

the Layer Table

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The Layer Table is designed to match the Layer Chair. The parametric frame can be adjusted to fit any plate size. So whether you have a plate of stone, glass, metal or wood, you can make a tailor made frame with the Grasshopper definition.

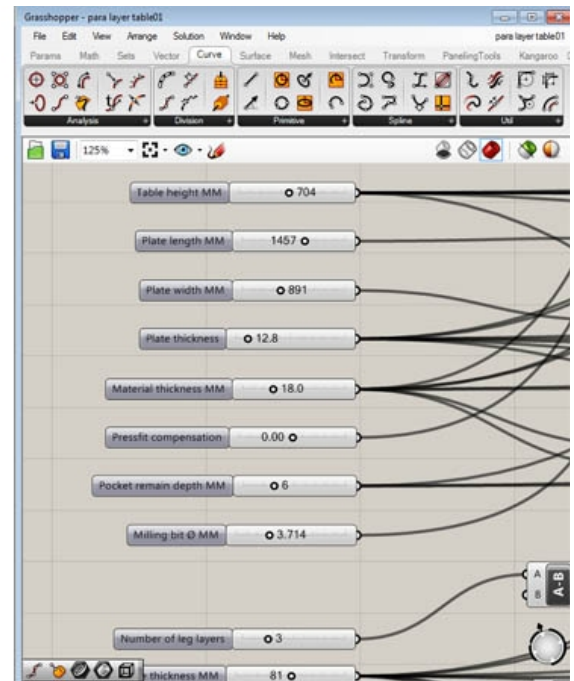
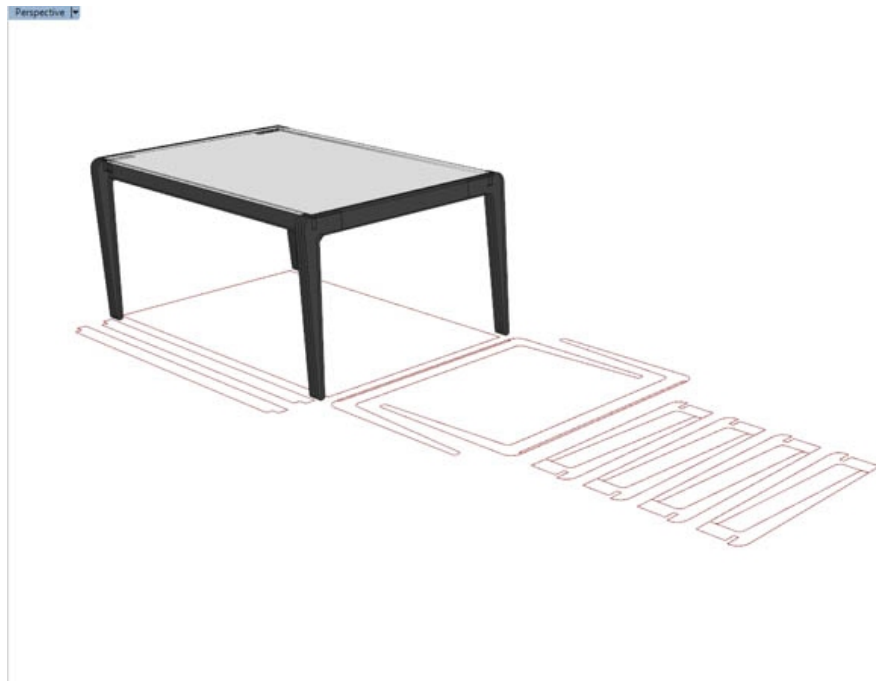


This table frame was made to match a plate of Trespa measuring 1020x700x12mm. The parametric system lets you change the table height, length and width. You can also set your material thickness, the proportions of the round edges and the number of leg layers.

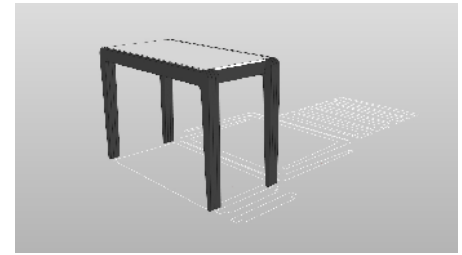
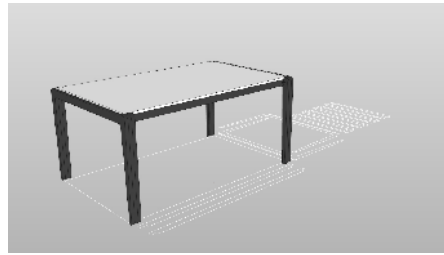
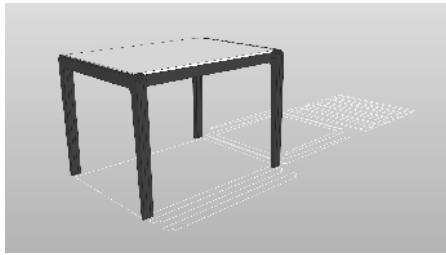
Points of improvement:

- Gluing takes long
- The structure is medium strong for a table. The next version should have some form of wedge and press fit combination.
- It would be great if you could take the frame apart for transportation.

Adjusting the design:



Use the sliders to find your favorite design. You need to be precise about your plate size. It could be smart to add 0.5mm of margin. The more leg layers you add, the sturdier your table becomes. You can also vary the sturdiness with the “Profile thickness” slider.



When you have found your perfect design you need to bake your lines to Rhino so you can export the vectors to your milling machine. All the way to the right in the definition you can find components for baking the cutting lines and alignment holes. Right-click the 2D parts button and choose bake.

Once you have baked the parts into Rhino, you need to nest them on a cut sheet manually. A smart trick is to group all the cutting lines and alignment holes per part together. Then you can easily drag and rotate the parts around for optimal material usage. You also need to draw your hold down holes manually. Have a look at the included Rhino and Partworks file for reference.

Once your cut sheet is ready, make sure it is lying on the XY plane of Rhino. If your curves are “standing” along the Z axis, Partworks will see your lines as single lines (like in top view). So always work in the top view when nesting vector files for the shopbot. Select everything and export as DXF. Use the default settings.

Programming your toolpaths:

Once in Partworks set the alignment and hold down holes needs to be “drilling toolpaths”. I used a 1/8 inch 4 Straight flute milling bit at 100mm per second, pass depth 4.5mm and a plunge rate of 15mm p/s.

The alignment and hold down holes need to be “drilling toolpaths”. The pockets on the side of the table should be a “pocket toolpath”, the depth of the pocket is your material thickness minus the pocket remain depth you specified in the Grasshopper definition. The cutting lines should be “profile toolpaths”, make sure that “Machine vectors” are set to “Outside”.

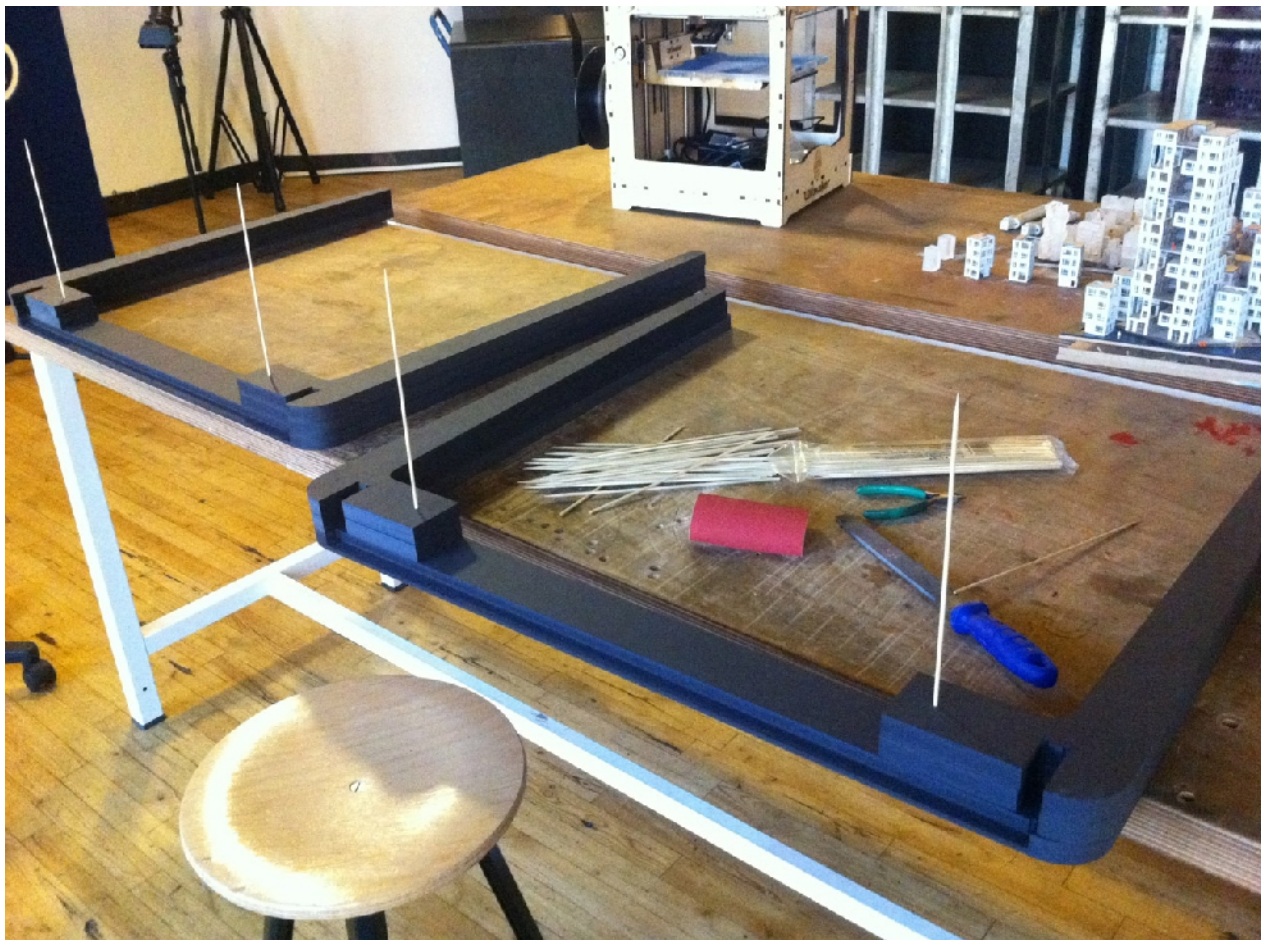
Export the hold down toolpath as a separate file. Export alignment holes, pockets and cutting lines as another file, make sure the cutting lines are the last toolpath on the list.

Milling your parts:



Run the hold down drill job and attach the plate with screws through the hold down holes. You can mill out a small test piece if you want make sure you have the right settings. Then run the file with all the part toolpaths.

Assembling the design:



Use wooden sticks of the same diameter as your milling bit and cut them to necessary lengths.



Apply glue to all the surfaces in contact and clamp the parts together. You can glue the whole frame in one go. Make sure you are well prepared before you apply the glue. Try to be as fast as possible between applying the glue, and clamping the structure. Better to have glue running over the edge, than using too little. If you wait about 4 hours, the excess glue is rubbery and easy to scrape of without smearing it into the mdf surface. I used normal wood glue.

Leave the clamps for 24 hours. Sand the frame and apply the tablet top plate. You can also apply some form of surface coating to make the frame spill proof.

Enjoy your table and please send me a picture if you can. If you build this table and would like to give a donation for my sharing of design and knowledge, my Paypal address is jens@dyvikdesign.com

If you want to make manufacture this chair for commercial purposes you need to make written agreement with me. You can reach me at jens@dyvikdesign.com

best regards from Jens Dyvik