

## Steam Room Design Considerations

When planning a steam room project the objectives of comfort and relaxation should be kept in mind. A room properly designed and constructed should maintain a temperature range of 115° to 120° F (46° to 49°C), heat to this temperature in 15 to 20 minutes and have a comfortable and relaxing seating arrangement. If space permits, seating which allows the bather to recline or even to lie down greatly enhances the steam bath experience.

A steam room, unlike a sauna, is a moist environment. Avoid using construction materials which are subject to corrosion or decay.

All inside surfaces of the steam room must be completely sealed and covered with a waterproof finish such as tile. Sheet-rock surfaces are not recommended. However, fibreglass re-enforced cement Sheet-rock such as "Dura Rock" or "Wonder Board" may be used if properly sealed against moisture with a commercial waterproof paint. All joints or cracks including the showerhead, handle escutcheon and steam head escutcheon should be sealed with silicone. Acrylic or fibreglass enclosures recommended for steam by the manufacturer also make excellent steam rooms.

Ceiling and seats inside the steam enclosure should be sloped to allow condensation to run off the interior surfaces and prevent dripping on the bather. A ceiling slope of 2" per foot (5cm per 30cm) should be adequate. In some installations, sloping the ceiling from the centre may be required to minimise the ceiling height.

A floor drain should be provided for cleaning and allowing water drainage. A gentle fall of at least 1:100 to the floor drain should be sufficient. A non-skid floor surface should be used for safety.

Ceiling height should be limited to 8' (2.45m) with 7' (2.15m) preferable. Heights in excess of 8' (2.45m) may result in hot or adequate temperatures near the ceiling but uncomfortably cool floor temperatures.

An area for mounting the steam generator must be selected to provide the following:

- Allow access for servicing and provide sufficient space to remove elements should they ever need replacing.
- Protect steam generator from freezing, moisture and areas that might exceed 140°F (60°C) (Do not mount the generator in the steam room or in an unprotected outdoor location)
- The all copper line from the steam generator to the steam room should not exceed 20' (6m), should always slope towards the steam generator or steam head, should not form traps or gullies allowing condensation to accumulate and should be insulated to prevent heat loss and prevent burns from accidental contact.
- The steam head should be located in accordance with the general installation instructions and minimise potential user contact.
- When installing the generator, plumbing unions should be used to allow removal of generator should service be required.

When selecting a construction material for lining the inside of your steam room, make sure to contact the material manufacturer to determine that the material is warranted for the hot moist conditions of a steam room.

Skylights and exterior windows are not recommended. If used, they must be double pane. Caution must be used to insure that the height and size of a window or skylight in a steam room does not prevent the room from maintaining comfortable temperatures in reasonable length of time.

The steam room door should be made of glass to allow regular inspections and also open outwards. A vent is required at the bottom of the door for ventilation – please see below.

Steam rooms in use for more than 2 hours a day will need to be vented preferably to the outside. The recommended air change rate should be 10m<sup>3</sup> per hour per person. This should be achieved via the inlet vent at the bottom of the door and an outlet vent in the ceiling. If natural airflow does not produce the required rate then mechanical extraction will be required. Please note that this extracted air will have a high moisture content. Steam production will be greatly reduced if the ambient temperature outside the steam room exceeds 86°F (30°C)

For hygiene purposes it is recommended that the steam room be cleaned daily using a biocide cleaner or a mild soap solution. Biocide or disinfectant should be used on the floor areas to ensure they are clean.

When sizing the generator, determine the cubic footage or meterage of the space being heated (width x length x height) then add the following:

Each glass block wall or exterior wall (if freezing is possible) +10%

Ceramic tile mortar bed or cement board backing +20%

Cast iron tub +20%

Natural stone (marble, granite, slate etc) +100%

You can consult the tables below to determine the proper sized generator for your application.

### *Commercial steam generators*

	Cubicle size for masonry material	Cubicle size for plastic material	Supply Current	Power supply	Power supply
	M <sup>3</sup>	M <sup>3</sup>	Amps	1 Phase	3 Phase
6kW	2.5 to 8.0m <sup>3</sup>	4.0 to 15.0m <sup>3</sup>	25	4.0mm.sq	1.5mm.sq
9kW	7.0 to 16.0m <sup>3</sup>	13.0 to 24.0m <sup>3</sup>	38	6.0mm.sq	1.5mm.sq
12kW	14.0 to 20.0m <sup>3</sup>	22.0 to 30.0m <sup>3</sup>	50	3 phase only	4.0mm.sq
18kW	18.0 to 30.0m <sup>3</sup>	28.0 to 40.0m <sup>3</sup>	76	3 phase only	4.0mm.sq
24kW	28.0 to 40.0m <sup>3</sup>	38.0 to 50.0m <sup>3</sup>	100	3 phase only	6.0mm.sq

### *Domestic steam generators*

	Cubicle size for masonry material	Cubicle size for plastic material	Supply Current	Power supply	Power supply
	M <sup>3</sup>	M <sup>3</sup>	Amps	1 Phase	3 Phase
3kW	1.0 to 2.0m <sup>3</sup>	0 to 4.5m <sup>3</sup>	12.5	1.5mm.sq	1.5mm.sq
6kW	2.0 to 4.7m <sup>3</sup>	6.0 to 12.0m <sup>3</sup>	25	4.0mm.sq	1.5mm.sq
9kW	4.7 to 8.0m <sup>3</sup>	14.0 to 18.0m <sup>3</sup>	37.5	6.0mm.sq	1.5mm.sq