

# White Paper

Written by:  
Gary L. Berlin

## Steam Rooms – Unique Applications for Nortec Humidifiers

While NORTEC is primarily in the humidification business, we have found many unique applications for our humidifiers over the years. Steam rooms in health and athletic clubs, hotels, homes, and country clubs are becoming increasingly popular. Many NORTEC agents have cashed in on this market by selling to the owners and contractors servicing these establishments.

Many facilities use electric boilers for steam room applications. They require the use of boiler treatment chemicals to reduce scale build-up with their heat exchangers. The NORTEC humidifier offers all the advantages over a boiler in this application that it does for a standard humidification project. The disposable cylinders offer ease of maintenance and the IAQ benefits of supplying pure, clean steam.

The following information should be of assistance with applications and sizing.

### **Application**

The idea behind a steam room is to maintain the room at a saturated condition and elevated temperature. The best control system is to use a thermostat set for 100°F to 125°F. A timer can be installed to restrict the time in the room. Since the room is under saturated conditions, the heat given up by the excess steam beyond saturation will maintain the elevated temperature.

### **Installation**

The humidifier itself should not be located in the steam room, but at normal service height on an adjoining room wall. The steam should be injected into the room at a low level. Steam piping between the unit and outlet should run outside the room. Standard steam room outlets can be connect to the humidifier or a steam distributor, as shown on the attached sketch, can be supplied. We strongly recommend that a shield be put in front of, but not blocking, the steam outlet to prevent anyone from coming in contact with the (212°F) steam. This shield should be of a strong sheet of heat resistant plastic mounted on stand-offs.

As steam rooms are in a saturated (wet) and usually have a floor drain, the condensate from the steam distributor can run onto the floor. Do not drain humidifier onto the floor.

## Room Construction

A steam room is designed for wet heat, not to be confused with a “sauna” (dry heat). The room is usually constructed of ceramic tile or plastic. Vapor barriers should be installed on all sides and the top, when possible. The room should be insulated to prevent excessive condensation and maintain optimal energy efficiency. Wood should not be used in the room as the high humidity will promote fungus and rot.

The drain from the humidifier must be connected to a separate drain line. Do not drain onto the steam room floor.

## Controls

Normal control for rooms with extended use is through a remote sensing bulb thermostat. A manually controlled timer can be provided to bring the unit on for a fixed duration, usually 15-20 minutes. Many times commercial facilities use a seven day programmable clock to start and stop the humidifier during operating hours. A thermostat should always be used to maintain temperature control.

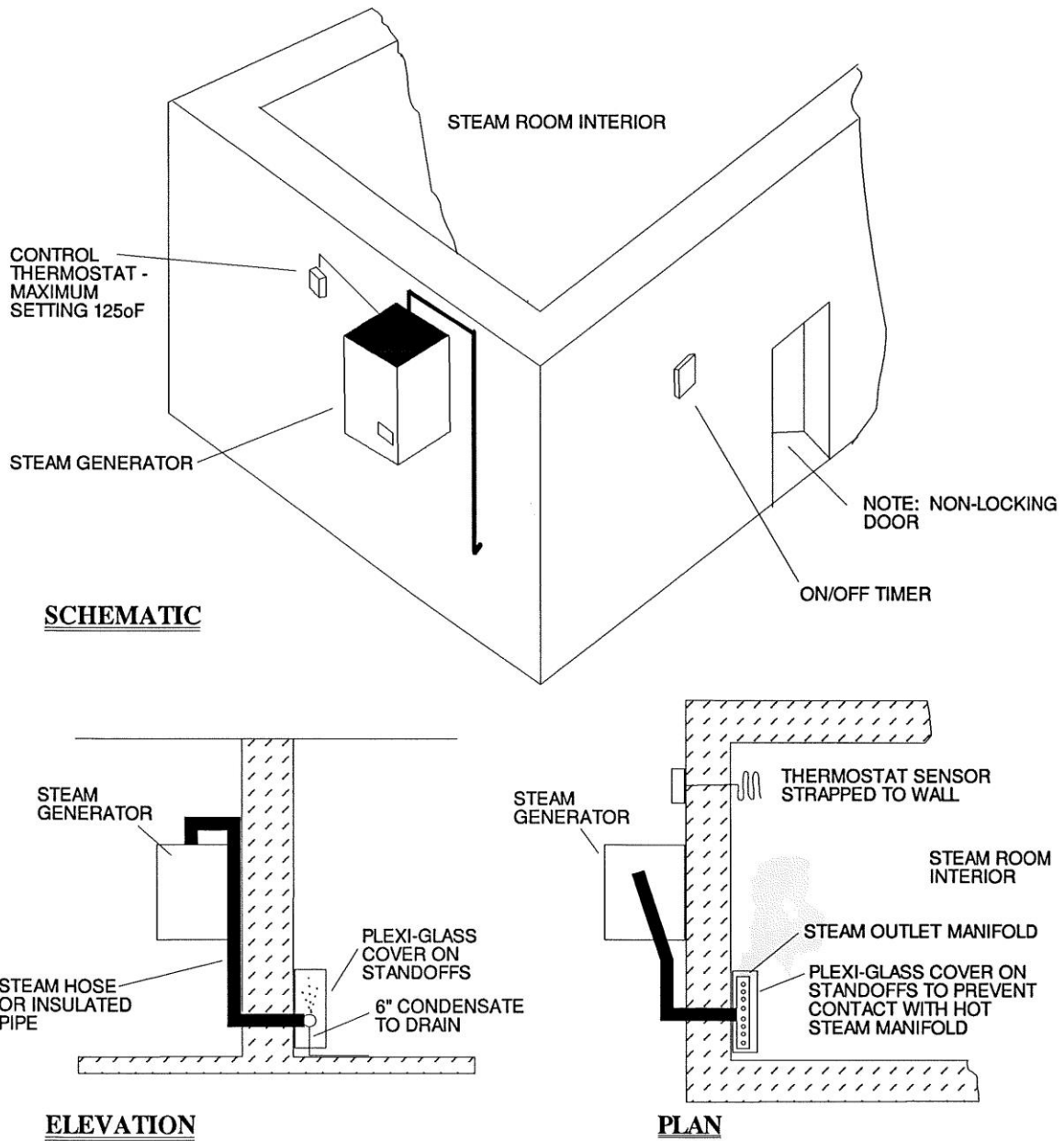
## Sizing

The following is a rule of thumb sizing chart. Room construction, traffic, and so on will have an effect on the amount of steam required.

**Sizing Chart**

<b>Commercial / Institutional</b>			
<b>Room Size (ft.)</b>	<b>Room Size (cu. ft.)</b>	<b>Approximate # of People</b>	<b>Capacity (lbs/hr)</b>
6 x 8 x 8	384	6 to 8	17
8 x 8 x 8	512	8 to 12	30
8 x 10 x 8	640	12 to 15	45
10 x 10 x 8	800	15 to 18	50
10 x 12 x 8	960	18 to 20	60
12 x 12 x 8	1152	20 to 26	90
<b>Residential</b>			
3 x 4 x 8	96	1 to 2	8
6 x 4 x 8	192	3 to 6	10

The attached sketch shows a typical application of a NORTEC NH Series humidifier and a steam room.



**Figure 1: Typical Steam Room Application**

**NOTE:** Do not install humidifier in area with corrosive atmosphere such as swimming pool or spa area.

# Why Nortec Humidity?

Nortec Humidity specializes in the design and production of superior humidification systems. We create the most appropriate solutions to meet your specific needs in the most efficient and cost effective way. To this end, we draw upon our extensive experience to develop an ever growing range of products manufactured to our stringent ISO 9001:2000 certified quality standards that will provide our customers with maximum reliability, minimum maintenance and a choice of energy sources.

When you choose Nortec Humidity, you are choosing the company that has built a reputation for superior quality humidification systems. Only with Nortec Humidity can you select a system operating with electrode steam, subsonic air nozzles, high pressure nozzles, steam injection, steam exchange, or gas-fired technology.

**USA** 826 Proctor Avenue, Ogdensburg, NY 13669  
**Canada** 2740 Fenton Road, Ottawa, Ontario K1T 3T7  
**Tel** 1.866.NORTEC1 **Fax** 613.822.7964 **Email** [nortec@humidity.com](mailto:nortec@humidity.com)

