

5. HEATING, VENTILATION, AND COOLING SYSTEMS:

Heating and Cooling:

DESCRIPTION:

The building is heated by eight separate systems, and with the exception of the two systems that serve the lower level, they also provide cooling. This permits significant energy savings by heating or cooling only those areas which are in use. Each system has its own thermostat which can be set to suit the area use pattern. The Heating, Ventilation, and Air Conditioning Units (HVAC) for zones 1-6 are that are located on the roof of the education wing. Power is supplied through electrical panel H in room 206, the electrical/storage room, which is located across from the office. The position of each unit is shown on the attached drawing and a copy of the drawing is posted on the inside of the access door to the roof. The following is a list of the various zones and the location of the thermostats:

1. Sanctuary– Thermostat is on the north end of the sound booth.
2. Education wing- first floor offices including the church offices, the community room, and the offices adjacent to the community room, but excluding the nursery and lobby area. The thermostat is in the church office.
3. Education wing -second floor (excluding the Wesley Room). The thermostat is in room 409, the youth room.
4. Nursery, lower lobby, preschool room and lower restrooms. The thermostat is in room 202, the nursery.
5. Multi- use room (gym) & upper restrooms. The thermostat is on the east end wall of the gym.
6. Wesley Room & Narthex–The thermostat is in room 402, the Wesley Room.
7. Fellowship hall & kitchen–An electric furnace is in the paint room. (Heating only, there is no cooling for these rooms). Thermostat is on the west end wall of the Fellowship hall.
8. Room 102 and the basement storage areas except the preschool room. A gas furnace, no cooling, is located in the mechanical room on the lower floor. The thermostat is on the east wall of room 102, the conference room.
9. The Community room –This room is at the end of the first floor zone and it was always cold in winter. Two Cadet wall-mounted electric heaters were added to solve that problem and the thermostat is to the right of the door that leads into the rest of the church.

The six gas powered Lennox heat pumps units located on the roof have a design life of about 20 years. The church has started the process of replacing these units in order to avoid a situation where more than one unit would fail in one year. This also avoids spending a lot of money on repairing a unit that may not last much longer. One unit was replaced in 2015 and another in 2017. These units cost between \$15,000 & 25,000 each so their replacement needs to be programmed into the budgeting process.

Operation:

It is very important to keep doors closed for the heating and cooling system to operate efficiently. This is particularly important in the church offices, the double doors going into the multi-purpose room (gym) and the double doors going into the fellowship hall.

Heating and cooling can also be adjusted by opening or closing the dampers of the heating/cooling ducts located above the suspended ceiling. The locations of these dampers are marked by a red dot on the ceiling. It is particularly important to adjust the dampers in the first floor offices and the community room so that some spaces are not too hot and others too cold.

Thermostats:

The church is unique, when it comes to heating and cooling, in that most rooms are not used on a regular schedule that can be programmed into a thermostat. Most zones are set to the “occupied” temperature for only specific period, such as Sunday morning for the sanctuary or M-F 8 am to 5 pm for the office zone. At other times they are set at the “unoccupied” temperature and some zones have no “occupied” times in their programming. The church does have, however, a lot of use that is once or twice a month, occasional, three weeks in a row but no more, or some other combination that can’t be easily programmed into a thermostat. There is a need for those people to adjust the temperature without changing the underlying programming.

The church has been replacing older thermostats with Honeywell units of the HR8000 series. They are expensive but they allow for flexibility in programming. They can be partially locked but still allow people to adjust the temperature as needed while preventing changes to the underlying program. However, once the temperature is changed the thermostat will keep it at that temperature unless the user sets it back to the “unoccupied” setting, which they often forget to do. The newer thermostats can be programmed to make four temperature changes per day. To ensure that the heat or AC doesn’t stay on for days when it isn’t needed, all thermostats are set to return to the “unoccupied” temperature several times a day and always by 10 pm. The problem with this solution is that after someone changes the temperature it may revert to “unoccupied” when the time reaches one of those programmed resets settings. Unfortunately, this can occur in the middle of a meeting or some activity and the only solution is to change the temperature setting again. The latest version of the TH8000 has a hold setting so the temperature can be changed and the time of the hold can be adjusted while the thermostat is still partially locked. The other thermostats can be changed to hold a temperature but the units must be unlocked to do this.

The thermostat in the community room has no programmed “occupied” heat times but the users of that space have learned how to adjust the heat and the room heats up quickly. The programmed “unoccupied” periods ensure that the units are turned off when not needed. Also, this thermostat has a lever on the bottom that can turn the thermostat off. There is a piece of tape covering that switch but it still gets turned off occasionally. If the Thermostat doesn’t appear to be working check the on/off switch.

It is very difficult to keep the gym cool enough in the summer for the Jazzercises classes and they usually open the doors so the AC unit is trying to cool the outside as well. It is best to set the thermostat to the “unoccupied” temperature during these classes.

Most of the thermostats that were installed 20 years ago during the remodel have failed and been replaced with the exception of the nursery and room 102, and the one in 102 needs to be replaced.

All the thermostats, except the community room, have a fan setting that has three settings: 1. on continuously, 2. circulating, which runs about 35% of the time, and 3. auto, which runs only when the heat or AC is on. All thermostats are set to “auto” but because there is no AC in the fellowship hall, and therefore the fan never runs in the summer, the air can get stale. It may be necessary to use the “circulating” setting in the summer.

MAINTENANCE:

The church has a contract with Mountain View Heating to check the systems and change filters every six months. This is usually scheduled just before the heating season and just before the AC seasons.

For service contact: Mountain View Heating, Tel. (541) 389-1694.

Equipment supplier and installer: Mountain View Heating.

The manufactures installation and service bulletins are in a separate three ring binder titled “Heating Cooling and Ventilation Systems “and it is in the trustees’ file in the office.

Copies of the instructions for the various thermostats are located in the trustees’ file in the office.

Ventilation:

Ventilation of the restrooms and kitchen is provided by four separate exhaust systems and they are all powered fans on the Education Wing roof. Power comes from electrical panel H, in room 206.

1. Kitchen range hood exhaust:

The exhaust and make-up air supply fans are turned on with a single switch located to the left of the range. The temperature of the make-up air supply to front of hood can be adjusted at the unit on the roof and it is presently set at 65 degrees. This exhaust should be turned on whenever the grill and range are being used. The louvers in the exhaust hood can be adjusted to reduce the flow of make-up air flowing into the kitchen, which can be a problem.

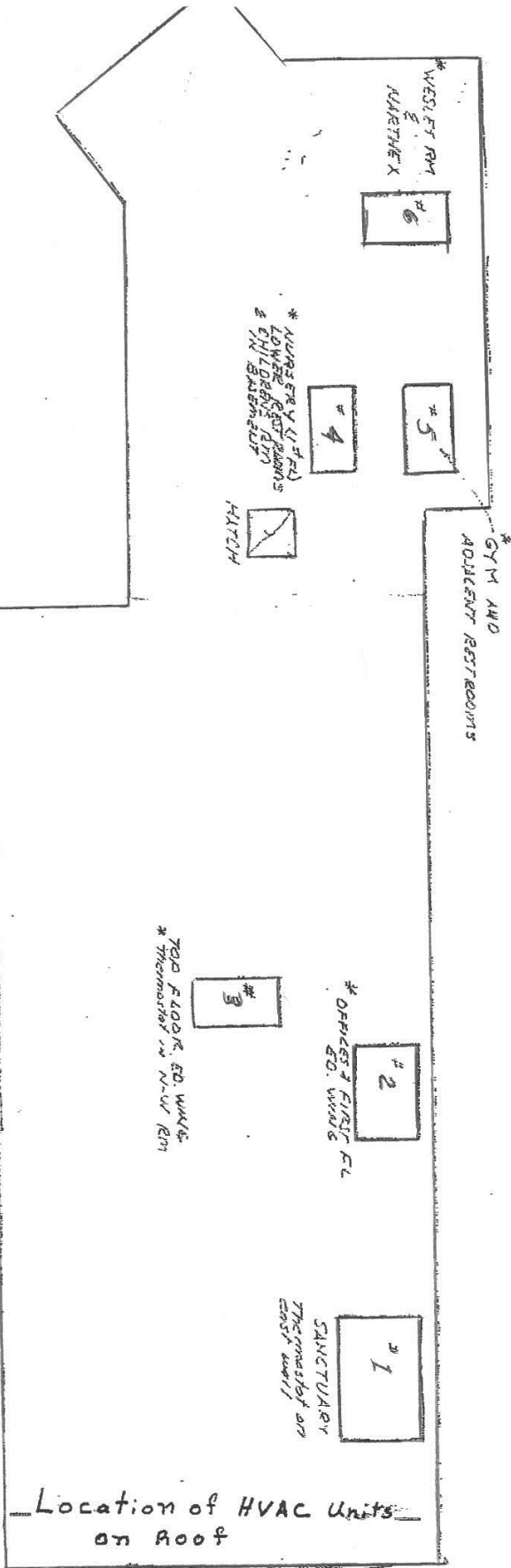
2. Dishwasher:

The on/off switch is on the wall to the left of the dishwasher and should be turned ON when using the dishwasher.

3. Restrooms:

The fan switches have been modified so they come on with the lights. This change was made because the fan is wired so that it will remain ON unless all restrooms switches are in the OFF position. And it is easier to get people to turn off the lights than to turn off the fan. The community room bathroom has a separate exhaust fan.

All of these exhaust fans are run by a fan belt and they break on a regular basis. If they don’t seem to be working the fan belt is probably broken. They are not that hard to replace and the belts can be purchased at an auto parts store such as NAPA. Mountain View Heating can also service them.



AREAS SERVED BY HVAC UNITS ON ROOF

* Location of Thermostat