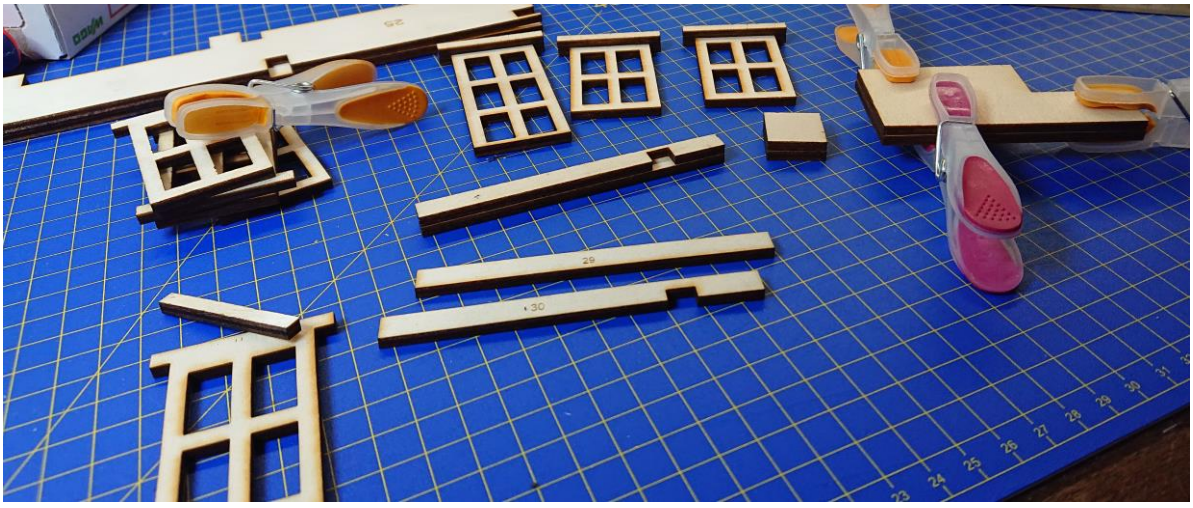
Assembly Instruction Plywood House

Preliminary note

The project was made from 4mm plywood. For testing, the cheapest cottonwood from the local hardware store was used. There are twelve sheets for 4mm plywood and one for white opal acrylic glass (I took 2mm).
My K40 Laser has a usable working area of 190 x 260 mm, so each sheet is within these dimensions. In the drawings red is for cutting and blue for vector engraving. The sheets are provided in versions with and without part numbers.
Most plywood I got has one good and a more ugly side. When cutting you would have the good side up so the numbers will be engraved on this side too. My recommendation is, to not use the sheets with engraved numbers so there is no chance that they will be seen on the „outer Hull“ of the Modell. For part number reference the sheets could be printed on Paper.
As for glue I used white glue / wood glue mostly and superglue for parts, that need to stick in place instantly.

Preassembly

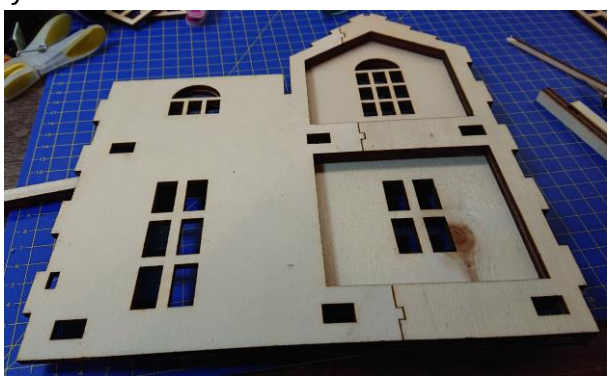
Each of the seven windows F1 got a fall F2 glued on it´s top. Same with the door T1. Each of the three porch posts consists of one part 29 and one 30 or 31. Part 25 & 26 respectively 27 & 28 are the porch floor and ceiling. Before gluing together, keep in mind that the slots in the ceiling are facing down respectively up on the floor part. For the porch support left side glue the two parts 32 together and 33 for the right side



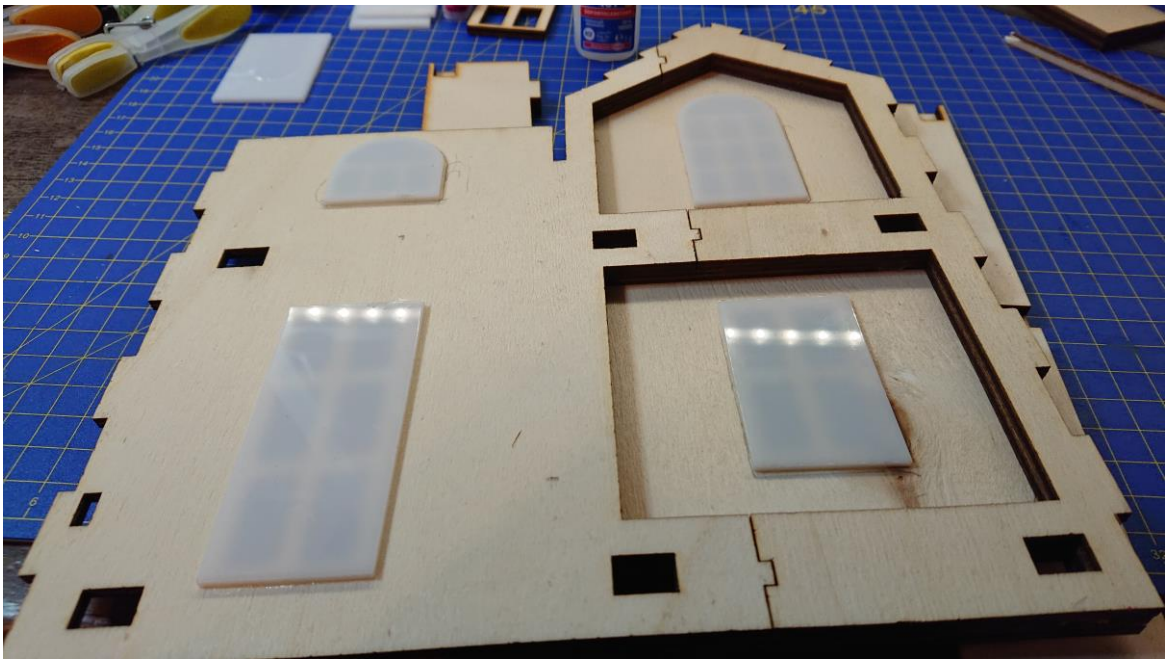
If you want to paint the model, some of the parts might be painted now, before gluing them to the other parts. As I am not good at paint shops I left me my prototype unpainted ☺

Assembly

Place parts 1a and b together flat on the table. You can glue the edges together but it is not realy needed. Ensure both parte lie flat and are aligned. Glue part 2 aligned overlapping on part 1a and 1b. Then part 3 on top of part 2. This „pack“ needs to cure properly. It is the front part and if not build precisely the whole house will look „inclined“.
Next glue the windows (preassembled) to the outer walls 4, 5 and 6. Glue the rounded windows R1 and R4 on the front wall (1a, 1b, 2 and 3). Glue the implied shutters R2 & R3 approximately 1mm next to R1 and R5 & R6 next to R4. Do not glue the door on the front because it might not sit tight on the porch if you do.



Now from the inside of the wall parts glue the matching opal acryl parts „behind“ each window. There should be a 5mm margin for gluing.

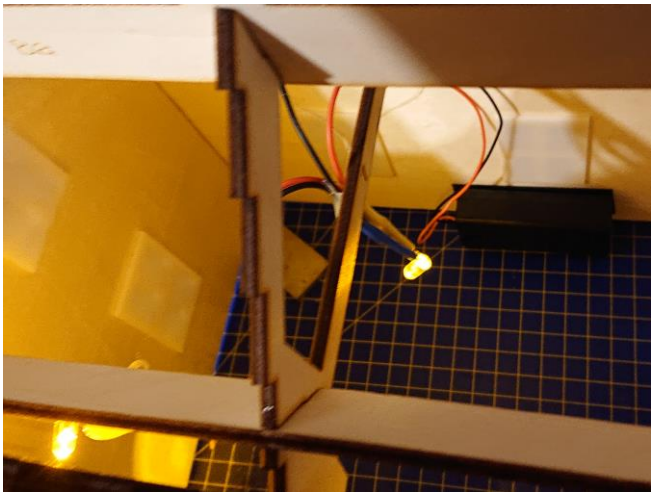


For gluing the walls together a lot of aligning needs to be done. I used an iron 90 degree angle and some neodymium magnets for this. The iron angel is normally used for masoning and can be bought an every hardware store (at least in Germany ☺).
After aligning I use highly fluid superglue that runs between the parts to lock them in place. I´m sure there are a lot of other methods to do this right ☺.

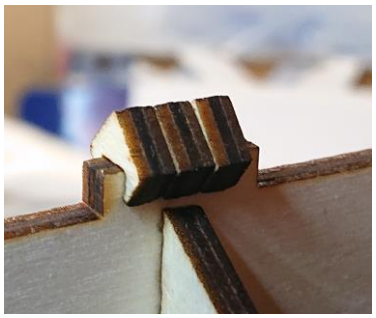
Now for the roof. First glue part 7 in the slots between the front and part 6. The slightly longer „nose“ belongs to the front side. If you switch sides the end plates on the long side of the roof will not fit. Next come the roof beams 8a in the mid and 8b left and right from the mid. The beams will only fit in one direction.

There are two roof end plates 9 for the short sides. I would recommend only gluing on one side yet. Preferable the right side, seen from the front. If you glue the left side now there will be a problem fitting in the small roof panel 11b. The roof endplates need to be slided in from the side on the „noses“ of the roof beams 8.

If you plan do to some kind of illumination, like I did with prototype, now would be a good time. After closing the roof you would have to work in very limited space. I used two blinking LED´s from old tea lights. The LED´s were soldered in parallel arrangement to a battery box. I velcro striped the battery box on the rear wall near the lower edge. Some small blobs of hot glue holds the LED´s or the cables on the beams. One directly behind the big rounded window and one hanging in the middle of the house.



Next we will close the roof. Begin on the back side of the house. All roof panels 10 will lie on top of the side walls with their side edges ending against the side of the end plates 9. The panels overlap each other for about 5mm. Take some panels and lay them out from bottom to top without gluing them together to get a feeling for the construction.
Start gluing on the bottom of the backside roof. Glue five part 10 panels to the house. Next comes the front side, which is slightly more complex. First assemble parts 11a, 11b and 12 again without gleaning them to see how it fits together. Start gluing with part 11a, then 12 on top. 11b can be slide in place from the side. Don´t push it too far in or you will create a gap between 11b and the end plate 9. Now glue the remaining three panels 10 in place.
Afterwards glue the end plate 9 on the left side of the roof. To close the roof with a nice 90 degree angel we need to glue this little parts 13 on the upper edge of the middle beam 8a. Put four of the small parts on one end of the beam. The first outer one fitting against the inner side of the end plate 9. Put three of the part 13 right in the middle of beam 8a. Beam 8a has sort of „humps“ around the area where the parts 13 belong. The remaining part 13 will be left for the small roof.



Glue the two panels 14 on the roof, one from the backside the other one from the front. The panels should fit (and glued) against the lower side edges of parts 13. The last two panels 15a and 15b for the roof have different width so that, seen from the side, they can form a isosceles triangle and close the roof. Test how the panels seat on the roof before gluing.
Now glue the back 23 and front 24b and 24a end panels under the roof. They should fit exactly under the lowest roof panel between the end plates 9 for the backside part and end plate 9 and part 7 for the right front side. The left front side is a very small part 24a.

For the small roof the beam 16 is glued between the front and the main roof. Inserting part 16 is a little bit tricky. Either you snap it in from above or you can try to slide it from a tilted position. Either way the beam should have a nice 90 degree angle to the main roof an run parallel to the „ground“. Now put the panels 17, 18 and 19 on each side of the small roof from bottom to top. The edges that goes to the main roof should interlock with the panels on it. See that the panels are positioned parallel to the „ground“. Next glue the front face part 20 on the front edge of the beam 16. Put two part 13 on beam 16 behind the front face part. There are two parts 20 but you only need one. Spread the rest of part 13 on the beam 16. One near the rear end and the others in between. Close the small roof further with one panel 21 on the left and right side. Panels 22a and 22b have different width and will work exactly like their counterparts on the main roof.

With the roof completed the porch needs to be added. First locate the preassembled porch floor. It should fit in the slits on the lower front of the house all the way in. The gaps for the porch post should face up. Glue the left (seen from the front) preassembled support (2x Part 32) approximately 5mm from the front and left border on underside of the porch floor. The preassembled for the right side (2x Parts 33) go underneath the right side of the porch floor also 5mm from the right and front. Align the step part of the support roughly with the door. Glue the porch floor to the front of the house. Ideally the porch floor connects completely to the front wall with no gaps. Now glue on the ceiling of the porch in place. The gaps for the porch post needs to face down on this part. While gluing put the posts in BUT DON´t GLUE THEM IN YET. For now they should only support the upper side. Proceed only after the floor and ceiling are completely cured.

Search the short handrail part 35 and the preassembled post 31&29, that one with the largest notch in it. Test how the post and the handrail fit on the left side of the porch. Center the handrail between the wall and the post. What is left of the notch should face to the door. Glue the parts in place. Search the longest handrail part 36 and one preassembled post 30&29. Test how the handrail fit between the left post and the new post right left from the door. Glue them in place. The last handrail part 34 needs to be centered between the front wall and the last remaining preassembled post 30&29 on the right side of the porch, looking on the front of the house. To close the slits for the posts use 6x part 37. There are some spares because these tiny parts tend to get lost in the laser or elsewhere.

And that was all, your done ☺

Added Chimney

I was asked to add a chimney. So first glue the two parts 39 together. Then add one part 38 on the one side and one on the other. Put part 40 on top of it and part 41 on top of that. The chimney should fit anywhere, except on the roofridge.