

A Quality Deck

Built-in benches, recessed lights and a spacious spa highlight a high-class deck

by John Baldwin

Some time ago, Chris and Judy Lavin hired our small design/build firm to craft a fancy cherry wet bar and remodel the kitchen in their 1950's home. The completed work enhanced the home's interior, but the exterior was another matter. For one thing, its T&G cypress siding was cupped, checked and shedding paint. For another, the existing doors and metal casement windows had suffered from decades of New England weather. Equally significant, the ample backyard was unmanicured and unused.

Based on the quality of our earlier work, we were commissioned to replace the existing cypress siding with oiled 1x6 V-groove Western red cedar, and the old windows and doors with new wood ones. The heart of the job, though, would be in the backyard. That's where the Lavins wanted us to build a 1,200-sq. ft. hot-tub deck. At least, that's what they called it. When we looked over the drawings supplied by architect John Gardner Coffin, we discovered that the so-called "deck" would be a lot more like a piece of built-in furniture than an exterior add-on (photo right).

The plan—Attached to the north side of the house, the deck was to be accessible from the kitchen and living room through a series of sliding-glass doors. Instead of the usual hand-rail, it would be enclosed by a continuous 21½-in. high bench. This substitution was acceptable to the local building department because the bench would be relatively wide (about 18 in.) and because the surface of the deck would be relatively low to the ground (5-ft. maximum above grade).

The bench would be clad on both sides with vertical 1x6 cedar siding, which would mesh visually with the newly refurbished exterior of the house. Enhancing this effect, the cedar on the outboard side of the bench would extend below the rim of the deck to within about 2 in. of grade, forming a skirt that would conceal the deck framing and concrete piers.

Coffin also called for a set of stairs to fan out from the deck into the newly sodded backyard. A second stair, adjacent and parallel to the house, would allow easy access to the east end of the yard.

After discussing the project at length, the Lavins decided to equip the benches and adjacent house soffits with recessed low-voltage lighting so that the deck could be used at night. They also settled on an 88-in. square Sundance "Cameo" spa (Sundance Spas, 13951 Monte Vista Ave., Chino, Calif. 91710; 714-627-7670) as the deck's centerpiece, which at the time was the biggest four-seater on the market (photo, p. 49). Finally, they requested that a built-in planter be incorporated into the perimeter of the deck, and that several more planters be built on wheels so that they could be moved around.

For longevity, Coffin specified that the deck be supported by poured concrete piers and the bottoms of the two stairs be supported by concrete-block foundations, with the piers and foundations extending below the frostline (42 inches in this part of New England) to prevent frost heave. He also called for the use of pressure-treated Southern yellow pine for the framing and decking (though we amended the decking material later) and the use of galvanized nails and metal connectors throughout.

Trenches and craters—Even before we broke ground, we encountered our first snag: as designed, the new deck would cover the existing septic tank. The Connecticut Wetlands Department (whose domain seems to include any land that ever gets wet) required a minimum clearance of 10 ft. between the deck and the tank. This meant that at considerable expense, we would have to bypass the old septic tank and install a new tank and leach field the prescribed distance from the deck. We were also required to excavate a 1,000-gal. drywell for the spa. We informed Chris that "we can build your deck, but your backyard's gotta go." For-

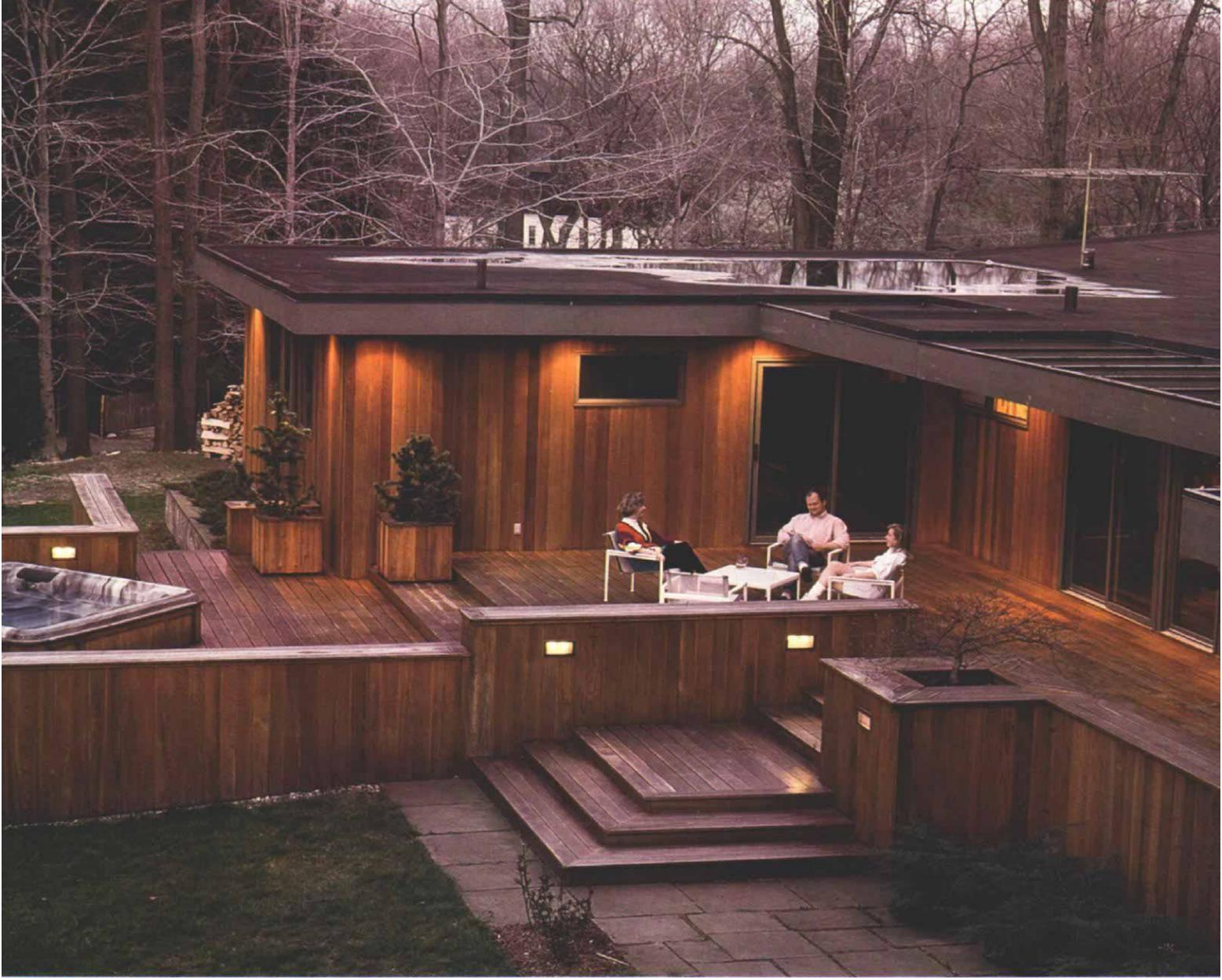


tunately, as a former builder, he understood Murphy's Law and gave us a quick go-ahead. The project started in late June, the beginning of the hottest summer Connecticut had seen in 30 years.

With the septic system rearranged, we set batter boards and ran string grids to plot the centers for the 24 poured-concrete piers. We used powdered lime to lay out the locations of the two buried 8-in. concrete-block walls that would support the stair stringers. The holes and trenches were dug with a backhoe.

After forming the 8-in. by 16-in. concrete footings that would support the block foundations, we shoveled 1½-in. to 2-in. crushed stone into all the trenches and pier holes, forming level pads 42 in. below grade. The tops of the piers would extend 8 in. above grade, so we formed them with Sonotubes—cylindrical cardboard tubes available from masonry suppliers.

Before pouring the concrete, we determined the finished elevations of the piers using a transit level, and then cut each Sonotube about 10-in. short. During the pour, we rested the Sonotubes on the gravel pads, filled them



roughly one third full of concrete, and then pulled them straight up 10 inches. This let a good measure of concrete slump out the bottoms of the tubes so the footings and shafts of the piers would be cast in a solid block.

Once the Sonotubes were filled with concrete, we set a ½-in. by 12-in. anchor bolt in the center of each one and troweled the tops smooth. The anchor bolts allowed us to bolt a TECO galvanized post anchor (TECO Products, P. O. Box 203, Colliers, W. Va. 26035; 800-438-8326) to each pier. These anchors have a cam-lock design that allows more than 1 in. of play in positioning the deck posts, while at the same time raising the posts about 1¼ in. above the tops of the piers to prevent the posts from wicking moisture from the concrete. Once we laid up the block walls and backfilled around the piers and walls, we were ready to start framing.

Basic framing—The pressure-treated framing for the deck consists of 4x4 posts and built-up girders (doubled and tripled 2x8s) supporting 2x8 joists spaced 16 in. o. c. For

Clad with Philippine mahogany and Western red cedar and washed by incandescent light, the deck is more a piece of built-in furniture than a simple platform.

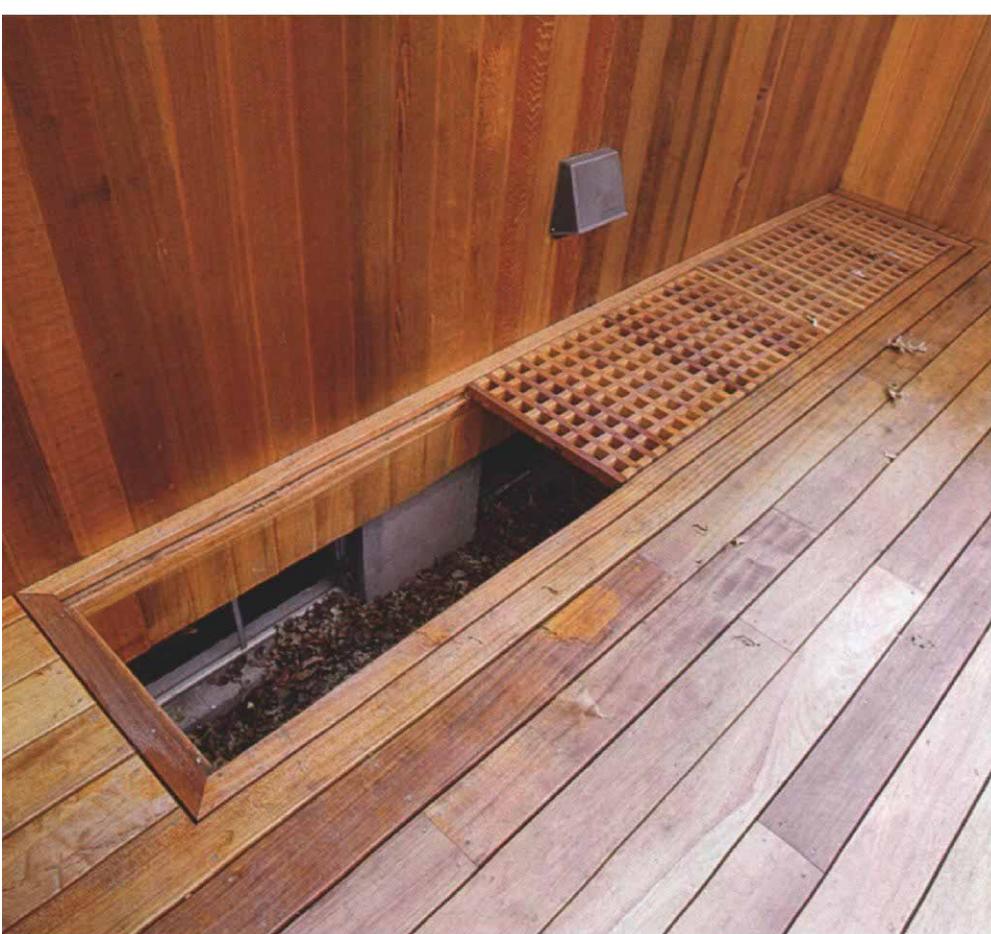
drainage, we sized the posts so that the deck would slope away from the house ¼ inch per 4 feet. At the house, the joists are supported by a 2x8 ledger fastened with galvanized lag bolts and lead shields to the existing concrete-block foundation.

Because its base would be positioned 16 inches below the surface of the deck, the spa needed a platform of its own. We built a 7-ft. by 10-ft. platform that also allowed access via a hinged decktop hatch to a control panel mounted in the side of the spa (more on that later). Supported by concrete piers and 4x4 posts, the platform was framed with 2x8 joists spaced 16 in. o. c., then topped with 1¼-in. by 5½-in. pressure-treated pine. This was sufficient to support the more than 5,000 lb. the spa would weigh when full of water and hot-tubbers. A short knee wall built around the pe-

rimeter of the spa platform supports the edge of the deck above.

The stair stringers consist of 2x10s that rest on 2x6 pressure-treated plates anchor-bolted to their supporting concrete-block foundations. We laid out the stairs so that each riser is the height of a single deck board (5½ in.) and each tread is three deck boards deep. To reinforce the longer stringers adjacent to the house, we nailed a 2x4 to the side of each one.

The bench chassis—The bench framing consists of two short 2x4 frame walls—an inner one and an outer one—capped by a third one laid flat (drawing, p. 49). We aligned the outer walls so that the outside faces are plumb with that of a continuous, horizontal 4x4 beam lag-screwed to the outsides of the deck posts. This allowed the outer wall and the beam to serve as a nailing base for the vertical cedar siding. Of course, positioning the outer walls of the bench this way placed them outside the rim joists of the deck instead of over them. To support the outer walls, we nailed a 2x4 ledger to the outboard sides of the rim joists.



Lighting the basement. The basement was originally lit by casement windows housed inside a concrete areaway. To prevent the deck from dimming the basement, removable mahogany grates (photo above) were installed directly over the areaway.

The access hatch. The spa's control panel (photo left) is reached by way of an access hatch attached to the deck with a stainless-steel piano hinge.

Planting the perimeter. At the client's request, a planter (photo below) was built into the deck's perimeter. It's enclosed by a bench topped with mitered mahogany decking.



Also, where necessary we shimmed the 4x4 beam straight.

Where the bench runs perpendicular to the deck joists, its inner walls are secured with 16d nails to the joists. Where the bench parallels the joists, its inner walls are supported by 2x8 blocking installed 16 in. o. c. between the joists. To ensure that the bench would be as straight as possible, we cut its framing components accurately by clamping a stop to the fence of our miter saw.

We left one section of the bench open temporarily. That allowed seven of us to slide the spa from the flatbed trailer when it was delivered and lower it onto its platform. The spa was then plumbed and wired before the decking was installed.

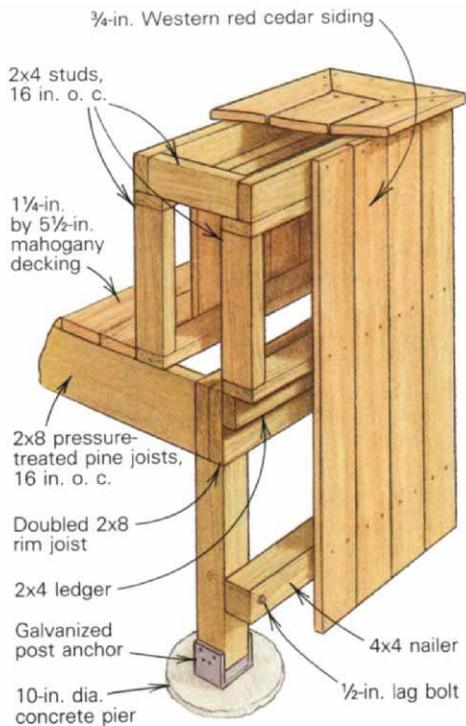
Switching to mahogany—With the extensive deck framing nearly completed, everyone was tired of coping with pressure-treated Southern yellow pine sawdust and splinters, yet we still had to install 1,200 bd. ft. of decking. One of our carpenters had recently built door jambs out of Philippine mahogany, and he suggested that we use mahogany instead of pressure-treated pine for the decking.

Because Chris had been designing, building and racing power boats for years, he knew that the durable, rot-resistant wood was commonly used for boat decks and hulls. He also liked its appearance—the color of Philippine mahogany ranges from deep maroon to almost pure white, and its grain figure from quarter-sawn to bird's-eye. Southington Specialty Wood Company of Southington, Connecticut, offered us the mahogany at an attractive price, and because they were nearby, their shipping costs were reasonable. To everyone's delight, Chris opted for the mahogany, although it added about 10% to the cost of the deck.

Before we started on the decking, we secured a length of 3/4-in. plywood to the bed of our 10-in. miter saw. This plywood raised the 1 1/4-in. by 5 1/2-in. deck boards far enough off the miter-saw table that the sawblade could cut through the stock in one pass. To help support the ends of the decking, we extended the plywood about 2 ft. past either end of the saw, leveling the plywood wings with wood blocks. Finally, we nailed a narrow wood strip on top of the plywood about 5 in. to either side of the sawblade, perpendicular to the fence. These fulcrums raised the ends of the deck boards just high enough to produce a 2° back bevel for a tight fit at the butt joints.

We soaked the end grain with CWF wood preservative (The Flood Co., P. O. Box 399, Hudson, Ohio 44236; 800-321-3444) before installation. Originally, we had planned to screw and peg the decking to the joists, but decided to use 12d spiral-cut galvanized nails instead to cut costs. The mahogany took nails extremely well; whenever a board split it was invariably due to a preexisting check. To avoid damaging the wood with hammer marks ("elephant tracks"), each of us knocked a small knot out of a shim shingle so that we could slip the shingle over the nails before driving

Bench framing



The Sundance "Cameo" spa weighs more than 5,000 lb. when full of water and hot-tubbers. It's supported by its own platform, 16 in. below the surface of the deck.

them home (after all, nobody's perfect).

The 25-in. by 45-in. access hatch next to the spa (bottom left photo, facing page) consists of 2x6 pressure-treated pine joists spaced 16 in. o. c. and topped with the mahogany decking. The heavy hatch was originally designed to be lifted up out of its opening, but this would have invited back problems. Our solution was to hinge the hatch to the deck with a 45-in. long stainless-steel piano hinge fastened with stainless-steel screws.

Making the grates—Before the deck was built, Chris's basement workshop was illuminated by two casement windows housed inside a 2½-ft. wide by 12-ft. long concrete areaway (a sunken space that allows air and light into a basement) adjacent to the house. To prevent the deck from blocking this light, we installed three removable 2½-ft. by 4-ft. mahogany grates directly over the areaway (top photo, facing page).

The grates consist of 1¼-in. wide by 1⅞-in. thick mahogany strips ripped out of leftover deck boards, lap-jointed into a grid-like pattern and supported by 2x4 ledgers. We cut the lap joints using a table saw equipped with a dado blade and a 40-in. long wood fence C-clamped to the saw's standard miter gauge. A small wood guide pin notched into the bottom of the wood fence was positioned so that after each lap joint was cut, the workpiece was repositioned with the newly cut joint stopped by the pin the correct distance from the next cut. This ensured perfect, uniformly spaced lap joints. We nailed the grates together with 6d galvanized finishing nails, then used a router

to round over all 408 openings in the grates. The finished grates let plenty of light into the basement, and each is sufficiently rigid to support several hundred pounds.

Mitering the bench tops—The plans called for the use of three parallel deck boards for each segment of the bench top, with the boards crosscut at each end. For a more elegant look, we crosscut the center boards only, capping the end grain of each one with a short length of mahogany mitered to the two outside boards (bottom right photo, facing page).

To prevent splinters and to soften the bench visually, we rounded over the ends of each center board using a router fitted with a ⅝-in. roundover bit. We laid out the miters in place by lapping the two boards to be mitered, marking their intersection at the inside and outside edges, and then scoring the cut line with a straight edge and a utility knife (where the benches met at a 45° angle, the miters were more than 11 in. long). We cut the miters with a circular saw and fine-tuned the joints with a smoothing plane, giving each miter a shallow back bevel for a tight fit at the top. Before nailing down the bench tops, we installed 2x10 pressure-treated blocking beneath the location of the mitered joints and smoothed the top of the bench framing with a power plane.

Lighting it up—Before the benches were boxed in with cedar siding, they were wired to accommodate several lighting fixtures. Once the siding was applied, we cut small rectangular openings in it to house the fixtures.

Coffin called for the use of Prescolite model

37G-1 lighting fixtures (Prescolite, Inc., 1251 Doolittle Dr., San Leandro, Calif. 94577; 415-562-3500). These fixtures each hold a pair of 25-watt incandescent light bulbs concealed behind a plastic louvered grille that sheds weather and directs the light downward toward the mahogany decking. Combined with recessed lighting in the house soffits, the bench lights provide plenty of glare-free illumination for socializing.

Finishing off—In addition to a fixed 4-ft. by 4-ft. planter (bottom right photo, facing page), we built three rolling planters for the deck. They're basically 2-ft. cubes made of pressure-treated frames, weather-proof casters, cedar siding and mahogany trim.

Our final job was to apply CWF wood preservative to the deck and planters. We applied two coats to the edges of the decking using a 1-gal. pressurized plastic garden sprayer with a narrow nozzle. A paint roller fitted with a 10-ft. extension handle was used to finish the surface of the deck. Bench tops were rubbed with progressively finer grades of steel wool between multiple applications of preservative. The residue was soaked up with a tack cloth.

Much to the clients' delight, the overall impact of the deck is striking. By day, the variegated color of the mahogany plays off the oiled cedar. By night, when the blue light from the spa contrasts with the raking yellow glow of the built-in lighting, the effect is almost dreamlike. □

John Baldwin is a carpenter and writer in Greenwich, Conn. Photos by Bruce Greenlaw.