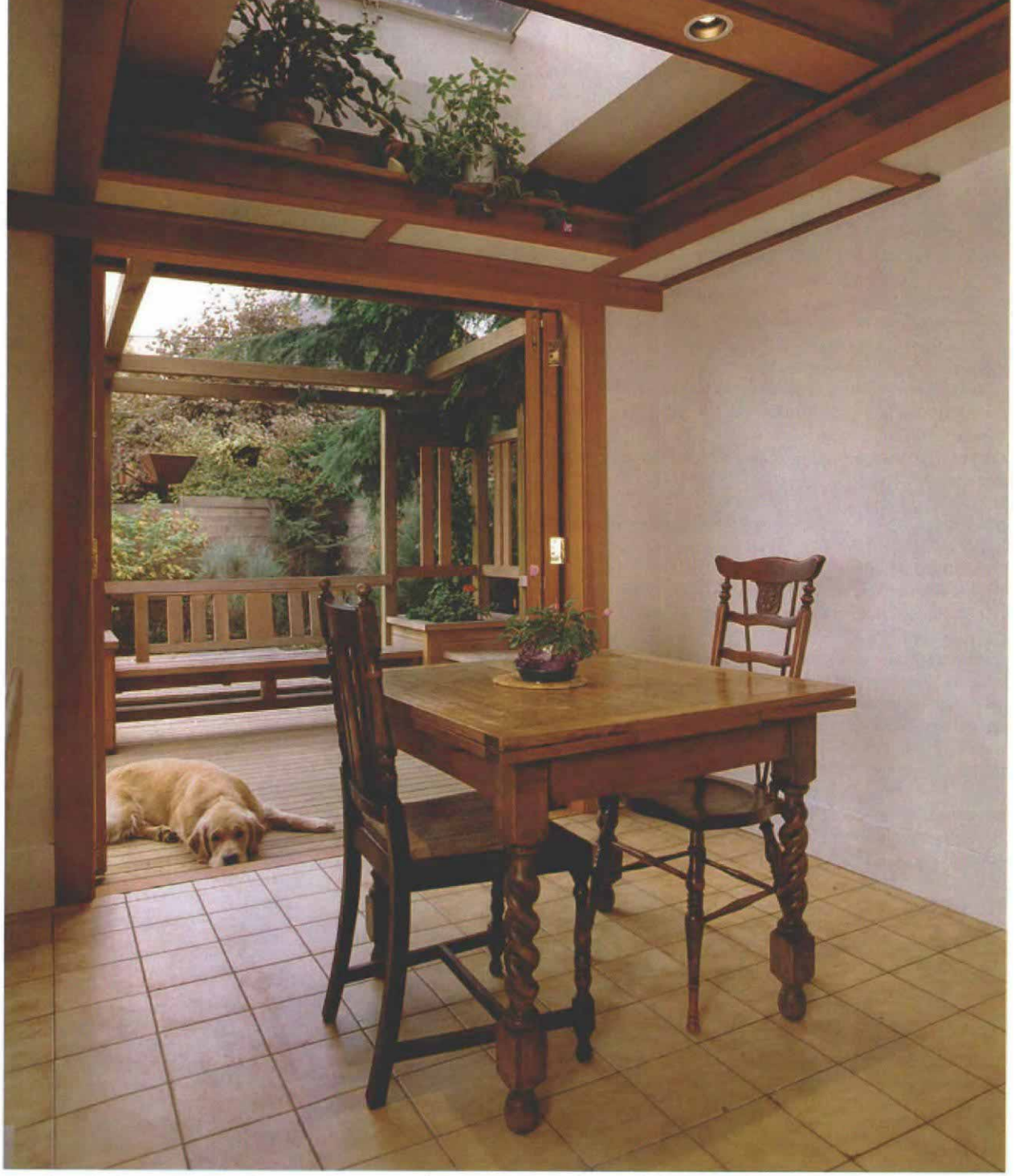


Opening the doors doubles the room. A generous, 6-ft. wide door opening coupled with matching floor levels creates an ultimate connection between the garden deck and the dining room. Cedar trim inside and out intensifies the bond.

A Dining Deck

A deck that's built to withstand the weather is united with a small dining room

by Tony Simmonds

One of the joys of living in Vancouver, British Columbia, is that when the weather is warm enough, you can open your house to the outdoors without being eaten alive by insects. So it's a natural feature of local design to include a deck or some outdoor living space in your house plans. I enjoy the challenge of integrating outdoor spaces with the rooms that border them.

Bill Abbott and Kris Sivertz's house had a bad deck in a good location. Right off a small eating area in the kitchen (photo facing page), the deck was on the south side of the house between the kitchen and the backyard pool. That was the good news. Unfortunately, the deck was detailed poorly, and as a consequence it was falling apart from rot. It was also one step down from the floor level in the house. Besides being a potential hazard, this broke the continuity of floor surface, which is one of the essentials of good indoor-outdoor connections.

The other essential is a generous opening between the two, and the 5-ft, patio slider Bill and Kris had didn't qualify. Even the widest of sliders fails in this respect because half the opening always is obstructed. What you need is hinged French doors; by opening them up wide, you truly can abolish the barrier between inside and outside.

Here, though, we had a problem. There wasn't space on either side of the opening for a 2-ft. 6-in. door, let alone the 3-ft. doors I planned to use. They were going to have to be bifolds, an arrangement certain to cause some difficulties. I consulted Peter Fenger, custom sash and door man, and he didn't say it couldn't be done, so we plunged ahead.

Partly in, partly out. Built-in benches and planters at the corners make a boundary around the sides of the deck, and the spare trellis overhead implies a ceiling. The planters brace the posts at the corners.

Inset straps align the doors. Cocobolo straps fit into grooves in the door frames. When the doors are folded, the straps are retracted. Note how the doors are slightly different widths, which allows the doors to fold flat to one another without the doorknob getting in the way.

Benches and planters take the place of railings—To feel like an extension of the indoors, an outdoor space needs some enclosure. Usually, walls are suggested by a railing and the ceiling by a trellis. But the 42-in. guardrail required by code can make a small deck feel like a crib. Luck was on our side in this instance, however. Because the deck is less than 2 ft. above grade, we were free from the railing-code constraints. So I planned benches for two sides of the deck, enclosed and supported at their ends by planters (top photo).

I believe strongly that an indoor/outdoor space needs at least the suggestion of a ceiling. So I wanted an open trellis of 4x4 beams above the deck. But I had to work hard to convince Bill and Kris of the wisdom of this idea. Given the scarcity of sun that shines here, people are reluctant to put anything between themselves and the sun.

Deck details for a wet climate—Bill and I framed the deck with pressure-treated 2x8 hemlock joists, supported on a ledger at the wall and on a triple 2x8 built-up beam. Instead of spiking the 2x8s together, I used the code alternative of ½-in. dia. bolts, 40-in. o. c. I used extra washers to space the 2x8s about ½ in. apart—enough to allow air to circulate as well as to make the outer faces of the beam flush with its 6x6 posts. Making the beam the same width as the post allowed us to attach the beam and the post easily with steel connectors instead of toenails.

Before setting the beam on them, however, I covered the top of each post with a piece of EPDM roofing membrane. I also capped the beam with 2x8 blocks between the joists (top drawing, p. 55). The blocks are sloped to divert water and dirt off the top of the beam. The blocks also provide secure nailing for the joists. In the spots where I needed doubled joists, I used pressure-treated plywood spacers between them to promote drainage and ventilation. I think precautions such as these are cheap insurance. The fewer paths there are for moisture to get into the framing, the better.

The planters are structural—At first glance, the cross section of the planter boxes might look like a 2x wall sheathed on the inside with treated plywood and on the outside with T&G siding (bottom right drawing, p. 55). But they are plywood boxes covered with framing and siding. The plywood contributes the rigidity; the framing provides a flange for securing the 4x4 posts affixed at the three outer corners of each planter to support the trellis.

Bill and I assembled the boxes with Fastap self-drilling screws (13909 NW Third Court, Vancouver, Wash. 98685; 800-8744714). These screws are coated with a nongalvanized proprietary finish called Duracoat that is supposed to be more durable than galvanizing. More importantly, the coating isn't corroded either by the copper in pressure-treated wood or by the tanins in red cedar.

To overcome the problem of trying to get the tops of four posts to make a perfectly straight line where they meet the beam, we installed the two outer posts, then the beam, then the two intermediate posts.

Like the posts, the beams are clear, pressure-treated 4x4 cedar. We anchored the beams to the posts with 8-in, galvanized helix nails (you predrill for these babies). Where the beams intersect each other, the upper beam is notched out to a depth of 1 in. Counterbored screws secure the connection, and the counterbores are filled with teak plugs installed with clear silicone instead of glue.

Next, build the benches—The benches are suspended between the planters atop an egg-crate frame of interlocking 2x4s, bolted through the planter walls at the ends and supported in the middle by a 3x6 post (photo p. 54). The post is screwed from underneath to a 3x6 beam, which also bears on the planter framing. To ac-

Keep the water out of the framing. An interlocking frame of 2x4s supports the built-in benches. At midspan, a short 3x6 post supports the frame. The top of the post is capped with metal flashing to shed water, and the bolted supports affixed to the planters are shimmed out with washers to create an airspace.

accommodate the flashing (bottom left drawing, facing page), this beam had to be installed before the siding went on the planters. But the egg-crate frame was bolted on after the siding was in place. Once again, I used a half-dozen extra washers to maintain airspace between the frame and the siding.

The 2x4 seat slats for the benches were installed with hidden fasteners called Dec-Klips instead of nails (Ben Manufacturing Inc., P. O. Box 51107, Seattle, Wash. 98115; 206-776-5340). Dec-Klips are a good way to avoid nailing through the face of the decking, and one of these days I'll use them for a whole deck.

The backs of the benches make a good show of being joinery but actually are put together entirely with screws. I considered using biscuit joinery and waterproof glue, but I shied away from that for two reasons. First, it would have taken longer to do and would have required kiln-dried stock; and second, I didn't trust rigid glue joints to hold up under the kind of flex and stress I knew the back would take.

I made up the backs as ladders around which I assembled the frames. The back slats are 5/4 KD red cedar. All other parts are also clear red cedar but milled from green 2x4 stock selected for dryness as much as for grain pattern and straightness. Toward the end of summer, you can sometimes find some pretty dry wood in the piles out in the yard, especially shorts, which don't sell as fast. I used Fastap screws for these assemblies, drilled and counterbored, and plugged where exposed with teak plugs that I left proud and sanded lightly. (Unless you're going to seal plugs in with paint or varnish, you might as well leave them proud deliberately because if you cut them flush, they'll pop out when they expand.)

The 12-in. Delta portable planer I bought not long ago got almost as much use as the radial-arm saw on this job. Thicknesses graduate throughout the seat backs, from the full 2x top rail to the 15/16-in. finished thickness of the 5/4 slats. Shadowlines and stepped joints are a practical and beautiful Greene & Greene legacy for which I thank them daily. The top rail, for example, started out as a 2x4.1 planed it smooth, then ripped it to just less than 3-in. The offcut, about 5/8-in. thick, was planed to 1⅛-in. wide and trimmed to the length between the 1¼-in. thick main uprights. It became the means of fastening slats. The completed seat backs are joined to the benches with screws from underneath and to trellis posts through notched wings at either end of the top rail:

The planter caps are sloped to drain—The planter caps are 2x6s tapered in section (bottom right drawing, facing page). I milled the taper by running the 2x6s through the planer while atop a sloped board. Before planing the slope, I ran drip kerfs in the bottoms of the cap material ½ in. from each edge.

The caps were mitered using biscuit joinery for alignment, and they were fitted tightly around the trellis posts. Then I used a straightedge and razor knife to cut a channel about 3/16-in. square through the joint, which I filled with a marine-grade polysulfide caulk, Sikaflex 231 (Sika Corp., 22211 Telegraph Road, Southfield, Mich. 48034; 800-967-7452). This caulk comes in the usual three or four colors. I used black—not subtle, but handsome to my mind, and reminiscent of boat decks. This is a time-consuming and finicky detail, but so far (I've used it on only one other deck, built in the spring of 1991) it appears to be successful in eliminating Curling Miter Syndrome, which is so painful and familiar to outdoor woodworkers.

Planters, benches and the simple lattice between the posts were finished with two coats of clear Duck'sback Total Wood Finish (Masterchem Industries, P. O. Box 368, Barnhart, Mo. 63012; 800-325-3552), an exterior finish that goes on milky and dries perfectly clear without appreciably darkening the cedar. The trellis and decking are pressure-treated and were left unfinished. Although you can use Duck'sback on treated lumber, too, it's a good idea to let the treatment be absorbed and to let the wood dry for at least two months before application.

All the doors fold outward—Early mornings and late nights during the building of the deck had been given to head-scratching about those bifolding French doors. I had to draw something for our doormaker, Peter Fenger, so he'd know the job was for real and plug it into his schedule. But I changed just about every detail before he built the doors. By that time, when Pete saw me coming through the door, he would get that look on his face. "This is it, Tony," he finally said one morning. "We're cutting."

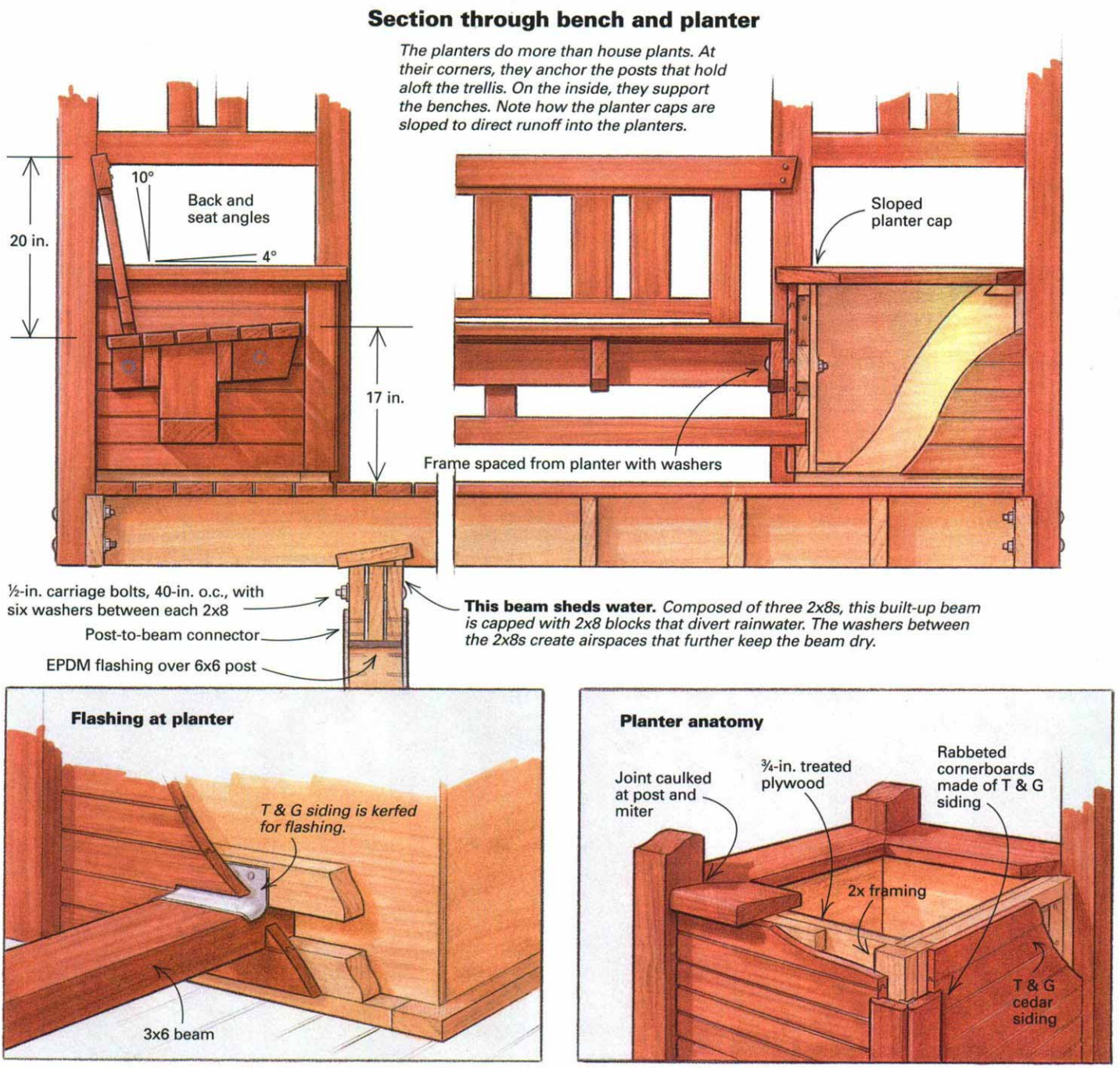
Here's what we came up with, and why (bottom photo, p 53). First, the doors had to open onto the deck; the dining room was too small to lose floor area to them. The fold would bring the inside faces of each pair of doors together. To allow them to fold flat without the handle getting in the way, the two center panels are wider than the outside ones. Serendipitously, this also makes a nicer rhythm of proportion than doors of equal width, I think.

Four doors meant eight stiles taking up glass area, so we didn't want the stiles to be any wider than necessary. At the same time, a sealed unit made with laminated glass on both sides is not light. We settled for 3-in. wide stiles, with a 4½-in. top rail and a 7-in. bottom rail. To add strength and to make room for a ½-in. airspace between the panes, we made the sash 2¼-in. thick. The additional thickness also allowed us to use 4x4 hinges and still have plenty of wood for a rabbeted astragal at each meeting stile.

The biggest problem was closure hardware. How to pull four doors tight against their jambs without having handles at the folding hinge point? Large surface bolts were an option, but I thought it would be cumbersome to have to lock each door independently, top and bottom. Besides, even though the entry door in the adjacent wall meant the hardware didn't have to be designed for constant use, I wanted it to be clear what a person had to do to open the doors. A profusion of bolts seemed likely to confuse. Dummy handles on the inactive leaf of any pair of French doors contradict this principle, too, by offering an option that turns out to be false. How many times do we need to suffer that small embarrassment? If there is only one handle to grasp, on the other hand, there can be no confusion.

One handle, large enough to grasp comfortably, could be provided only by a cremone bolt because the door stile isn't wide enough for any

Photo this page: Tony Simmonds



standard lockset. The principle of uncluttered surfaces and transparency of function suggested ordinary flush bolts in the edge of the inactive leaf. This combination meant the need of finding a way to lock each pair of doors into a single panel so that each could be opened and closed as a single door. I didn't know of any commercially available hardware capable of doing this, so I designed some wooden strap bolts for the job (bottom photo, p. 53). They fit into grooves cut into the rails and stiles at the tops and bottoms of the doors.

Time to cut the grooves—Plowing four sizable grooves in a set of $1,800 custom-made doors seemed a pretty earnest commitment to an untried design when it came time to do it, and I will admit to a degree of nervous procrastination over the job. The night before, I made Bill look at mock-ups screwed to the doors where the bolts were to go to help me determine the exact length and width. As always, he was patient, optimistic and gently biased toward optimum mechanical efficiency. We settled on a width of 1⅛ in. and a length of 13¼ in., the maximum we could get without quite intersecting the line of the primary hinge stile.

I also wanted to make sure the doors were fitted to their openings before cutting the grooves for the bolts, so I installed spring bronze weatherstripping (Pemko Industries, P. O. Box 3780, Ventura, Calif. 93006; 805-642-2600) at the head and side jambs and between each door. An aluminum and vinyl door bottom (also from Pemko Industries) was fitted in the groove I had asked Peter to machine. Before installing the weatherstripping, I sealed with oil all areas that couldn't be reached after the weatherstrip was in place.

I made the bolts and their retaining straps from cocobolo, a dense, hard wood that grows in Mexico. Each pair of doors was removed and laid on sawhorses to rout the slots, but the final fitting of bolts had to be done with doors in place. Achieving the right degree of resistance meant balancing the pressure of the weatherstripping by easing the inside surfaces of the retaining straps with sandpaper. The beauty of surface mounting retaining straps with countersunk brass screws is that if the bolts cause problems, it will be simple to make adjustments. □

Tony Simmonds operates Domus, a design/build firm in Vancouver, British Columbia. Photos by Charles Miller except where noted.

Drawings: Bob La Pointe