. I left an inch between the slats to keep the mattress well aired. I learned this the hard way when an early bed I built on a solid plywood platform developed mildew on the underside of the mattress cover.

Fitting the drawers—Before putting anything on top of the platform, I built and fitted the drawers. The drawers have ⅛-in. clearance between their sides and the partitions. The ⅜-in. projection of the drawer guide thus creates a ¼-in. interlock with the sides. AH the drawers are 30 in. deep, but I let the sides extend 6 in. beyond the back of the drawer. The extensions support a drawer right up to the point where its back comes into view.

If time and budget allow, I use a router jig to dovetail the front of a drawer to its sides, but the back just has tongues cut on each end that are



Bed-alcove anatomy
Pine shelving and plywood partitions compose the framework of this built-in bed.



Aligning partitions. **Load-bearing partitions made of three layers of ⅜-in. plywood separate the drawer bays under the bed and support the mattress platform. The drawer guides are sandwiched between the outer layers of plywood. The photo at left shows the hardboard panels that helped to align the partitions. Once the panels were in place, the partitions were screwed first to the baseboard and then to strapping along the stud wall. The 1x2s clamped to the leading edges of the panels are gauges that will be used to determine the depth of the grooves in the drawer sides.**

Linked by slat. **The partitions are tied to one another across their tops by 1x6 pine slats (bottom left photo). Spaces between the slats provide ventilation for the mattress. At the right side, the carcase for the vanity drawers sits directly atop the bottom drawer partitions.**

Bookcase wall. **Shelves deep enough for paperbacks are affixed to a ¾-in. birch plywood panel between the bed and the vanity (photo below). The squares at the end of each shelf frame rice-paper windows that are backlit by bulbs behind the vanity drawers.**

glued and nailed into dadoes in the sides (I take care not to put any nails where the groove for the guides will be plowed out). The drawer bottom rides freely in a groove cut in the front and the sides and is nailed into the bottom edge of the back, which is only as wide as the inside height of the drawer. Fastening the bottom here helps to keep the drawer square.

Fitting the drawers should present few problems if they are built square and true and if time and care have been invested in positioning the partitions. Don't try for too tight a fit, especially in the width of the groove. My guides were ¾-in. material, and I plowed out a 13/16-in. dado in the drawer side. They're not sloppy.

On the other hand, you should be more stingy about the depth of the grooves. Remember, the guides have been planed to allow increasing clearance as the drawer slides home. Too much slop here can cause the drawer to bang about from side to side and actually hang up on the diagonal. You can always plow a groove out a little deeper. A router with a fence or a guide attached is the ideal tool for this because you can easily make very small adjustments. If things go wrong, you can glue a length of wood veneer tape into the dado, but it's nicer not to have to do that.

I dress the groove with paraffin wax, but only when I'm sure the drawer doesn't bind. Patience in working toward a fit has its reward here. The moment that a wood drawer on wood guides just slides into its opening and fetches up against its stop, expelling a little puff of air from the cabinet, is a moment that provides much satisfaction.

Headboard. **A reading light inspired by the bookcase's square-and-triangle motif lights up the headboard side of the bed. On the left, wooden tracks for shoji screens frame the alcove.**

Beyond the footboard—With the drawers and the platform in, I had to decide what to do about the divider between the bed and the vanity. Here was where the self-imposed constraint of using the existing baseboard as the perimeter of the alcove began to bite. Because its height was determined by the slope of the ceiling, the mirror over the dressing table had to be as far forward as possible. But to bring it right up against the inside edge of the upper shoji track would eliminate the space required for a light above the mirror. And even that would put the top of the mirror at barely 6 ft. Temporarily derailed on the fast track, I tried to find other ways to light the mirror and kept coming back to the necessity of recessing a fluorescent fixture into the ceiling.

The fixture I used is a standard T-12 fluorescent fixture equipped with an Ultralume lamp (Philips Lighting Co., 200 Franklin Square Dr., Somerset, N. J. 08875; 908-563-3000). The lamp emits more lumens per watt than a standard cool-white lamp and has a higher Color Rendering Index, both important factors in getting an accurate reading on colors, like those at a makeup table.

Casting an even light across the face of the person standing at the mirror is important. So I put a narrow strip of mirror along the bottom edge of the large mirror, angled upward to bounce the light where it can fill in shadows.

Bookcase wall—As for the partition between dressing table and bed, my fast-track conviction that it could not be frame and drywall held up better. My daughter wanted more bookshelves, and the foot of the bed was a logical place to put them (photo facing page, lower right). I made the back of the bookcase out of ¾-in. birch plywood, which could be finished naturally on the book side and painted white on the dressing-table side to look like a wall.

To light the makeup table, I mounted a standard incandescent ceiling fixture in the space behind the mirror. On a playful impulse, I wired another of these lower on the sloped ceiling in the space behind the vanity drawer (the case for these has no back, so the fixture is easily accessible). Then, after carefully laying out the location of the bookshelf dividers and following a square-and-triangle motif suggested by the conjunction of the ceiling and the shelves, I jigsawed the holes in the birch ply and glued rice paper over them. This created little backlit rice-paper windows in the bookshelves. The dividers cover the edges of the paper. The only slight snag in this assembly is that the plywood thickness causes a shadow line, which can be seen where the backlighting travels at an angle through the window. If I'd thought of it in time, I could have easily eliminated the shadows by beveling these edges with a router.

The bedside reading light was more of a problem. Initially, I placed my standard ceiling fixture under the skylight as far down the slope of the ceiling as I could. I made a cardboard mock-up of the rice-paper shade that I had in mind to establish just how big it should be—the trade-offs being the height of the fixture, the size of the shade and its proximity to errant elbows. I thought I had a satisfactory balance, so I went ahead and made the lamp. But Genevieve put her elbow through it the first night she slept in the bed. I forgave her and accepted the lesson. The second reading light ended up above the head of the bed (photo left).

What about the shojis?—The shoji screens have yet to be made, and it now seems unlikely they ever will be. Although she was initially keen to have them, Genevieve now believes they would get in the way, and I agree with her. We analyzed the patterns of opening and closing that might be required during a typical day and night. It became clear that in spite of the desirability of drawing a curtain over the unmade bed by day and the unfinished homework by night, this teenager would rather live and sleep in one room—at least for the time being—than be bothered sliding screens to-and-fro all the time. A feeling of confinement was also a factor. Having tried out the bed myself one night when she was sleeping at a friend's house, I too felt I might want more distance between myself and any enclosing screen.

I admit that this was something of a blow to my vision of the room. What about the function of the skylight as a backlight for the shoji? What about the square-and-triangle motif I was going to incorporate into the shoji lattice? Ah, well, at least I hadn't made them already. And the grooves in the bottom track appear to work perfectly as 9-ft. long pencil trays.

The rejected shojis and the difficulties I had with the makeup light and the height of the mirror were all results of my decision to keep the bed alcove within the area beyond the existing kneewall. If I had moved this line 6 in. to 12 in. into the room, I could have raised the upper shoji track a few inches, creating plenty of space to mount the mirror light, the reading light and the shoji screens. The amount by which this would have reduced the size of the room would have been insignificant in relation to the space gained by building in the bed and the dressing table—a case of choosing the wrong existing condition to work from.

At least the client is satisfied. The project was completed during one of the long dry spells that Vancouver is famous for. Finally, one morning when the spider webs were glittering and the earth smelled refreshed and autumnal, Genevieve appeared downstairs with a beatific smile on her face. "It rained on my skylight last night," she said. □

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