TYLÖ

REDEFINING WELLNESS

HOW TO BUILD A SAUNA

Different types of sauna?

BATHING FORM	TRADITIONAL SAUNA	SOFT SAUNA	STEAM BATH
DEFINITIONS	Temperature 75–90 °C Humidity 5-15% RH	Temperature 45–65 °C Humidity 30-65% RH	Temperature 40–45 °C Humidity 100% RH
SUITABLE SAUNA HEATER	Traditional sauna heater. For example, Sense or Crown models such as Crown Elite, Sense Pure, Sense Sport, Sense Elite, Sense Commercial, or Sense/Crown Combi. Power is selected based on the room volume.*	Sense/Crown or Tylarium** Traditional sauna heater + steam generator e.g. Sense Commercial (with relay box) + steam generator Commercial. Power is selected based on the room volume.*	Steam generator Steam Home or Commercial. Power depending on the volume and material in the room.
APPROPRIATE MATERIALS IN A SAUNA	Wood and glass sections. Other materials on wall surfaces, such as stone* or tiles*, may be used, but to a limited extent. Seating areas and other surfaces should be made of wood.	Wood and glass sections. Other materials on wall surfaces, such as stone* or tiles*, may be used, but to a limited extent. Seating areas and other surfaces should be made of wood.	Tiles, plastic or glass. It is important that all floors, walls and ceiling surfaces, as well as floor drains, are properly sealed. The materials in a steam bath must withstand high humidity levels.

KEEP IN MIND When installing sauna products from Tylö, the installation instructions should always be followed. “How to build a sauna” provides general guidelines for Tylö’s products. The specific instructions provided with each product must be used during installation.

*If the room is built with a wall covering made of stone, glass or tile, the increased power requirement must be taken into account when heating the sauna. For each m^2 of “heavy material” you should add 1 m^3 to the room volume.

**Tylarium means combining a sauna heater and a steam generator using a shared Elite control panel and a combined temperature and humidity sensor, allowing you to control both the temperature and humidity of the sauna.

Tylarium is primarily intended for larger saunas in commercial use, and is equivalent to the Combi models for private use.

PLANNING

Plan the sauna step by step

1. Where should the sauna be placed in the house? Is the sauna going to be placed against an outside wall?

2. What are the possibilities to provide the ventilation for the sauna? The ventilation determines where the heater is suitably placed in the sauna. Always refer to the sauna heater's manual for specific ventilation requirements.

3. Placement of the door? The door should be placed on the same wall as the heater or on the adjacent wall as close as possible to the heater.

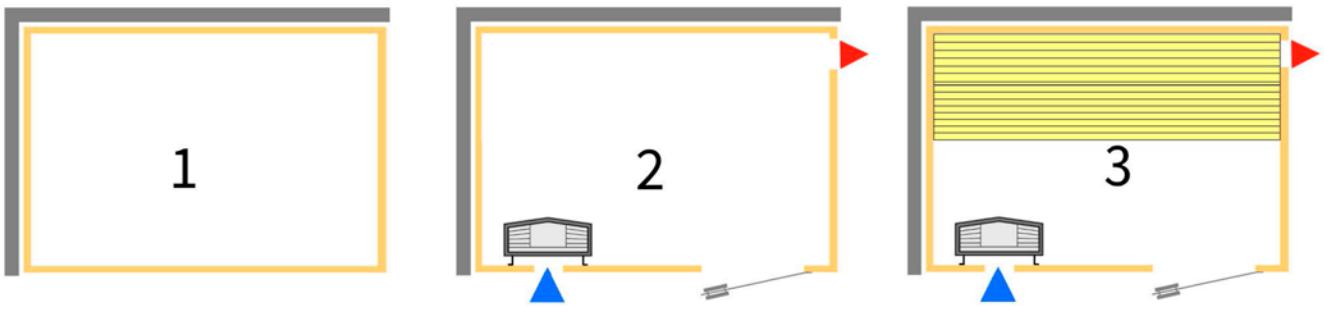
4. Keep in mind that the ceiling height in the sauna should preferably not exceed 220 cm. The minimum height is 190 cm, but in some cases it may be higher depending on the sauna heater model. A higher ceiling makes it more difficult to heat the sauna and reduces energy efficiency. There should be no more than 120 cm between the upper bench and the ceiling.

5. Glass sections? Keep in mind that the sauna must be airtight so that glass sections with gaps are not used. Also consider that the sauna requires more power to heat with large glass surfaces.

6. Placement of interior (benches and backrests). The interior design should be planned only when you know where the heater, door, glass sections and ventilation will be placed.

7. The power of the heater? The volume of the sauna (floor area x ceiling height) determines the required output together with the choice of materials in the sauna. For best energy efficiency, use wood paneling with at least 45 mm of insulation directly behind it. If you deviate from wood paneling as wall covering in the sauna, you must add 1 m^3 to the sauna volume for each m^2 of glass, tile or stone on the walls or ceiling. If the sauna is built with solid concrete or stone walls, the sauna volume should be increased by 3 m^3 per m^2 of wall surface.

8. Lighting in the sauna? There are different types of lighting that have different limitations regarding where the lighting can be placed. Also keep in mind that some models of sauna heaters can control (turn the lights on/off) via the control panel.



KEEP IN MIND

Sauna building, installation and ventilation

LOCATION OF THE SAUNA ROOM

Independent studies show that of the energy the sauna heater consumes, all the thermal energy benefits the house. This means that the house's thermostat controlled heating radiators get a break, which saves the same amount of energy as the sauna consumes. If the sauna is placed in a corner against the exterior walls, the house also gets additional insulation that saves up to 500 kWh per year. When positioning against a corner, you also save the cost of external cladding of two walls.

CEILING HEIGHT AND LAYOUT

The ceiling height of the sauna should be at least 190 cm. However, there is no need to build the room too high, as much of the heat ends up in the ceiling. For a normal family sauna, a ceiling height between 190-220 cm is just right. Only if the benches are in more than two levels there is a reason to build higher. Benches that do not rest between two walls shall be provided with armrests/ bench supports. If the ceiling height exceeds 220 cm, it may be difficult to get the temperature to the lower levels of the sauna when heated from top to bottom.

CALCULATE THE NUMBER OF PANELS TO WALLS AND CEILINGS

If you choose to build your sauna with vertical panels, you take the width of the wall in mm and divide by the selected panel's building dimensions. This will give you the number of panels required to cover the wall. Do not forget to consider the length of the panel as the ceiling height cannot exceed this measurement. With horizontal panels, the interior height of the sauna is divided by the building dimensions of the panel. To figure out how much paneling is required for the ceiling, there are two options.

Option 1: Mount the panels continuously.
Option 2: Fit the panels equally far from the walls and get a visible joint in the center covered with molding.

Ex: The wall has a width of 2000 mm and a height of 2200 mm. A panel 12 x 95 x 2400 with building dimensions 85 mm has been selected.

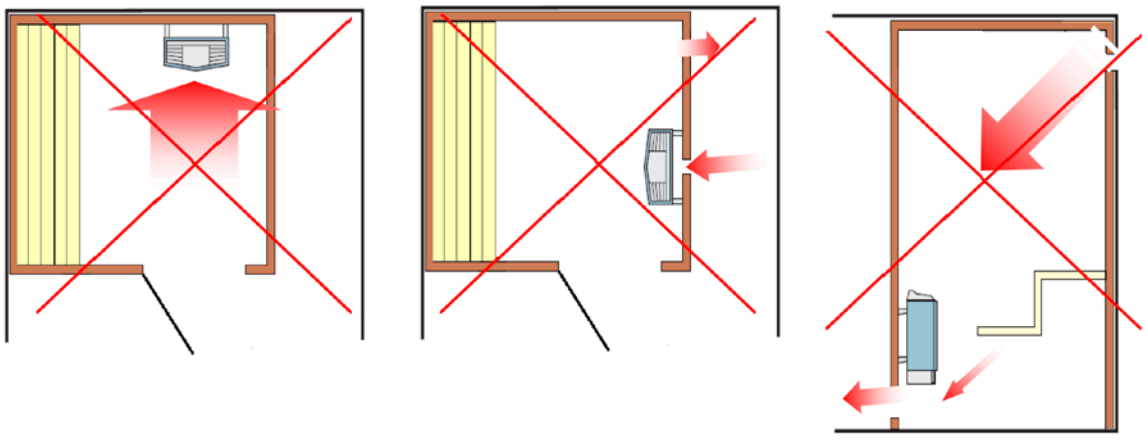
For vertical panels: 2000/85 = 24 panels.
For horizontal panels: 2200/85 = 26 panels.

SAUNA FLOOR

The floor must be non-slip and must be able to withstand some moisture load that may occur during bathing and may have a drain (called a scupper) that leads to a floor drain with a water lock outside the sauna room. The drain must not be placed directly under the sauna heater. The reason why you do not want a floor drain inside the sauna is the risk that the water trap will dry out and cause a bad smell. Optional wooden decking on the floor is decorative and pleasant to walk on, but makes cleaning the sauna more difficult.

SAUNA HEATER AND DOOR ALWAYS ON THE SAME WALL!

The air circulation of the door shall cooperate with the hot air from the sauna heater. Therefore, the heater should always be placed on the same wall as the door (only exceptionally on the side wall, but then completely close to the door). Follow the instructions supplied with the sauna heater. The specified minimum distance to materials must be considered.



KEEP IN MIND

Ventilation is important!

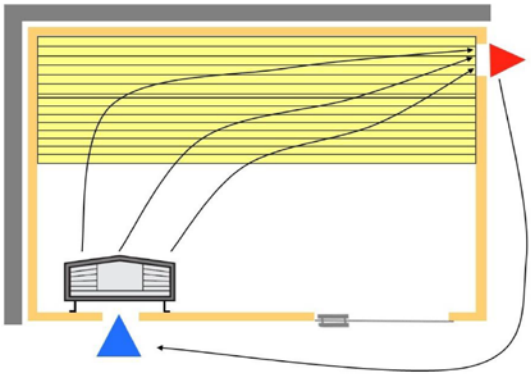
One of the most important things to consider when planning your sauna is ventilation. Incorrect ventilation means that the overheating protection of the sauna heater may be triggered. In some cases, there may also be a fire hazard due to dry distillation of the wood paneling in the sauna.

A sauna should be ventilated with natural draught (also known as thermal ventilation) by drawing in air directly beneath the sauna heater. The exhaust air outlet should be placed as far away from the heater and inlet air as high up in the room as possible and ventilated to the same space as the inlet air source. It is important that there is the same air pressure, both where the inlet air is taken and where the exhaust air flows. Otherwise, the ventilation will not work.

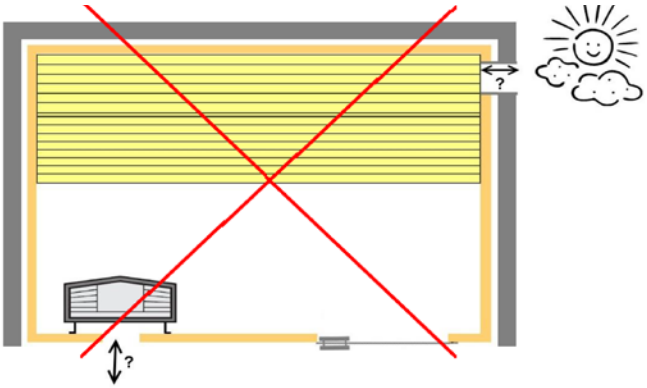
The size of inlet air and exhaust air should be at least 125 cm² for heaters up to 8 kW and 300 cm² for those between 16-20 kW.

THE EXHAUST AIR SHOULD NOT FLOW OUTDOORS!
Diverting the exhaust air from the sauna outdoors can often lead to the ventilation not working or going in the wrong direction. In many modern houses with mechanical exhaust air, a wall outlet that leads out into the open air can direct the air in the wrong direction in the sauna. External factors such as wind may also influence airflow direction.

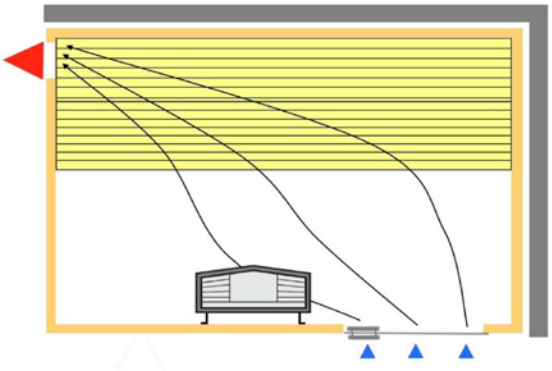
MECHANICAL EXHAUST AIR
We recommend avoiding mechanical exhaust ventilation from the sauna, as it is difficult to adapt the air flows to a specific sauna. When using natural draught ventilation, the system adjusts automatically, and in most cases provides optimal conditions for the sauna regardless of the environment. However, there are no obstacles to having mechanical exhaust air in the room in which the sauna is located, as long as both the inlet and exhaust air are directed into the same space.



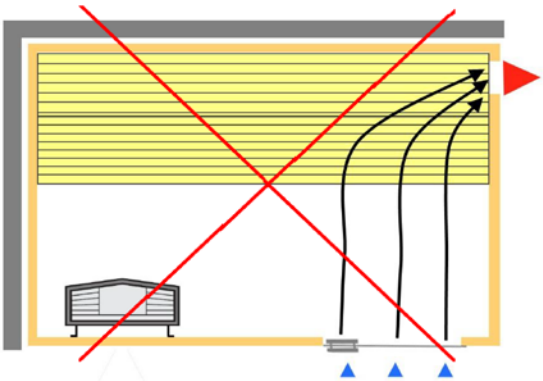
Properly ventilated sauna.



If the sauna is ventilated directly into the open air, there is no guarantee that the air will flow in the right direction.

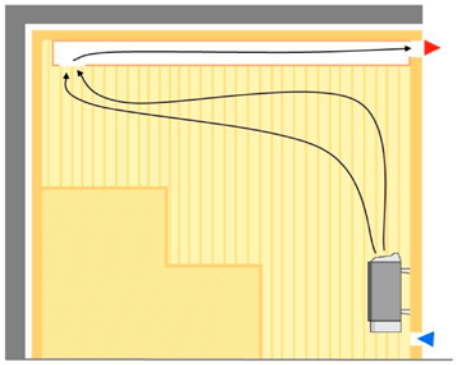


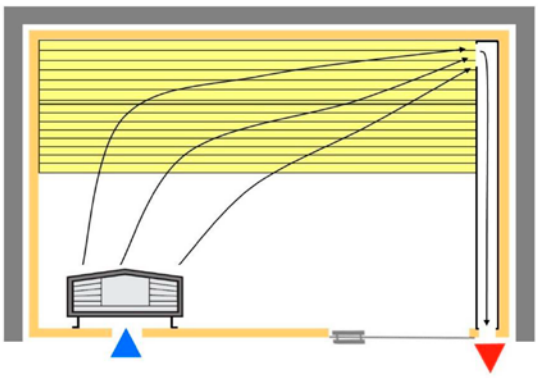
Using the door as the source of inlet air can often cause problems. In some cases, it may work if the heater is placed close to the door and the airflow passes over the heater. However, there is no guarantee that a sauna using the door for inlet air will have proper airflow.



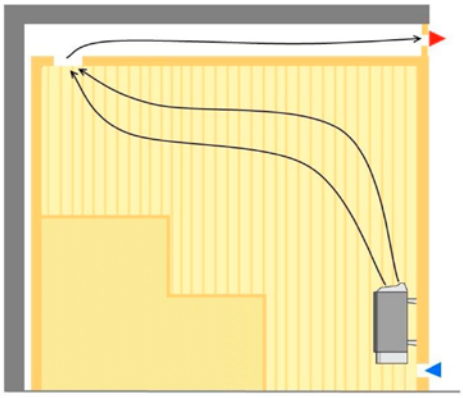
This solution does **not work**, the inlet air will not pass by the heater but instead flows directly out, without helping the heater to distribute heat in the sauna.

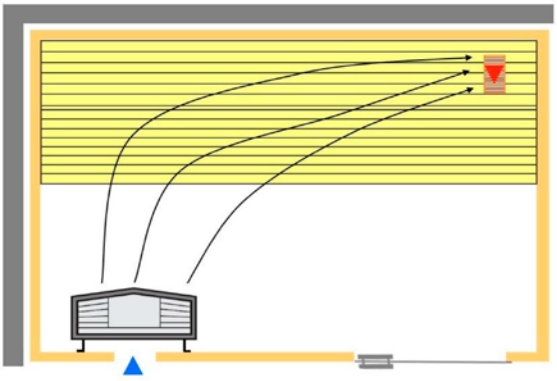
VENTILATION CAN BE SOLVED IN SEVERAL WAYS!





You can also solve the ventilation with a duct inside the sauna if there is no other option. It is still important that inlet air and exhaust air flow into the same space and that they are the same dimension for both inlet air and exhaust air.

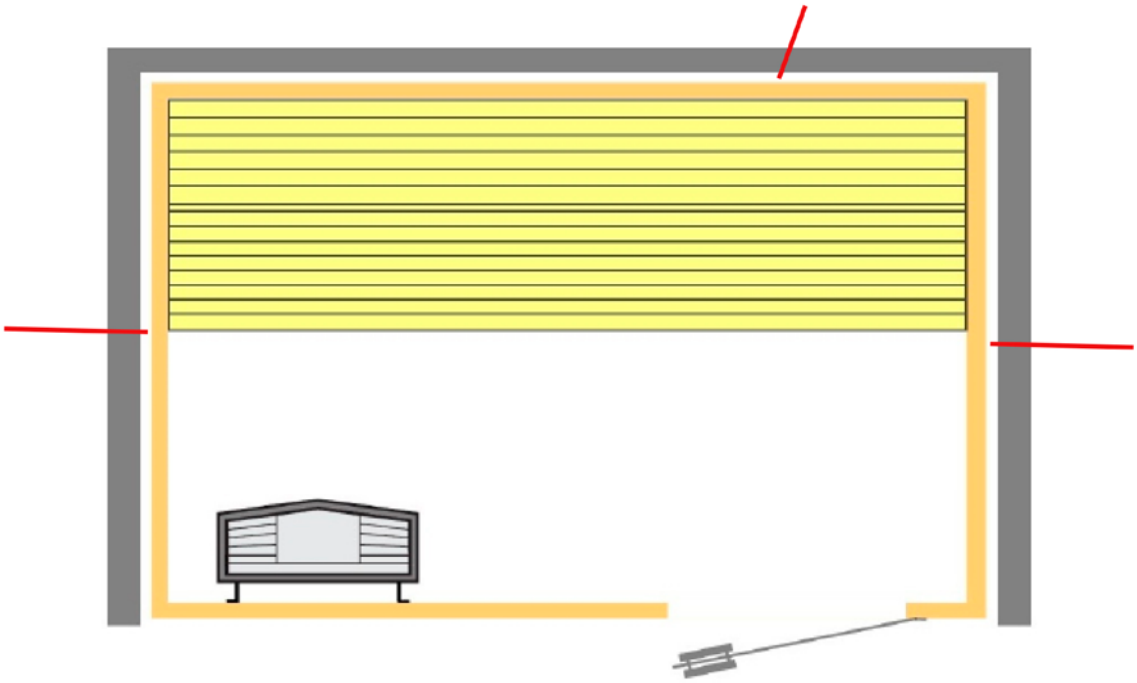




If the sauna ceiling is lowered, the space above can be used for ventilation. Make sure that the inlet and exhaust air openings are the same size, and that the air leaving the sauna flows into the same space from which the air is drawn in.

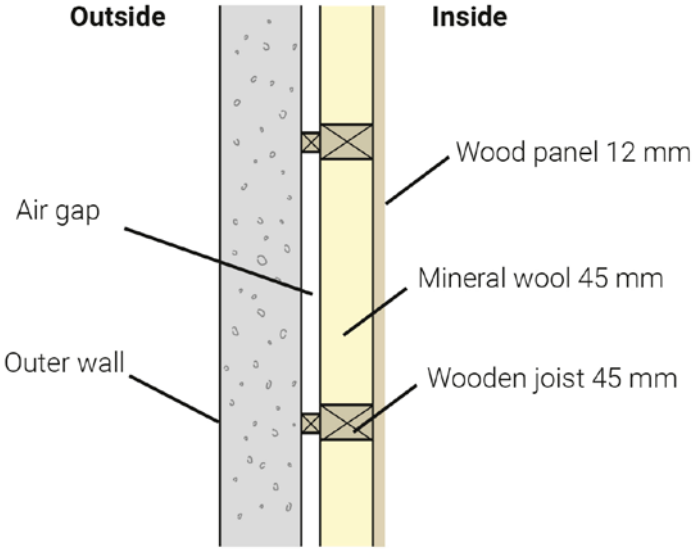
AIR GAP/MOISTURE BARRIER

Always leave a ventilated air gap of about 20 mm between the outer wall of the sauna and any existing wall construction. This is especially important if the sauna room is placed against a cold outer wall. The sauna should always be built as a ”room within a room”. There is no need for a moisture barrier between the outer walls of the sauna room and the interior walls of the house.



SAUNA WALL AGAINST OUTER WALL

A sauna wall against an outer wall should have an air gap. A sauna wall against an interior wall does not require one. To create an air gap between the outer wall and the insulation, you can attach a steel wire in a cross pattern or install masonite (wood fiber board) to hold the insulation in place. On the joists along the outer wall, you can place blocks of suitable size to maintain an air gap of about 20 mm.

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KEEP IN MIND

Design

UNRECOMMENDED DESIGN

Tylö does not recommend the use of foil or plastic in the wall as a moisture barrier. There should also be no air gap, plaster*, particleboard*, or OSB board* directly behind the wood panel.

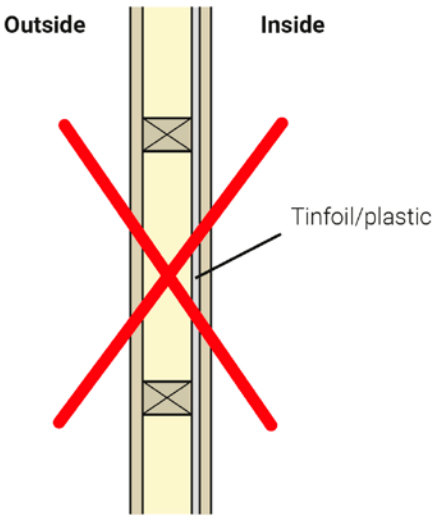
*Plasterboard has a maximum temperature recommended by the manufacturers of about 45 degrees. If plaster is exposed to higher temperatures for a long time, the board loses strength. Glued wooden boards are unsuitable because there is a risk that the glue may give off a bad smell and that unhealthy substances may be released when heated.

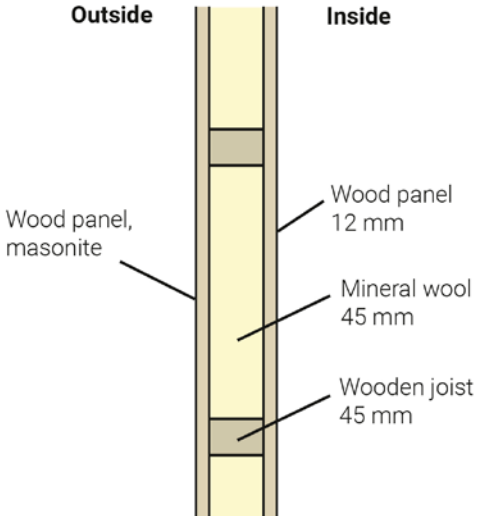
RECOMMENDED DESIGN

Inside, the wall should be covered with wood paneling**. Directly adjacent to the wood panel, at least 45 mm of mineral wool or fiberglass insulation (in public facilities at least 95 mm) should be added. Be careful with the insulation, as it ensures fast and economical heating.

**If materials other than wood paneling are used as wall coverings, such as tiles, stone or glass, this needs to be taken into account when calculating the power of the heater. The effective volume of the sauna must be increased by 1 m^3 for each m^2 of tile, as much more energy is required to heat a heavy wall. For solid walls, the volume of the sauna should be increased by 2 m^3 for each m^2.

Heavy materials are used in structures where you want high thermal inertia and stable temperatures. In a sauna, it's the exact opposite – you should preferably use lightweight materials and as little mass as possible between the warm air and the insulation to achieve fast heating and a reasonable power requirement. You should heat the air in the sauna, not lots of materials in the wall and ceiling. There is a big difference in how much power is needed if you are just heating air and wood paneling, or if there are massive concrete or brick walls that can weigh several tons.

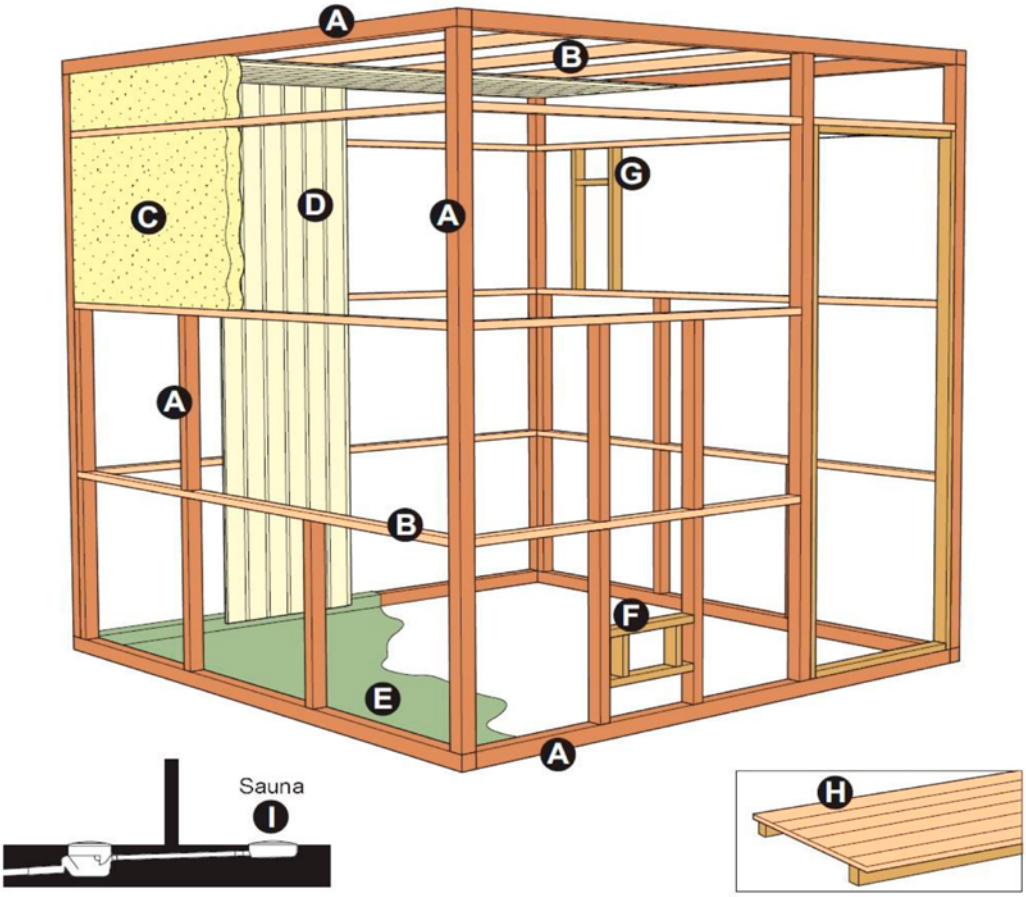




If you are going to put tiles or similar materials on the outside of the sauna, you can replace the wood paneling with suitable sheet material, e.g. plaster. If it is a ready-made sauna room from Tylö, plaster can be fixed directly onto the wall outside the paneling.

KEEP IN MIND

Recommendations for sauna room building



A. Floor frame, posts, vertical joists, ceiling frame. Wood 45x45, or 45x95 (or larger) for public use.

B. Horizontal joists, ceiling joists, vents. Wood 45x22 or adapted to dimension on A.

C. 45 mm mineral wool (at least 95 mm for public use) as thermal insulation in walls and ceilings. Maintain an air gap of approximately 20 mm against the outer wall.

D. 12-15 mm wood panel* on walls and ceilings. Behind the wood paneling, there should always be at least 45 mm insulation. No other material, such as chipboard or plaster, may be present.

E. Floors made of tiles or fully welded plastic mat. The floor must be able to withstand a certain moisture load that may occur during bathing. For public use, floors must be carried out according to current wet room standards.

F. In-air valve, which should always be fully open, must not be able to be closed. It can be fitted with grilles, but they should be designed to minimize airflow restriction. Dimensioning depends on the power of the heater.

G. Exhaust vent. Can be equipped with sliding door for ventilation adjustment. Should be of the same dimension as inlet air.

H. Sauna benches should be of at least 28 mm thick. Wood types such as aspen or alder are recommended.

Scuppers should be available in all public saunas. The scupper or drain should not be placed directly under the sauna heater. In private saunas, there is no requirement for drains or scuppers, but they can still be good to have.

*If the room is built with a wall covering made of stone, glass or tile, this increases the power requirement to heat the sauna. For each m^2 of heavy material, add 1 m^3 to the volume of the room.

Over 75 years have passed since the Swedish founder of Tylö created his first sauna heater. We are proud of our heritage - solid traditions in craftsmanship, profound knowledge and a Scandinavian legacy. Our passion is delivering top-quality sauna experiences - Soft Sauna and traditional saunas, steam baths, and soothing infrared warmth.

Enjoy your Tylö experience!

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