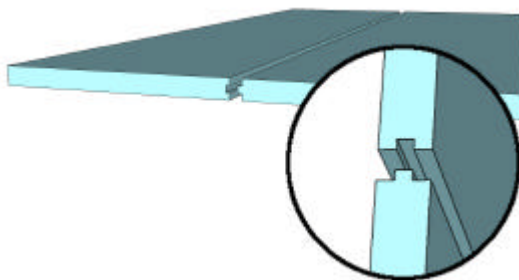


How to build your Sauno kiln dryer

The following description shows our recommendation how to build an efficient low price kiln dryer for indoor or outdoor use. We are here showing how to make a chamber that will fit for Sauno VT 3, but the description is universal and can be used for any size of kiln.

The kiln should be made entirely from stiff polystyrene insulation board, 50 mm thick, and our special screws. The polystyrene board with butt edges (without edge profile) can be ordered from building material stores. It must be a high quality insulation board with closed cells, low water absorption and skin surface. We recommend Dow Solimate, 300 BE.A.N, Paroc Ecoprim 957-00 or similar insulation boards with compressive strength of about 300kN/m² (0,3N/mm²) or more. The boards are normally 1200 x 600 mm or 2400 x 600 mm. If it is possible, try to find big boards. It will work with smaller boards, but it will take more time to build the kiln.

The screws are nylon screws, especially made for this purpose. You can order them with the aggregate.



Start to glue the insulation boards together to sheets that are big enough to form the floor, the roof, the sidewalls and the door. Make groove and tongue to assure that the joints are strong and tight. Use expanding polyurethane glue like Casco 1809 or similar.

The back side can be completed when you assemble the kiln.

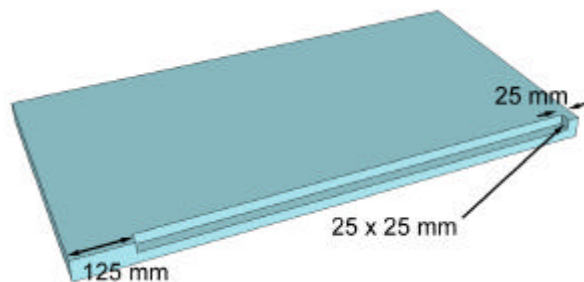


Cut the sheets to correct sizes. Straight and even cuts are necessary to make sure that the kiln will be tight.



Mould rebates on roof, door, sill and sidewalls of the kiln.

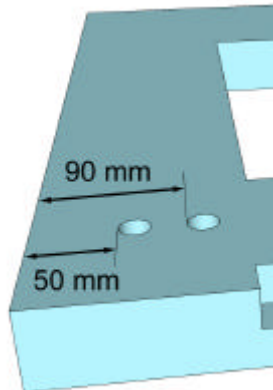
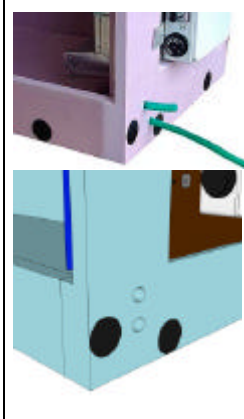
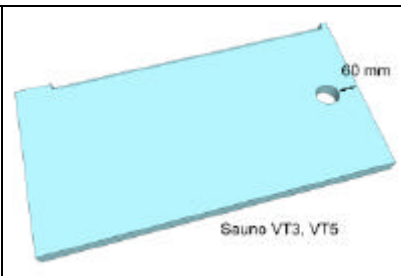
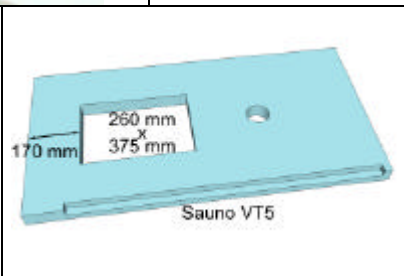
- The roof shall only have a 25 x 25 mm rebate on the front edge. Save 25 mm on each side.
- The door sill shall only have a 25 x 25 mm rebate along the upper inside.
- The sidewalls shall only have a 25 x 25 mm rebate on the inner part of the front edge. Save 25 mm for the roof and 125 mm for the door sill. (See picture below)
- The door shall have 25 x 25 mm rebate on the outside of the lower edge. The side edges and the upper edge shall also have a 25 x 25 mm rebate but on the inside of the door.



Make the ends of the rebates square.

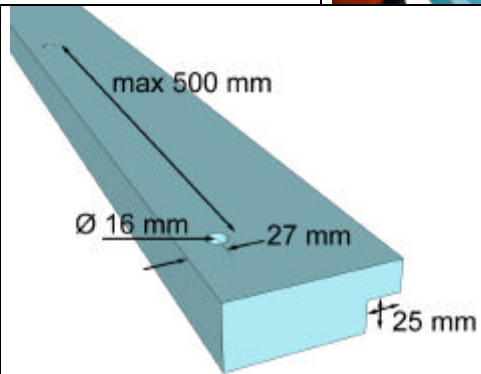


Make openings for aggregate and ventilation valves according to the pictures below. The openings are, as you can see, a few mm wider than the object.

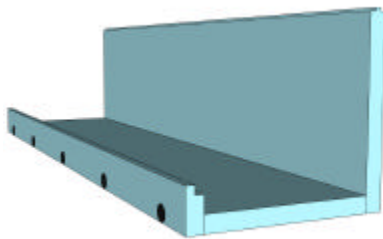


The kiln shall be equipped with two drains. One overflow drain about 50 mm over the floor and one drain on the floor level. The simplest solution is to drill two holes with a diameter of about 20 mm and equip the holes with a fitting plug. You can also make just one hole on the floor level and connect a hose. When the opening of that hose is placed about 40 mm over the floor it will work as an overflow drain.

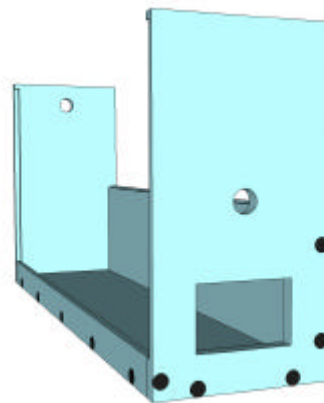
Gluing the joints with polyurethane glue guarantees that the kiln will be waterproof, but it is also quite sufficient to cement the joints from the inside of the kiln. This method is an advantage if you need the opportunity to demount the kiln.



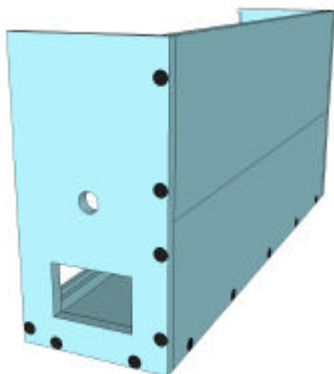
Mark the positions of the nylon screws and make the holes $\text{Ø } 16 \text{ mm}$ ($\pm 1 \text{ mm}$) with a router.



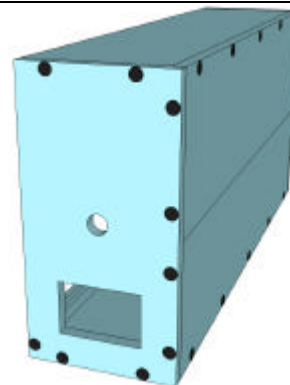
Screw the sill and the back wall to the floor.



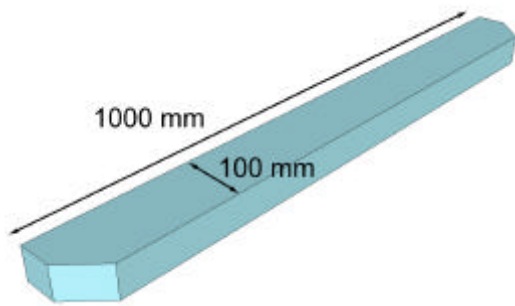
Add the sidewalls.



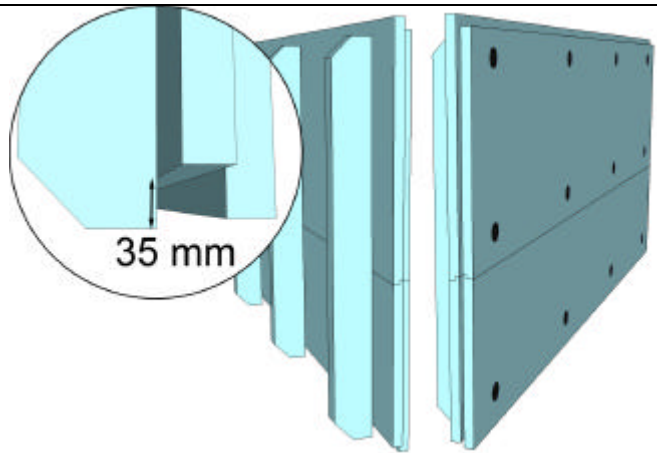
Complete the back wall.



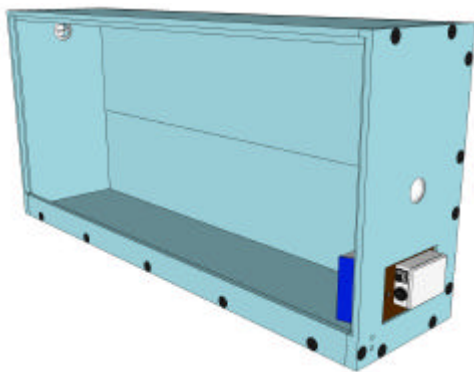
Install the roof.



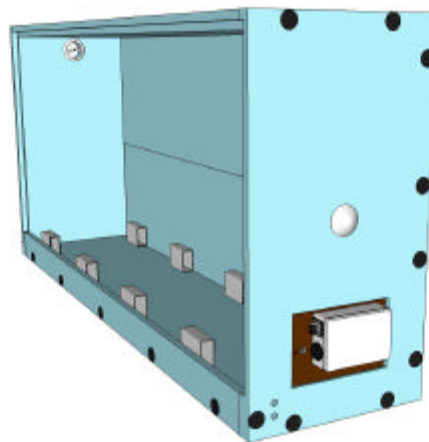
Make the handles from left over pieces.



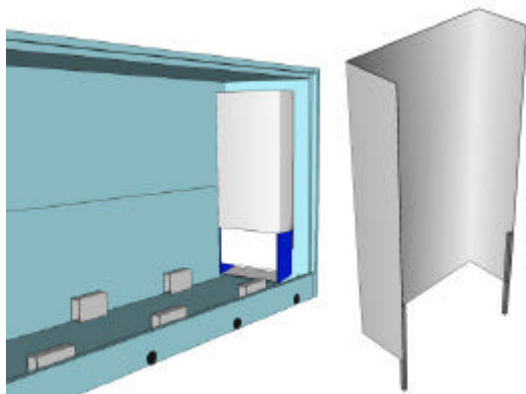
Attach the handles to the door with nylon screws from the inside.



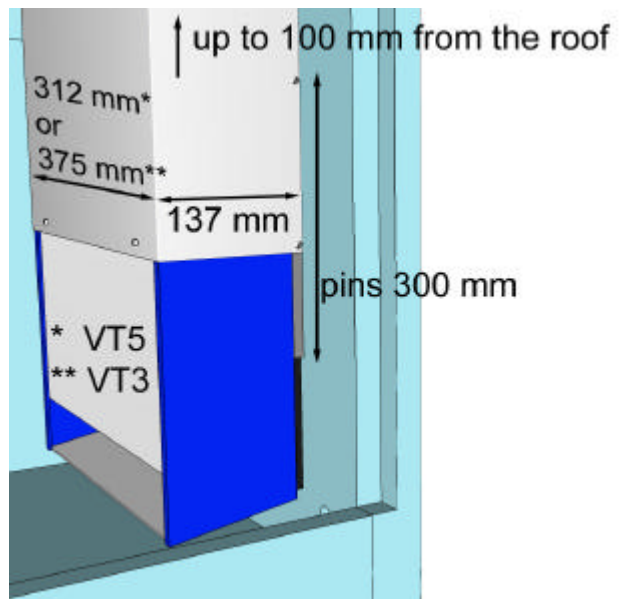
Install aggregate and ventilating valves.

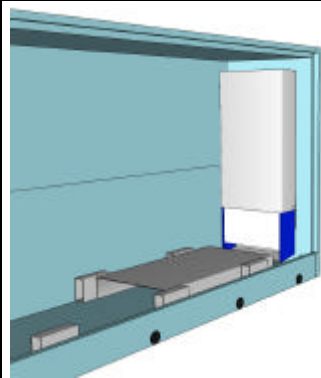


Place the bearing devices in such a way that the pressure against the floor of the kiln is widely spread.

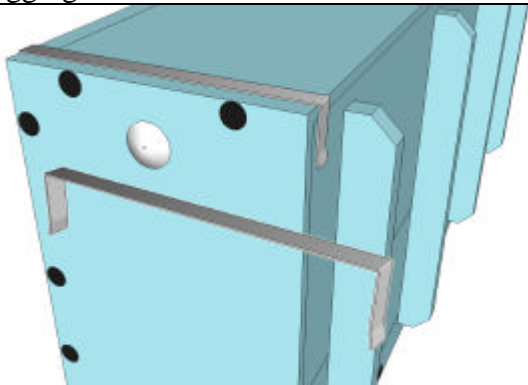
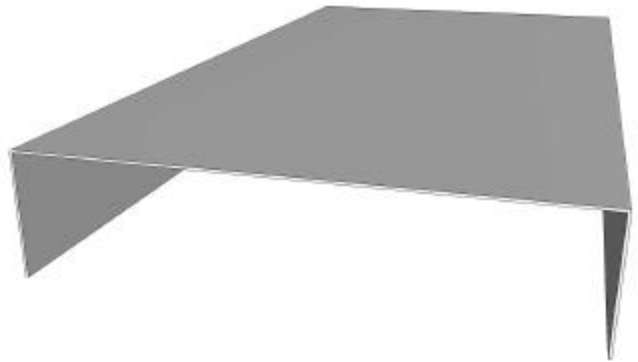


Make a simple intake duct from aluminium or stainless steel. There are several ways to fix the duct to the sidewall, but here the duct is equipped with two pins that are placed behind the aggregate.

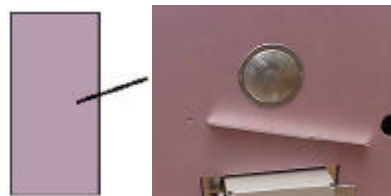
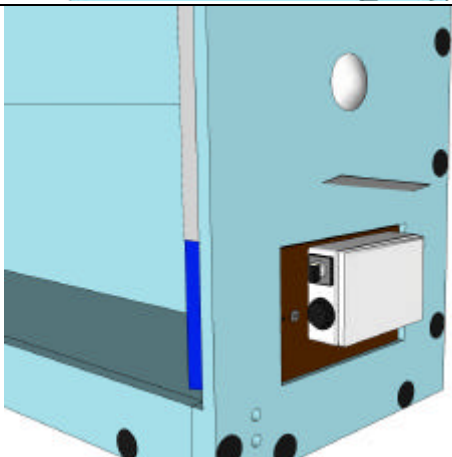
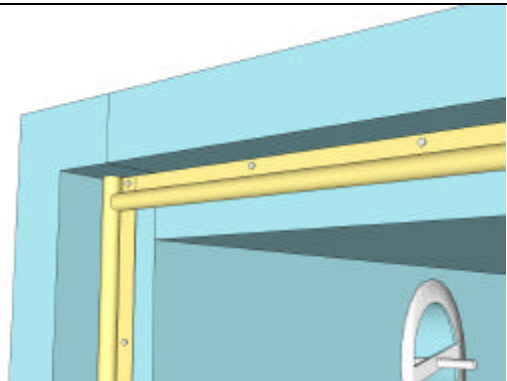




If the kiln is longer than 3 m, the air circulation can be too limited in the inner part of the kiln. The problem is solved with a channel of about 1/3 of the length of the kiln. It should be placed on the floor of the kiln, 50-100 mm from the aggregate.



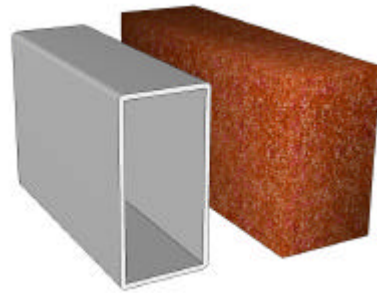
As the inner side of the kiln is much warmer than the outside, the inner side expands and the door is bent inwards. Sealing strips around the door opening will still keep the kiln tight. The upper corners can be critical points on long kilns. Simple hooks made from the insulation boards or wood will keep the door closed.



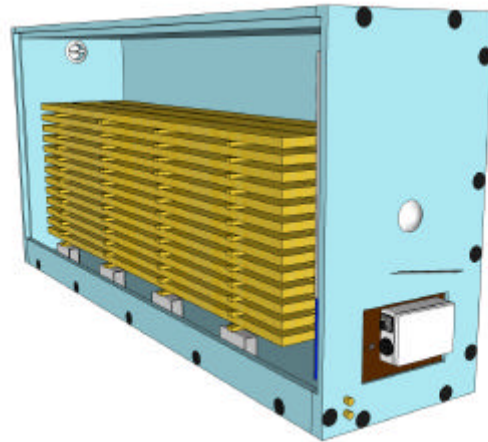
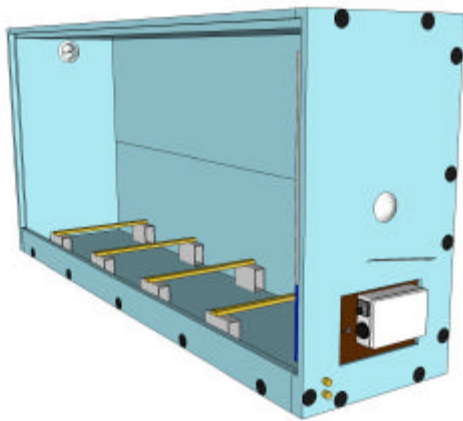
It can happen that condensed water drips from the ventilating valve. In order to prevent it from damaging the aggregate, you can make an oblique notch in the wall and insert a piece of sheet metal.



There are digital oven thermometers available for reasonable prices. You can buy one of those and just press it through the wall.



The bearing devices ought to be about 100 mm high.



The timber is placed on bearing devices which allow the circulating air to blow under the timber. The bearing devices can be made from bricks and be connected with stiff wooden crossbars or alu-profiles. Make sure that the kiln stands on steady bedding, because otherwise the floor of the kiln will be damaged.

<p>Placing. The kiln can be placed both indoors and outdoors. The aggregate must be protected from rain and snow when placed outdoors. A problem with indoor placing is that some kinds of wood smell rather strong when they are heated. Some moisture can come out of the kiln during the steaming process, but not more than normal ventilation will take care of.</p>	<p>Choice of aggregate.</p> <p>VT3. Works for kilns with a maximum length of 3 m and a total inner volume of 3,5 m³.</p> <p>VT5. Works for kilns with a maximum length of 5 m and a total inner volume of 12 m³</p>
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In order to make a kiln according to this description, but using other measurements, you can use the pattern below. Fill in your own desired measurements of L (length), W (width) and H (height) in order to get the correct size of insulation sheets. The thickness of the insulation boards postulated to be 50 mm.

L = 2450 mm	W = 600 mm	H = 1150 mm
Description	Length	Width
Floor	L – 100 mm = 2350 mm	W – 100 mm =mm
Roof	L – 100 mm = 2350 mm	W – 50 mm = 550 mm
Sidewalls	H = 1150 mm	W = 600 mm
Back wall	L – 100 mm = 2350 mm	H = 1150 mm
Door	L – 50 mm = 2400 mm	H – 125 mm = 1025 mm
Sill	L – 100 mm = 2350 mm	125 mm

The kiln in this description, 2,45 x 0,6 x 1,2 m, needs about 40 nylon screws.