Forest HVAC System Operation

Building Equipment-

A steam converter makes hot water that is circulated throughout the building by electric pumps. A hot water radiator is placed in each room, typically under the window. An electric chiller is located on the north side of the building and produces chilled water that is pumped through the building to fan coil units in rooms above the ceilings. Some rooms have their own chilled fan coils, but most (shared sinks is a good indicator that you share a fan coil) will share a fan coil with a neighbor. Two air handlers located in the attic provides 100% fresh air to the building. There is a heat recovery wheel in each air handler which pre-heats the incoming outdoor air. It does so by flowing the warmer exhaust air and fresh outdoor air through a rotating wheel. The rotating wheel is warmed by the exhaust air, and when rotated through the fresh outdoor air, pre-heats that cooler outdoor air before entering the building. This is a most efficient method of bringing in fresh air without sacrificing energy waste.

Cooling/Heating control-

Enabling heating to the building uses a slightly complicated algorithm to turn on the heating pumps. But basically, with outdoor temperatures that are less than 55 degrees, the heat will be enabled. If outdoor temps stay below 65 for a day or so, the heat will also be enabled until they rise above 65 degrees, at which point the heat shuts off.

Each room has their own their own thermostat for the radiator in the space (for 1st floor center rooms, see link about those rooms). The heating set points for an unoccupied room are 58 degrees, and an occupied room is 69 degrees. Occupants can adjust their set point up or down 3 degrees to control the temp in their space.

For cooling, when the outdoor temperatures are above (approx.) 68 degrees, the chiller will be enabled to run.

The cooling set points for an unoccupied room are 88 degrees, and an occupied room is 78 degrees. For most rooms, the shared chilled fan coil will control the room to an **occupied** (average if both spaces are occupied) control set point and **AVERAGE** temperature of the shared spaces.

Occupant comfort control-

Forest users must push the occupancy pushbutton on their room thermostats to put the room into an occupied state. The occupied state will last 12 continuous hours.

Once in an occupied state, the room will heat or cool, depending on conditions outside and space temperatures.

Occupants can adjust their heating and cooling set points by using a slide on the right side of the thermostat.

During the summer cooling season, users can adjust their set point from a low of 75 degrees F to 81 degrees F. For the winter heating season, the set point can be adjusted from a low of 66 Degrees F to 72 degrees F .

If the occupancy button is not pushed, the room will be in an unoccupied state. The heating and cooling set points will then be 58 or 88 (within a 3-degree swing depending on the set point slide).

If a room is in an occupied state, the windows should be shut and locked. Locking the window provides a tighter seal around the window which keeps cold drafts from blowing in. If your room is having cold air blowing in because your neighbor turned on the cooling, your window should be shut. This will help eliminate condensation in the fan coil units on very humid days.

Forest dorm room thermostat control

LED off, room is unoccupied.

Occupancy button, push this button to put the room into an occupied mode.
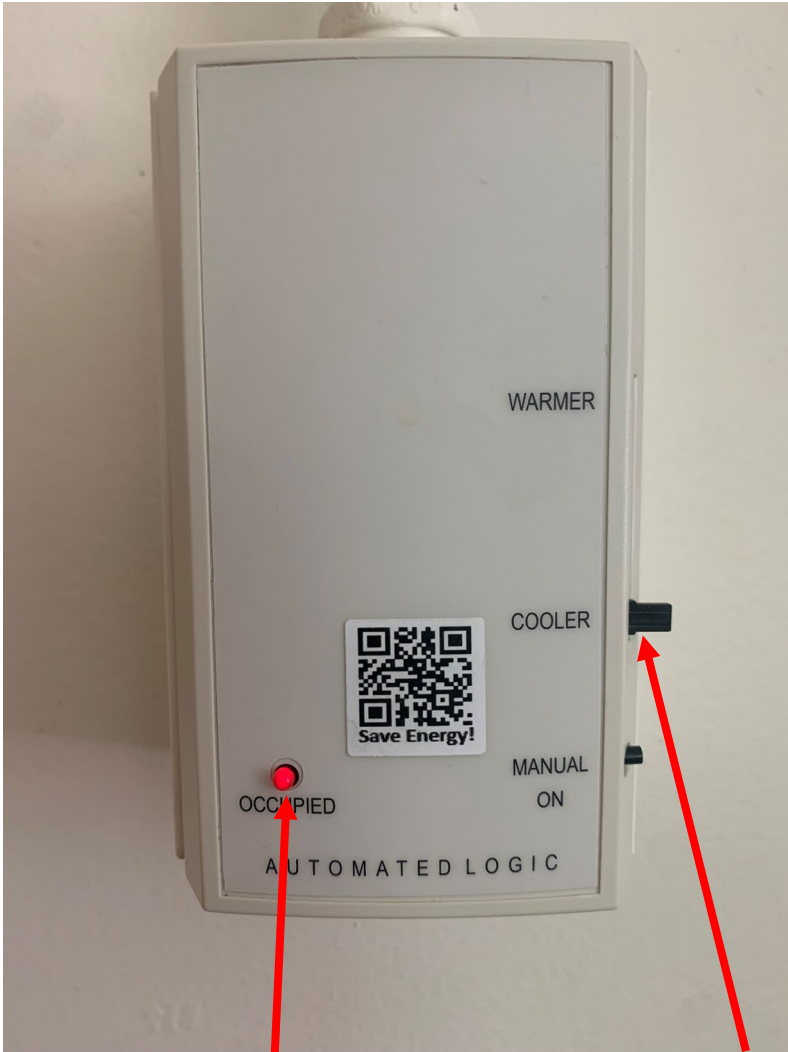
Notice that the "occupied" LED is now lit. it will stay that way for 12 hours. Pushing the button at any time will reset the counter to 12 hours.

Notice the slide is all the way down. This will place the set point on the coldest part of either the heating or cooling scale depending on what season we are in. 66 for heating and 75 for cooling.

Notice the slide is halfway between the warmest and coolest setting. This will place the set point in the default set points of the system. 69 for heating, 78 for cooling.