

Report By:

National TAB
1329 E. KEMPER ROAD
SUITE 4210
CINCINNATI, OH 45246



Report: TAB REPORT
Function: Test, Adjust, & Balance
Date: 06/05/2024

PROJECT

IBP 6111 - Suite 2500 Allied Renovation (Plano, TX)

6111 W Plano Pkwy

Plano, TX 75093

Client

Billingsley

National TAB

Project: IBP 6111 - Suite 2500 Allied Renovation (Plano, TX)

Table Of Contents

Section	Page #
Certification	3
Equipment Calibrations	4
Abbreviations	5
GRD Layout	6
VAV-Fan Powered Box	7
VAV - Single Duct	8
Diffuser Supply (GRD)	9



CERTIFICATION

PROJECT: IBP 6111 - Suite 2500 Allied Renovation (Plano, TX)

The data presented in this report is a record of system measurements and final adjustments that have been obtained in accordance with the current edition of the NEBB *Procedural Standards for Testing, Adjusting, and Balancing of Environmental Systems*. Any variances from design quantities, which exceed NEBB tolerances, are noted in the Test-Adjust-Balance Report Project Summary.

The air distribution system has been tested and balanced and final adjustments have been made in accordance with NEBB standards and the project specifications.

NEBB TAB FIRM: National TAB-Southeast

REGISTRATION NO: 3755

CERTIFIED BY: J. Scott Springer 23312

DATE: 3/18/2024

The hydronic distribution system has been tested and balanced and final adjustments have been made in accordance with NEBB standards and the project specifications.

NEBB TAB FIRM: National TAB-Southeast

REGISTRATION NO: 3086

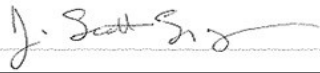
CERTIFIED BY: J. Scott Springer 23312

DATE: _____

Submitted and Certified by:

NEBB TAB FIRM: National TAB-Southeast

TAB PROFESSIONAL: J. Scott Springer

SIGNATURE: 

REGISTRATION NO: 3755 (NTAB) / 23312

CERTIFICATION EXP: 12/31/2024





National TAB

Testing, Adjusting, and Balancing Equipment



Function		Range	Minimum Accuracy	Instrument Information	Calibration Date	Date Due
AIR	AIR PRESSURE	0 in wg to 10 in wg	2% +/- 0.001 in wg	Shortridge ADM-860C S/N M19547	10/17/2023	10/16/2024
	AIR VELOCITY INSTRUMENT	50 fpm to 3900 fpm	+/- 5 % +/- 7 fpm	Shortridge ADM-860C S/N M19548	10/17/2023	10/16/2024
	DIRECT HOOD READING	100 cfm to 2000 cfm	+/- 3 % +/- 7 cfm	Shortridge Flow Hood	10/17/2023	10/16/2024
TEMPERATURE	AIR METER	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - SRH77A S/N 081820093	10/20/2023	10/19/2024
	AIR PROBE	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - PD1388 7-6 S/N 5028	10/20/2023	10/19/2024
	IMMERSION METER	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - SRH77A S/N 081820093	10/20/2023	10/19/2024
	IMMERSION PROBE	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - PD1388 7-6 S/N 1075	10/20/2023	10/19/2024
	CONTACT METER	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - SRH77A S/N 081820093	10/20/2023	10/19/2024
	CONTACT PROBE	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - PD1388 7-6 S/N 4011	10/20/2023	10/19/2024
HUMIDITY	HUMIDITY PROBE	10 % RH to 90 % RH	3% of reading	Cooper ATKINS - SRH77A S/N 090315046	10/20/2023	10/19/2024
ELECTRICAL	VOLTAGE MEASUREMENT	0 VAC to 600 VAC	2 % reading +/- 5 digits	Dwyer CM-1 - S/N 190800099	10/16/2023	10/15/2024
	AMPERAGE MEASUREMENT	0 Amperers to 100 Amperes	2 % reading +/- 5 digits	Dwyer CM-1 - S/N 190800099	10/16/2023	10/15/2024
ROTATION	ROTATION MEASUREMENT	60 rpm to 5000 rpm	2 % reading 2 rpm	Dwyer TAC-L - S/N S1100123	10/16/2023	10/15/2024
HYDRONIC	PRESSURE MEASUREMENT	-30 in Hg to 200 psi	±2% of reading +/- 1 psi	Dwyer 490W-6 - S/N 01L6NK	6/21/2023	6/20/2024
	DIFFERENTIAL PRESSURE MEASUREMENT	0 psi - 80 psi	±2% of reading +/- 1 psi	Dwyer 490W-6 - S/N 01L6NK	6/21/2023	6/20/2024
DALT	DUCT LEAKAGE	-10" - +10" wc	±1% of reading +/- 0.004" wc	Kanomax DALT 6900 S/N: 080439	5/2023	5/2024

Abbreviation List

A = Area (ft ²)	S.F. = Service Factor
AHU = Air Handling Unit	SF = Supply Fan
A _k = Effective Area	SP = Static Pressure
BHP = Brake Horsepower (IP) HP	SR = Supply Register
Btu = British Thermal Unit	T = Temperature
Btu/h = Btuh = BTUH = BTU/Hour	T _{ma} = Mixed Air Temperature
CL = Center Distance (used in belt formula)	T _{oa} = Outside Air Temperature
CD = Ceiling Diffuser	T _{ra} = Return Air Temperature
CF = Correction Factor	H = Head (in wc, ft wc, psi)
CFM = Volumetric Flow: Cubic Feet Per Minute	h = Enthalpy
CO ₂ = Carbon Dioxide	HP = Horsepower
CO = Carbon Monoxide	hr = Hour
C _v = Flow Constant	K _v = Flow constant (SI)
d = Diameter (in.) IP	kW = Kilowatt = 1000 Watts
Δ = Difference or Change (Final - Initial)	LAT = Leaving Air Temperature
DB = Dry Bulb	lb = Pounds
EA = Exhaust Air	LWT = Leaving Water Temperature
EAT = Entering Air Temperature	ma = Mixed Air
EF = Exhaust Fan	MIN = Minimum
Eff = Efficiency	MAX = Maximum
EG = Exhaust Grille	N/A = Not Applicable
ESP = External Static Pressure	NA = No Access
EWT = Entering Water Temperature	NL = Not Listed
°F = Degrees Fahrenheit, °F	NPSHA = Net Positive Suction Head Available
FPB = Fan Powered Box	NS = Not Specified
FLA = Full Load Amps	OA = Outside Air
fpm = Feet per Minute (fpm)	OAT = Outside Air Temperature
ft = Foot	PD = Sheave Pitch Diameter
gal = Gallons	P.D. = Pressure Drop
GPM = Gallons Per Minute (GPM)	PF = Power Factor
h = Enthalpy (BTU/lb dry air)	SG = Supply Grille
P = Pressure	SR = Supply Register
ppm = parts per million	TP = Total Pressure
psi = Pounds Per Square Inch	T _{ra} = Return Air Temperature
psid = PSI Differential	TS = Tip Speed (fpm) IP, (m/s) SI
r = Radius (in)	TSP = Total Static Pressure
% _{ra} = % of Return Air	V = Velocity
RA = Return Air	VAV = Variable Air Volume
RAT = Return Air Temperature	VD = Volume Damper
RF = Return Fan	VFD = Variable Frequency Drive
RG = Return Grille	W = Watt
RH = Relative Humidity	WB = Wet Bulb
RPM = Revolutions Per Minute	wg = wc = water gauge = water column
RTU = Roof Top Unit	WHP = Water Horsepower (IP)
SA = Supply Air	ω = Humidity Ratio



National TAB

Project:IBP 6111 - Suite 2500 Allied Renovation (Plano, TX)

VAV-Fan Powered Box

FPB's/

Asset										
Asset Name	Service	Type	Inlet Size	Design Max Cool CFM	Max Cool CFM	Design Min Cool CFM	Min Cool CFM	Design Fan CFM (Heat)	Fan CFM (Heat)	Ak (max)
FPB-2-1	FPB-5-51	REHEAT	12	1020	994	225	235	715	692	0.93
FPB-2-2	FPB-5-50	REHEAT	8	340	346	85	88	240	239	0.87
FPB-2-3	FPB5-27	REHEAT	10	510	489	128	125	357	343	1.01
FPB-2-4	FPB-5-24	REHEAT	6	340	343	85	94	238	237	0.86
FPB-2-5	FPB-5-25	REHEAT	10	680	671	170	173	476	471	0.92
FPB-2-6	FPB-5-22	REHEAT	10	1020	996	255	264	714	704	0.62
FPB-2-7	FPB-5-20	REHEAT	6	340	341	85	90	238	245	0.89
FPB-2-8	FPB-5-19	REHEAT	10	1015	1024	254	267	710	719	0.99
FPB-2-9	FPB-5-18	REHEAT	10	670	659	168	162	470	462	0.85

Completed By: Bayley Morvant on 03/07/2024



National TAB

Project: IBP 6111 - Suite 2500 Allied Renovation (Plano, TX)

VAV - Single Duct

VAV's/

Asset									
Asset Name	Type	Inlet Size	Design Max CFM	Max CFM	Design Min CFM	Min CFM	Design Heat CFM	Heat CFM	Ak (max)
VAV-2-1	COOLING	6	100	105	25	26	0	0	0.83
VAV-2-2	COOLING	14	870	852	174	186	0	0	1.57
VAV-2-3	COOLING	13	1450	1448	290	264	0	0	1.18
VAV-2-4	COOLING	8	745	720	149	142	0	0	0.66
VAV-2-5	COOLING	8	1065	1098	213	210	0	0	1.22
VAV-2-6	COOLING	10	680	684	136	126	0	0	1.27

Completed By: Bayley Morvant on 03/05/2024

Asset	Notes	Date	Written By
VAV-2-1	SERVICE: VAV 5-52	03/05/2024	Bayley Morvant
VAV-2-2	SERVICE: VAV 5-26 UNABLE TO ACCESS DAMPERS DUE TO CUBICLE PLACEMENT. ALL DIFFUSERS ARE IN OPEN SPACE.	03/05/2024	Bayley Morvant
VAV-2-3	SERVICE: VAV 5-23 UNABLE TO ACCESS DAMPERS DUE TO CUBICLE PLACEMENT. ALL DIFFUSERS ARE IN OPEN SPACE.	03/05/2024	Bayley Morvant
VAV-2-4	SERVICE: VAV 5-21	03/05/2024	Bayley Morvant
VAV-2-5	SERVICE: VAV 5-31	03/05/2024	Bayley Morvant
VAV-2-6	SERVICE: VAV 5-11	03/05/2024	Bayley Morvant



National TAB

Project:IBP 6111 - Suite 2500 Allied Renovation (Plano, TX)

Diffuser Supply (GRD)

FPB-2-1/231

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
F1-1	231	S2	8	170	161	176	103.5
F1-2	231	S2	8	170	148	161	94.7
F1-3	231	S2	8	170	145	158	92.9
F1-5	231	S2	8	170	169	184	108.2
F1-6	231	S2	8	170	149	162	95.3
Total				850	772	841	98.94%

FPB-2-2/223

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
F2-1	223	S2	8	170	178	184	108.2
F2-2	223	S2	8	170	115	162	95.3
Total				340	293	346	101.76%

FPB-2-3/222

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
F3-1	222	S2	8	170	174	173	101.8
F3-2	222	S2	8	170	141	155	91.2
F3-3	222	S2	8	170	162	161	94.7
Total				510	477	489	95.88%

FPB-2-4/225

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
F4-1	225	S2	8	170	138	161	94.7
F4-2	225	S2	8	170	167	182	107.1
Total				340	305	343	100.88%

FPB-2-5/224

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
F5-1	224	S2	8	170	155	179	105.3
F5-2	224	S2	8	170	135	156	91.8
F5-3	224	S2	8	170	144	166	97.6
F5-4	224	S2	8	170	147	170	100.0
Total				680	581	671	98.68%

FPB-2-6/228

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
F6-1	226	S2	8	170	104	153	90.0
F6-2	226	S2	8	170	104	160	94.1
F6-3	226	S2	8	170	125	165	97.1
F6-4	226	S2	8	170	124	163	95.9
F6-5	228	S2	8	170	125	181	106.5
F6-6	228	S2	8	170	129	174	102.4
Total				1020	711	996	97.65%

FPB-2-7/230

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
F7-1	230	S2	8	170	136	156	91.8
F7-2	230	S2	8	170	205	185	108.8
Total				340	341	341	100.29%

FPB-2-8/232

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
F8-1	232	S2	8	170	190	177	104.1
F8-2	232	S2	8	170	187	178	104.7
F8-3	232	S2	8	165	134	166	100.6
F8-4	232	S2	8	255	229	244	95.7
F8-5	232	S2	8	255	246	259	101.6
Total				1015	986	1024	100.89%

FPB-2-9/237

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
F9-1	236	S2	8	170	131	168	98.8
F9-2	236	S2	8	170	124	166	97.6
F9-3	237	S2	8	165	157	162	98.2
F9-4	237	S2	8	165	182	163	98.8
Total				670	594	659	98.36%

VAV-2-1/221

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
V1-11	221	S1	8	100	76	105	105.0
Total				100	76	105	105%

VAV-2-2/224

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
V2-1	224	S1	10	290	555	351	121.0
V2-2	224	SS1	10	290	686	422	145.5
V2-3	224	S1	10	290	113	79	27.2
Total				870	1354	852	97.93%

VAV-2-3/235

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
V3-1	OPEN OFFICE 14	S1	10	290	460	423	145.9
V3-2	OPEN OFFICE 14	S1	10	290	402	384	132.4
V3-3	OPEN OFFICE 14	S1	10	290	311	283	97.6
V3-4	OPEN OFFICE 14	S1	10	290	161	146	50.3
V3-5	235	S1	10	290	224	212	73.1
Total				1450	1558	1448	99.86%

VAV-2-4/238

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
V4-1	234	S3	12X8	150	141	141	94.0
V4-2	234	S3	12X8	150	127	139	92.7
V4-3	201	S2	8	145	37	148	102.1
V4-4	234	S3	12X8	150	166	136	90.7
V4-5	238	S1	8	150	66	156	104.0
Total				745	537	720	96.64%

VAV-2-5/213

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
V5-1	217	S1	8	85	114	87	102.4
V5-2	216	S1	8	85	129	83	97.6
V5-3	218	S1	8	85	81	81	95.3
V5-4	219	S1	8	85	87	79	92.9
V5-5	214	S1	8	125	138	134	107.2
V5-6	214	S1	8	125	107	126	100.8
V5-7	214	S1	8	125	211	134	107.2
V5-8	214	S1	8	125	134	132	105.6
V5-9	214	S1	8	125	173	137	109.6
V5-10	213	S1	8	100	128	105	105.0
Total				1065	1302	1098	103.1%

VAV-2-6/203

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
V6-1	210	S1	8	85	81	86	101.2
V6-2	211	S1	8	85	60	77	90.6
V6-3	207	S1	8	85	133	87	102.4
V6-4	208	S1	8	85	125	90	105.9
V6-5	205	S1	8	85	136	90	105.9
V6-6	206	S1	8	85	107	86	101.2
V6-7	202	S1	8	85	122	85	100.0
V6-8	203	S1	8	85	97	83	97.6
Total				680	861	684	100.59%