

CLIMETEC

Vertical Fancoil Unit Operation and Maintenance Guide

CLIMETEC VERTICAL FANCOIL

System Operation

The vertical fancoil system in your building is run from a central location, generally, found at the top of the building in a Mechanical Room.

The Mechanical Room is equipped with a chiller and cooling tower, a number of boilers, and a series of pumps. These pieces of equipment generate the system water temperatures required to run each individual fancoil unit located in the suites, and common areas.

During the cooling season, the chiller and cooling tower will generate approximately 7.2 deg.C. (45 deg.F.) water. The pumping system will circulate this water throughout the building. During the heating season, the boilers will generate approximately 43.3 to 60 deg.C. (110 to 140 deg.F.) water, and again, the same pumps will circulate this water throughout the building.

This type of system is known as a changeover system. As the name indicates, at some point in time, the system is turned over from cooling mode to heating mode, or vice versa. The timing of this changeover is usually decided by the property manager, of the Board of Directors.

Vertical Fancoil Operation

Each individual fancoil unit is controlled by a thermostat. Through an internal temperature sensor (aquastat), the unit will function in the mode dictated by the water temperature in the system, i.e. heating with hot water, cooling with chilled water.

Generally all thermostats are very similar in operation. Depending on the model supplied, there may be a HEAT - OFF - COOL' selector switch, and a three speed fan switch indicating 'HIGH- MEDIUM -LOW'. On newer models there may be an 'OFF - ON' switch, an 'ON - AUTO' fan switch, and a three speed switch as described above.

Regardless of which thermostat is supplied, you will be required to set the temperature you feel comfortable with. This may range between 20 deg.C. (68 deg.F.) and 24.4 deg.C. (76 deg.F.). On the older models, you will also have to select the 'HEAT' or 'COOL' mode by sliding the lever to the appropriate location. In the newer model, all you have to do is hold the up arrow '^' or down arrow 'v', until you reach the desired temperature.

The fan speed selector switch will allow you to select how fast you would like to circulate the room air through the unit. There are three settings to choose from. As a rule of thumb, use 'HIGH' and 'MEDIUM' for cooling, and 'MEDIUM' and 'LOW' for heating.

In the newer models, you will have the option of running the fan continuously, or cycling it on and off on call from the thermostat by sliding the 'AUTO - ON' selector switch to 'AUTO' for cycling, and 'ON' for continuous fan. In older models, this cycling or continuous feature has been predetermined, and your particular model will work one way or the other, and cannot be changed, without changing the thermostat.

Optional Electric Heaters

Some fancoil unit models have an upgraded feature known as an auxiliary heater. These heaters have been installed to provide some heat during the spring and fall seasons, while the system is in the cooling mode.

The heaters may range from 0.75KW to 2.0KW in size, and are predetermined by the Mechanical Engineer during the design stage. They are usually sized to raise the temperature of the space 1 deg.F. per hour i.e., if the temperature is 20 deg.C. (68 deg.F.), it would take 4 hours to raise it to 22.2 deg.C. (72 deg.F.). Therefore, it is recommended to set your preferred temperature, and leave the unit on during this time of the year. It will be easier for the heater to maintain temperature, and you will not experience wide temperature fluctuations.

Filtration

The standard filter supplied with the fancoil unit is a polyester media with a wire frame. There are two sizes depending on the unit size. It will be either 13 ½ x 20", or 15 ½ x 20".

There are a variety of filters available for these units. The following will outline their efficiency performance:

- Standard polyester media with wire frame has 20 to 25 % efficiency
- Tackified polyester media with wire frame has 60 to 80% efficiency
- Pleated filter has 90 to 95% efficiency
- Electronic filter has 95 to 99% efficiency

The efficiency of these filters is relative to the arrestance capability of each type. The higher the efficiency, the more particulate it will collect, but also the more frequent it will need to be changed.

Maintenance

The following maintenance scope of work may be used to tender quotations, or as a personal reference guide. This is based on doing the maintenance twice a year.

Major Scope of Work:

- Air filter replacement.
- Remove return air grille/access panel, and inlet baffle to access all parts requiring service.
- Vacuum condensate drain pan, remove scale, and check for potential leaks.
- Remove drain hose, vacuum and snake, to allow free flow of condensation. Reconnect drain hose, and check for kinks.
- Vacuum fan motor and lubricate bearings, if necessary.
- Vacuum interior of fancoil.
- Spray interior of unit to inhibit mold growth, as per Health Canada guidelines.
- Check unit operation, thermostat, motorized valve, and fan motor.
- Vacuum access baffle and reinstall.
- Update service information sticker on baffle.
- Reinstall access panel with new filter, and vacuum return air grille.
- Premises to be left clean and tidy.

Minor Scope of Work:

- Air filter replacement..
- Remove return air grille/access panel, and inlet baffle to access all parts requiring service.
- Vacuum condensate drain pan, remove scale, and check for potential leaks.
- Vacuum fan motor and lubricate bearings, if necessary.
- Vacuum interior of fancoil.
- Check unit operation, thermostat, motorized valve, and fan motor.
- Vacuum access baffle and reinstall.
- Update service information sticker on baffle.
- Reinstall access panel with new filter, and vacuum return air grille.
- Premises to be left clean and tidy.

OPTIONAL:

- Drop fan blower and clean behind water coil.

This option is recommended every 3 or 4 years. Over time, debris that has passed through the filter has accumulated behind the water coil, and will restrict the air side of the water coil, severely reducing its efficiency. This option should be done during the heating season, when it is easier to vacuum the debris because it is dry. The frequency of this option will depend on the severity of the existing conditions.