

# STEAM ROOM CONSTRUCTION & GENERATOR SIZING GUIDE

## INTRODUCTION

The following Information is presented as an aid to those installing a steam generator or constructing a steam room. Due to complex construction variables, climate variances and changes in the manufacturing specifications, this information represents suggestions only. It is recommended that you consult your architect, material manufacturer and/or specification engineer regarding your particular installation. Please see "Disclaimer" at the end of this guide.

**OBJECTIVE:** 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° Fahrenheit, 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 lay down greatly enhances the steam bath experience.

## STEAM ROOM DESIGN CONSIDERATIONS:

1. A steam room, unlike a sauna, is a moist environment. Avoid using construction materials which are subject to corrosion or decay.
2. 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, fiberglass 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 shower head, handle escutcheon and steam head escutcheon should be sealed with silicon. Acrylic or fiberglass enclosures recommended for steam by the manufacturer also make excellent steam rooms.
3. 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 should be adequate. In some installations, sloping the ceiling from the center may be required to minimize the ceiling height.
4. A floor drain should be provided for cleaning and allowing water drainage. A nonskid floor surface should be used for safety.
5. Ceiling height should be limited to 8'. Heights in excess of 8' may result in hot or adequate temperatures near the ceiling but uncomfortably cool floor temperatures.
6. An area for mounting the steam generator must be selected to provide the following:
  - a. Allow access for servicing and provide sufficient space to remove elements should they ever need replacing.
  - b. Protect steam generator from freezing, moisture and areas which might exceed 140° F (Do not mount the generator in the steam room or in an outdoor location).

c. The all copper line from the steam generator to the steam room should not exceed 25 feet, should always slope toward the steam generator or steam head, should not form traps or valleys allowing condensation to accumulate and should be insulated to prevent heat loss and prevent burns from accidental contact.

d. The steam head should be located in accordance with the generator installation instructions and minimize potential user contact.

e. When installing the generator, plumbing unions should be used to allow removal of generator should service be required.

7. 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.

8. Tile steam room must be totally enclosed.

9. Ceiling vents in tile steam room are not recommended. If used, they must form a vapor tight seal and positive closing. Ducts must be waterproof.

10. 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 a reasonable length of time.

## SELECTING THE PROPER STEAM GENERATOR:

In order to achieve the objective of comfort and relaxation, the selection of the proper steam generator model and size are as critical as design of the steam room itself.

## MODEL SELECTION CONSIDERATIONS:

1. Water Quality. The more impurities or minerals in the water the more flushing or filtration is required to reduce build up in the tank. An automatic flush and water filtration system should be considered where the water quality is poor to reduce manual flush maintenance requirements.
2. Thermostatic Control. The thermostatic controller gives the option to regulate the temperature of the room hotter or cooler to comfort. In installations where the

steam generator is used frequently and for greater length of time the cost of a thermostatic control may be justified to provide a more even temperature in the steam room.

3. Digital Display. The preferences of the bather may be for simple on/off simplicity or for more advanced feedback, set temperature, temperature in the steam room and remaining steam bath duration.

## IPOWER (KW) SELECTION CONSIDERATIONS:

1. Cubic footage of steam room and surface area.
2. Steam room surface material mass, R factor and thermal conductivity.
3. Ceiling height relative to height of seating.
4. Are steam room walls exterior walls subject to large temperature fluctuations?
5. Actual line voltage and phase available (one phase or three phase. 240 volt or 208 volt, the lower the voltage the lower the steam output).

6. To avoid rewiring and provide the capability to "size up" if it turns out a generator of insufficient size is installed, it is strongly recommended that the next larger or even second larger wire size be installed for the generator you select.

## DISCLAIMER

This Information represents recommendations only. Due to conditions of your installation, these suggestions may not be applicable. We can not warrant and should not be relied upon for information given concerning steam room materials or construction techniques.

# INSTALLATION OVERVIEW & SUGGESTED SIZING PROCEDURE:

## INSTALLATION OVERVIEW AND SUGGESTED SIZING PROCEDURE

1. Calculate the cubic footage of the enclosure. Length x Width x Height (in feet) = Cubic feet  
Ignore deductions for benches or other intrusions as they represent surface area to heat.
2. Add the following adjustments to the cubic footage calculated in #1 above to account for your specific design features.

- |  |       |       |
|--|-------|-------|
| A. Ceramic tile thin set, acrylic or fiberglass                                  | + Ccb | _____ |
| B. Ceramic tile mortar bed or cement backing board                               | + 20% | _____ |
| C. Cast iron tub   | + 20% | _____ |
| D. For each glass or glass block wall or exterior wall (if freezing is possible) | + 10% | _____ |
| E. Natural Stones (Marble, Granite, Slate)                                       | +100% | _____ |

$L \times W \times H =$  \_\_\_\_\_

Total (1 + 2A + 2B + 2C + 2D + 2E) \_\_\_\_\_

*AVAILABLE kW	MAX. CUBIC FOOTAGE (Single Phase)	
	240V	208V
4	75	50
5	100	60
6	160	85
7	220	110
8.5	300	190
10	400	250
12	500	375
14	600	435

\* Larger kW models can be used to heat smaller rooms

