

General sauna instructions (heater size, wiring, insulation, etc.)

The following sauna information will help you use and choose your sauna equipment properly. It is designed to provide simple steps that will help you enjoy your sauna and receive the maximum benefit from it.

Wet Or Dry Saunas?

Many people ask, "Is this a wet or dry sauna? Can we have water on the heater rocks?"

All HEMLOCK heaters are tested and approved by C.S.A. (Canadian Standards Association) and are approved for use with water. There are, however, some points to consider:

1. **THE APPLICATION-** Is the heater in a residential or commercial setting? The residential homeowner will look after his equipment and not abuse it, whereas in a public commercial setting such as hotels, recreation centers, clubs, etc., equipment seems to suffer untold abuse. To avoid this, some public saunas have signs posted such as, "THIS IS A DRY SAUNA-NO WATER ALLOWED".
2. **AMOUNT OF WATER TO USE-** Water must be used in small amounts when the rocks are hot. Using large amounts of water will cause unnecessary spillage onto the floor, but more important, will cause a premature breakdown of the heater elements. "More is not better!"
3. **HOW TO APPLY THE WATER- CAUTION!** Water must NEVER be applied by pouring from a cup, bucket or similar container. The rising steam can burn your skin. Using a ladle or spray bottle will give good control when applying the water in moderate amounts, and keep your hands a safe distance from the rising steam.

Determining the size of the Heater & Room....

On our website there is a chart for choosing the right heater. Instructions to determine the volume of the room (cubic room size) are found there.

Refer to the 'SAUNA HEATING AND ELECTRICAL SPECIFICATION' chart for the appropriate heater and control once you know the cubic footage of your planned room.

1. **ROOM SIZE-** Often the customer is vague when describing what room size they really want and give dimensions of a room larger than the capacity of the largest **residential** (240 volt, 1 phase) heater, which is a "HSH 9". The largest room for a 9000 watt heater would be an 8' x 8' floor area with a 7' ceiling, giving a total volume of 448 cubic feet. If a larger room is desired, 2 heaters should be used. Our largest commercial (208 volt, 3 phase) heater is 15 kilowatts. Common residential room sizes are 5' x 6' x 7' high; 6' x 6' x 7' high; and 7' x 6' x 7' high, but we offer many other sizes as well. We also do custom sizes at no extra charge!
2. **CEILING HEIGHT-** Residential sauna ceiling heights are normally reduced to 6-1/2' (minimum) or 7 ft. (maximum) in saunas to lessen the cubic area of the room so that a smaller heater can be used. More importantly, because heat rises, the lower ceiling allows the sauna bather to sit in the hotter temperature area when sitting on the top bench. The temperature measured 12" down from the ceiling can vary up to 10 degrees C! Customers with 8' ceilings often complain that the sauna is too cold. This is because the hotter air is "pooling" above their heads. Another factor is a higher ceiling will often lead to heater operation problems as the heater struggles to achieve operation temperature, but with a higher ceiling than the design specs called for. The maximum room temperature that a room is allowed to reach by C.S.A. standards is 90 C where the thermostat bulb senses the temperature above the heater. This gives an average temperature of 80 C to 85 C where the sauna bather sits on the upper bench.

Components to make a sauna room....

Insulation & Vapor Barrier....

The required minimum insulation for a sauna room is R-12 of fiberglass batts for walls and ceilings. The aluminum foil vapor barrier is necessary for sauna rooms because it keeps it's integrity. Polyethylene vapor barriers deteriorate within the upper areas of the sauna room because of the high room temperatures, therefore it is not acceptable.

The time and care taken during insulating and applying the vapor barrier will pay dividends when the room is finished. Sloppily applied insulation will often result in the heater cycling more frequently to maintain the desired temperature in the room. Don't be impatient during this step!

The reflective vapor barrier also has an insulation value of R-2.64. These vapor barriers are applied with the reflective side facing into the room. Good results have been achieved by sealing all vapor barrier joints with aluminum duct tape for air tightness. Do not stretch the vapor barrier tight, rather drape it loosely between studs and in the corners. The vapor barrier will shrink as it's exposed to heat so allow for this when applying. Keep perforations through the vapor barrier to a minimum.

Ventilation of Sauna Rooms....

Ventilation is an important part of any sauna room. If there is no ventilation the sauna room will feel stuffy and confining, (not to mention downright uncomfortable). Much has been written and many opinions offered on how a sauna room should be vented.

Intake Air

One option for incoming air is an non-adjustable intake vent directly below the sauna heater, installed through the wall. An alternative is by using Homecraft sauna doors which are designed to have about a 1/2" to 3/4" airspace between the bottom of the sauna door and the floor. Using the space under the door eliminates having to cut a hole in the sauna wall under the heater.

This space allows incoming air to move along at floor level, over to the heater where it is heated and rises to the ceiling. Upper vents are not available in doors with glass panels.

Exhaust Air

One option is using an adjustable exhaust vent on the opposite wall around the same level as the top bench, positioned diagonally to the intake vent. This way fresh air is drawn in by convection and forced to the ceiling. Stale air is in turn exhausted. Never over-ventilate, or exhaust air too close to the ceiling as too much hot air will escape causing the heater to overwork resulting in nuisance tripping of the high limit switch. With the adjustable doors on our wall vent kit, you can control the airflow while laying on the top sauna bench.

When using a through-wall vent kit, make sure you make a plywood sleeve that the vent will fit into. The plywood sleeve is open at each end and is really a square tube that will prevent the hot, humid sauna air from filtering into the wall cavity.

If using our standard vented door in your sauna, an adjustable exhaust vent is already installed, located near the top of the door as shown in the brochure and on the Homecraft website, so you don't need a through-wall exhaust vent.

Electrical Hookup....

Because the sauna heater is sized according to the size of the room, the wire and breaker required is determined by the amperage and volts of the sauna heater. Refer to the chart on our website for wire size and breaker capacity requirements for your heater.

There have been problems when the electrician has installed too light a gauge of wire, making home owners very irritated when the proper wire size to supply the heater has to be pulled through finished walls.

Recommended breaker and wire sizes as well as heater specifications are found on the www.saunas4less.com website. Full wiring schematics are included with each sauna control, or we can fax you a copy if you phone us.

Take note in the installation instructions regarding the position of the sensing bulb of the thermostat!

The capillary length of the thermostat is 12' long. Installers must ensure that the sauna control is placed close enough for the sensor bulb to be installed in the right position inside the sauna room. Assuming a 6-1/2' to 7' ceiling, the sensor bulb must be horizontal, over the heater and about 1" from the ceiling.

Positioning the sensor bulb anywhere else by mistake or intentionally will result in operational problems with the heater.

G.F.I. (Ground Fault Interrupt) Breakers....

Customers are advised to avoid installing the sauna control within the range of a pool or spa etc. where a G.F.I. circuit is required. G.F.I. breakers and sauna heaters do not always get along well together, and there could be "nuisance" tripping of the breaker. As well, some breaker systems are very costly. Where a G.F.I. breaker is required, electricians use an alternative system where the contactor and control circuit are wired to a 120V G.F.I. breaker.

The sauna heater having its own circuit, does not need to be on a G.F.I.

Replacement Heaters

From time to time, Homecraft is asked to provide replacement sauna heaters, especially in public, commercial saunas. There are some very specific problems that arise, and if they're not addressed and planned for at the beginning, they can cause a lot of frustration to both the customer and supplier. Where the problems arise is when a pre-1982 sauna heater has to be replaced. UL and C.S.A. standards changed dramatically in 1982. The most significant change to the standard was (1) the reduction in allowable room temperature. Room temperature went from 120 C (248 F) to 90 C (194 F), and (2) the introduction of a manually reset high-temperature limiting switch within the sauna heater. The high limit switch is intended to shut down the heater under any abnormal operating condition.