Report By:

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

Report: TAB REPORT

Function: Test, Adjust, & Balance

Date: 02/18/2025

Completed By: National TAB

PROJECT

Poppy Bank (Walnut, CA)

1500 Newell Avenue

Walnut, CA 94596

Client

B&M Builders, Inc.

11330 Sunrise Park Drive

Suite C

Rancho Cordova, CA 95742

National TAB

Project: Poppy Bank (Walnut, CA)

Table Of Contents

Section	Page #
Certification	3
Equipment Calibrations	4
Abbreviations	5
Issue Data	6
GRD LAYOUT	8
Fan Coil	9

CERTIFICATION

PROJECT:

Poppy Bank (Walnut, CA)

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.

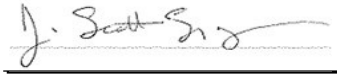
The air distribution system has been tested and balanced and final adjustments have been made in accordance with NEBB standards and the project specifications.

NEBB TAB FIRM:	National TAB-Southeast
REGISTRATION NO:	3755
CERTIFIED BY:	J. Scott Springer 23312
DATE:	2/21/2025

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:	3755
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:	12/31/2025

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-880C S/N M05066	10/15/2024	10/15/2025
	AIR VELOCITY INSTRUMENT	50 fpm to 3900 fpm	+/- 5 % +/- 7 fpm	Shortridge ADM-880C S/N M05066	10/15/2024	10/15/2025
	DIRECT HOOD READING	100 cfm to 2000 cfm	+/- 3 % +/- 7 cfm	Shortridge Flow Hood	10/15/2024	10/15/2025
TEMPERATURE	AIR METER	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - SRH77A S/N 081820093	10/15/2024	10/15/2025
	AIR PROBE	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - PD1388 7-6 S/N 5028	10/15/2024	10/15/2025
	IMMERSION METER	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - SRH77A S/N 081820093	10/15/2024	10/15/2025
	IMMERSION PROBE	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - PD1388 7-6 S/N 1075	10/15/2024	10/15/2025
	CONTACT METER	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - SRH77A S/N 081820093	10/15/2024	10/15/2025
	CONTACT PROBE	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - PD1388 7-6 S/N 4011	10/15/2024	10/15/2025
HUMIDITY	HUMIDITY PROBE	10 % RH to 90 % RH	3% of reading	Cooper ATKINS - SRH77A S/N 090315046	10/15/2024	10/15/2025
ELECTRICAL	VOLTAGE MEASUREMENT	0 VAC to 600 VAC	2 % reading +/- 5 digits	Dwyer CM-1 - S/N 190800099	10/15/2024	10/15/2025
	AMPERAGE MEASUREMENT	0 Amperers to 100 Amperes	2 % reading +/- 5 digits	Dwyer CM-1 - S/N 190800099	10/15/2024	10/15/2025
ROTATION	ROTATION MEASUREMENT	60 rpm to 5000 rpm	2 % reading 2 rpm	Dwyer TAC-L - S/N S1100123	10/15/2024	10/15/2025
HYDRONIC	PRESSURE MEASUREMENT	-30 in Hg to 200 psi	±2% of reading +/- 1 psi	Dwyer 490W-6 - S/N 01L6NK	6/3/2024	6/3/2025
	DIFFERENTIAL PRESSURE MEASUREMENT	0 psi - 80 psi	±2% of reading +/- 1 psi	Dwyer 490W-6 - S/N 01L6NK	6/3/2024	6/3/2025
DALT	DUCT LEAKAGE	-10"- +10" wc	±1% of reading +/- 0.004" wc	Kanomax DALT 6900 S/N: 080439	3/2024	3/1/2025

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
CO2 = 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

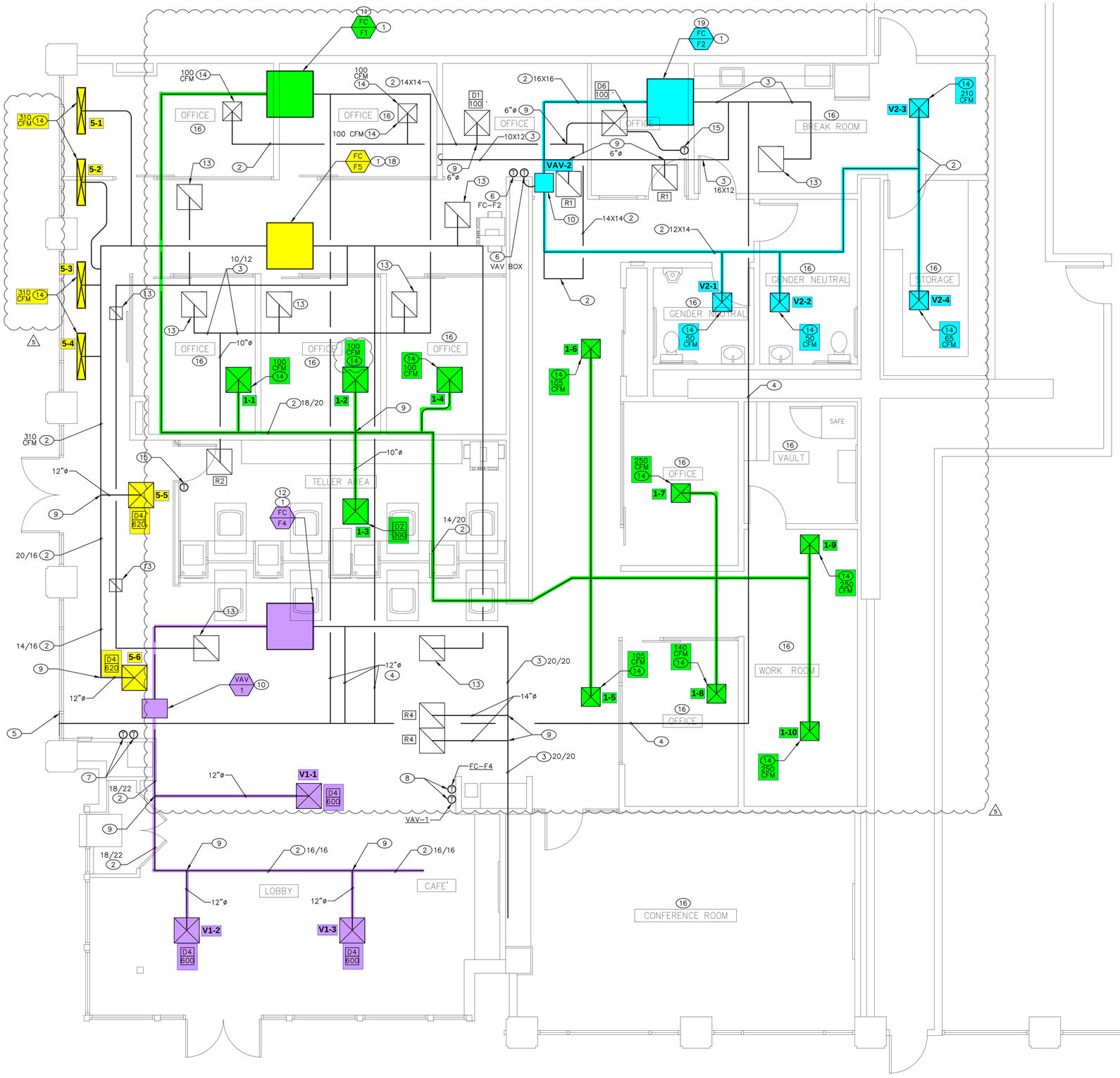
Issue List

- FC-4 AND FC-5 ARE UNABLE TO MEET DESIGN AIRFLOW.

Poppy Bank (Walnut, CA)

Project Issue Information

Issue Name :	FC-4 AND FC-5 ARE UNABLE TO MEET DESIGN AIRFLOW.		
Description :	Both AHU's are unable to reach their respective design airflows. FC-4 is at 689 out of 1800 CFM at maximized motor sheave and near FLA. FC-5 is at 538 / 2480 CFM at maximized motor sheave and near FLA. Recommend to have units inspected.		
Created By :	National TAB	**Assigned To :**	National TAB - Will Turnbough
Status :	Open		
Priority :	Urgent	**Asset Tag :**	
Originated Date :	02/05/2025 - Zack Eismin - National TAB		



MECHANICAL PLAN

SCALE: 1/4" = 1'-0"

SHEET GENERAL NOTES

1– THE CONTRACTOR SHALL VERIFY LOCATION OF ALL ROOF MOUNTED EQUIPMENT WITH ARCHITECT AND STRUCTURAL ENGINEER PRIOR TO BEGINNING WORK. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE ARCHITECT FOR APPROVAL BY THE STRUCTURAL ENGINEER SHOWING METHOD OF MOUNTING AND ATTACHMENT.

2– PRIOR TO BEGINNING WORK, THE CONTRACTOR SHALL COORDINATE LOCATION AND ROUTING OF HVAC EQUIPMENT WITH ALL OTHER TRADES.

3– THE CONTRACTOR SHALL VERIFY LOCATION OF ALL ROOF AND WALL PENETRATIONS WITH ARCHITECT AND STRUCTURAL ENGINEER PRIOR TO BEGINNING WORK.

4– CONTRACTOR SHALL VERIFY SITE CONDITIONS AND STRUCTURAL CONDITIONS PRIOR TO BEGINNING WORK.

5– PROVIDE FULL RADIUS ELBOWS WHERE SPACE ALLOWS BY STRUCTURE OR PROVIDE TURNING VANES IN ALL 90° TRANSITIONS PER SMACNA STANDARDS.

6– ALL DUCTWORK SIZES SHOWN ARE INSIDE CLEAR DIMENSIONS.

7– SEE AIR DISTRIBUTION DEVICE SCHEDULE ON THIS SHEET FOR DEVICES FOR LIVING AREAS.

8– REMOVE ALL EXISTING DUCTWORK UNLESS OTHERWISE NOTED. ALL DUCTWORK DEVICES AND EQUIPMENT SHOWN ARE NEW UNLESS OTHERWISE NOTED.

KEY NOTES

1– EXISTING FAN COIL UNIT LOCATED ABOVE CEILING TO REMAIN, WITH EXISTING CONDENSATE DRAIN, REFRIGERANT PIPING, OUTSIDE CONDENSING UNIT, OUTSIDE AIR, SUPPLY/RETURN DUCTWORK AND CONTROLS TO REMAIN.

2– EXISTING SUPPLY DUCTWORK ABOVE CEILING TO REMAIN.

3– EXISTING RETURN DUCTWORK ABOVE CEILING TO REMAIN.

4– EXISTING OUTSIDE AIR DUCTWORK ABOVE CEILING TO REMAIN.

5– EXISTING OUTSIDE AIR LOUVER TO REMAIN.

6– EXISTING THERMOSTAT TO REMAIN.

7– EXISTING THERMOSTAT TO BE RELOCATED.

8– RELOCATED THERMOSTAT IN NEW LOCATION.

9– CONNECT NEW DUCTWORK OF SIZE SHOWN TO EXISTING DUCTWORK OF SIZE SHOWN.

10– EXISTING VAV BOX ABOVE CEILING TO REMAIN.

11– REBALANCE EXISTING FAN COIL UNIT TO 1550 CFM S/A & 310 CFM O/A.

12– REBALANCE EXISTING FAN COIL UNIT TO 1800 CFM S/A & 270 CFM O/A.

13– EXISTING RETURN GRILLE TO REMAIN.

14– EXISTING SUPPLY DIFFUSER TO REMAIN.

15– PROVIDE NEW THERMOSTAT FOR NEW VAV DIFFUSER.

16– EXISTING HVAC TO REMAIN THIS ROOM.

17– REBALANCE EXISTING FAN COIL UNIT TO 2480 CFM S/A & 500 CFM O/A.

18– REBALANCE EXISTING FAN COIL UNIT TO 775 CFM S/A & 120 CFM O/A.

APEX Engineers
34145 PACIFIC COAST HIGHWAY, #141
DANA POINT, CA 92629
TEL: 702-968-9221 FAX: 702-951-7589

REGISTERED PROFESSIONAL ENGINEER
RICARDO RUBALCAVA
No. 030907
Exp. 03-31-25
MECHANICAL
STATE OF CALIFORNIA

11/08/2024

OSL Construction
9240 OLD REDWOOD HWY
SUITE 200, WINDSOR, CA 95492

MECHANICAL PLAN
POPPY BANK at THE VILLAGE
1500 NEWELL AVENUE, SUITE F
WALNUT CREEK, CALIFORNIA 94596

JOB NO: 2023-266
SCALE: 1/4" = 1'-0"
DRAWN BY: KF
DATE: NOVEMBER 08, 2024
COPYRIGHT

REVISIONS:
5 10/31/2024 OWNER CHANGES

SHEET NO: M1.2

National TAB

Project: Poppy Bank (Walnut, CA)

System/Unit: Fan Coil

Asset: F1 AREA:

Unit Data		
	Design	**Actual**
MFG	NA	MAGICAIR
Model Num	NA	HBB20ASAA10REB9G6BAAABM
Serial Num	-	W160184896
Type	-	AHU
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	20X20X2

Test Data		
	Design	**Actual**
SFAN CFM	1700	1812
SFAN RPM	-	1065
Motor Speed SetPt	-	1 TURNS OPEN
RL Voltage	-	286
RL Amperage	-	4.15
RA CFM	1390	1491
OA CFM	310	321

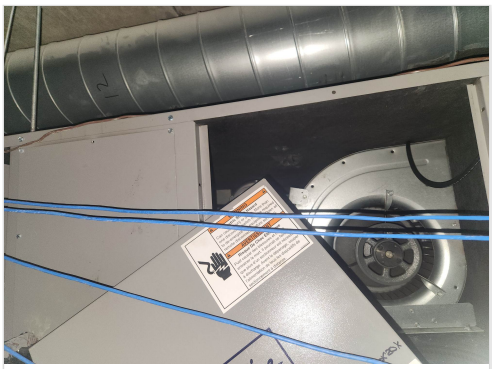
Motor Data		
	Design	**Actual**
Motor MFG	-	BALDOR RELIANCE
Frame	-	NL
Horsepower	1.5	1.5
Motor Rpm	1750	1750
Phase	1	1
Voltage (rated)	-	277
Amperage (rated)	-	4.75
Service Factor	-	1.15
Brake Horse Power	-	NL

Performance Data		
	Design	**Actual**
Suction ESP	-	-0.34"
Discharge ESP	-	0.49"
Total ESP	-	0.83"

Drive Data	
	Actual
Motor Sheave Size	3-3/4"
Motor Bore Size	5/8"
Fan Sheave Size	AK48
Fan Sheave Bore	3/4"
Belt CL Distance	15"
Num of Belts	1
Belt Size	BX48

Completed By: Zack Eismin on 02/18/2025

Unit Data - PHOTO LOG



02/04/2025

National TAB

Project:Poppy Bank (Walnut, CA)

Fan Coil

Diffuser Supply (GRD)

F1/

Asset							
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**CFM(1)**	**FINAL CFM**	**% to design**
SGRD1	OFFICE	EXISTING		100	185	107	107.0
SGRD2	OFFICE	EXISTING		100	243	109	109.0
SGRD3	TELLER	D2	10	300	437	327	109.0
SGRD4	OFFICE	EXISTING		100	82	93	93.0
SGRD5	CORR	EXISTING		105	71	111	105.7
SGRD6	CORR	EXISTING		105	55	109	103.8
SGRD7	OFFICE	EXISTING		250	223	267	106.8
SGRD8	OFFICE	EXISTING		140	86	153	109.3
SGRD9	WORK RM	EXISTING		250	303	270	108.0
SGRD10	WORK RM	EXISTING		250	295	266	106.4
Total				1700	1980	1812	106.59%

National TAB

Project: Poppy Bank (Walnut, CA)

System/Unit: Fan Coil

Asset: F2 AREA:

Unit Data		
	Design	**Actual**
MFG	NA	MAGIC AIR
Model Num	NA	HBB20ASAA10RE13G3AAAARM
Serial Num	-	W150377811
Type	-	AHU
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	2
Filter Size 1	-	20X20X2

Test Data		
	Design	**Actual**
SFAN CFM	775	733
SFAN RPM	-	755
Motor Speed SetPt	-	1731
RL Voltage	-	287
RL Amperage	-	3.34
RA CFM	655	612
OA CFM	120	121

Motor Data		
	Design	**Actual**
Motor MFG	-	MARATHON
Frame	-	56
Horsepower	0.5	0.5
Motor Rpm	1725	1725
Phase	1	1
Voltage (rated)	-	277
Amperage (rated)	-	3.4
Service Factor	-	1.15
Brake Horse Power	-	NL

Performance Data		
	Design	**Actual**
Suction ESP	-	-0.14"
Discharge ESP	-	0.31"
Total ESP	-	0.45"

Drive Data	
	Actual
Motor Sheave Size	3-3/4"
Motor Bore Size	5/8"
Fan Sheave Size	AK48
Fan Sheave Bore	3/4"
Belt CL Distance	15"
Num of Belts	1
Belt Size	AX47

Completed By: Zack Eismin on 02/04/2025

Unit Data - PHOTO LOG

02/04/2025

National TAB

Project:Poppy Bank (Walnut, CA)

Fan Coil

VAV - Single Duct

F2/

Asset											
Asset Name	**MFG**	**Model Num**	**Type**	**Inlet Size**	**Design Max CFM**	**Max CFM**	**Design Min CFM**	**Min CFM**	**Design Heat CFM**	**Heat CFM**	**Ak (max)**
VAV-2	PRICE	SDV8000	INLINE	12"	775	733					

Diffuser Supply (GRD)

VAV-2/

Asset							
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**CFM(1)**	**FINAL CFM**	**% to design**
SGRD1	GN RR	EXISTING		50	54	54	108.0
SGRD2	GN RR	EXISTING		50	48	48	96.0
SGRD3	BREAK RM	EXISTING		210	227	191	91.0
SGRD4	STORAGE	EXISTING		65	128	71	109.2
SGRD5	OFFICE	EXISTING		100	35	91	91.0
SGRD6	OFFICE	EXISTING		100	117	93	93.0
SGRD7	OFFICE	EXISTING		100	76	91	91.0
SGRD8	OFFICE	EXISTING		100	79	94	94.0
Total				775	764	733	94.58%

National TAB

Project: Poppy Bank (Walnut, CA)

System/Unit: Fan Coil

Asset: F4 AREA:

Unit Data		
	Design	**Actual**
MFG	NA	MAGIC AIR
Model Num	NA	HBB20ASAA10RE13G3AAAABM
Serial Num	-	W150377796
Type	-	AHU
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	20X20X2

Test Data		
	Design	**Actual**
SFAN CFM	1800	689
SFAN RPM	-	772
Motor Speed SetPt	-	0 TURNS OPEN
RL Voltage	-	288
RL Amperage	-	3.3
RA CFM	1530	411
OA CFM	270	278

Motor Data		
	Design	**Actual**
Motor MFG	-	MARATHON
Frame	-	56
Horsepower	0.5	0.5
Motor Rpm	1725	1725
Phase	1	1
Voltage (rated)	-	277
Amperage (rated)	-	3.4
Service Factor	-	1.15
Brake Horse Power	-	NL

Performance Data		
	Design	**Actual**
Suction ESP	-	-0.21"
Discharge ESP	-	0.32"
Total ESP	-	0.53"

Drive Data	
	Actual
Motor Sheave Size	3-3/4"
Motor Bore Size	5/8"
Fan Sheave Size	Ak48
Fan Sheave Bore	3/4"
Belt CL Distance	15"
Num of Belts	1
Belt Size	AX47

Completed By: Zack Eismin on 02/04/2025

Notes:
MOTOR SHEAVE IS MAXED OUT UNABLE TO REACH DESIGN CFM OF 1800

Written By: Zack Eismin on 02/04/2025

Unit Data - PHOTO LOG

02/04/2025

National TAB

Project:Poppy Bank (Walnut, CA)

Fan Coil

VAV - Single Duct

F4/

Asset											
Asset Name	**MFG**	**Model Num**	**Type**	**Inlet Size**	**Design Max CFM**	**Max CFM**	**Design Min CFM**	**Min CFM**	**Design Heat CFM**	**Heat CFM**	**Ak (max)**
VAV-1	PRICE	SDV8000	INLINE	12"	1800	689					

Diffuser Supply (GRD)

VAV-1/

Asset							
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**CFM(1)**	**FINAL CFM**	**% to design**
SGRD1	LOBBY	D4	12	229	292	231	100.9
SGRD2	LOBBY	D4	12	229	200	221	96.5
SGRD3	CAFE	D4	12	229	195	237	103.5
Total				687	687	689	100.29%

National TAB

Project: Poppy Bank (Walnut, CA)

System/Unit: Fan Coil

Asset: F5 AREA:

Unit Data		
	Design	**Actual**
MFG	NA	MAGIC AIR
Model Num	NA	HBB20ASAA10RE13G3AAAABM
Serial Num	-	W150377791
Type	-	AHU
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	20X20X2

Test Data		
	Design	**Actual**
SFAN CFM	2480	538
SFAN RPM	-	734
Motor Speed SetPt	-	0 TURNS OPEN
RL Voltage	-	287
RL Amperage	-	3.48
RA CFM	1980	416
OA CFM	500	102

Motor Data		
	Design	**Actual**
Motor MFG	-	BALDOR RELIANCE
Frame	-	56
Horsepower	0.5	0.5
Motor Rpm	1725	1725
Phase	1	1
Voltage (rated)	-	277
Amperage (rated)	-	3.6
Service Factor	-	1.15
Brake Horse Power	-	NL

Performance Data		
	Design	**Actual**
Suction ESP	-	-0.16"
Discharge ESP	-	0.21"
Total ESP	-	0.37"

Drive Data	
	Actual
Motor Sheave Size	3-3/4"
Motor Bore Size	5/8"
Fan Sheave Size	AK48
Fan Sheave Bore	3/4"
Belt CL Distance	15"
Num of Belts	1
Belt Size	AX47

Completed By: Zack Eismin on 02/04/2025

Notes:
MOTOR SHEAVE IS MAXIMIZED DESIGN AIRFLOW OF 2480CFM CANNOT BE REACHED. OA SET TO 20% OF DESIGN FOR PROPORTIONAL BALANCING.

Written By: Zack Eismin on 02/04/2025

Unit Data - PHOTO LOG

02/04/2025

National TAB

Project:Poppy Bank (Walnut, CA)

Fan Coil

Diffuser Supply (GRD)

F5/

Asset							
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**CFM(1)**	**FINAL CFM**	**% to design**
SGRD1	ENTRY	EXISTING		64	69	69	107.8
SGRD2	ENTRY	EXISTING		64	68	68	106.3
SGRD3	ENTRY	EXISTING		64	67	67	104.7
SGRD4	ENTRY	EXISTING		65	68	68	104.6
SGRD5	ENTRY	D4	12	129	139	139	107.8
SGRD6	ENTRY	D4	12	630	127	127	20.2
Total				1016	538	538	52.95%