

# Creating a round box beam the old fashioned way.

By Dan Miller

I recently was involved in the historically sensitive rehabilitation of an old house porch. Luckily we had an old picture to guide us as shown at right.



[illegible]

Box beams on curved old house porches were never built that way. At right is a picture of one showing that it is circular on the inside.



Several years ago the house at the right was scheduled to be torn down so I salvaged things from it. I was very curious as to how the curved box beam was made as I did not know how the old timers did it. A friend had recently made one for a porch by laminating thin strips of wood. They would not have done it that way 100 years ago as they did not have an exterior glue. I did not want to do it that way as it is too much work and way too heavy to deal with. The picture at right shows a very long, curved span that is still wonderfully level and straight after over 100 years. I took the box beam apart to see how it was constructed.



I found it was made by cutting several segments of the curve in 1X material then nailing them together with staggered seams (bricked). The top of the beam is made of two layers of 1 X and the bottom is made by putting together three layers of 1 X material with staggered seams. Another layer of a finish board is under the three layers making a total of four layers. Vertical 2 X material 12 inches on center, makes up the middle of the beam. To cover the beam they used two layers of  $\frac{1}{4}$  inch wood on each side that bends without kerfing.



The architect was not willing to go along with my proposal as there are no charts to check on the strength for this unusual application. My gut told me that this method would create a very, very strong box beam, more than adequate for a span of about 4 feet. The old porch span was longer but the architect proposed five posts instead of the original three. After lot of e-mails and two meetings with the code dept. they agreed to allow my method of constructing the box beam.

I proposed using two layers of 1 ½ inch thick material on the top and bottom with 1 ½ inch thick vertical members. The sides would be made of two layers on each side of ¼ inch plywood glued together. The old timers nailed everything. I proposed the extra measure of gluing and thicker wood to help convince city hall that it would be strong.

I laid out the bottom layer on my garage floor. I did not screw the left and right sections together so it would be easier to transport and install. The final screwing together was done on site.

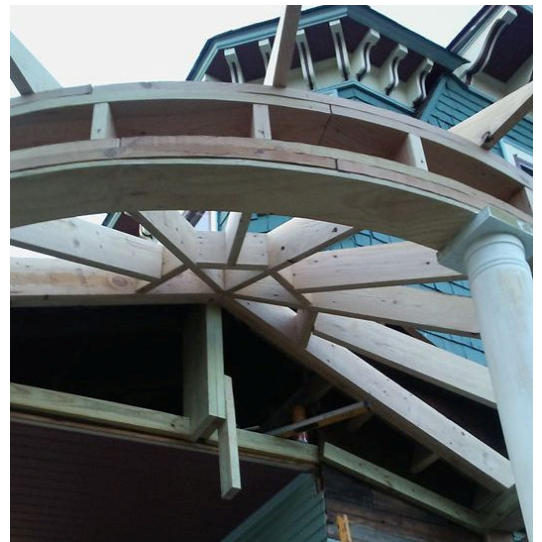




I did the same thing for the top half of the beam, leaving the two halves unscrewed. I screwed the vertical pieces to the top half in the shop. They will be screwed to the bottom half on site.



Here is both halves of the box beam installed. It will be covered with two layers of  $\frac{1}{4}$  inch plywood which can be bent without kerfing. Some box beams have a finish board under that which is wider than the beam with rounded edges. The box beam that we were duplicating did not so I covered the end grain of the plywood with epoxy to hide it.



Here is the finished round portion of the porch.



Custom spindles had to be made for the curved stair rail. The spindles on the rest of the porch were treated ones from a big box store.



Finish painting could not be done as it got cold so the final colors are not on the porch. .

