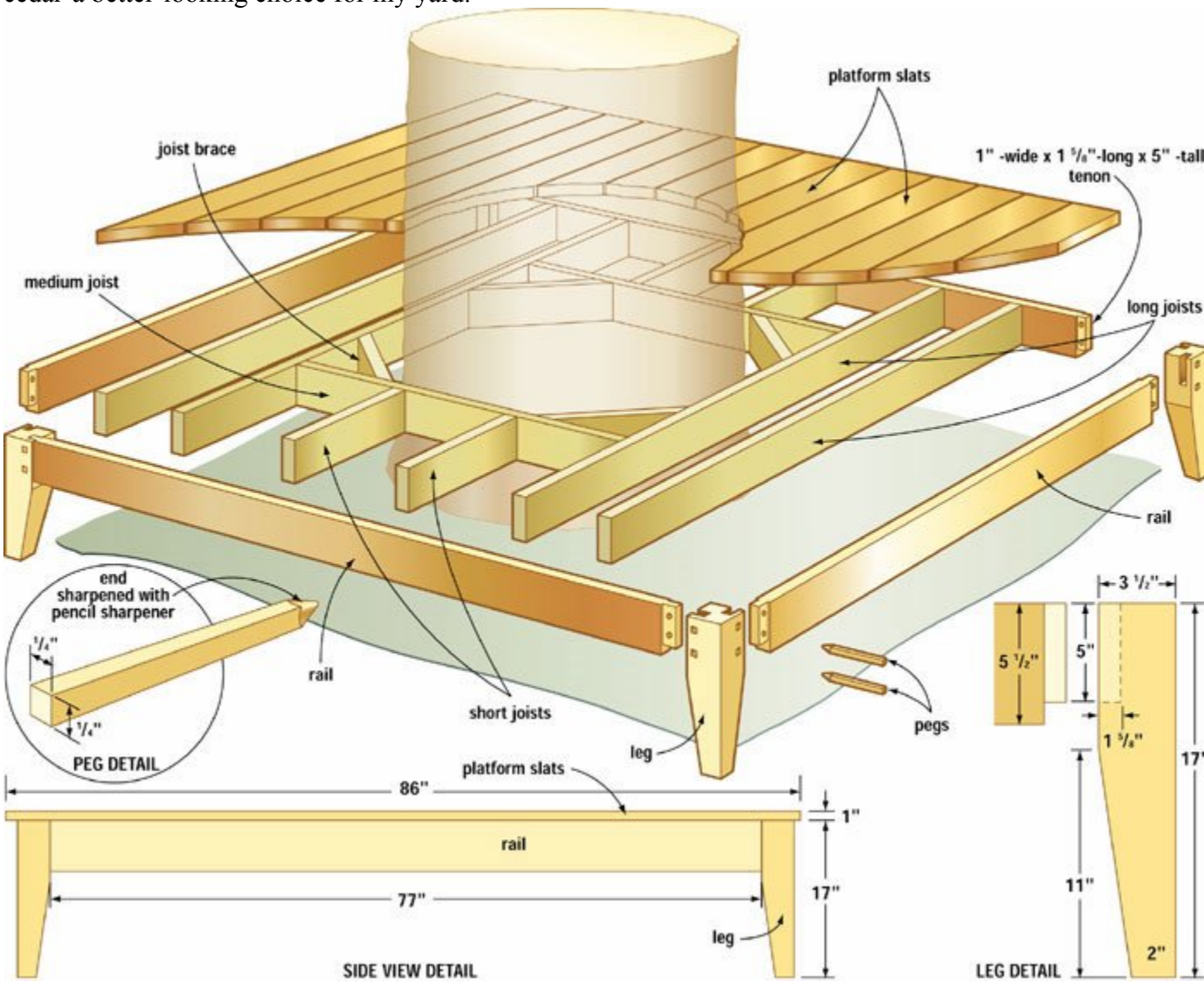
Build a tree bench

A tree bench is a simple outdoor project that comes with built-in shade

In the summer, every backyard should have a cool place to lounge. I saw a potential spot around our willow tree. More like a tree deck than a tree bench, the dimensions of this design are loosely based on a bench I admired on a visit to Sedona's Tlaquepaque Arts & Crafts Village in Arizona. It was the only tree bench I've seen without a backrest. This simplifies construction: the tree trunk itself is a natural support for your back. The flat surface is wide, with room to stretch and relax. There's even space to spread out a meal, although the similarities to the Arizona bench end there.

I chose an open-legged base vs. the closed-in base of the original. And while the Arizona village benches were painted a pleasing shade of blue, I opted for clear-coated, natural

cedar-a better-looking choice for my yard.



YOU WILL NEED			
PART	MATERIAL	SIZE (T x W x L*)	QTY.
Platform slats	cedar	1" x 5 1/2" x 86"	15
Legs	cedar	3 1/2" x 3 1/2" x 17"	4
Rails	cedar	1 1/2" x 5 1/2" x 80 1/2"	4
Long joists	pressure-treated	1 1/2" x 5 1/2" x 80 1/2"	4
Medium joists	pressure-treated	1 1/2" x 5 1/2" x 40 1/2"	2
Short joists	pressure-treated	1 1/2" x 5 1/2" x 18 1/2"	4
Joist braces	pressure-treated	1 1/2" x 5 1/2" x 16"	4
Pegs	hardwood	1/4" x 1/4" x 3"	16
Round concrete pavers		8"-dia.	4
Cedar mulch		16 cu. ft.	
Dimensions are all actual sizes. Legs cut from 4x4s; rails and joists from 2x6s; platform boards are 5/4 decking material. *Length indicates grain direction			

Start with the legs. Cut all four to length, then lay out the mortises on the inside faces of the legs. This two-part process begins by removing most of the waste material for the mortises using a 1"-dia. Forstner bit in a drillpress. Clamp a scrap wood fence on the drillpress table to help you make overlapping holes 1 5/8" deep along the length of each mortise. I used a 1/2"-dia. bit in a table-mounted router to remove the rest of the waste. Careful paring with a razor-sharp chisel also does the job.

Cut the rails to length, then lay out the tenons on the ends of each one. The tenons are 1 5/8" long. I made them using a sliding compound mitre saw, set to take 1/4"-deep cuts. Make multiple passes on each side to form the cheeks of the tenons. I also added a temporary auxiliary fence to the saw to make sure the cuts were flat. Test-fit each tenon in its own specific leg mortise, adjusting tenon size with a sharp chisel as needed.

The legs are tapered for good looks. Draw the angled profile on the inside face of each one according to the plans. I cut the tapers using a bandsaw, although you could use a jigsaw or even a handsaw for roughing out the shape. Use a stationary belt sander or a sharp hand plane to clean up the edges.

Dry-fit the legs and rails in position around the tree, then use a weatherproof adhesive such as polyurethane glue or Type II or Type III PVA glue for permanent assembly of the parts around the tree trunk. All main bench parts need to come together outside, and polyurethane is my favourite glue for outdoor use. Apply it sparingly, first dampening the surfaces with water from a spray bottle. Polyurethane adhesives need a bit of moisture to cure.

Clamp the rails and legs together until the adhesive has cured, then enlist a friend to position the assembly in the correct spot. Once you're satisfied with the location, mark the position of the legs on the ground, then move the frame far off to one side. Next, it's time to install one round concrete paving brick (sometimes called a “paver”) in each of the leg locations under the tree you marked earlier.

Use one of your bricks as a template, then remove the existing sod from each leg location. Create four depressions, one for each brick. Adjust the depth of the brick pockets so all four pavers sit in a level plane. A level, set on the edge of your straightest 2x6, will show how close you are. A couple of blocks of scrap wood set on the pavers allows this level line to clear any bumps of soil that exist between them.

Once all four bricks are level, remove the rest of the sod from under the bench and cover the whole area with cedar mulch to a depth of about three inches.

Next, cut the long, medium and short joists to length from pressure-treated 2x6s. Measure and mark the location of the longest joists on the top of the rails, then install them. I used three 3 1/2" ceramic-coated screws driven through the rails into the ends of the joists. Measure, mark and attach the medium and short joists in the same way. Finally, cut the diagonal joist brackets with 45º ends, and attach them to the joists with screws.

Making the platform

The bench platform is made from 5/4 cedar decking. This is one of the only types of standard lumber that measures a full one inch thick, perfect for the top of this project and many other outdoor applications. Cut the boards to length, except those that must be shortened to accommodate the tree. Position the first one so it overhangs the edges of the legs by one inch. I marked all screw locations so they all line up. On this project you'll be looking at the screws all the time, so any misalignment really stands out.

Before you fasten down any of the platform boards, try them all out first. You don't want any spacing surprises when you reach the tree or the other side of the bench. Beyond that, the boards that intersect the tree must be custom-fit around the undulations of the trunk. Use a couple of 1/4"-thick spacers to regulate board spacing.

Scribing the boards

This job is all about transferring the contour of the tree to the ends of the platform boards using a compass fitted with a pencil. Start by positioning your first slat on top of the bench frame, with the end of the board tight against the trunk. Next, set the legs of the compass as wide as the widest distance between the tree and board. Now you're all set for scribing.

Hold the compass with the pencil tip resting on the board and the point of the compass touching the tree. Trace the contour of the tree with the point while holding the pencil against the board. This is scribing-there's nothing to it.

Once the board has been scribed, use a jigsaw to cut out the shape. Test-fit the board, then attach it to the joists with screws, leaving a 1/2" gap between the lumber and tree trunk. As you do this, leave the scribed boards longer than necessary-you'll trim them all to length after installation. Continue scribing and fitting the boards until you've circled the whole trunk. You should also understand that someday you might have to reposition the tree boards as the trunk grows. Complete construction by attaching the remaining full boards to complete the surface.

Finishing the bench

Before applying the final finish, add hardwood pegs to lock the tenons into the leg mortises. Even though you glued them earlier, the mechanical connection is a good idea. Drill 1/4"-dia. holes through the face of the legs into the tenons, then drive 1/4" x 1/4" x 3" square hardwood pegs into the holes. Sharpen the pegs in a pencil sharpener and add some glue before driving them home. Once the glue has cured, cut the pegs off flush.

Round the outside edges of the platform using a 1/2"-dia. roundover bit in a handheld router, then smooth the whole bench using a random-orbit sander spinning 50- to 80-grit paper. I applied three coats of Sikkens Cetol 1 to protect the bench from the elements.