

### 3-SIDED SIGN DESIGN

by Randy Asplund

It's easy to make, but it does take time because it is constructed.

It uses a few simple, common household tools and materials.

It collapses into a small size to be easy to fit into any car.

(This project is designed for 20 x 30" so it needs 5 boards over all.)

- \* 3 foam core boards of desired dimension for the panels.

- \* Enough foam core board to make 2 triangle caps, the lip strips, and some glued up blocks.

- \* 2" wide packing tape

- \* 2 Toilet paper roll tubes

- \* A wood dowel for a handle usually about 6' long and narrow enough to fit into toilet paper tube

- \* 2 wood dowels slightly smaller diameter than the drill bit and 2-1/2 to 3" long (can be a chop stick, pencil, or dowel from hardware or craft store)

- \* 2 sturdy rubber bands

- \* White glue or other (i.e. hot glue, wood glue, any fast dry.)

- \* A drill with about 1/4" bit

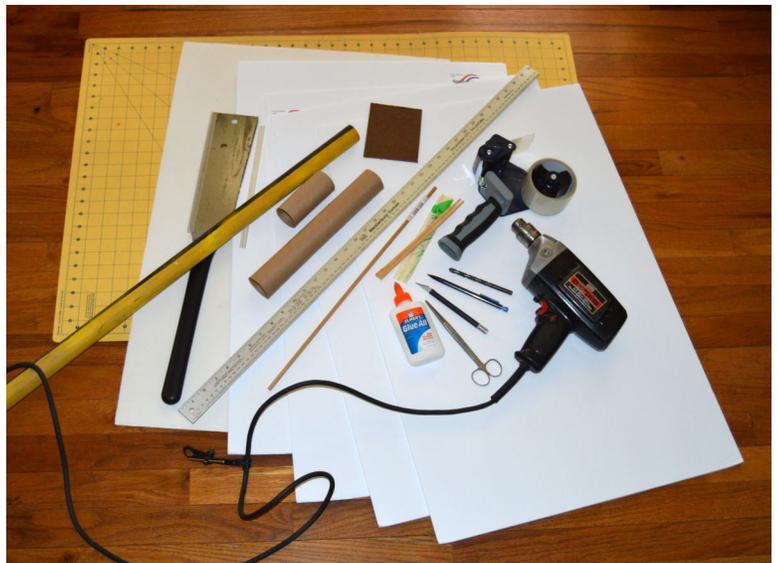
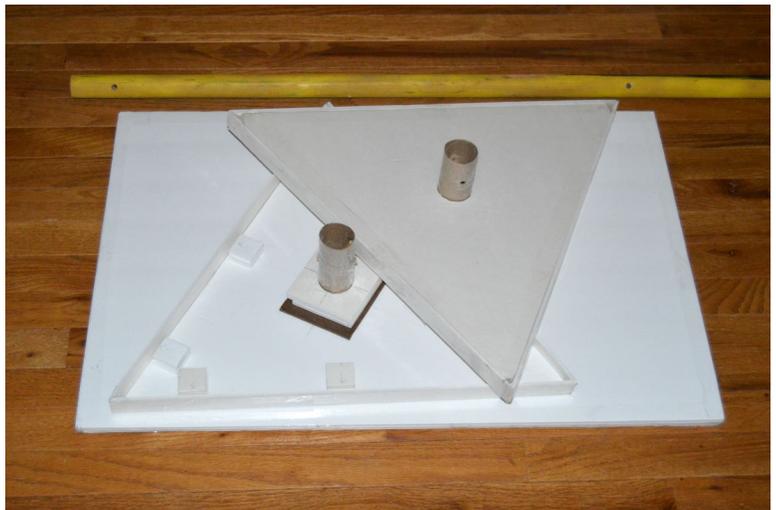
- \* A hobby knife with a new pointed blade (like #11 X-Acto)

- \* Straight edge to cut along

- \* Compass set to 13/16" radius

- \* Scissors to cut the tape.

- \* Pencil to mark cut lines



## INSTRUCTIONS:

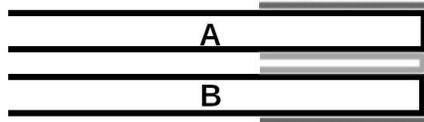
1) 3 of the 20x30 foam core boards make the vertical panels for the images. 2 more are needed to make top & bottom caps, and other parts.

2) Apply 2" wide clear packing tape to all top and bottom edges of the sign panels as a strong base. Center the tape on the edge and fold it down on both sides.

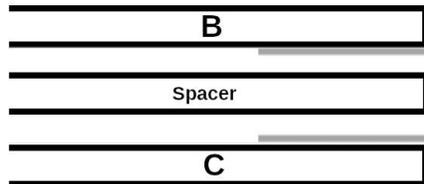


3) Join 3 panel pieces together with 2" wide tape so that they make a triangle open on one side, and they fold over each other to reduce space for storage).

### *METHOD:*

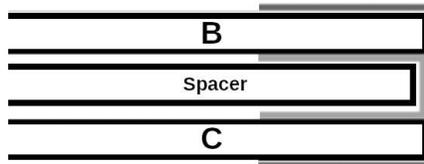


Panel A connects to Panel B  
This will fold out.  
One side of Panel A does NOT connect to Panel C with tape. It will be held in place by the top & bottom triangles and the image paper wrapped around it.



Panel B Connects to Panel C  
It will have a gap, so you use a spacer when placing the tape.

- 1) Put tape on inside face of B.
- 2) Lay spacer on B and fold tape over
- 3) Lay Inner face of C onto spacer.



- 4) Finish by taping over the outside of B, going over the spine, and securing to the outside of C (Dark gray line).

Now remove the spacer. The gap lets all 3 panels fold together for storage.

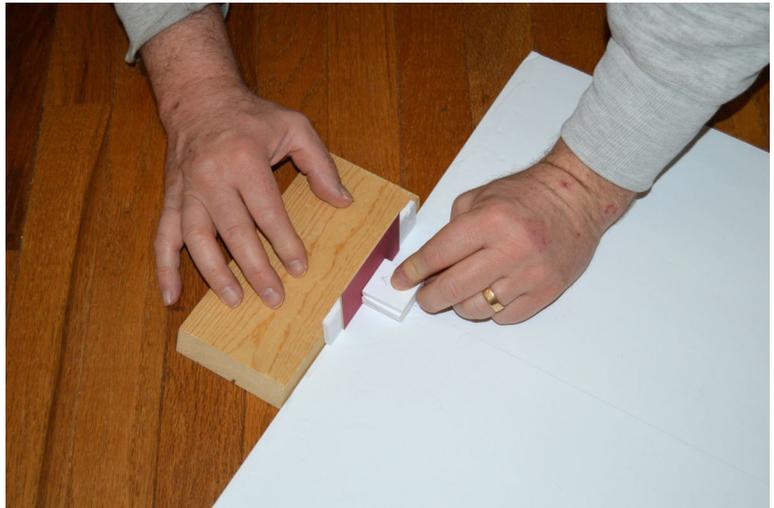
4) You will use a sharp X-Acto or razor (not scissors!) to cut 2 triangles as caps to hold the shape on top and bottom. Use the 20" end of the 20 x 30 panel as one side. Measure 10.5 inches on that edge, and again near the middle, and draw a center line. Later you will make a lip around the outside to hold them together).



They fit between that lip and some blocks you will make as tabs to support the inside.

5) To make the tab blocks, cut a strip off the other end of the 20 x 30 panel. Make it at least an inch wide. For convenience, I used the width of the ruler. Cut into squares. Each block is 4 layers, glued together with white glue. You need 3 blocks for each triangle side, and you have 2 triangles. So that is 9 blocks per triangle, and 2 triangles = 18 blocks. That means you will eventually cut 72 squares. BUT- just cut one strip off the end FOR NOW.

6) With a block, or against a wall, glue 3 block tabs to the 20" end of that uncut triangle. One in the center, and put the other two a few inches in from the corner. They must be spaced from the edge. That gap is as thick as the foam core board + a layer of matte board (which is about 1/16" thick).



7) Now put the panels on the board with the center panel on the 20" side and slipped in between the 3 tabs and a block (or the wall). Bring the other 2 panels together so their open edges meet on the center line. With those in place, mark the point. Now mark the edge near the corners of the board by the 20" side. Remove the panel assembly and draw the lines to make the triangle. Note, NONE of these have a



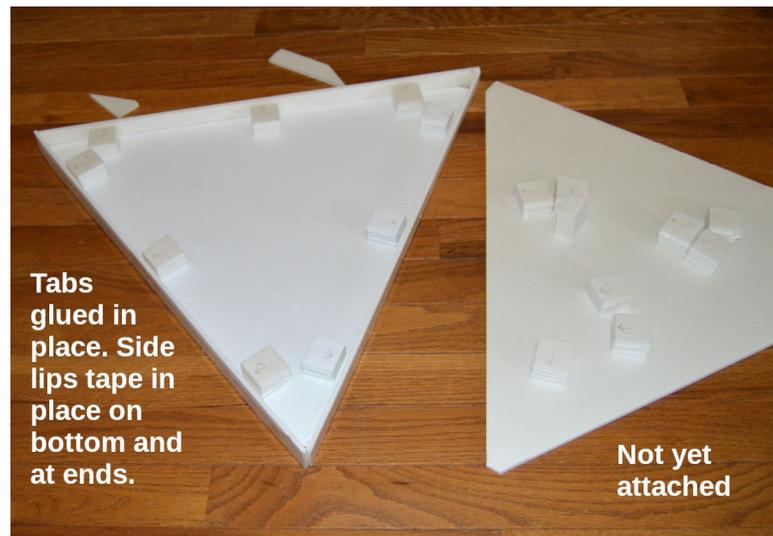
sharp corner. That's OK.

8) Now cut the 2 triangles. Locate the center of BOTH triangles and mark it. This is for placing the dowel handle later. It's easier to find the center now.

9) AFTER cutting out the triangles, use the scrap to mark out strips to cut into squares to make the rest of the tabs. You also need to reserve enough for cutting out 9 of 4" squares and 6 Edge retaining lips. Glue the tab blocks together to make the remaining 12 blocks.

10) Cut 6 strips 1" wide and long enough to edge the triangles. They join to the butt of the edges of the triangles. Tape the retaining lips to the edges of the triangles. Lay the tape along the outer face of the triangle so 1/2 of it is off the panel. Now lay it face down, with sticky side of tape up and place the retaining lips on the tape against the butt edges of the triangles. Fold the tape up along the lips. Cut the lips to meet at the corners and put some tape on the ends to join them.

11) Now glue the 12 remaining tabs in place, but now you have the retaining lips on, you don't need the block. You DO NEED THE SPACERS.



NOW FOR THE HANDLE:

The handle will be a closet dowel or similar (PVC pipe, whatever)

12) Cut the handle to a length that equals the distance between your waist and the TOP of the sign over your head. (Enough to clear your head!)

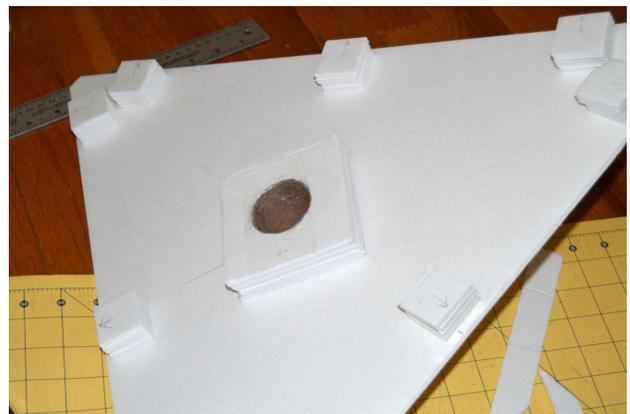
13) Get either a paper towel core tube (to cut in 2 pieces) or 2 cardboard tubes from inside toilet paper rolls. Tape the outside to strengthen them. Leave about the thickness equal to the height of a stack of 4 foam core layers WITHOUT TAPE so it can be glued.

14) Make 2 blocks from scrap foam core board which have a hole through the middle to fit the paper roll tube.

To do this, I suggest cutting 9 squares of 4x4 inches from the remaining foam core board. (You should cut the holes first. Locate the center of each square by drawing lines from corner to corner. Set the compass to 13/16" radius and draw a circle in the center of the square. Using a long pointed hobby knife (like a #11 X-Acto blade) cut a hole in every square.

15) Put one of the tubes through a square. Glue another one and put it on the tube and press it to the first square. Make a stack of 4 and a stack of 5 on the tube (don't glue the 2 blocks together!)

16) When dry, remove the 5 layer block. Glue the exposed paper part of the tube and slide the 4 layer block onto it. Then glue a square of solid cardboard or Masonite over the block as a stopper to the tube.



17) Glue the block with the cardboard face to the center of the INSIDE face of the top triangle, and glue one paper tube inside it. This is the cap for the sign and holds the sign together.

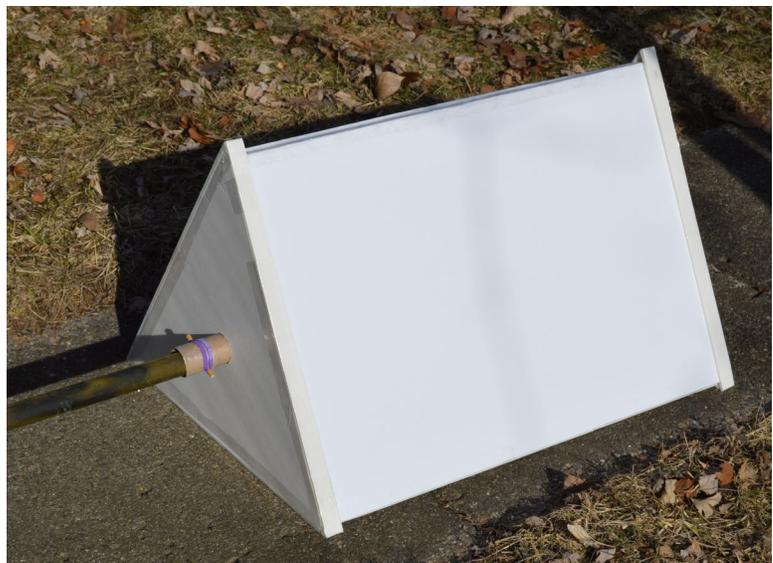
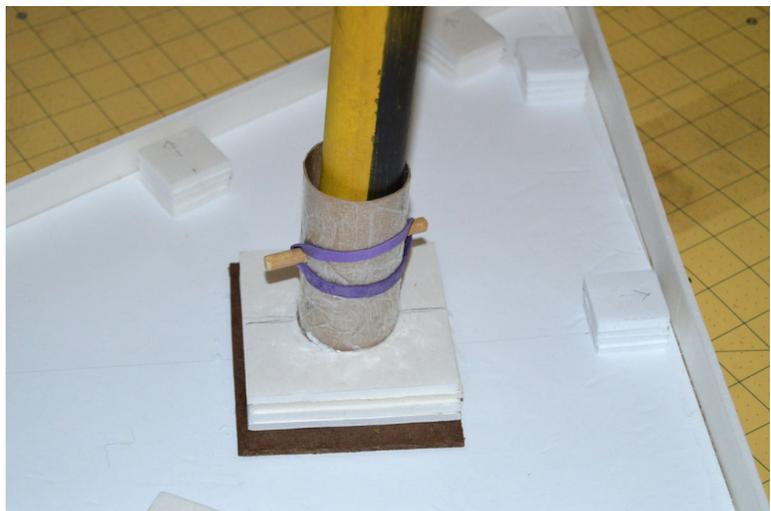
18) Make a hole in the bottom triangle panel center to fit the second paper tube. Place the second tube inside the other block so the tube is flush with the inside surface and it sticks out on the downward side. Tape from the foam core block down inside the tube to secure it.

**NOTE:** It is a good idea to strengthen the joint with the tube by going around it with some hot glue stick where the tube protrudes from the BOTTOM of the block under the bottom cap and the BOTTOM of the block in the top cap. It will work if you don't, but this is stronger.

19) Get 2 wood dowels 3" long (or at least long enough to stick out 1/2" from both sides of the tube). Drill a hole through the tube wall of the one attached to the TOP triangle cap (not the bottom cap with the hole). The hole must be slightly larger than the diameter of the dowel. Put the handle pole into the tube all the way and use the drill to mark it through the hole you made in the tube. Take it out now and drill the hole straight through the pole. Put it back into the tube and make the hole on the other side of the tube.



20) ASSEMBLE: Put the dowel through the tube and pin the pole inside it. Put a rubber band around one end of the dowel. Wrap over to the other dowel end and attach it. Now put the 3 panel assembly onto the top cap. Next, slide the bottom cap down the handle and catch the open end of the panels. Now that it is together you can locate the holes for the bottom retaining dowel, just as you did the first time. Once the holes are made on the lower end, assembly is complete when the dowel and rubber band are placed. Make sure the bottom retaining dowel holes are well away from the edge of the tube so they don't break through the bottom.



The light overall weight of the sign is taken on the top triangle by the handle end. The 2 dowels just allow the top and bottom caps to trap the 3-sided panel together.

IF YOU WANT- Consider making a small cup to attach to your belt. It can be cloth, leather, or even an actual mug. You can set the bottom of the sign handle into that cup and hold the handle in position with one hand. This means you never have to put the sign down.

### **DRESSING THE SIGN WITH YOUR IMAGES:**

A) You don't have access to make a graphic on the computer? No problem! Lots of people hand-letter them or buy pre-cut letters to stick on. Just attach directly or find some foundation paper and decorate that. You can attach the foundation paper as described below.

B) Using computer printed graphics. You can have them printed as the big image, but it might be a LOT less expensive to print them as 8x10 images on regular paper. **Most home computer inks will run if they get wet.** You can either spray lacquer over them or just get them printed on a Color Copier because that color is a plastic toner fused on with heat.

Make your image for each face and wrap it around the sign. There are four ways to do this.

REMEMBER: there is a little extra space needed at the edges to account for the corner where the boards bend. The first two make a collar that you simply slip over the sign so it traps between the end caps with the panels. Use a tape measure to check the overall distance of wrapping around the assembled sign. Also remember that the lip of the end pieces will cover a bit of your image, so when you design the image, be sure to account for that. The next actually attach the images directly to the panels, meaning to change it you need to either cut them off or put something new on top.

1) You can have the printer use a wide roll to print all three next to each other (make sure you add a space between them). Then you just wrap it around the sign. Or-

2) You can print the images separately and tape all three full images together at the edges to make a long roll that wraps around the sign. You might keep the outside white margin to make up the distance added as it wraps around the edge joint. An alternative would be to tape or use spray adhesive (photo mount spray), or some other type, to attach the pieces to a strong foundation paper. Like in (1) above, this collar is removable. Or-

3) You can use some tape on the edge of the image to fasten it directly to each sign panel. Just tape to where the clear packing tape is on the sign body and you won't peel paper if you remove it later. Or-

4) You can just use an adhesive, such as a spray mount, to attach your images to the panel faces.

### MAKING THE IMAGE AS TILES:

A good way to make a sign face is to piece together print-outs from a computer. Set up a file in a computer program like Photoshop (or the freeware version such as GIMP).

1) Make a file that is the dimension of your panel face, but in low resolution, like 200 dpi. So in our case it will be 30 inches high and 20-1/2" wide (going part way around the corners).

2) Import images and lay text as you wish.

3) Use the Guides to create lines dividing the image into 8x10 inch (or less) sections. On a vertical sign 20x30 you would make your guides divide the image into 2 columns 10 inches wide with 3 rows 8 inches high, and a 4<sup>th</sup> row 6 inches high (or make 4 rows all 7.5 high by 10" wide so they are equal. It doesn't matter, as long as it fits a standard piece of printer paper).

4) With the guides set to constrain the selection, use the selection tool to copy each section, and then make each one it's own separate image file (figure 1).



5) Print each image piece, cut them from the white edges, and join them on the back with tape. (See illustrations below).

*Fig 1. Selecting 8x10 inch pieces using the guides.*



Fig.2 Trim Pieces



fig 3. Add tape tabs



fig. 4. Place tiles



fig. 5

TIP: It is easier to adjust placement and get a good fit if you do the following:

- a) Trim VERY accurately (figure 2).
- b) Cut small pieces of tape as “tabs.” Attach the first to a yardstick to hold it in position. Start with the middle tiles and work outwards. (figure 3)
- c) Use 2 tabs of tape at each joined edge. Reposition as necessary. (figure 4).
- d) Use mouse pads or other panels to keep tiles flat as you attach them. This helps keep it aligned. Then tape the pieces along the whole joint. (figure 5).

6) You can make 3 identical sides or change the theme. You will now decide how to attach the image panels or collar to the sign as described above. Place the sign images onto the panels *BEFORE THE PANELS ARE SET INSIDE THE RETAINING LIP.*

If you use a collar method, don't make it super tight. Just snug.

## ASSEMBLY:

- 1) Put the top cap on the floor and insert the pole. Secure it with the peg and a rubber band.
- 2) Unfold the sign and put the image collar onto the sign if it isn't already attached.
- 3) Put the sign into the top cap.
- 4) Drop the bottom cap down the pole and fit it onto the sign. Then secure with plug and rubber band.

FOAM CORE IS JUST PAPER AROUND FOAM- SO KEEP IT DRY!!!

It's a good idea to bring a large plastic bag in case of rain. A dry-cleaning bag is big enough.

## WHY THIS SIGN IS SO GREAT AND WORTH THE EFFORT TO MAKE IT:

The beauty of the design is that it conveniently comes apart and the large parts fold up. It can fit into any car. It is super light weight, and it is sturdier than many single panel signs. As a bonus, it is easy to create different images to display.

But the best thing is that your sign can be seen and understood from any direction. If you stand on a corner, everybody in every part of the intersection can see your message. If news media take a picture, your sign is facing the right way, even if you are not.



Finished blank



Full set:  
Sign,  
Support cup on belt  
Clip board with fliers