



Multifamily Facility Management Services

SMALL COMMERCIAL SETBACK THERMOSTATS

Description:

A lot of money (and energy) can be saved in a commercial building by operating the HVAC (heating, ventilating and air conditioning) system more efficiently. One of the most important elements of that control is the thermostat. One of the best ways to save money using the thermostat is to setback temperatures in the winter and to setup temperatures in the summer whenever the building is unoccupied. Dependable temperature setback or setup in a commercial building requires a thermostat capable of performing these functions automatically. Manual setback/setup is simply not reliable in these applications.

The lower the temperature during setback in the winter and the higher the temperature during setup in the summer, the more that can be saved. For example, in Minnesota approximately 1 percent can be saved for every degree the temperature is setback/setup over every 8 hour period. Therefore, an eight hour night setback of just 10°F during the heating season would save about 10%. Since most commercial buildings require cooling during a good part of the year, temperature setup during the summer is just as important as setback during the winter. In fact, it is often possible to shut the cooling system down completely during unoccupied hours. When this is done, a cool-down period is required in the morning before occupants arrive. In some areas, however, this morning cool-down can often be done with just outside air.

Thermostats that automatically setback/setup system temperatures have been on the market for a long time and are very reliable and easy to install. Many different types of setback thermostats with a variety of features are available. Certain thermostats have setup and setback temperatures which are adjusted internally to prevent occupant tampering. Another thermostat which discourages tampering allows the control to be installed in the equipment room, while one or more remote sensors serve as control point(s) in the building. Setback thermostats are available with a variety of programs. A daily program may be adequate for a commercial property which has the same schedule every day of the week, but a weekday/weekend program or complete 7-day program may be necessary for other businesses. The way that setback is accomplished also can vary from thermostat to thermostat. One particularly interesting model uses a photosensor to adjust temperatures up and down according to whether or not lights are on or off in the area being controlled. Many other variations on setback/setup thermostats, more numerous to mention, are available.

If a building has both air conditioning and space heating, a thermostat that controls both heating and cooling rather than just one or the other is required. If a building is such that alternation between heating and cooling is required during the same week or even the same day, a thermostat with a wide “dead” band is necessary. Such a thermostat will allow a wide temperature range during which neither heating nor cooling is provided. For example, such a thermostat might supply space heating between 68°F and 70°F, space cooling between 78°F and 80°F, and neither between 70°F and 78°F.

Because of the great variety of thermostat options, a certain amount of shopping around may be warranted. One or more of the features mentioned above may be particularly beneficial for a particular building, or a certain thermostat might be preferable because it is easier to program or operate. In any case, the new thermostat should have some sort of back-up system (like batteries and/or an internal computerized chip memory), so that setpoints and times are retained in case of a power outage.

Thermostat location is another critical issue that needs to be considered fully. It is important to install the thermostat in a draft free location, ideally on an interior wall, well away from outside doors. The thermostat should also be situated away from cooling or heating sources, including lights. Also a location should be selected that is representative in terms of sensing average temperatures in the room or area controlled by the thermostat. Another thing to consider is accessibility. In some buildings, it is useful to have the control in plain view and accessible to any occupant. In other situations, the thermostat should be accessible only to maintenance personnel (like in an office building), or only to employees (like in a retail space). If total inaccessibility is preferred, a remote sensing thermostat can be installed, or else a locking box placed over the thermostat.

How to Implement:

Thermostats can be installed by a trained building maintenance person, or else a contractor can be hired to do the job. As part of the initial installation, the installer should check the calibration of the thermostat against a known reference and recalibrate it if necessary.

Since thermostat technology is always changing, it is useful to be alert to the availability of new products. Any good equipment supply house or contractor will be aware of new products as they become available. They also may be able to make recommendations regarding different features to consider for a particular application and to provide literature or samples so that different options can be compared more thoroughly.