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Engraved ADA Signs- A Step By Step

This lesson is designed to walk you through the creation of an ADA-compliant, 8” square, framed restroom sign.

You will need the following items:



- Your engraving table & computer
- One piece of 1/16” Gravo-Tac, 7.92” square, in a dark color

Note



Before engraving anything, you need to remove the protective film on all materials.


- One piece of 1/32” Gravo-Tac with adhesive, in a light color (approximately 7” square; generally, you want a piece that is about 1/2” bigger on all sides than the text or graphics you are engraving)
- Your .010 Profile cutter (blue label)
- Your Raster Braille cutter (red label)
- Your Raster kit
- A small, pointed tool for weeding
- A stiff nylon brush for cleaning
- An 8 x 8” Modular Frame, in a color that complements the sign colors

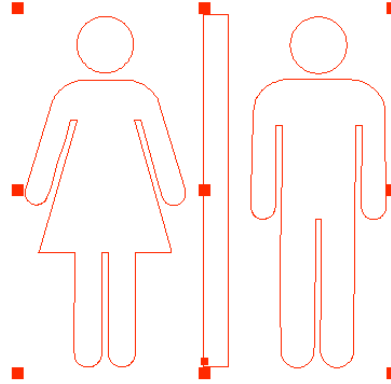
1. First, lay out the sign.


- Open your software, and set the material size to 7.920” by 7.920”. Don’t worry about the margin settings; you will be changing them later anyway.
- Enter “Manual Mode” by clicking on the  icon on the toolbar. The margins will disappear.
- Select the text tool , click on the work area somewhere near the bottom, and type the word “RESTROOM” in all capital letters. Select the word by double-clicking on its baseline, and set the size to 5/8” (0.625). Change the font to Arial Bold by clicking on the pull-down menu on the toolbar, selecting the font you want, and pressing “Enter.” You could also use Helvetica, Futura, or any other “non-serif” font.



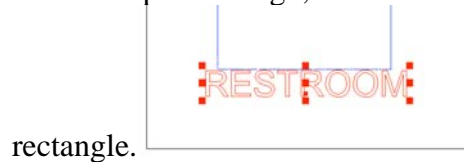
- Now you need a pictogram. Click on the Select Mode , then the  to open the Symbols Library. Choose Pictograms, and scroll over to find the pictogram with a “man” and a “woman” symbol, with a bar between them. Double-click on this pictogram to insert it into your layout.

- Move the pictogram to the top of the sign using the  tool. Click on the center “handle” and drag the pictogram into place. If you need to resize it, click and drag one of the corner handles. To precisely resize it, press “F2” while dragging one of the handles, and enter the size you want. It should be about 4_ to 5” high.






- ADA regulations require precise placement of the pictogram and the lettering. A simple, fast way to do this is by drawing rectangles to help you align the parts of the sign. Click on  to draw rectangles.



- The distance from the top of the word “RESTROOM” to the top of the sign needs to be 6”. Draw a rectangle 6” high (it can be any width), move it to the top of the sign, and move the text so it touches the bottom of the

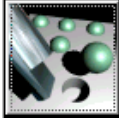


- Now draw a rectangle _” high, place it at the top of the sign, and move the pictogram until it touches the bottom of this rectangle. You can now delete both rectangles.

- Center the text and the pictogram left to right by clicking on . Select the text, and click . Then select the pictogram and do the same thing.

- Your sign layout is now complete except for Braille. To add Braille, click on  again, this


time in all lower case. Click , and then . A box labeled “Grade 2 Braille” will appear. Check to make sure

your spelling is correct, click , and then “OK.” Your text will be translated into Braille.



Note

You can edit Braille at any time by simply double-clicking on it. This will re-open the “Grade 2 Braille” box, and you can edit the text.

- Braille needs to be 3/8” away from anything else on the sign. Draw a rectangle 3/8” high, move it under the text, and move the Braille until it touches the bottom of the rectangle. Delete the rectangle, and use  to center the Braille.

- Save your layout. It should look like this:

2. Next, attach the 1/16” base piece of material to the engraving table in the correct spot. Usually it will be at the upper left-hand corner of the table, as you are facing the front of the machine. Attach it with the table’s clamps, or with thin double-sided tape.

3. Remove the backing from the 1/32” piece of material, and place it over the base piece, centered left-to-right, and about “_” down from the top. Smooth it down with your hand to adhere it to the base piece.





4. Turn your spindle micrometer to 0.035”. (Starting from your zero point, turn it up one turn plus 10 hash marks.) This depth will cut through the 1/32” material and the adhesive, and just barely touch the 1/16” base material.

5. Adjust the spring on the spindle to allow for about 1/8” of up-and-down movement when you press upward on the spindle.

6. Using the arrow keys or joystick on the machine controller, move the spindle somewhere over the top material. Press “Z”, and use the arrows to lower the spindle until the nosecone touches the material and the spring compresses slightly. Don’t “bear down” with the spindle; light pressure is enough. Press the check mark to save this setting.
7. Install the .010 Profile cutter in the spindle and look, to make sure it’s sticking out of the nosecone slightly.
8. At the computer, select the pictogram and the word “RESTROOM.” Select Machining.



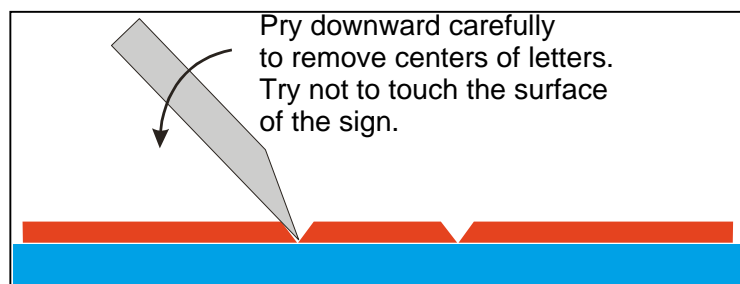
The Machining box will appear. Set the engraving speed by clicking on  . Set the speed to maximum for both X/Y and Z by clicking on the “speedometers” until the needles are to the right. You can click “Preview” to see what you’re going to engrave, as well as double-checking the placement of the material on the table. If everything looks good, close the preview window and click “Run.” The machine will now cut out the pictogram and the word “RESTROOM” in the top material.

9. Once the machine stops, look at the cut lines. Can you see the base material in the bottom of the lines? If not, you need to cut deeper. Don’t remove the sign; just turn the spindle micrometer about 0.002” deeper (two more marks up) and press “GO” again.
10. Once you are satisfied that you have cut deep enough, remove the sign from the machine, and carefully peel up one corner of the top material. Pull away this excess material carefully, making sure the letters and pictograms don’t come with it. If they do, you didn’t cut deep enough.

Note

When you are making many signs, it is important to remove the excess material and weed each sign right away. The PS adhesive gets stronger with time as well as with pressure, and cleanup becomes more difficult the longer you wait.

11. You should now have a piece of material with a men/women pictogram and the word “RESTROOM” on it. You will notice that the



centers of the “R’s” and the “O’s” still have excess material in them. Removing this excess material is referred to as “weeding” the sign. To weed the sign, you will need a small, pointed object, preferably metal. Avoid using a hobby or utility knife blade, because it’s easy to break off the point, or damage the surface. Carefully pry the middles of the letters out without touching the surface of the back plate. It takes practice, but it’s not difficult.

12. Now you should clean off the loose chips clinging to the sign. To do this, use a nylon brush and scrub the surface. Don't overdo it, or you will scratch the sign. Blow the chips away with compressed air after you've loosened them with the brush.
13. Examine the edges of the letters and pictograms. If there is any excess adhesive around the edges, it can be removed with a wooden toothpick. This will remove the glue, but not damage the surface. If there is a lot of excess glue, try cutting 0.001"-0.002" deeper on the next sign, and the cut should be cleaner.
14. Now it is time to add Braille. Put the sign back on the table where it was, remove your Profile cutter, and turn your micrometer back to the zero point.
15. To add Raster Braille, you need to first drill holes, and then install the Raster Beads. Dial your micrometer to a depth of 0.043" (from your zero point, one full turn plus 18 marks) and install the red-labeled Raster Braille cutter.
16. Select the Braille, double-click on it to check the spelling, and then choose Machining.

Note

The depth is automatically set at 0.040". This is so you don't have to reset the Z between cutting the letters and drilling the Braille holes. Check to make sure the right tool is in the spindle, and click Run.

17. Once the holes have been drilled, remove the sign from the machine and blow out the holes with compressed air. Follow the instructions in your Raster kit to insert Raster Beads into the holes.
18. Choose a frame for your sign. Select a Modular frame in a color that matches or complements the color scheme. Lay the sign in the frame to check the fit.
19. Install snap locks in the frame in the appropriate holes. For this sign, you should only need four, one in each corner. Peel off the paper backing on the snap locks, align the sign face to the top edge of the frame, and press it in place. Pop the sign out of the frame and press the snap locks firmly against the back of the sign by hand. Then snap the sign back into the frame, and your first engraved ADA sign is complete.