

HUMIDITY CONTROLS

by

Darcee A. McAninley, P.E.

Wojcieszak & Associates, Inc., P.O. Box 2528, Stuart, Florida 34995

E-Mail: darcee@dwojo.com

(772) 286-8696

Introduction

All air conditioning equipment has, to some degree, the ability to dehumidify. Selection of the type of control system should be based on its ability to maintain humidity and temperature to the degree required by the building and its owner. System costs including operator training should be budgeted for during the initial design.

Equipment Selection

Equipment must first be sized properly and selected to have some form of humidity control. Humidity control comes in the form of the following:

- Leaving coil temperature under 55°F
- Staging of equipment
- Variable speed equipment
- Reheat

For more information, see Technical Bulletin No. 10, ***Selection of HVAC Equipment.***

Ventilation

Ventilation air should first pass through the air conditioning unit. This allows the warm, humid air to be dehumidified before reaching the space. Equipment must be sized to accommodate ventilation requirements. Many residential units are not capable of handling more than 10% of the total cfm as ventilation air. When air is brought directly into the unit, it limits the overall amount of uncontrolled infiltration into the building.

It is also good practice to bring in ventilation air only when the compressor is running to assure that the air will cross over an active coil and be dehumidified. Only bring in the minimum ventilation required. Bringing in the same amounts of ventilation while the building is occupied or unoccupied is a waste of energy.

Building Pressurization

Building pressurization goes hand and hand with ventilation. When more air from outside is brought into a building than is exhausted, the building becomes positively pressurized. When this occurs, the areas that normally allow the buildings to breath, like windows and doors, will only allow the air to travel outwards because of the pressure. Pressurizing the building reduces the amounts of uncontrolled infiltration.

Fan Operation Mode

In most cases, the fan should be set to the “FAN AUTO” mode. In this mode, the fan cycles on and off with the compressor. When the coil becomes inactive, the fan does not blow air across it, carrying the moisture that had been removed while it was active. It allows this moisture to drain off the coil.

The ductwork of systems that run in the “FAN AUTO” mode are much dryer than those of ones that run in the “FAN ON” mode. Moisture collects to the inside of the duct while the coil is inactive and allows for mold and mildew growth.

Changing Control Settings

Avoid changing the settings in the control system beyond the limits initially set by the contractor who installed them. Untrained personnel who “tinker” with an HVAC system can wind up fixing one problem at the expense of creating ten new ones.

Vacating Buildings

If the building will be closed down for several weeks or months at a time, do not turn the air conditioning system off. Bump the thermostat setting up to 78°F or 79°F. This will allow the air conditioning to run and dehumidify while the building is vacant.