

[Home](#) / [Mazes](#) / Construction

Paul, Bob, Ken, and Bob's Modular Maze Panels: Construction

This page gives details on how to construct the modular maze panels.

Before You Begin

Building the panels is fun. At least it was for us. We (Paul, Bob, Ken and Bob) took about 1/2 a day to rip the 2x4's into 1.5x0.88 struts, and then another two days to assemble the panels. We built them over five years ago now, and they've worked out marvelously well. Very sturdy, modular, and flexible.

One thing to consider: where will you store the panels once they have been constructed? The vertical height of some 95 panels is not inconsiderable (about 10'). Personally, my garage has an attic which is just big enough. Otherwise, you may be able to stack them up outside, covered with a tarp.

Design Drawings:

These are the engineering drawings which show how to construct the maze panels. The drawings are complete and show all the details.

1. The one-segment panel: [construction diagram](#) - [plastic covering](#) - [picture](#)
2. The two-segment panel: [construction diagram](#) - [plastic covering](#) - [picture](#)
3. The three-segment panel: [construction diagram](#) - [plastic covering](#) - [picture](#)




Materials List

All of these materials can be found at your local Home Depot or Lowes hardware stores.

The quantities listed below are what is necessary to create 14x one-segment, 38x two-segment, and 43x three segment panels. With this set of panels, you can assemble any of the maze designs on this web site (the original reason for having more two and three-segment panels is that you get more linear distance of maze corridor for less total panel construction time).

Materials for constructing the maze panels:

	Item	Cost per unit	Quantity needed	Total Cost
	2x4 boards	\$1.99	140	\$279
	3/8" sturdy plywood	\$10.88	3	\$33
	size 8 screw eyes	\$7.07 (pack of 50)	13	\$92
	wood glue	\$3.87	2	\$8

				
	<p>5lb box of size 6 x 1" self-drilling drywall screws (1" preferred, but 1-1/4" inch also okay)</p>	<p>\$27.00</p>	<p>2</p>	<p>\$54</p>
	<p>20' x 100' x 6mil black plastic sheeting</p>	<p>\$79.85</p>	<p>4</p>	<p>\$319</p>

Total Materials Cost

Click [here](#) for a spreadsheet showing the total costs of all materials. It comes out to around \$1000 (including ropes, cable ties, and stakes for assembling the maze).

Instructions: Panel Construction

For all of the following instructions, see the diagrams for [One-Segment](#), [Two-Segment](#), or [Three-Segment](#) panels for details. In fact, you probably don't need the instructions at all. The diagrams pretty much tell the whole story.

The following tools will likely be needed: Table saw, circular saw, power drill(s), power screwdriver(s), staple gun(s), and sharp scissors.

1. **Rip the 2x4's into 1.5x0.875's** - In this step, we will need to slice (aka rip) the 2x4 pieces into 4 vertical slices, using a [table saw](#). Remember that a 2x4 is really 1.5" x 3.5" (and 8-feet long). Therefore, if you slice it into 4 slices, each slice will end up having dimensions of 1.5"x0.875" (and 8-feet long). You will need a table saw, two people, and a good, sharp blade to accomplish this.

The original 140 should turn into around 560 1.5" x 0.875" struts. However, some struts will come out too twisted (the insides of a 2x4 is often under stress which is released when it is sliced up) and others will contain knots that easily break. Only 476 struts are actually needed.

2. **Cut the gussets** - Using a [table saw](#), slice the plywood into 6" slices (it says 5.5" in the diagram, but 6" is fine). Tilt the blade of the table saw so that the edge of each slice is at 45 degrees (this smooths off the edges of the panel which just makes stacking easier later down the road).

Second, use a [miter saw](#) to cut the 6" slices into 6" squares, and then again to cut the 6" squares into triangles.

3. **Prepare the outside vertical struts** - Cut 190 struts down to 81" (6'9") and drill pilot holes for the screw eyes at 15" from each end. The pilot holes should be drilled into the 0.875" wide sides of the struts. Finally, use a circular saw to cut off a small triangular piece from the bottom of each strut (this will help the panel grip the ground better when assembled into a maze).

Each panel has two vertical struts and all of them have the same dimensions (1.5" x 0.875" x 81"). *Labor saving technique:* Line up all struts on their short sides, make sure the ends are lined up, measure the distance from the end, and then use a yardstick and a pencil to mark 40 struts all at once. Then, use a [circular saw](#) to cut all 40 to size in one go (just be *very* careful that the struts are far enough from the ground so you don't damage your saw, and also that you have a good enough grip on them so they don't fly away as you cut them). Similarly, you can mark the points for the pilot holes, and then literally walk across the top of the struts drilling all of the holes one after the other. See [this picture](#) to see what we mean.

- 4. Prepare the inside vertical struts** - Cut 124 struts down to 72" (6 feet) and drill pilot holes for the screw eyes at 10.5" from each end. The pilot holes should be drilled into the 0.875" wide sides of the struts.

Each two-segment panel has a single inside strut, and each three-segment panel has two inside struts for a total of 124 inside struts. All inside struts are the same dimensions. See the discussion in the previous step for a labor-saving technique.

- 5. Prepare the horizontal struts for the three-segment panels** - Cut 86 struts down to 80" (6'8").
- 6. Prepare the horizontal struts for the one and two-segment panels** - First, cut 76 struts down to 52" (4'4") long. Then, using left-over pieces from those struts, cut 28 pieces down to 24" (2 feet) long.
- 7. Assemble 14 one-segment panels** - Lay two outside vertical struts and two horizontal struts out according to the [diagram for the one-segment panel](#). Make sure the pilot holes are all facing outwards. Make sure the triangular points are both at one end (it doesn't matter if they face the same direction or not). Apply wood glue to the four corners, place the plywood gusset triangles over the corners, and then screw them in place with the drywall screws.

Labor saving technique: Tape an outline for the diagram into the floor with masking tape and then lay out the struts according to the tape outline.

- 8. Assemble 38 two-segment panels** - Lay two outside struts (pilot holes facing outwards, triangular points at the bottom), two horizontal struts, and the inside vertical strut according to the [two-segment diagram](#). Careful that the pilot holes for the inside vertical strut face to the right and that the distance is accurate, since correct placement of the inside vertical strut will allow you to connect panels into the middle of other panels.

Once the pieces are correctly laid out, glue six gussets onto the corners and then screw them down with drywall screws.

- 9. Assemble 43 three-segment panels** - Layout all the necessary struts (two vertical outside struts, two vertical inside struts, and two horizontal struts) as specified in [the diagram](#). Be careful that all of the pilot holes and triangular points face in the right directions. Glue the eight gussets to the struts with wood glue, and then screw the gussets down firmly with drywall screws.
- 10. Screw the screw eyes into all pilot holes** - Every one-segment panel should have 4 screw eyes, every two-segment panel should have 6 screw eyes, and every three-segment panel should have eight screw eyes. The screw-eyes in the middles of the panels allow you to connect the end of one panel into the middle of another.
- 11. Cut the plastic for each panel** - Cut the plastic according to these diagrams: [one-segment](#), [two-segment](#), and [three-segment](#). *Note:* The plastic doesn't really need to be 13'5" long. It can be as short as 12'6" long and cover the entire panel just fine. In our case, we just weren't that careful about cutting the plastic, so we made it long.

Start by cutting a slice of plastic which is 12'6" long from the role. This leaves you a slice which is 12'6" x 20' (or more). Then slice up

this piece as necessary to create the plastic covers for the maze panels as needed.

- 12. Wrap each panel with plastic** - Wrap each panel with plastic, cutting the slits as necessary. Once the panel is wrapped, staple the plastic to the panel with a staple gun.

Once the panels are assembled, find some place to store them for a day or two to let the wood glue dry.

[Click here to contact Paul](#) (please do).