CERTIFIED TEST, ADJUST, AND BALANCE REPORT

DATE

2/26/2024

PROJECT

HNTB FLOOR 18
LITTLE ROCK, AR

ARCHITECT

DLR GROUP

ENGINEER

PETTIT & PETTIT CONSULTING ENGINEERS, INC.
201 EAST MARKHAM STREET, SUITE 400
LITTLE ROCK, AR 72206
(501)374-3731

HVAC CONTRACTOR

CUSTOM METALS
8900 FOURCHE DAM PIKE
LITTLE ROCK, AR 72206
(501)490-4400

NEBB TAB FIRM

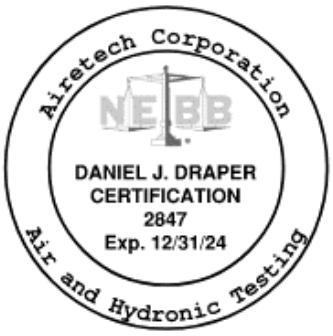
AIRETECH CORPORATION
7631 Northshore Place
North Little Rock, Arkansas 72118

Certification Number: 2847

PROJECT: HNTB FLOOR 18

THE DATA PRESENTED IN THIS REPORT IS A RECORD OF SYSTEM MEASUREMENTS & FINAL ADJUSTMENTS THAT HAVE BEEN OBTAINED IN ACCORDANCE WITH THE CURRENT ADDITION OF THE NEBB PROCEDURAL STANDARD FOR TESTING, ADJUSTING & BALANCING OF ENVIRONMENTAL SYSTEMS. THE MEASUREMENTS SHOWN, & THE INFORMATION GIVEN, IN THIS REPORT ARE CERTIFIED TO BE ACCURATE & COMPLETE, AT THE TIME & DATE INFORMATION WAS GATHERED. ANY VARIANCES FROM DESIGN QUANTITIES, WHICH EXCEED NEBB TOLERANCES, ARE NOTED IN THE TAB REPORT PROJECT SUMMARY.

SUBMITTED & CERTIFIED BY:
NEBB TAB FIRM: AIRETECH CORPORATION
REGISTRATION NUMBER: 2847
CERTIFIED BY (TAB SUPERVISOR): DANIEL J DRAPER
CERTIFICATION EXPIRATION DATE: 12/31/2024
SIGNATURE:



Firm Certification

AIRETECH CORPORATION

HAS MET ALL REQUIREMENTS FOR NEBB CERTIFIED STATUS IN THE FOLLOWING DISCIPLINE

Testing, Adjusting and Balancing of Environmental Systems

2847

NEBB Certification Number

December 31, 2024

Expiration Date

NEBB President

NEBB President-Elect

Certification

DANIEL J. DRAPER

HAS MET ALL REQUIREMENTS FOR NEBB CERTIFIED PROFESSIONAL STATUS IN THE FOLLOWING DISCIPLINE

Testing, Adjusting and Balancing of Environmental Systems

This Certificate, as well as individual affiliation with a NEBB Certified Firm and associated NEBB Certification Stamp are REQUIRED to provide a NEBB Certified Report. Participation in the NEBB Quality Assurance Program requires the Certificant be affiliated with a NEBB Certified Firm

CP-23442

NEBB Certification Number

December 31, 2024

Expiration Date

NEBB President

NEBB President-Elect

7631 Northshore Place
North Little Rock, AR 72118
Phone: 501-280-0404
Fax: 501-280-9200

Instrument Calibration List

	Function	Range	Accuracy	Make	Model #	Serial #	Calibration Date
AIR	Air Pressure Measurement	0 to 10.00 in.w.g.	± 2% of reading	Evergreen	S-PVF-1	1900682	6/12/2023
	Air Velocity Measurement	100 to 3500 fpm	± 5% of reading	Evergreen	S-PVF-1	1900682	6/12/2023
	Direct Reading Hood	25 to 2000 cfm	± 5% of reading, ± 7 cfm	Evergreen	S-PVF-1	1900682	6/12/2023
TEMPERATURE	Air Meter with Probe	0 to 200 ºF	± 0.5% of reading	Cooper	SRH77A-E	10709022	10/24/2023
	Immersion Meter with probe	0 to 200 ºF	± 0.5% of reading	Cooper	SRH77A-E	10709022	10/24/2023
HUMIDITY	Humidity Measurement	10 to 90% RH	± 3% RH	Cooper	SRH77A-E	10709022	10/24/2023
ELECTRICAL	Volts AC	0 to 600 VAC	± 2% of reading	Fluke	902	62201193MV	10/19/2023
	Amperes	0.1 to 100 Amps	± 2% of reading	Fluke	902	62201193MV	10/19/2023
ROTATION	Rotation Measurement	60 to 5000rpm	± 2% of reading	Extech	461995	H319421	11/21/2023
HYDRONIC	Hydronic Pressure Measurement	0.4 to 200 PSI	± 2% of reading	Dwyer	490W-6	01L67L	4/13/2023
	Hydronic Differential Pressure	0.4 to 75 PSI	± 2% of reading	Dwyer	490W-6	01L67L	4/13/2023

(N.E.B.B. # 2847)

AIRETECH CORPORATION

ABBREVIATIONS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
A	AMPS	HP	HEAT PUMP
AHU	AIR HANDLING UNIT	HW	HEATING WATER
BCU	BLOWER COIL UNIT	KEF	KITCHEN EXHAUST FAN
BTU	BRITISH THERMAL UNIT	LAT	LEAVING AIR TEMPERATURE
CD	CEILING DIFFUSER	LWT	LEAVING WATER TEMPERATURE
CFM	CUBIC FEET PER MINUTE	M/N	MODEL NUMBER
CH	CHILLER	MAT	MIXED AIR TEMPERATURE
CHW	CHILLED WATER	MAU	MAKE UP AIR UNIT
CW	CONDENSER WATER	NA	NOT APPLICABLE
COMP	COMPRESSOR	NL	NOT LISTED
COND	CONDENSER	NLA	NO LOAD AMPS
CRAC	COMPUTER ROOM AIR CONDITIONING	OAT	OUTSIDE AIR TEMPERATURE
CW	CHILL WATER	OAU	OUTSIDE AIR UNIT
DALT	DUCT AIR LEAKAGE TEST	OED	OPEN ENDED DUCT
DB	DRY BULB	PH	PRE-HEAT
DP	DIFFERENTIAL PRESSURE	RG	RETURN GRILLE
DP	DISCHARGE PRESSURE	RH	RE-HEAT
EAT	ENTERING AIR TEMPERATURE	RLA	RUN LOAD AMPS
EF	EXHAUST FAN	RTU	ROOF TOP UNIT
EG	EXHAUST GRILLE	S/N	SERIAL NUMBER
ERU	ENERGY RECOVERY UNIT	SF	SUPPLY FAN
ERV	ENERGY RECOVERY VENTILATOR	SG	SIDEWALL GRILLE
ESP	EXTERNAL STATIC PRESSURE	SP	SUCTION PRESSURE
EVAP	EVAPORATOR	TSP	TOTAL STATIC PRESSURE
EWT	ENTERING WATER TEMPERATURE	V	VOLTS
FCU	FAN COIL UNIT	VAV	VARIABLE AIR VOLUME
FP	FAN POWERED	VRF	VARIABLE REFRIGERANT
FPM	FEET PER MINUTE	WB	WET BULB
GPM	GALLONS PER MINUTE		

Table Of Contents

PROJECT: HNTB
LOCATION: Little Rock, AR
PROJECT #: 74418

DATE: 2/26/2024
CONTACT: Elizabeth Amador
AUTHOR:

Table Of Contents

REPORT SUMMARY

Test, adjust, and balance work was performed at HNTB 18th floor in Little Rock, Arkansas. The scope of work included 5 existing terminal boxes and 1 fan coil unit.

The existing air terminal boxes do not have air flow sensors, the dampers modulate to mix the hot deck and cold deck airflows to maintain space temperature. VAV-01 and VAV-02 served by the existing air handler are low on total airflow, the balanced dampers are all fully open.

Air Handling Unit

PROJECT: HNTB
LOCATION: Little Rock, AR
PROJECT #: 74418

DATE: 2/26/2024
CONTACT: Elizabeth Amador
AUTHOR:

SYSTEM/UNIT: EX AHU

Log:				
	EX AHU	2/12/2024	Greg Rinehart	VAV are all existing, serving existing ductwork.
	EX AHU	2/12/2024	Greg Rinehart	VAV's do not have flow stations, just a damper to control hot deck/cold deck mixing in box to satisfy spaces.

SYSTEM/UNIT: EX AHU/VAV-01

Tested By: Greg Rinehart
Date: 2/12/2024

Term Box Test Data	
Cool Max CFM Design	1500 CFM
Cool Max CFM Actual	885 CFM

Log:				
	EX AHU/VAV-01	2/12/2024	Greg Rinehart	All balancing dampers are open.

EX AHU/VAV-01 Supply Outlet Summary

System/Unit	Area Served	Outlet Type	Size LxW / D	Design Airflow	Prelim Airflow	% Prelim Diff.	Final Airflow	% Final Diff.	Instrument
Outlet-01	1810	LD1	8	150	65	43.3	65	43.3	Evergreen
Outlet-02	1810	LD1	8	150	95	63.3	95	63.3	Evergreen
Outlet-03	1810	LD1	8	150	110	73.3	110	73.3	Evergreen
Outlet-04	1811	LD1	8	150	114	76.0	114	76.0	Evergreen
Outlet-05	1811	LD1	8	150	99	66.0	99	66.0	Evergreen
Outlet-06	1811	LD1	8	150	64	42.7	64	42.7	Evergreen
Outlet-07	1811	CD1	10	300	167	55.7	167	55.7	Evergreen
Outlet-08	1811	CD1	10	300	171	57.0	171	57.0	Evergreen
	Totals:	**-**	**-**	**1500**	**885**	**59.0**	**885**	**59.0**	**-**

Air Handling Unit

PROJECT: HNTB
LOCATION: Little Rock, AR
PROJECT #: 74418

DATE: 2/26/2024
CONTACT: Elizabeth Amador
AUTHOR:

SYSTEM/UNIT: EX AHU/VAV-02

Tested By: Greg Rinehart
Date: 2/12/2024

Term Box Test Data	
Cool Max CFM Design	1500 CFM
Cool Max CFM Actual	994 CFM

EX AHU/VAV-02 Supply Outlet Summary

System/Unit	Area Served	Outlet Type	Size LxW / D	Design Airflow	Prelim Airflow	% Prelim Diff.	Final Airflow	% Final Diff.	Instrument
Outlet-01	1807	LD1	8	150	100	66.7	100	66.7	Evergreen
Outlet-02	1807	LD1	8	150	88	58.7	88	58.7	Evergreen
Outlet-03	1807	LD1	8	150	82	54.7	82	54.7	Evergreen
Outlet-04	1807	LD1	8	150	91	60.7	91	60.7	Evergreen
Outlet-05	1807	LD1	8	150	76	50.7	76	50.7	Evergreen
Outlet-06	1807	CD1	10	250	223	89.2	223	89.2	Evergreen
Outlet-07	1807	CD1	10	250	171	68.4	171	68.4	Evergreen
Outlet-08	1807	CD1	10	250	163	65.2	163	65.2	Evergreen
	Totals:	**-**	**-**	**1500**	**994**	**66.3**	**994**	**66.3**	**-**

SYSTEM/UNIT: EX AHU/VAV-03

Tested By: Greg Rinehart
Date: 2/12/2024

Term Box Test Data	
Cool Max CFM Design	1000 CFM
Cool Max CFM Actual	1035 CFM

EX AHU/VAV-03 Supply Outlet Summary

System/Unit	Area Served	Outlet Type	Size LxW / D	Design Airflow	Prelim Airflow	% Prelim Diff.	Final Airflow	% Final Diff.	Instrument
Outlet-01	1804	LD1	8	200	177	88.5	205	102.5	Evergreen
Outlet-02	1804	LD1	8	200	199	99.5	209	104.5	Evergreen
Outlet-03	1803	LD1	8	200	289	144.5	211	105.5	Evergreen
Outlet-04	1803	LD1	8	200	185	92.5	197	98.5	Evergreen
Outlet-05	1803	LD1	8	200	292	146.0	213	106.5	Evergreen
	Totals:	**-**	**-**	**1000**	**1142**	**114.2**	**1035**	**103.5**	**-**

Air Handling Unit

PROJECT: HNTB
LOCATION: Little Rock, AR
PROJECT #: 74418

DATE: 2/26/2024
CONTACT: Elizabeth Amador
AUTHOR:

SYSTEM/UNIT: EX AHU/VAV-04

Tested By: Greg Rinehart
Date: 2/12/2024

Term Box Test Data	
Cool Max CFM Design	640 CFM
Cool Max CFM Actual	648 CFM

EX AHU/VAV-04 Supply Outlet Summary

System/Unit	Area Served	Outlet Type	Size LxW / D	Design Airflow	Prelim Airflow	% Prelim Diff.	Final Airflow	% Final Diff.	Instrument
Outlet-01	1800	CD1	8	130	0	0.0	134	103.1	Evergreen
Outlet-02	1801	CD1	8	110	326	296.4	104	94.5	Evergreen
Outlet-03	1801	CD1	8	110	303	275.5	111	100.9	Evergreen
Outlet-04	1802	CD1	6	60	205	341.7	58	96.7	Evergreen
Outlet-05	1800	CD1	8	130	160	123.1	136	104.6	Evergreen
Outlet-06	1800	CD1	6	50	157	314.0	52	104.0	Evergreen
Outlet-07	1806	CD1	6	50	141	282.0	53	106.0	Evergreen
	Totals:	**-**	**-**	**640**	**1292**	**201.9**	**648**	**101.3**	**-**

SYSTEM/UNIT: EX AHU/VAV-05

Tested By: Greg Rinehart
Date: 2/12/2024

Term Box Test Data	
Cool Max CFM Design	280 CFM
Cool Max CFM Actual	298 CFM

EX AHU/VAV-05 Supply Outlet Summary

System/Unit	Area Served	Outlet Type	Size LxW / D	Design Airflow	Prelim Airflow	% Prelim Diff.	Final Airflow	% Final Diff.	Instrument
Outlet-01	1809	CD1	8	100	327	327.0	103	103.0	Evergreen
Outlet-02	1808	CD1	8	100	331	331.0	108	108.0	Evergreen
Outlet-03	1812	CD1	6	80	172	215.0	86	107.5	Evergreen
	Totals:	**-**	**-**	**280**	**830**	**296.4**	**297**	**106.1**	**-**

Fan Coil

PROJECT: HNTB
LOCATION: Little Rock, AR
PROJECT #: 74418

DATE: 2/26/2024
CONTACT: Elizabeth Amador
AUTHOR:

SYSTEM/UNIT: FCU-01

Tested By: Greg Rinehart
Date: 2/12/2024

Unit Data	
Unit Manufacturer	IEC
Unit Model Number	CPY0400560079
Unit Serial Number	23U00029286
Filter Type	Pleated
MERV Rating	8
Filter Qty - S1	1
Filter Size - S1	10x28x1

Motor Data	
Motor Manufacturer	IEC
Motor HP	1/6 HP
Motor Rated Volts	120 Volts
Motor Phase	1
Motor Hertz	60 Hz
Motor FL Amps	2.4 Amps
Motor Type	Direct Drive
Direct Drive Speed	High

Test Data	
Cool Ent Air DB Temp Actual	71.0 Deg F
Cool Ent Air WB Temp Actual	63.0 Deg F
Cool Leav Air DB Temp Actual	54.0 Deg F
Cool Leav Air WB Temp Actual	52.0 Deg F

Air Test Data	
Design Airflow	400 CFM
Actual Airflow	387 CFM
Design OSA	0 CFM
Actual OSA	0 CFM
Design Rtn Airflow	400 CFM
Actual Rtn Airflow	387 CFM

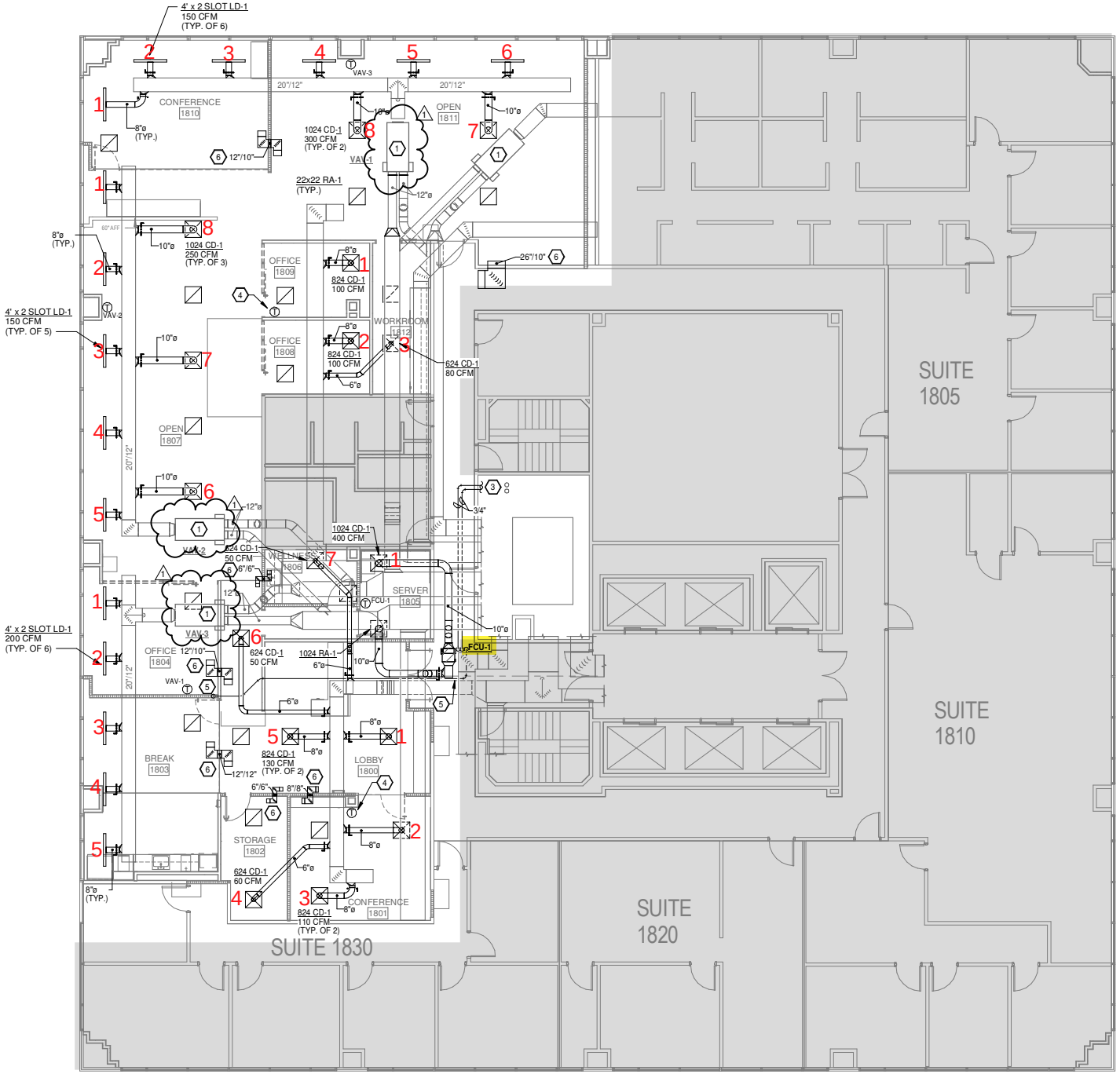
Electrical Test Data	
Motor Volts T1-T2	121 Volts
Motor Amps T1	2.10 Amps

FCU-01 Supply Outlet Summary

System/Unit	Area Served	Outlet Type	Size LxW / D	Design Airflow	Prelim Airflow	% Prelim Diff.	Final Airflow	% Final Diff.	Instrument
Outlet-01	1805	CD1	10	400	387	96.8	387	96.8	Evergreen
	Totals:	**-**	**-**	**400**	**387**	**96.8**	**387**	**96.8**	**-**

3 DAY OPERATING TEST

	Timestamp		18-Feb-24 7:00:02 AM UTC	18-Feb-24 9:00:02 AM UTC	18-Feb-24 11:00:01 AM UTC	18-Feb-24 1:00:02 PM UTC	18-Feb-24 3:00:01 PM UTC	19-Feb-24 7:00:02 AM UTC	19-Feb-24 9:00:02 AM UTC	19-Feb-24 11:00:02 AM UTC	19-Feb-24 1:00:02 PM UTC	19-Feb-24 3:00:01 PM UTC	20-Feb-24 7:00:01 AM UTC	20-Feb-24 9:00:01 AM UTC	20-Feb-24 11:00:02 AM UTC	20-Feb-24 1:00:02 PM UTC	20-Feb-24 3:00:02 PM UTC
Zone 2	Space Temp	Value (°F)	71.7	71.8	71.9	72	72.4	71.8	72.4	71.9	72	72.2	72.9	73.3	73.4	72.7	73.5
	DAT	Value (°F)	93	96.1	73	85.6	71.2	93.9	78.8	69.9	79.6	93	93.7	73	70.3	72.2	72.9
	Damper	Value (%)	17.6	31.6	41.9	45.3	91.2	33.3	90.9	66.9	54.5	0	39.1	82.5	88	18.6	100
Zone 3	Space Temp	Value (°F)	71.9	72	72.9	72.1	73.5	72	72.2	72.9	73.3	73.1	72.7	72.9	74.3	73.7	74.8
	DAT	Value (°F)	100.1	105.5	73.1	90.4	74.1	102.5	105.6	72.6	82.7	102.1	101.6	107.9	74.8	72.7	82.8
	Damper	Value (%)	42.5	51.6	100	60	100	53.5	65.9	100	100	100	100	100	100	100	100
Zone 4	Space Temp	Value (°F)	70.9	71	70.2	71.4	71.2	71.4	70.9	70.4	71.6	71.7	71.2	71.1	70.9	70.9	72.6
	DAT	Value (°F)	97	80.1	71.9	67.8	62.2	79.9	86	71.8	65	74	88.6	75.4	65	72.1	69.4
	Damper	Value (%)	44.3	50.5	0	91.3	65.7	90.5	48.2	0	100	100	71.7	60.4	39.5	40	100
Zone 5	Space Temp	Value (°F)	72.4	71.3	71.1	72.5	72.1	72.1	70.5	71.1	72.5	71.5	71.4	70.8	71.4	74	73.8
	DAT	Value (°F)	88.2	75.8	70.4	70.4	69.7	87.8	71.1	70	70.2	68.9	71.6	72.4	71.9	71.2	72.2
	Damper	Value (%)	100	83.8	61.7	100	100	100	0	61.2	100	100	86.4	28.3	90.8	100	100
Server Room	Setpoint	Value (°F)	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68
	Space Temp	Value (°F)	69.2	69.5	69	68.6	68.8	69.3	69.5	69.3	70.3	69.5	70.1	69.7	70.8	69.4	69.8
	DAT	Value (°F)	61.1	59.6	57.7	57.1	56.8	59.2	57.6	56.7	57	56.4	58.8	58.9	60.5	61.6	62
AHU	DAT	Value (°F)	59.2	59	59.7	57.5	55.5	58	58.9	57.4	55.2	54.6	56.9	57.8	57.6	57.1	59.5



1 FLOOR PLAN - HVAC
1/8" = 1'-0"

Eighteenth Floor