



Wooden bridge

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Wooden Bridge

By David Radtke





A wooden bridge can be practical or pretty, carrying you over a backyard pond, or just gracing your garden. We like to think ours is both. It stretches over 9 ft. from end to end with a gentle upward curve, and it's strong enough to support several adults.

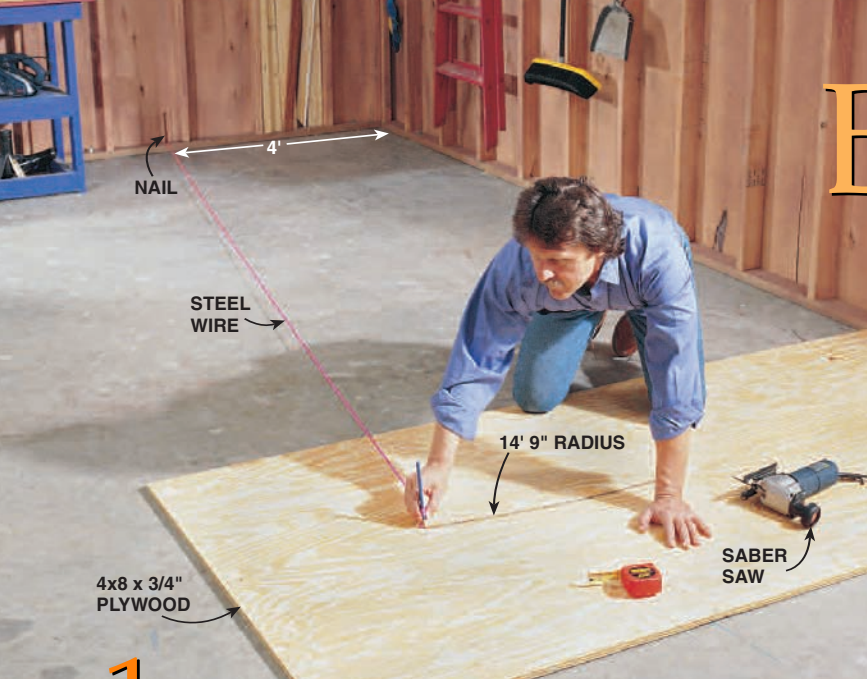
You can build this bridge in about four days if you're determined, but if you'd like to savor the process it can take as long as you like.

The bridge's sturdy beams are made from seven 5-in. wide x 3/4-in. thick clear redwood boards that are glued and screwed together to form the curve. To make your life easier, have the 1x6 boards narrowed from 5-1/2 in. wide to 5 in. at the lumberyard. You can make the simple bending form shown in Fig. A from a single sheet of 3/4-in. CDX plywood and two 8-ft. 2x4s.

All together, the wood and hardware will cost you about \$650. For a complete Shopping List, see p. 43.

WARNING: This bridge is designed for walking use only. Do not use for heavy equipment or more than four adults. It is not a children's play piece. Railings do not meet code for attached decks.

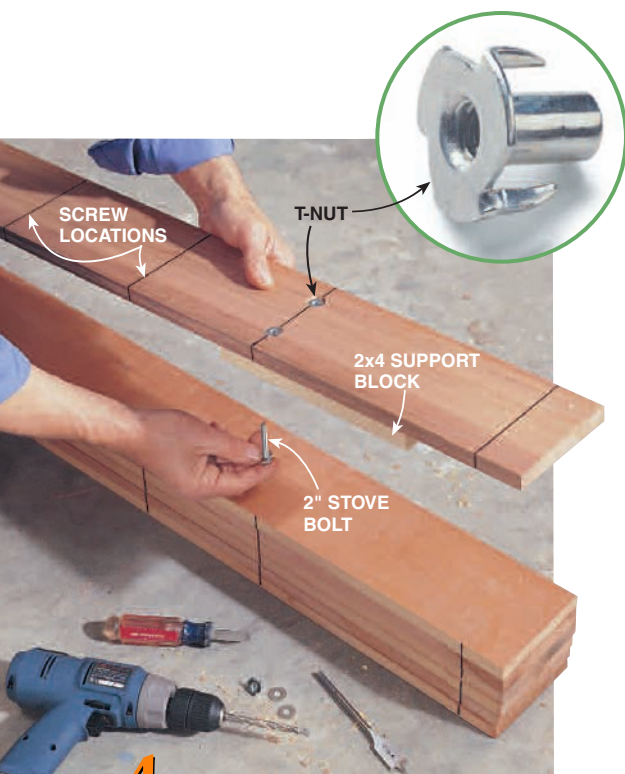
Bridge



1 MARK the curves for the bending form on a sheet of 3/4-in. plywood. Set the plywood so the center of the sheet is 177 in. from the nail. Fasten a steel wire to the nail and attach a pencil to the end of it. Mark the middle and work your way to each edge. Next, cut the plywood along the curve, then trace this shape onto the leftover piece so you have two identical pieces.



2 JOIN the two halves of the bending form. Screw each side to 2x4 supports using 2-in. galvanized screws every 8 in. Be sure to position the top support 2-1/4 in. below the edge of the form as shown in Fig. A to allow room for support blocks.



4 BOLT the support block to the first board after drilling holes in the top of the board to hold the T-nuts. Use a 7/8-in. spade bit to mortise the T-nut 1/8 in. below the surface. The support block will hold the board firmly to the form as you bend it. See Fig. A, Detail 1, for the exact locations of the T-nuts and bolts.



3 STACK the boards for the first beam and mark the center of the stack. Make marks at 8, 16, 24, 32, 40, 47 and 58 in. from the middle toward each end. These marks will help guide your screw placement later, and the 47-in. marks will be the T-nut locations on each end.

5 CENTER the first board in the form and fasten one support block to the form with three 2-in. screws on each side. With one end secure, push down on the opposite end and screw the other support block to the form.

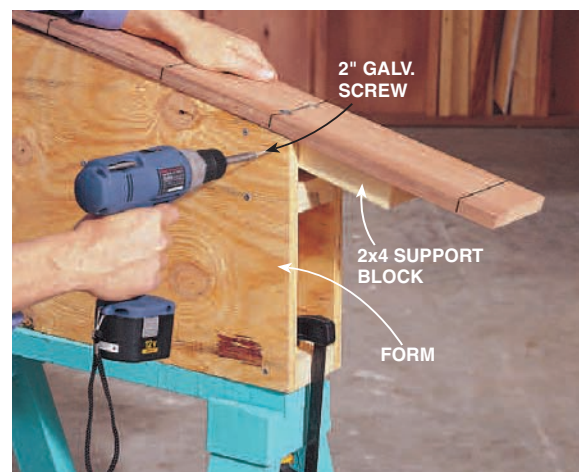
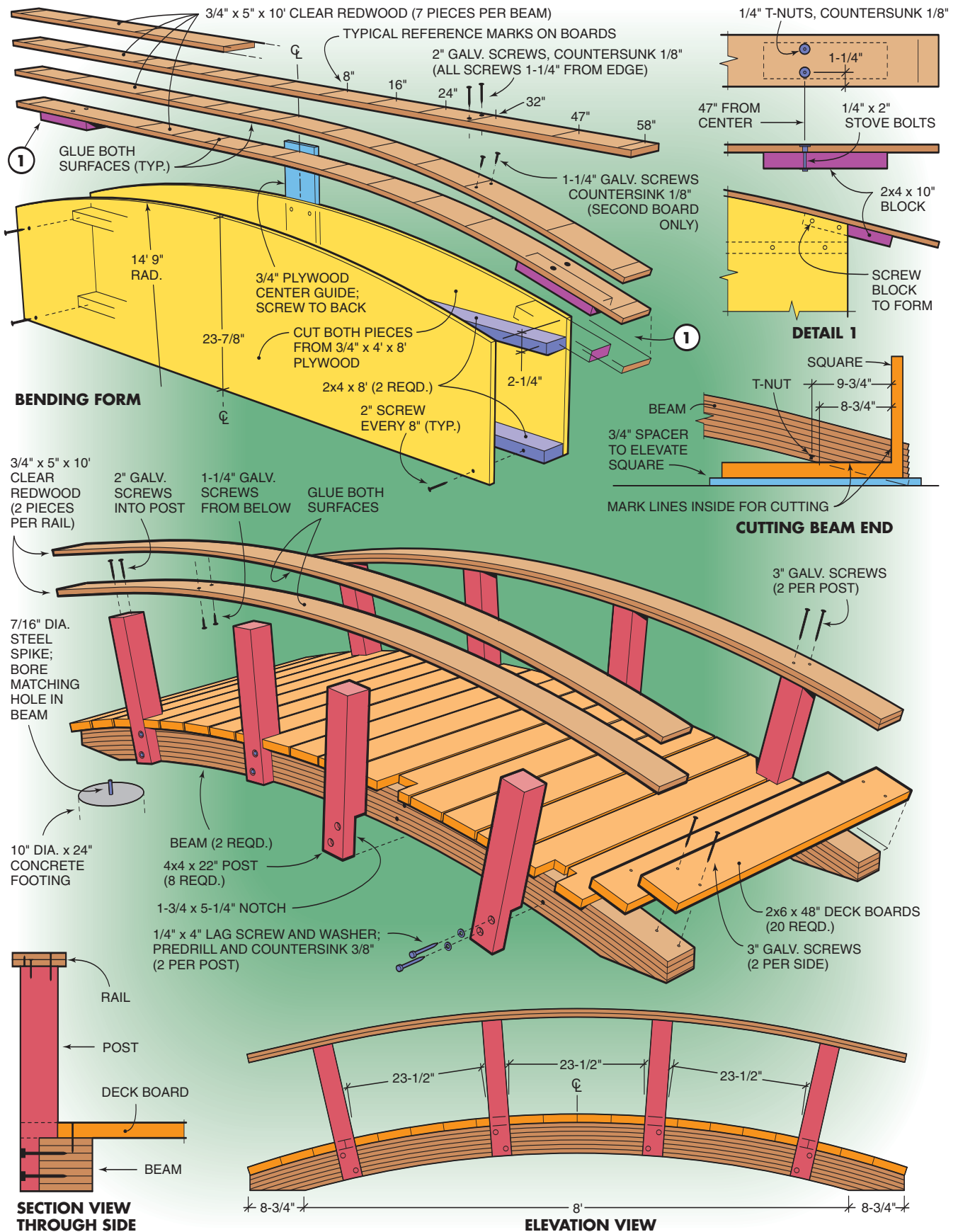


FIG. A WOODEN BRIDGE FORM AND STRUCTURE



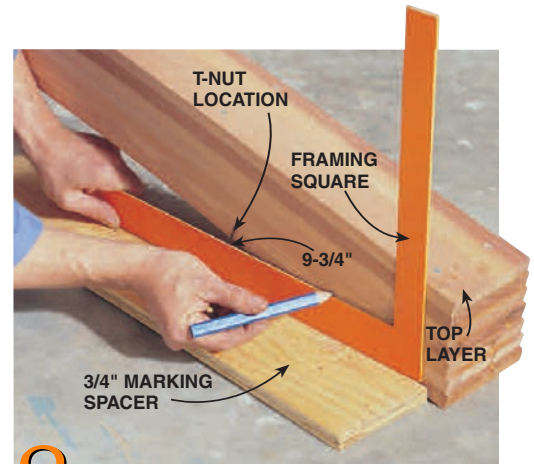
Bridge



6 **GLUE** the top of the first board and the underside of the second. Now, screw the second board to the first with 1-1/4 in. galvanized deck screws. Predrill and countersink the holes 1/8 in. deep to get a good bite. Continue gluing and screwing each layer, but use 2-in. screws after screwing the second board to the first, to increase the holding power. Use the reference marks to avoid running into the screws on the layer beneath. Let the glue dry for 48 hours.

TIP: To protect your beams from the elements, brush on some deck sealer and let it dry before installing them outside.

7 **BELT-SAND** the sides of each beam after removing it from the form.



8 **MARK** the finished dimensions on the beam using a 3/4-in. spacer board and a framing square. Align the T-nut locations with the 9-3/4 in. mark on the inside of the framing square blade. When cutting along this line, you won't cut into any screws or T-nuts hidden in the beam. Cut each beam to its final size with a circular saw, followed by a handsaw.

9 **DIG** 24-in. deep holes using a post hole digger. We used cardboard tubes (available at home centers) to support the sides of the footing, but if your soil is firm, you won't need them. The holes must be laid out so the diagonal measurements from one side to the other are equal. The span distance between the centers of the footings should be 102 in. The centers of the footings must be 39-1/2 in. apart. Fill to the top with concrete (Photo 10). Make sure the tops of the footings are level with each other as shown in Photo 10. While the concrete is still wet, install a 12-in. landscaping spike into each footing so it's 3-1/4 in. above the surface. You'll need about 1-1/4 60-lb. bags of concrete mix for each hole.





10

MEASURE the exact distance between the spikes and drill corresponding 7/16-in. dia. holes in the bottom of the beams. Be sure the concrete has dried at least a day before doing this step.



11

PLACE the beams onto the spikes and push them down until they rest on the concrete footing.



12

MARK your post locations as shown in Fig. A. The posts will follow the curve of the beam. The 4x4 posts are notched to fit over the outside edge of the beams. Cut the notches with a circular saw followed by a handsaw.



13

SCREW the decking to the beams with 3-in. galvanized screws. Cut the decking to fit snugly around the posts. Be sure the beams are 44-1/2 in. apart from outside to outside. Use a temporary spacer board on each end to hold the beams in place.

SHOPPING LIST

14	1x6 x 10' clear redwood (beams)
4	1x6 x 10' clear redwood (handrails)
2	4x4 x 10' redwood (posts)
20	2x6 x 4' construction grade redwood (decking)
1	sheet of 3/4" CDX plywood
1	8' 2x4 (form)
1	10' 2x4 (form and blocks)
2 lbs.	1-1/4" galv. deck screws
5 lbs.	3" galv. deck screws
6 lbs.	2" galv. deck screws
16	1/4" x 5" lag screws
16	1/4" washers
8	1/4" T-nuts
8	1/4" x 2" stove bolts and washers
4	12" landscape spikes
1 gal.	Titebond II wood glue
5	60-lb. bags of concrete mix
1 gal.	deck sealer

14

CENTER the first board of the 5-in. wide handrail on top of the posts and screw it in place. Next, spread glue on the top of the first board and the underside of the top one. Fasten the top rail to the bottom rail with 1-1/4 in. deck screws. Apply clamps on each end until the glue dries. File the corners and edges of the handrail and sand away any glue that oozed between the boards. After a few days, apply a coat of deck sealer to keep the boards from cracking. **TFH**

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