

**SOUTH MANDELLE**

*One Pipe Steam*



*Heating System Description  
and  
How to make it work*

MOUNT  
HOLYOKE  
COLLEGE

**Tel. 2012**

**or, after normal  
business hours**

**Tel. 2016**

## HEATING HELPERS

Be certain that windows and storm windows are shut tightly. If your windows won't shut properly call **Facilities Management at x2012** to report the problem. We will fix it.

Drawing the window blind will help to slow heat losses during the OFF cycles of the heating operation.

If your room has a temperature sensor in it TRY NOT to locate heat producing devices like a lamp near it. This can severely limit the heat to the building.



**SOUTH MANDELLE**

Monday – Friday  
8:00 am – 4:30 pm

Call Facilities Management @ x2012

All other Hours  
Call the Central Heating Plant  
@ x2016

## WHERE'S THE HEAT COME FROM?

The entire campus is heated with steam that is produced in the Central Heating Plant and then distributed to every building via underground pipes.

At the peak of the season approximately 6,500 gallons of #6 Fuel Oil is burned every day to make the steam required to heat our buildings. This steam is maintained at very high pressures and is used first to generate electricity before being utilized by the campus for heating purposes. This generated electricity is applied against the consumption of Utility (purchased) power.

Underground distribution piping bring the steam to each building where it's pressure is reduced and made useable for the various heating systems.

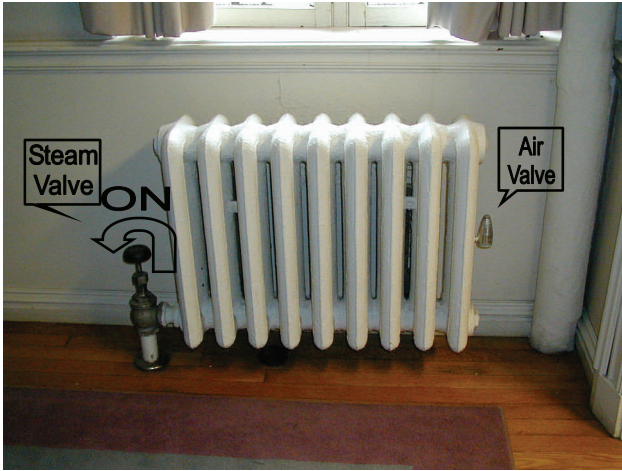
Once the steam has released it's energy it returns to the CHP as condensate, to be reheated for another cycle. About 90% of the steam returns as water for re-use.



**The Energy Management  
Computer watches for heat  
and cold around the clock**

# IT'S A ONE PIPE - STEAM RADIATOR

Most of the Mandelles are heated with a one-pipe steam system. Steam from the Central heating Plant is piped into the building where it is controlled by



automatic valves located in the mechanical spaces of the basement.

Sensors located throughout the building monitor the room temperatures and report that information to an Energy Management Computer System also located in the basement. This information is transmitted to a web based server where it is checked against a heating program dedicated to the South Mandelle environment. The automatic valves respond to this program to maintain the spaces at Setpoint ( the equivalent of a Thermo-

stat setting).

The Engineer operating the Heating Plant when necessary can override this program.

Steam radiators are located in every room and have some control associated with them. They are convection dependent devices and require adequate airflow to work properly. A covered or blocked radiator will not function efficiently.

Each radiator has a two valves connected to it. An Air Valve that vents the radiator, and a Steam Valve that permits steam to enter the radiator and condensate to exit. Condensate is the result when the steam has surrendered its thermal energy to the cast iron radiator sections. This process condenses the steam and now in liquid form it uses gravity to follow the pipes back to the basement and eventually to the Central Heating Plant where it is recycled to become steam yet again. When the valve is turned **counter-clockwise** all the way to it's stop, the valve is **ON** and the radiator will HEAT when the steam is available. When the valve is turned **clockwise** all the way to it's stop, the valve is **OFF** and NO HEAT will result when the building's automatic valve cycles to heat the rest of the building. If you leave your steam valve off and leave your room, your room will not get the heat needed to maintain your room at a comfortable temperature. When you turn the valve on, there is no guarantee that steam will be available at that time. Thus no guarantee that your room will begin to receive heat, and in fact it may be several degrees lower than any rooms that had their valves open during the same time

period. This valve should always be either all the way ON or all the way OFF. Any other setting can trap water in the radiator and contribute to banging pipes. Banging, known as Water Hammer, occurs when Steam collides with condensate.

The silver device on the opposite end of the radiator is called an Air Valve and controls the rate that the radiator can heat.. It allows the steam to displace the cool air in an empty radiator by venting that air. When the hot steam reaches it's temperature sensitive element it closes, thereby trapping the hot steam in the radiator where it must surrender it's Btu's to the surrounding cast iron. The hot cast iron warms the nearby room air and convection moves the warm air around the room to heat the space. The setting on this valve controls the rate at which this venting process occurs, thereby the rate at which the radiator heats and is set relevant to the rest of the radiators in the building.

**Never, Remove The Air Valve or Turn it Upside Down!** This can allow raw steam to escape from the system and enter the room.

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