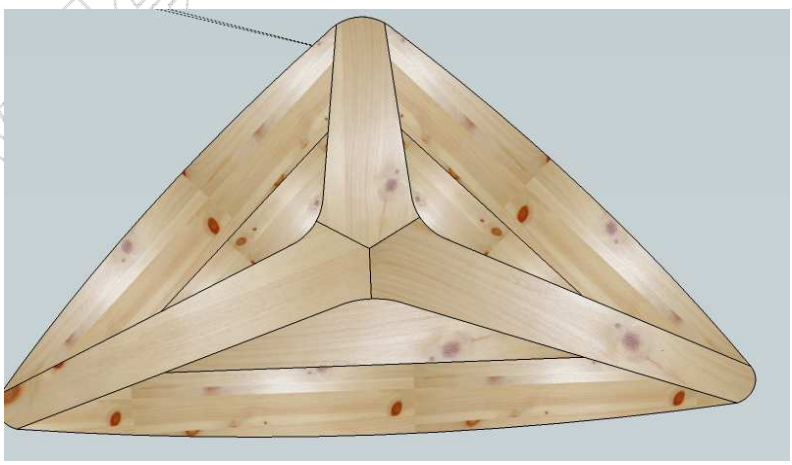
A little triangular table

by Santé

Presentation

To replace my rectangular coffee table, I first thought about doing a round table but looking much the space between the sofa and two armchairs placed diagonally, it seemed that there was a triangular space to exploit.
I first thought of an equilateral triangle, which I designed with Sketchup, but this form does not turned me on too. The space beside sofa is longer than that existing before the seats; I immediately accepted the suggestion made by my neighbour to do rather a triangle isosceles. After many tries, I finally got the form below.



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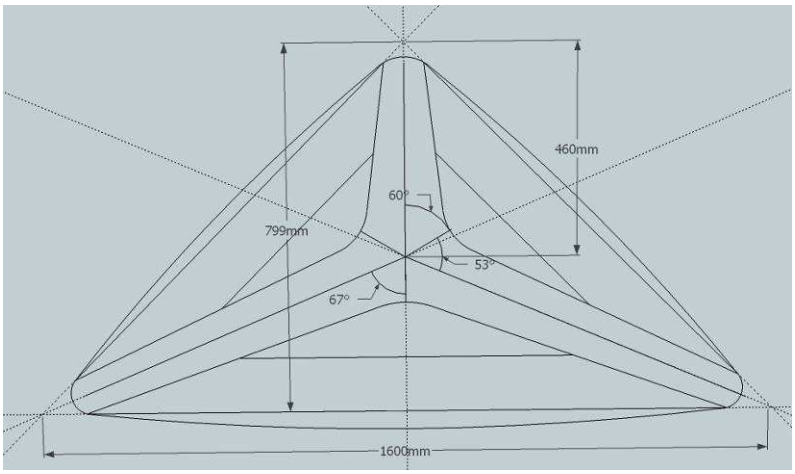

To visually balance the masses, I moved the focus towards the base. Thus, the axes of the two side arms are no longer at 120 ° to the third axis, but at 113 °. I, nevertheless, wanted to keep the angles of 120 ° at the juncture of three arms. So, for small arm, cutting will be at 60 degrees to the axis, but for the side arms, cutting should be done at 53 ° upwards and 67 ° down.

The base

For the base, I chose to do 'star' rather than triangle and rounded shapes to remind the tablet.

Before I even know with what kind of wood was going to make the top I decided to do the foot of larch which I had a large dip nets (150 x 150 mm x 1.7 m) planed 4 sides, lying past few years in my shop so I decided I decided to make 2 boards with it (40mm x 150mm.).

I used a 12 teeth blade mounted on a Bosch portable saw which has make his job with ease, but he remained in the centre + / - 20 mm I sawed on my table saw equipped with a blade of 350 mm, 80 teeth (not ideal for this job) output 85mm, I could easily take my two plates of + / - 45 mm and 150 wide.

For planning both boards (plus central board) my little China planer has struggled but has still done a good job. State flawless of the surface with just a little "tailgating" on the end! I do not know how long it will work, but so far I am satisfied (for the 180 euros it has cost).

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The two parts of each three legs are joined together by two strips of plywood 8 x 40 mm. The grooves were made with the blade "Tenor" which has a cut width of exactly 8 mm. The assembly of two parts of a leg is made on a panel / gauge with two rules at right angles. (I use this template to glue various assembling).

Grooves made with “Tenor” blader

90° mounting template

Making templates for legs

To route the three legs, I made a template that I glued with double-face, after cutting with scroll saw, I removed the surplus with the router (small Kress 450W and 20 years old, but so light to handle!). As the cutter with bearing on shank could not remove the entire height of the wood, I had to do it twice, the second pass using the part already routed as template.

For the manufacture of jigs, you must know that the hollow shapes (concave) are less feasible than those that are not hollow (convex), this can be easily adjusted to the belt sander or other sander tools. For hollow forms, I used a large cylinder sander "shop made" (see file JFT68 on this site).

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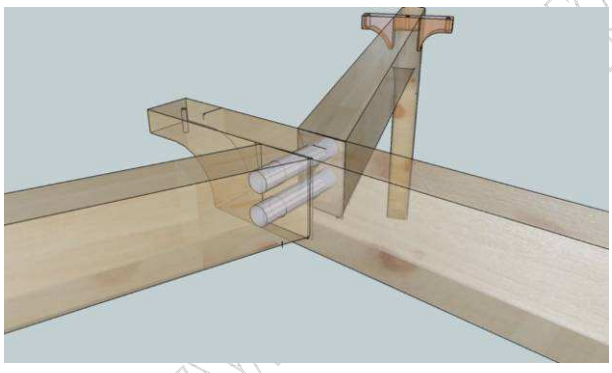
Larger the cylinder is, lower is the risk of making hollow in the template. (But it is limited to the tight curves).

Adjustment of a concave curve

Adjustment of a convex curve

Assembly

Once the legs are shaped, I set the length of the 2 lateral legs at angle of 67 °. When I find the location of the junction, I drilled two 16 mm holes in the central leg and clamped securely this leg and one lateral leg just in place; I used the holes in the central leg to drill holes in the lateral legs.
I then glued the legs together, with two 16 mm beech bars.



Virtual

Reality

The table top

For the tabletop, I wanted a hard wood, with warm tone and graining well marked to highlight the cuts of the tabletop. I decided for “wild-cherry ?” (merisier in French). So I bought 4 plates. I drew the tabletop on a paper sheet, scale 1 / 1 with all the cuts. I then drew this on a panel, which I carefully cut the edges, filed, sanded, etc. .. to obtain a template for future cut of the tabletop once it has been assembled.
After smoothing and planning the boards, I've assembled them so they could "get" the six components of the table plate.

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The central star

I have also prepared a template for cutting centrals angles of the table; these angles should be 120 degrees each. For the small central arm, no problem, the bisector of the angle follows the centre line of the piece of wood. For the two great arms of the star, I rotated the bisector of 7° from the centre line of the piece, but once on one side and once on the other so that these 2 parts are symmetrical.
I cut this angles, not on circular saw, but with router with a copy bit (bearing on the shank).
When the three angles were cut, I made a 8 mm groove in each edge. I first assembled the two great arms with 8 mm plywood. I had to slightly adjust the angle of the small arm so that it just fit with the other two sides already glued.

Cutting a central angle

Assembling the three arms of the star

The templates for complementary routing

For cutting and fitting a curve, must be used, of course, the complementary routing system.
I had at my disposal, guides bush of 14 and 24 mm.
Therefore I will need to use a bit of: 24 minus 14 = 10 mm, 10 mm / 2 = **5mm**.

Calculation of the « Offset »

The offset is the difference between the template and the place of the cut.
For the little guide, the template is fixed on the fall: the offset will be equal to the small guide radius (7 mm) + cutter radius (2.5mm) = **9.5mm**.
For the large guide the template is on the piece to keep, the offset will be equal to the large guide radius (12 mm) - the cutter radius (2.5mm) = **9.5mm**.

The cutting of the two parts will reach exactly the same place relative to the template, therefore, these pieces will absolutely fit.

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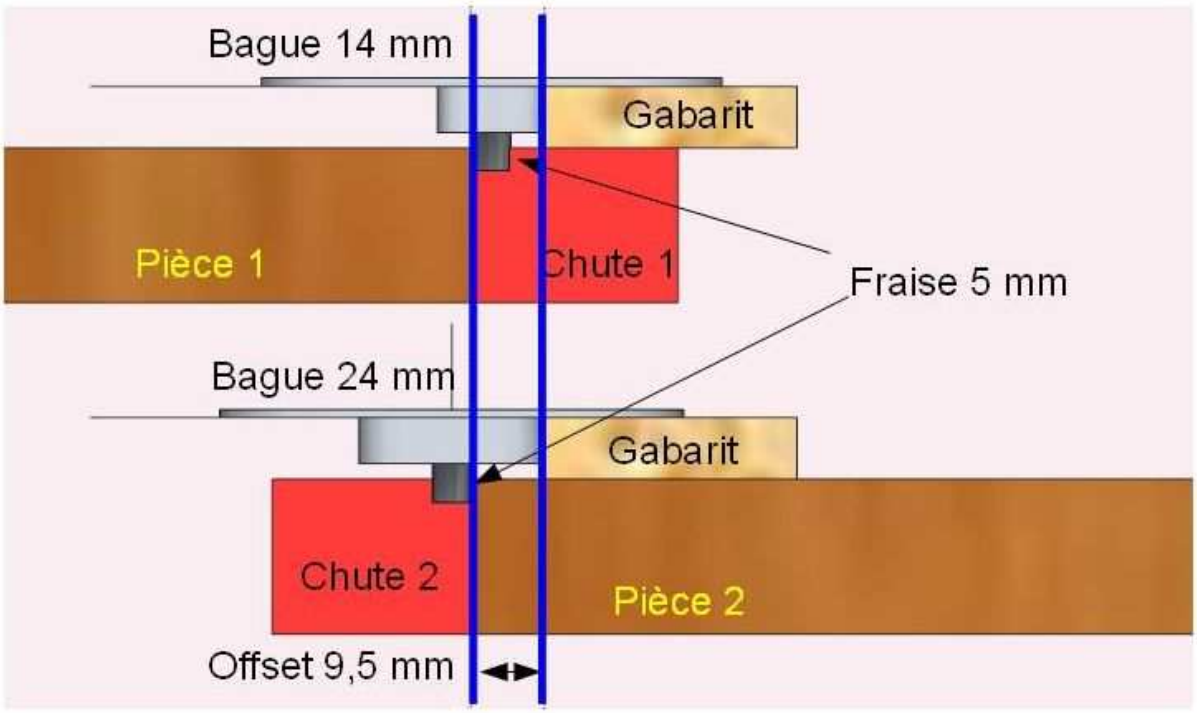
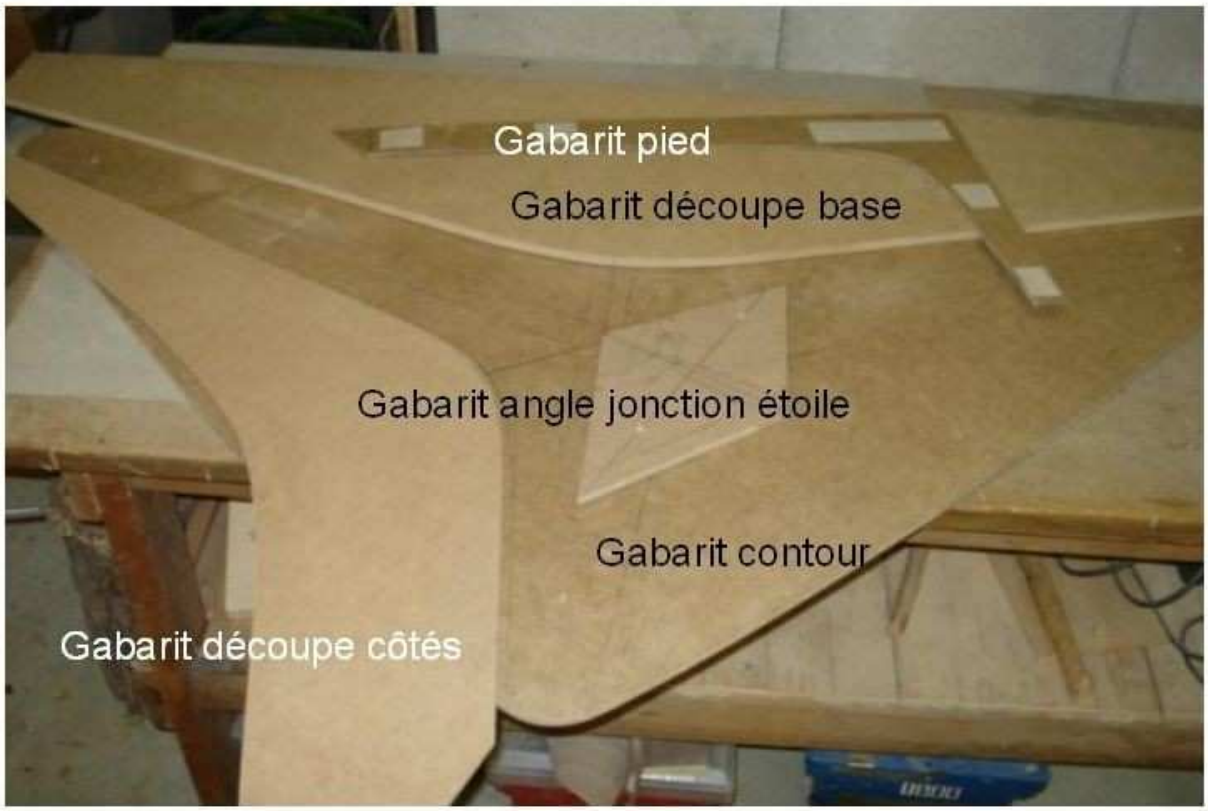


The two main templates curves (base and sides) have been cut with 9.5 mm offset. It goes without saying that, from the quality of the edges of these templates, will depend the quality of the cuts of the table.



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First I cut the 3 convex shapes (not the star) with the 24 mm guide. In three passages of the 5 mm bit mounted on my little old 450W router, to get a groove of + / - 8 mm deep, I cut the pieces into the groove with scroll saw and finish the cut with a copy bit, bearing on the portion already routed.
I cut the sides of the star in the same way but with the 14 mm guide, template located outside of the star clamped on the parts already made. A good "clamping" of all these parts and no problem for the cut.

Assembly

I chose Lamellos for gluing the pieces together, not so much to consolidate, but to do not have problem with trimming between these parts. I discovered on this occasion, a small problem of countersinking in the hollow (concave) sides, the lamellar tool touching part, the centre is quite remote from the piece, the hole has not the desired depth, then at the vicinity of hollow parts, I put lamellos No. 10 instead of No. 20.
When gluing, clamping work also raised concerns, the clamps were inclined to glide I had to glue small pieces of wood to hang the clamps. But the curves coincided with greatest precision.

It only remained to cut the outline, always with a scroll saw to cut crude and finish with router and copy bit, bearing against the template.
For shaping the edge of the tabletop, I chose a ¼ round bit ¼ inch for the top and ½ inch for the bottom.

Finish

After good sanding, 3 coats of impregnation (Osmo product) sanding between coats and the result is perfect.

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