

Equipment

Centrifugal Chillers

Manufacturer: Trane or McQuay

Reciprocating/Scroll Chillers

Manufacturer: Trane, York or Carrier

Residential Cooling Systems

- Manufacturer: Carrier or Trane
- Filters to be accessible without removing panel covers

Energy Control System

Residential

- Manufacturer: Carrier or Trane
- Nonprogrammable room thermostats
- Carrier model Debonair 71 preferred
- Internal limit settings (separate setpoints for heating and cooling max/min temp)
- Winter max 76 degrees F, Summer min 70 degrees F
- Secure access to limit settings
- No batteries
- Not on central energy system

Non Residential

- Manufacturer: Automated Logic, Johnson Controls, or Trane Tracker
- Central energy system

- Room thermostats with set point by BAS and +/- 3 degree adjustment by occupant., (rotary dial is acceptable if dial can be disabled)
- Economizer mode preferred with enthalpy control
- Provide changeable reset schedule for HW heat and CHW cooling

Control Requirements – Minimum Air Handlers

HW & CHW valves to be Proportional Control, EMS Sensors to read:

- Room return air temperature, humidity, mixed air temperature, supply air temperature
- Fan start/stop, fan status, cfm
- VSD status (inlet vane damper position)
- Static pressure
- HW & CHW valve position
- Damper positions

VAV Boxes

HW & CHW valves to be Proportional Control, EMS Sensors to read:

- Discharge temp
- Fan start/stop, fan status, cfm
- Damper position
- Valve position

Chillers

EMS Sensors to read:

- Start/stop (enable/disable)

- Pumps start/stop and status
- Automatic alternating lead/lag for multiple chillers/pumps
- CHW supply/return temperature & valve position
- Condenser water supply/return temperature & valve position
- Outside air temperature and humidity

Boilers

EMS Sensors to read:

- Start/stop (enable/disable)
- Pumps start/stop and status
- HW supply/return temperature
- HW valve position
- Automatic alternating lead/lag for multiple boilers

Variable Speed Drives

VSD to have internal line bus reactor and an undervoltage/overvoltage protection relay to protect the bypass control circuitry

General Notes

- Copper pipe to be Type L or K only
- Pumps to be Bell & Gossett, Weinman, or Armstrong
- Exterior piping: All non-metallic pipes to have #14 tracer wire stubbed up at proper access points (valve box, eqpt room, etc.)
- Install floor drain in all mechanical rooms with air handling units
- EMS to provide graphics for all sensor data