

**Report By:**

National TAB  
1329 E. KEMPER ROAD  
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**Report: CERTIFIED TAB REPORT**

**Function: Test, Adjust, & Balance**

**Date: 12/12/2024**

**Completed By: National TAB**

# PROJECT

## Starbucks (Stockton, CA)

4343 North Wilson Way

Stockton, CA 95205

### Client

B&M Builders, Inc.

11330 Sunrise Park Drive

Suite C

Rancho Cordova, CA 95742

# National TAB

Project: Starbucks (Stockton, CA)

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Starbucks (Stockton, CA)

**PROJECT TEAM MEMBERS**

**Architect/Engineer/Consultant:**

ACIES ENGINEERING  
400 N McCarthy Blvd  
Milpitas, CA, 95035

**Mechanical Contractor:**

B&M Builders, Inc.  
11330 Sunrise Park Drive Suite C  
Rancho Cordova, CA, 95742

**Test, Adjust, & Balance:**

National TAB Intelligence - Kansas City  
1126 Swift St  
North Kansas City, MO, 64116



# CERTIFICATION



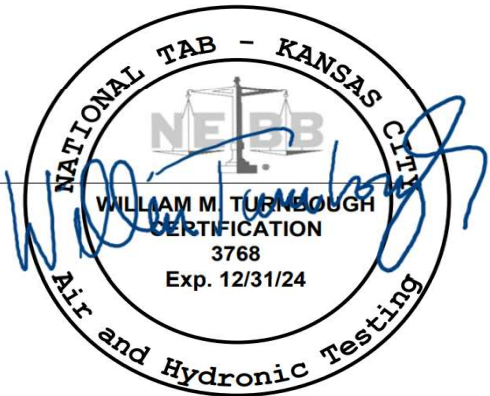
**PROJECT:** Starbucks (Stockton, CA)

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 Standard for Testing, Adjusting and Balancing of Environmental Systems. The measurements shown, and the information given, in this report are certified to be accurate and complete, at the time and date information was gathered. Any variances from design quantities, which exceed NEBB tolerances, are noted in the TAB report project summary.

**NEBB TAB FIRM:** National TAB - Kansas City  
**REGISTRATION NO:** 3768  
**CERTIFIED BY:** Will Turnbough  
**DATE:** 12/13/2024

## Submitted and Certified by:

**NEBB TAB FIRM:** National TAB - Kansas City  
**TAB PROFESSIONAL:** Will Turnbough  
**REGISTRATION NO:** CP-24289  
**CERTIFICATION EXP:** 12/31/2024



## Project Summary

The summary below provides a quick understanding of our scope of work and general testing procedures. Enclosed in the report is further detail about your building performance including recommendations, asset data, and pictures. Our focus is to work with the trades to remedy any issues or deficiencies during the actual field balancing and not after the balancing has occurred to achieve a positive environment and outcome. The level of success is determined by the availability of the trades, possible parts needed, or time constraints.

### RTU's (Roof Top Units) w/ Diffusers

Each of the RTU's were measured at their terminal devices or via traverse to establish a total flow for that unit. Each RTU was adjusted to within tolerance of the engineer's design flow. Each outlet was then adjusted to within tolerance of the design flow. Outside air was measured by reading the intake air opening with a velocity grid and multiplying by the free area. The outside air damper was adjusted until the airflow was within the design requirements. Any equipment that fell outside of that tolerance is noted throughout the report.

### General Exhaust Fans w/ Grilles

The general exhaust fans were measured by reading each air device with a flow hood. The total airflow for each fan is equivalent to the sum of these readings. Fan speed was then adjusted so that the airflow was within tolerance of design. Each terminal device was balanced to within tolerance of the design volume using the installed volume dampers. Any equipment that fell outside of this tolerance is noted throughout the report.

## Issue List

- ECONOMIZERS ARE NOT OPERATIONAL



## Starbucks (Stockton, CA)

### Project Issue Information

**Issue Name :** ECONOMIZERS ARE NOT OPERATIONAL  
**Description :** Economizers are not operational both RTU's needed to have damper position manually set for testing. Recommended to have both RTU's economizers serviced.  
**Created By :** National TAB                      **Assigned To :** National TAB - Dan Hertenstein  
**Status :** Open  
**Priority :** Urgent                                      **Asset Tag :**  
**Originated Date :** 12/13/2024 - Zack Eismin - National TAB

# National TAB

Project: Starbucks (Stockton, CA)

System/Unit: AHU/RTU



Asset: RTU1

AREA:BACK OF HOUSE

Unit Data		
	Design	Actual
MFG	CARRIER	TRANE
Serial Num	-	240810988L
Model Num	48FCDM07	YSJ072A3S0L05
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	1
OA Filter Size 1	-	34.5X16.5
Num PreFilter 1	-	3 / 2
PreFilter Size 1	-	16X24X2 / 18X24X2

Test Data		
	Design	Actual
SF CFM	2400	2464
RA CFM	1950	1992
OA CFM	450	472
RL Voltage	230	209/209/208
RL Amperage	NL	4.24/4.25/4.26
OA Damper Position	-	1.25"~19%
Brake Horse Power	NL	1.45

Motor Data		
	Design	Actual
Motor MFG	-	NL
Frame	-	NL
Horsepower	1	3.0
Motor Rpm	-	1800
Phase	3	3
Rated Voltage	230	208
Rated Amperage	NL	8.8
Service Factor	-	NL

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.59"
Fan Suction SP	-	-0.73"
Fan Discharge SP	-	0.55"
Total ESP	0.5"	1.14"
Fan Total SP	-	1.28"

Completed By: Zack Eismin on 12/12/2024

### Unit Data - PHOTO LOG



12/12/2024

# National TAB

Project: Starbucks (Stockton, CA)

## AHU/RTU



**Diffuser Supply (GRD)**

**RTU1/BACK OF HOUSE**

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
AHU1-SGRD1	BOH	NL	10"	400	412	395	98.8
AHU1-SGRD2	BOH	NL	10"	400	396	389	97.3
AHU1-SGRD3	BOH	NL	12"	500	410	501	100.2
AHU1-SGRD4	BOH	NL	12"	500	780	531	106.2
AHU1-SGRD5	BOH	NL	10"	400	527	431	107.8
AHU1-SGRD6	BOH	NL	8"	200	223	217	108.5
Total				2400	2748	2464	102.67%

**Diffuser Ret/Exh (GRD)**

**RTU1/BACK OF HOUSE**

Asset								
Asset Name	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
AHU1-EGRD1	NL	16"	975	1	818	981	1003	102.9
AHU1-EGRD2	NL	16"	975	1	802	989	989	101.4
Total			1950		1620	1970	1992	102.15%

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# National TAB

Project: Starbucks (Stockton, CA)

System/Unit: AHU/RTU



Asset: RTU2

AREA:FRONT OF HOUSE

Unit Data		
	Design	Actual
MFG	CARRIER	TRANE
Serial Num	-	240810987L
Model Num	48FCDM07	YSJ072A3S0L05
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	1
OA Filter Size 1	-	34.5X16.5
Num PreFilter 1	-	3 / 2
PreFilter Size 1	-	16X24X2 / 18X24X2

Test Data		
	Design	Actual
SF CFM	2400	2418
RA CFM	1800	1824
OA CFM	600	594
RL Voltage	230	209/208/209
RL Amperage	NL	4.1/4.09/4.1
OA Damper Position	-	1.5"/~25%
Brake Horse Power	1	1.4

Motor Data		
	Design	Actual
Motor MFG	-	NL
Frame	-	NL
Horsepower	1	3.0
Motor Rpm	-	1800
Phase	3	3
Rated Voltage	230	208
Rated Amperage	NL	8.8
Service Factor	-	NL

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.46"
Fan Suction SP	-	-0.57"
Fan Discharge SP	-	0.53"
Total ESP	0.5"	0.99"
Fan Total SP	-	1.1"

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## Unit Data - PHOTO LOG



12/12/2024

# National TAB

Project: Starbucks (Stockton, CA)

## AHU/RTU



### Diffuser Supply (GRD)

#### RTU2/FRONT OF HOUSE

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
AHU2-SGRD1	SERVICE	NL	10"	400	356	379	94.8
AHU2-SGRD2	SERVICE	NL	10"	400	440	411	102.8
AHU2-SGRD3	SERVICE	NL	10"	400	328	387	96.8
AHU2-SGRD4	SERVICE	NL	10"	400	172	437	109.3
AHU2-SGRD5	SERVICE	NL	10"	400	402	375	93.8
AHU2-SGRD6	SERVICE	NL	10"	400	606	429	107.3
Total				2400	2304	2418	100.75%

### Diffuser Ret/Exh (GRD)

#### RTU2/FRONT OF HOUSE

Asset								
Asset Name	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
AHU2-EGRD1	NL	16"	900	1	679	921	921	102.3
AHU2-EGRD2	NL	16"	900	1	871	903	903	100.3
Total			1800		1550	1824	1824	101.33%

Completed By: Zack Eismin on 12/12/2024

# National TAB

Project: Starbucks (Stockton, CA)

## System/Unit: FAN - Exhaust



Asset: EF1

AREA:RESTROOMS

Unit Data		
	Design	Actual
MFG	GREEN HECK	PENNBARRY
Model Num	G-091	DX08B
Serial Num	-	K23AC47594
Type	DOWNBLAST	DOWNBLAST

Test Data		
	Design	Actual
CFM	160	172
RL Voltage	120	115
RL Amperage	NL	2.4
Total ESP	0.125"	0.21"

Motor Data		
	Design	Actual
Motor MFG	-	FASCO
Frame	-	NL
Horsepower	0.25	0.25
Motor Rpm	NL	1550
Phase	1	1
Voltage (rated)	120	115
Amperage (rated)	-	2.7
Service Factor	-	NL

Completed By: Zack Eismin on 12/12/2024

### Unit Data - PHOTO LOG



12/12/2024

# National TAB

Project: Starbucks (Stockton, CA)

## FAN - Exhaust



**Diffuser Ret/Exh (GRD)**

**EF1/RESTROOMS**

Asset								
Asset Name	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
EF1-EGRD1	NL	8"	80	1	129	87	87	108.8
EF1-EGRD2	NL	8"	80	1	179	85	85	106.3
Total			160		308	172	172	107.5%

## Abbreviation List

A = Area (ft <sup>2</sup> )	S.F. = Service Factor
AHU = Air Handling Unit	SF = Supply Fan
A <sub>k</sub> = 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 <sub>ma</sub> = Mixed Air Temperature
CL = Center Distance (used in belt formula)	T <sub>oa</sub> = Outside Air Temperature
CD = Ceiling Diffuser	T <sub>ra</sub> = Return Air Temperature
CF = Correction Factor	H = Head (in wc, ft wc, psi)
CFM = Volumetric Flow: Cubic Feet Per Minute	h = Enthalpy
CO <sub>2</sub> = Carbon Dioxide	HP = Horsepower
CO = Carbon Monoxide	hr = Hour
C <sub>v</sub> = Flow Constant	K <sub>v</sub> = 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 <sub>ra</sub> = Return Air Temperature
psid = PSI Differential	TS = Tip Speed (fpm) IP, (m/s) SI
r = Radius (in)	TSP = Total Static Pressure
% <sub>ra</sub> = % 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

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	Evergreen S-PVF-1 24D-00509	6/17/2024	6/17/2025
	AIR VELOCITY INSTRUMENT	50 fpm to 3900 fpm	+/- 5 % +/- 7 fpm	Evergreen S-PVF-1 24D-00509	6/17/2024	6/17/2025
	DIRECT HOOD READING	100 cfm to 2000 cfm	+/- 5 % +/- 7 cfm	Evergreen S-PVF-1 24D-00509	6/17/2024	6/17/2025
TEMPERATURE	AIR METER	-20 F to 240 F	+/- .5 % 2 F	Cooper SRH77A S/N 100516003	9/18/2024	9/18/2025
	AIR PROBE	-20 F to 240 F	+/- .5 % 2 F	Cooper SRH77A S/N 100516003	9/18/2024	9/18/2025
	IMMERSION METER	-20 F to 240 F	+/- .5 % 2 F	Cooper SRH77A S/N 100516003	9/18/2024	9/18/2025
	IMMERSION PROBE	-20 F to 240 F	+/- .5 % 2 F	Cooper SRH77A S/N 100516003	9/18/2024	9/18/2025
	CONTACT METER	-20 F to 240 F	+/- .5 % 2 F	Cooper SRH77A S/N 100516003	9/18/2024	9/18/2025
	CONTACT PROBE	-20 F to 240 F	+/- .5 % 2 F	Cooper SRH77A S/N 100516003	9/18/2024	9/18/2025
HUMIDITY	HUMIDITY PROBE	10 % RH to 90 % RH	3% of reading	Cooper SRH77A S/N 100516003	9/18/2024	9/18/2025
ELECTRICAL	VOLTAGE MEASUREMENT	0 VAC to 600 VAC	2 % reading +/- 5 digits	Klein Tools CL800 S/N 1220C-C1	9/18/2024	9/18/2025
	AMPERAGE MEASUREMENT	0 Amperers to 100 Amperes	2 % reading +/- 5 digits	Klein Tools CL800 S/N 1220C-C1	9/18/2024	9/18/2025
ROTATION	ROTATION MEASUREMENT	60 rpm to 5000 rpm	2 % reading 2 rpm	Shimpo DT 207Lp S/N D1690029R	9/18/2024	9/18/2025

