WSP USA
100 Summer Street, 13th Floor
Boston, MA 02110
Tel.: +1 617-426-7330
wsp.com

Massachusetts Institute of Technology
Schwarzman College of Computing
Cambridge, MA

FAN COIL UNIT & THERMOSTAT TIPS

Fan Coil Unit – Thermostat Control

General Thermostat Control Strategy:

The thermostats are provided by Automated Logic (ALC) and are all tied in via BACnet to the WebCTRL Building Automation System. Each Fan Coil Unit is provided with its own thermostat for local control.

The up and down arrows on the thermostat pad give the user the ability to adjust the zone temperature setpoint +/- 3F. Please note, the +/- temperature adjustment can be changed via the Building Automation System. While adjusting the temperature, you will be able to see the setpoint change on the right side of the display screen.

The thermostat display screen will show zone temperature, outside air temperature, relative humidity (if applicable), and CO2 levels (if applicable). Outside air temperature will have an icon below it that looks like a sun/cloud. Zone temperature will not have any icon associated with it. The "i" button on the thermostat allows you to change the display on the screen.

Overall, these thermostats mostly serve as a temperature/CO2 sensor and are developed as indoor air quality sensors. They only give the user the ability to adjust zone temperature setpoint. All other adjustments must be done via the Building Automation System.

Fan Coil Unit Control:

There is a total of three (3) different types of Fan Coil Units throughout the building. The following different types of FCU's are: 4-pipe FCU w/ occupancy, 4-pipe FCU with FTR, and 2-pipe FCU (Cooling only).

On a call for heating, the unit supply fan shall start at minimum fan speed. As the first stage of heating, the discharge air temperature setpoint shall modulate towards its maximum to maintain space temperature at heating setpoint and the heating valve shall modulate open to maintain the DAT setpoint. As a second stage of heating, the fan speed shall reset upward between minimum and maximum airflow in order to maintain setpoint. If an FTR is associated with the FCU, the heating valve associated with the FTR shall modulate open on a call for heat in the space. The FTRs provide heat up against the windows in certain spaces.

On a call for cooling, the unit supply fan shall start at minimum fan speed. As the first stage of cooling, the discharge air temperature setpoint shall modulate towards its minimum to maintain space temperature at cooling setpoint and the chilled water valve shall modulate open to maintain the DAT setpoint. As a second stage of cooling, the fan speed shall reset upward between minimum and maximum airflow in order to maintain setpoint.

Note, all FCUs are provided with a high-level water level sensor located in the condensate pan. The high-level alarm in the condensate pump and the high-level alarm in the condensate pan are wired in series. If either sensor is tripped, an alarm shall be sent to the building automation system, and the chilled water valve will be indexed closed.

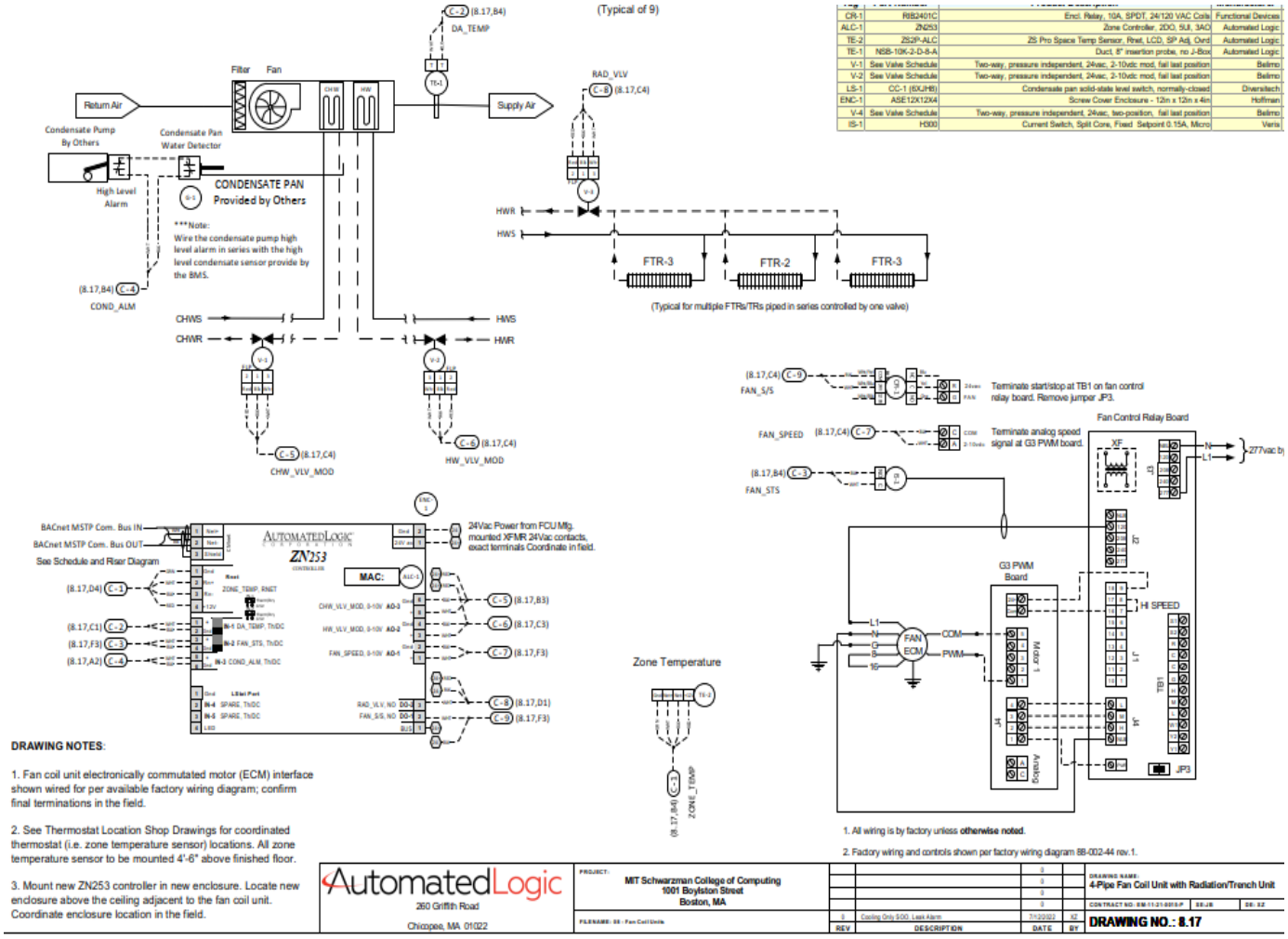
Setpoints:

Occupied Zone Temperature Setpoints - Cooling 75F (adj.) & Heating 70F (adj.)

Unoccupied Zone Temperature Setpoints – Cooling 78F (adj.) & Heating 65F (adj.)

Discharge Temperature Setpoints – Cooling 55F (adj.) & Heating 95F (adj.)

System Diagram



CR-1	RIB2401C	Encl. Relay, 10A, SPDT, 24/120 VAC Coils	Functional Devices
ALC-1	ZN253	Zone Controller, 2DO, 5UI, 3AO	Automated Logic
TE-2	ZS2P-ALC	ZS Pro Space Temp Sensor, Rnet, LCD, SP Adj, Ovrd	Automated Logic
TE-1	NSB-10K-2-D-8-A	Duct, 8" insertion probe, no J-Box	Automated Logic
V-1	See Valve Schedule	Two-way, pressure independent, 24vac, 2-10vdc mod, fail last position	Belimo
V-2	See Valve Schedule	Two-way, pressure independent, 24vac, 2-10vdc mod, fail last position	Belimo
LS-1	CC-1 (6XJH8)	Condensate pan solid-state level switch, normally-closed	Diversitech
ENC-1	ASE12X12X4	Screw Cover Enclosure - 12in x 12in x 4in	Hoffman
V-4	See Valve Schedule	Two-way, pressure independent, 24vac, two-position, fail last position	Belimo
IS-1	H300	Current Switch, Split Core, Fixed Setpoint 0.15A, Micro	Veris

DRAWING NOTES:

1. Fan coil unit electronically commutated motor (ECM) interface shown wired for per available factory wiring diagram; confirm final terminations in the field.
2. See Thermostat Location Shop Drawings for coordinated thermostat (i.e. zone temperature sensor) locations. All zone temperature sensor to be mounted 4'-6" above finished floor.
3. Mount new ZN253 controller in new enclosure. Locate new enclosure above the ceiling adjacent to the fan coil unit. Coordinate enclosure location in the field.

1. All wiring is by factory unless **otherwise noted**.
2. Factory wiring and controls shown per factory wiring diagram 88-002-44 rev.1.

AutomatedLogic
260 Griffith Road
Chicopee, MA 01022

PROJECT: MIT Schwarzman College of Computing, 1001 Boylston Street, Boston, MA

FILENAME: 88 - Fan Coil Units

REV	DESCRIPTION	DATE	BY
3			
2	Cooling Only S/O0, Leak Alarm	7/12/2023	AS

DRAWING NAME: 4-Pipe Fan Coil Unit with Radiation/Trench Unit

CONTRACT NO.: 88-11-21-0013-P | 88-JB | 88-AS

DRAWING NO.: 8.17