*[This text has been translated from the original in Spanish, whose version contains illustrations and can be read **here**, in the Taller Ecologista website]*

Make a Solar Oven from a Wooden Box

We tested various models in our workshop, and got some of our best results from the ULOG design. This model is a little more complicated to build than the others, but, don't worry, it's still pretty simple.

We have successfully used 6mm sheets of oriented strand board (OSB) for the external box, and pine wood for the slats.

Required Materials

Number	Quantity	Description	Dimensions (cm.)	Material
1	2	Glass panel	50 x 50 x 0.3	Glass windowpane
2	4	Frame for glass panel	54.9 x 6 x 2.2	Wood
5	8	Support slats	49.5 x 1.4 x 1	Wood
6	4	Spacing slats	49.5 x 2.4 x 1	Wood
7	1	Reflecting lid	55 x 55 x 0.6	Multilaminated wood
9	1	Reflecting sheet	55 x 55 x 0.01	Aluminum foil
11	2	Hinge	3 x 3	Galvanized steel
12	1	Support for lid	50 x 1.5 x 1.5	Wood
13	1	String	0,3 x 100	Nylon
14	1	String tensioner	3.5 x 1.5 x 0.5	Multi-laminated wood
15	2	Containment slat	25 x 2.5 x 1	Multi-laminated wood
16	2	Retention block	5 x 2 x 2	Multi-laminated wood
17	2	Side panel	66.5 x 6.3 x 1.5	Wood
18	1	Front panel	55 x 4.3 x 1.5	Wood
20	1	Back panel	55 x 7.4 x 1.5	
22	3	Handle 16,5	Galvanized steel	
23	1	Interior box	78 x 78 x 0.03	Aluminum offset printing plate
25	2	Side panel	50.5x 8 x 2.2	Pine
26	1	Lower panel	66.5 x 7 x 2.2	Pine
28	1	Upper panel	66.5 x 9 x 2.2	Pine
30	4	Joints	15 x 7.5 x 0.8	Pine
31	2	Side panel	60.5 x 43 x 15 x 0.6	Multi-laminated Madeira
32	1	Front panel	66.5 x 15 x 0.6	Multi-laminated Madeira
34	1	Back panel	66,5 x 43 x 0,6	Multi-laminated Madeira

36	2	Front feet	30 x 4 x 4	Pine
37	2	Back feet	56 x 4 x 4	Pine
38	2	Support slat	51.5 x 2.5 x 1.5	Pine
39	2	Support slat	58.5 x 2.5 x 1.5	Pine
41	1	Back panel	67.5 x 60.5 x 0.6	Multi-laminated Madeira
42		Nails		Steel
43		Wood glue		
44		Paint		Matte black
45		Insulation material	thickness: 7 - 8	Mineral wool

BUILDING INSTRUCTIONS

Window

All wood joints will be done with glue, if possible. To build the window, cut 4 slats [2] to make the frame for the glass. On one side a peak; on the other an inlay.

Join the four slats, making a right angle frame.

Attach the 4 support slats [5] to the interior side of the frame, level with its upper edge, using 3 screws in each one, but without glue, so you can remove them easily if the glass breaks. It helps to drill the slats beforehand.

Next, insert the glass, fixing it in place with 4 spacing slats [6] (these separate the glass panels), using 3 nails per slat.

Before placing the second glass, make sure that both glass panels are clean.

To avoid fogging the glass while using the oven, treat the interior surfaces with glycerin soap. Do this by passing a soapy brush a few times over the entire glass surface.

Then wipe off the soap marks, using a dry cloth, until the glass is clear.

To fix the second glass panel in place, use the 4 remaining support slats [5], attaching them the same way as the previous ones.

Oven

Take the 4 pieces that will make up the oven's structure [25], [26], [28]. Join them using the joint pieces [30]. Use 8 screws in each.

Attach the feet [36] [37] on each side of the panel [34], [32], using nails and support slats [38], [39].

Next, attach the side panels [31] using nails and glue.

Draw the interior box (see illustration) on a big enough sheet of aluminum foil and cut it.

Insert the aluminum box inside the frame, using 4 to 7 nails on each side, close to the edges.

Paint the back of the interior of the aluminum box [53] with black paint. Let it dry well.

Fill the space between the oven's exterior walls and the interior aluminum box with insulation. If you are using glass wool, it should fill the entire space. Do not press on it to put it in place.

Before building the back panel [41], cut a square out of each corner for the feet. Attach it using nails, but no glue, so you can remove it if you need to change the insulation.

Glue the sheet of aluminum that will act as a reflecting sheet [9] onto the reflecting lid [7]. Next, attach the hinges [3] so they are articulated with the window.

One way to keep the reflector from being blown shut by the wind is to use a system similar to a tent cover. Close the reflecting lid [7] onto the frame and drill with 0.5 mm holes, approximately 2 cm into the frame.

Also drill two smaller holes (0.3 mm) for the string, which has to stay attached to the window frame while pulling through a hole on the side.

Attach the handle [33] in the center of the front frame, leaving room for the fingers between the handle and the front frame.

To keep the window from opening, use two containment slats [15] and two retention blocks [16].

Inside the small box, place a black pot on a black tray.

You can also get good results using enamelled pans with thin sides.

All the photos illustrating the construction of the wood box solar oven were taken at the Appropriated Technologies Lab at Liceo Rural de Baltasar Brum. 2007.