Garden Bridge

INSTRUCTIONS - MATERIALS - COSTS

In this page

The only timbers used in this project are 90x19 h3 premium pine decking and 90x32 h3 standard pine decking. Both timbers and readily available at most timber merchants. For a detailed list of timber and hardware required, scroll to the bottom of the page.

The Plan

(a) Shoe

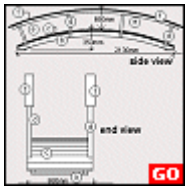
(b) Arch beam

(c) Decking boards

(d) Handrail uprights

(e) Handrail arch frame

(f) Handrail capping board



Making the template for the arch

To make the arch template, 3 stakes will need to be firmly hammered into the ground and braced oppossing the bending force.(see picture). Space the stakes as per the dimensions shown in the accompanying picture.

The arch beams the are made by bending and glueing and screwing four lengths of 90x18 h3 pine decking together. When the glue is dry (the next day) this newly made laminated arch beam can be cut down the middle (lengthwise) to create two arch beams for the base of the bridge. (See section "cutting the arch boards") The arch handrail is made the same way, using the same template.

Making the laminated arch beam

Bend a piece of 90x19 knot free decking board, 2400mm long, between the arch template pegs. Bend a second board against the first puting a generous amount of glue between the two boards. Repeat this action until four

boards are in place forming the arch.
Clamp the boards together and also screw along the arch approx every 300mm with 50mm stainless steel screws on both sides.
Ensure the screws are not put along the centre line of the arch beam as this line is to be cut.

Making the laminated handrail arch
Use the same template for the handrail arch as the beam arch (see picture).
Make the laminated handrail arch (on top of the beam arch which is still lying in place until glue has dried) in the same way as the laminated arch beam, but use only two 90x19x2700 boards and not four.
Be careful not to glue the handrail arch to the beam arch.

Cutting the laminated arch boards
Using a power saw, cut the laminated arch boards in half, along the length of both the beam and the handrail (see picture). This will give you two laminated arch beams approx 80x45x2400 and two laminated handrail frames approx 40x45x2700.
Trim the arch beams to the dimensions shown see diagram below

Making the sides
Cut a length of 90x32x2400 standard pine decking in half (lengthwise) and make 8 handrail uptights at 45x32x600.
Bolt the handrail uprights to the arch beams so that 4 uprights are spread evenly along each arch beam and so that each upright is at right angles to the arch beam. Make a timber washer and glue to the inside of the arch beam (see picture).
Drill and nail the handrail arch frames on top of the uprights. Secure each end with metal strap plates.

The bridge frame
Cut 3 spreaders 90x32x540 and fix between the side frames, one in betweem the middle of the arch beams and one near each end. Secure with metal strap brace. (see picture).
Nail 3 temporary spacers on top of the handrail arch frame to keep parallel until the decking boards have been nailed on. Nail and glue the shoes (90x19x625) to the underside of the arch beams, one at each end.
Nail a temporary brace from shoe to shoe until the decking boards have been nailed on.

The decking and handrail
Nail the decking boards 90x32x680 onto the arch beams with 90mm flathead galvanised nails. Begin at each end and work towards the middle. The final piece will have to be cut to fit and the deck boards will need to be checked

(cut) around the handrail uprights.
Trim the ends of the handrail arch frames (at right angles to the end of the arch beam) and bend fix two handrail capping boards (90x19x3000) to the top of the handrail arch frames. Secure with glue and m10 coach bolts and washers, 4 each side. Countersink the head of the bolts into the capping board.

Eazy az. The finished bridge.

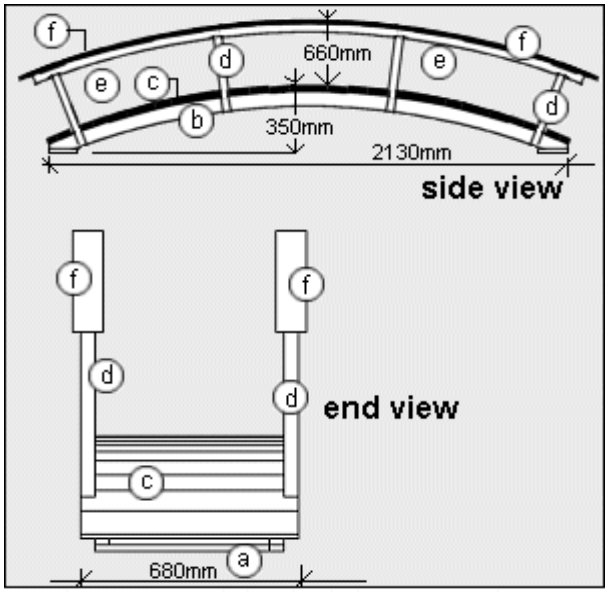
Notes and tips.
The 90x19 boards used for making the arches must be premium and knot free. If there are any deformities in the boards, then they will snap when bending pressure is applied.

The glue used in this project was sturdi bond. This glue was used because of ease and because the arche boards were also screwed to each other. As a stand alone glue (ie without the screws), a more substantial exterior glue would be preferred.

Materials and cost

NOTE: These prices are indicative only.

MATERIAL	DESCRIPTION	AMOUNT	COST
90x32 radiata decking	handrail uprights - 4 @ 600 decking - 25 @ 680 spreaders - 3 @ 540	22m @ $3.20 p/m	$70.40
90x19 radiata decking (knot free)	arch beam - 4 @ 2400 handrail arch frame - 2 @ 2700 handrail capping - 2 @ 3000 shoe - 2 @ 625	23 @ $2.40 ea	$55.20
Hardware	M10 coachbolts - 8@75mm 8@120mm 50mm stainless steel screws - 50 of tubes sturdi bond glue - 2 of metal strap 400x30 - 8 of 75mm galvanised flathead nails - 2kg		$75.00
		TOTAL MATERIAL COST INCLUDING GST	$200.60



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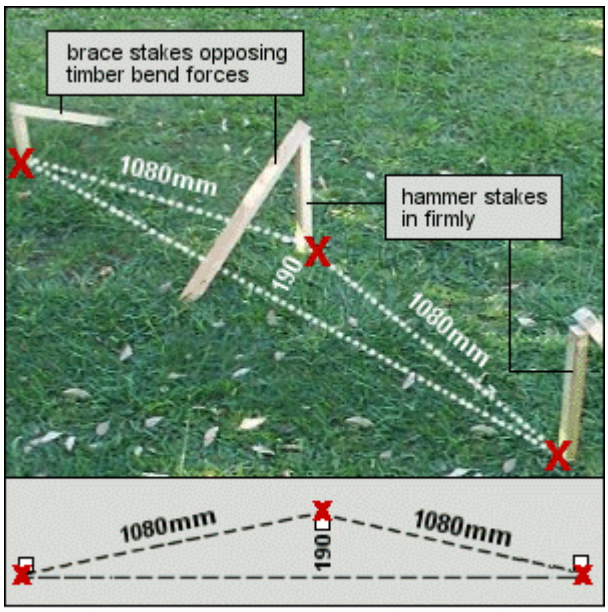

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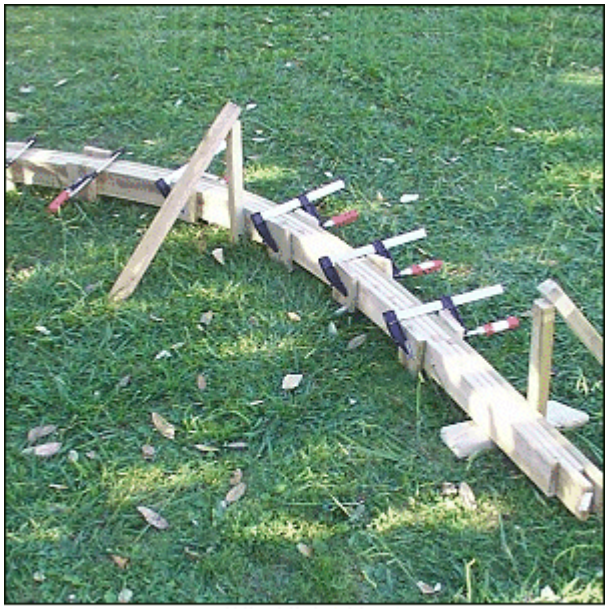

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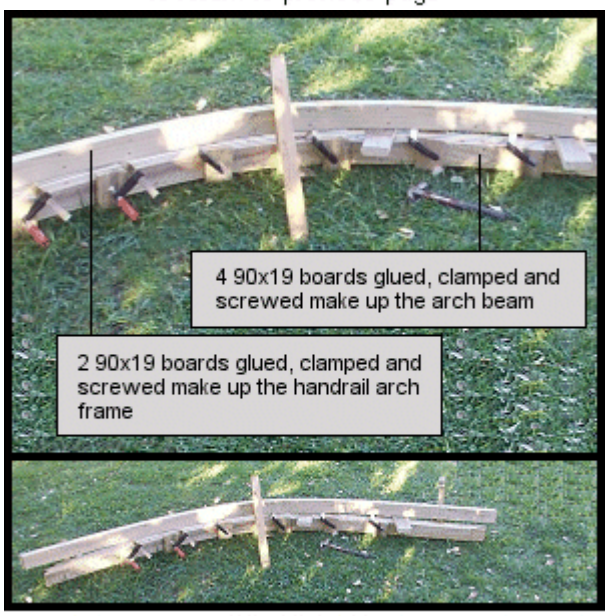

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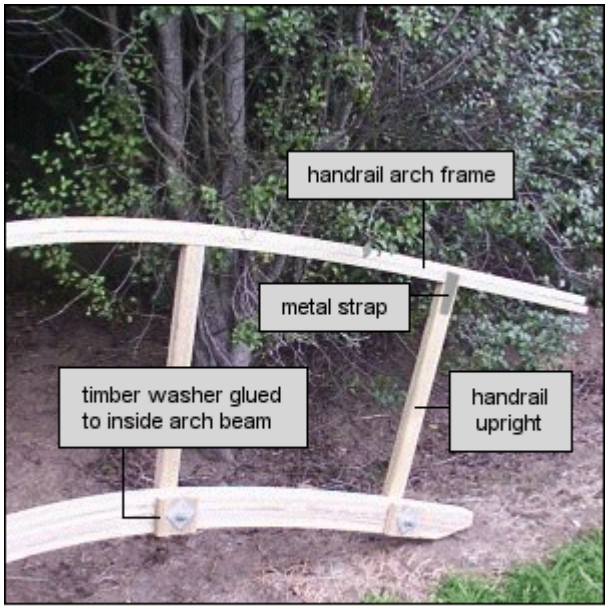

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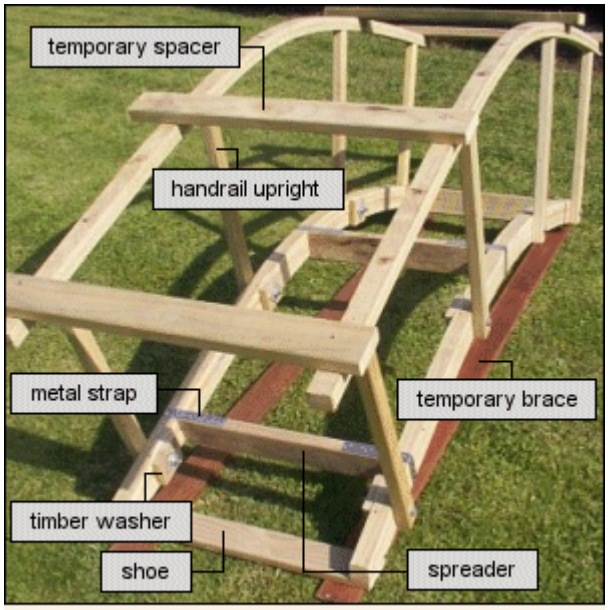

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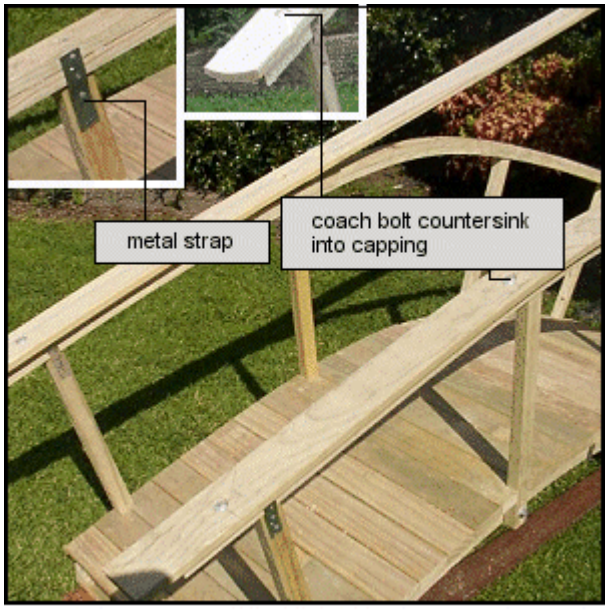

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