Report By:

National TAB
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Report: TAB Report

Function: Test, Adjust, & Balance

Date: 05/09/2025

Completed By: National TAB

PROJECT

05-05-25 CAVA DENVER, CO (STAPLETON)

8969 E 46TH AVE

DENVER, CO 80238

Client

CAVA

702 H ST NW

2nd floor

Washington, DC 20001

National TAB

Project: 05-05-25 CAVA DENVER, CO (STAPLETON)

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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.

Kitchen Exhaust Hood & Associated Fans
Each kitchen exhaust fan was measured at the hood filter bay utilizing a velocity matrix and a manufacturer's correction factor. Each filter velocity is multiplied by the manufacturer's corrected area. The sum of these readings equals the total flow of the exhaust fans. The total flow of the exhaust was then adjusted to within tolerance of the design flow. . Any EF's that fell outside of this tolerance is noted throughout the report.

MUA (Make Up Air Unit) w/ PSP
Total flow for the MAU (Make-up Air Unit) unit was measured by readings taken at the discharge of the hood's perforated supply plenum. Readings taken with a velocity matrix were averaged and multiplied by a manufacturer's corrected area. Adjustments to the fan speed were made in order to bring the unit to within design tolerance. Any MUA's that fell outside of this 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.

Final Building Tests
After completing the test and balance the final building pressure was measured. It was confirmed that the building pressure fell within acceptable tolerances of -0.02" wc to +0.02" wc and that the pressure measurement coincides with the actual and design net airflow. Any deviations from these standards are noted throughout the report.
The hood capture was tested at the perimeter of the hood and the cook top level with the equipment heat on to ensure satisfactory hood capture and containment.

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AIR BALANCE SCHEDULE

UNIT	AREA SERVED	HVAC SUPPLY		HVAC RETURN		HVAC OUTDOOR		OA %		HOOD MAKE-UP		HOOD EXHAUST		GENERAL EXH.	
		DESIGN	ACTUAL	DESIGN	ACTUAL	DESIGN	ACTUAL	DESIGN	ACTUAL	DESIGN	ACTUAL	DESIGN	ACTUAL	DESIGN	ACTUAL
RTU-1	KITCHEN	2800	2865	1845	1942	955	923	34.1%	32.2%						
RTU-2	DINING	4000	4054	3075	3675	400	379	10.0%	9.3%						
EF-1	COOK LINE											2117	2140		
EF-2	BATHROOM													200	186
MAU-1	HOOD									1694	1613				
TOTALS		6800	6919	4920	5617	1355	1302			1694	1613	2117	2140	200	186

NET BUILDING AIRFLOW CALCULATION

TOTALS	DESIGN	ACTUAL
TOTAL OA	3049	2915
TOTAL EXHAUST	2317	2326
NET AIRFLOW	732	589

DOOR TESTED	BUILDING PRESSURE MEASUREMENTS (IN. H20)
FRONT	0.001
SIDE	0.005
REAR	0.008
AVERAGE	**0.0047**

FINAL CHECKS

ACTUAL NET AIRFLOW COINCIDES WITH DESIGN: ✓

MEASURED PRESSURES COINCIDES WITH ACTUAL NET AIRFLOW: ✓

PRESSURE FALLS WITHIN IMC TOLERANCE OF +/-0.02" W.C. ✓

NOTES:

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Project: 05-05-25 CAVA DENVER, CO (STAPLETON)

System/Unit: AHU/RTU

Asset: MAU1 AREA:

Unit Data		
	Design	**Actual**
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Serial Num	-	7327435
Model Num	CAS-HVAC1-1.200-15-3T-MPU	CAS-HVAC1-I.200-15-3T-MPU
Type	DOAS	DOAS
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	2
OA Filter Size 1	-	20X16
Num Final Filter 1	-	4
Final Filter Size 1	-	16X16
Num Final Filter 2	-	4
Final Filter Size 2	-	16X16

Motor Data		
	Design	**Actual**
Motor MFG	-	TECO WESTINGHOUSE
Frame	-	145T
Horsepower	-	1.5
Motor Rpm	-	1740
Phase	-	3
Rated Voltage	-	230
Rated Amperage	-	4.02

Drive Data	
	Actual
Motor Sheave Size	DD
Motor Bore Size	DD
Motor Sheave SetPt	DD
Fan Sheave Size	DD
Fan Sheave Bore	DD
Belt CL Distance	DD
Num of Belts	DD
Belt Size	DD
Belt Alignment	DD

Test Data		
	Design	**Actual**
SF CFM	1694	1613
SF RPM	-	1393
RA CFM	0	0
OA CFM	1694	1613
RL Voltage	-	145/145/145
RL Amperage	-	3.1
SF Rotation	-	CCW
SF System SetPt	-	90% / 48hz
RA Damper Position	-	0%
Min OA Damper Position	-	100%
Min OA Damper Type	-	MOTORIZED
OA Enthalpy Setpt	-	N/A

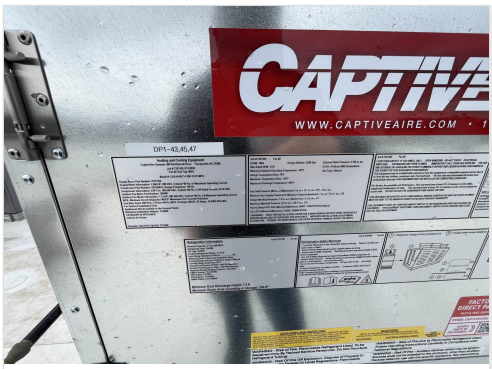
General	
	Actual
Fan Rotation Correct	YES
Unit Filters Clean	YES
Condensate Drain Installed	YES

Completed By: Cody Collett on 05/09/2025

Notes:
FILTER 1 MERV 8
FILTER 2 MERV 13

Written By: Cody Collett on 05/09/2025

Unit Data - PHOTO LOG



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Motor Data - PHOTO LOG

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Project: 05-05-25 CAVA DENVER, CO (STAPLETON)

System/Unit: AHU/RTU

Asset: RTU1 AREA:DINING

Unit Data		
	Design	**Actual**
MFG	DAIKIN	CARRIER
Serial Num	-	4324P65217
Model Num	DPS007A	50GCQM08J2M5A8U010
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	1
OA Filter Size 1	-	25x38.5
Num Final Filter 1	-	4
Final Filter Size 1	-	20x20

Motor Data		
	Design	**Actual**
Motor MFG	-	NL
Frame	-	NL
Horsepower	3	NL
Motor Rpm	-	NL
Phase	3	3
Rated Voltage	208	208/230
Rated Amperage	-	6.4

Drive Data	
	Actual
Motor Sheave Size	DD
Motor Bore Size	DD
Motor Sheave SetPt	DD
Fan Sheave Size	DD
Fan Sheave Bore	DD
Belt CL Distance	DD
Num of Belts	DD
Belt Size	DD
Belt Alignment	DD

Test Data		
	Design	**Actual**
SF CFM	2800	2865
SF RPM	-	1096
RA CFM	1845	1942
OA CFM	955	923
RL Voltage	-	205/204/204
RL Amperage	-	1.35/NA/NA
SF Rotation	-	CCW
SF System SetPt	-	A 5.12VAC
RA Damper Position	-	49%
Min OA Damper Position	-	51% 6.2VAC
Min OA Damper Type	-	MOTORIZED
OA Enthalpy Setpt	-	NA

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.32"
Fan Suction SP	-	-0.45"
Fan Discharge SP	-	0.16"
Total ESP	NA	0.48"
Fan Total SP	-	0.61"

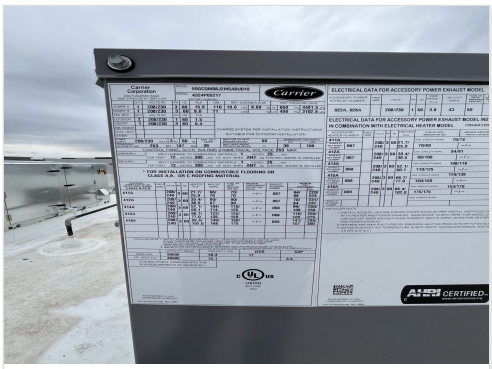
General	
	Actual
Fan Rotation Correct	YES
Unit Filters Clean	YES
Condensate Drain Installed	NO

Completed By: Cody Collett on 05/09/2025

Notes:
Thermostat wire not complete; Jumper wired for testing.

Written By: Cody Collett on 05/09/2025

Unit Data - PHOTO LOG



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Project:05-05-25 CAVA DENVER, CO (STAPLETON)

AHU/RTU

Diffuser Supply (GRD)

RTU1/DINING

Asset									
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
SGRD1	DINING	E	12"	400	0.66	601	398	411	102.8
SGRD2	DINING	E	12"	400	0.66	588	415	421	105.3
SGRD3	DINING	E	8"	200	0.66	370	248	208	104.0
SGRD4	DINING	E	12"	400	0.66	513	338	429	107.3
SGRD5	DINING	E	12"	400	0.66	732	476	417	104.3
SGRD6	DINING	E	12"	400	0.66	737	483	389	97.3
SGRD7	DINING	E	12"	400	0.66	718	446	399	99.8
SGRD8	RESTROOM	C	6"	50	1	58	58	54	108.0
SGRD9	HALLWAY	C	6"	100	1	56	56	91	91.0
SGRD10	RESTROOM	C	6"	50	1	53	53	46	92.0
Total				2800		4426	2971	2865	102.32%

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System/Unit: AHU/RTU

Asset: RTU2 AREA:KITCHEN

Unit Data		
	Design	**Actual**
MFG	DAIKIN	CARRIER
Serial Num	-	4124P00121
Model Num	DPS010A	50GCQM12J3M5A8U010
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	2
OA Filter Size 1	-	25x25”
Num Final Filter 1	-	6
Final Filter Size 1	-	24x18”

Motor Data		
	Design	**Actual**
Motor MFG	-	NL
Frame	-	NL
Horsepower	3	NL
Motor Rpm	-	NL
Phase	3	3
Rated Voltage	208	208/230
Rated Amperage	-	12.6

Drive Data	
	Actual
Motor Sheave Size	DD
Motor Bore Size	DD
Motor Sheave SetPt	DD
Fan Sheave Size	DD
Fan Sheave Bore	DD
Belt CL Distance	DD
Num of Belts	DD
Belt Size	DD
Belt Alignment	DD

Test Data		
	Design	**Actual**
SF CFM	4000	4054
SF RPM	-	1606
RA CFM	3600	3675
OA CFM	400	379
RL Voltage	-	206/205/205
RL Amperage	-	3.25/BA/NA
SF Rotation	-	CCW
SF System SetPt	-	Speed A 6.95 VDC
RA Damper Position	-	93%
Min OA Damper Position	-	7% 4.1 VAC
Min OA Damper Type	-	Motorized
OA Enthalpy Setpt	-	NA

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.58"
Fan Suction SP	-	-0.71"
Fan Discharge SP	-	0.44"
Total ESP	NA	1.02"
Fan Total SP	-	1.15"

General	
	Actual
Fan Rotation Correct	YES
Unit Filters Clean	YES
Condensate Drain Installed	NO

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Unit Data - PHOTO LOG

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Project:05-05-25 CAVA DENVER, CO (STAPLETON)

AHU/RTU

Diffuser Supply (GRD)

RTU2/KITCHEN

Asset									
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
SGRD1	KITCHEN	B	10X10"	340	0.562	211	257	331	97.4
SGRD2	KITCHEN	B	10X10"	340	0.562	410	476	373	109.7
SGRD3	KITCHEN	B	10X10"	340	0.562	205	249	328	96.5
SGRD4	KITCHEN	B	10X10"	340	0.562	370	350	372	109.4
SGRD5	KITCHEN	B	10X10"	400	0.562	306	390	423	105.8
SGRD6	KITCHEN	A	8"	200	1	244	273	207	103.5
SGRD7	KITCHEN	B	10X10"	400	0.562	224	256	393	98.3
SGRD8	KITCHEN	A	8"	200	1	372	388	204	102.0
SGRD9	KITCHEN	A	8"	200	1	225	239	218	109.0
SGRD10	KITCHEN	A	8"	200	1	269	274	217	108.5
SGRD11	KITCHEN	A	8"	200	1	273	292	219	109.5
SGRD12	KITCHEN	ACPSP	8"	844	4.55	764		769	91.1
Total				4004		3873	3444	4054	101.25%

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Project: 05-05-25 CAVA DENVER, CO (STAPLETON)

System/Unit: FAN - Exhaust

Asset: EF1 AREA:RESTROOM

Unit Data		
	Design	**Actual**
MFG	GREENHECK	GREENHECK
Model Num	G-080-VG	G-080-VG
Serial Num	-	26725366
Type	DOWBLAST	DOWBLAST
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	**Actual**
Motor MFG	-	VARI GREEN
Frame	-	NL
Horsepower	.10	1/10
Motor Rpm	-	300-1750
Phase	1	1
Voltage (rated)	120	115/208-230/277
Amperage (rated)	-	1.3/0.84/0.73
Service Factor	-	NL

Test Data		
	Design	**Actual**
CFM	200	186
Fan RPM	-	1137
Fan Rotation	-	CW
Motor RPM	-	1137
System SetPt	-	65%
RL Voltage	-	119
RL Amperage	-	0.58
Total ESP	.35	0.17"
Fan Inlet SP	-	-0.17"
Fan Discharge SP	-	ATM

Completed By: Cody Collett on 05/09/2025

Unit Data - PHOTO LOG

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Project:05-05-25 CAVA DENVER, CO (STAPLETON)

FAN - Exhaust

Diffuser Ret/Exh (GRD)

EF1/RESTROOM

Asset									
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
EF1-EGRD1	BATHROOM R	G	8"	100	1	71	98	90	90.0
EF1-EGRD2	BATHROOM L	G	8"	100	1	97	138	96	96.0
Total				200		168	236	186	93%

Completed By: Cody Collett on 05/08/2025

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Project: 05-05-25 CAVA DENVER, CO (STAPLETON)

System/Unit: FAN - Exhaust

Asset: KEF1 AREA:KITCHEN

Unit Data		
	Design	**Actual**
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	DU85HFA	DU85HFA
Serial Num	-	7327435
Type	UPBLAST	UPBLAST
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	**Actual**
Motor MFG	-	TELCO GREEN
Frame	-	NL
Horsepower	1	1
Motor Rpm	-	1800
Phase	1	1
Voltage (rated)	208	115
Amperage (rated)	-	11.6
Service Factor	-	NL

Test Data		
	Design	**Actual**
CFM	2117	2140
Fan RPM	1479	1386
Fan Rotation	-	CCW
Motor RPM	-	1386
System SetPt	-	77%
RL Voltage	-	118
RL Amperage	-	9
Total ESP	1.0"	0.96"
Fan Inlet SP	-	-0.96"
Fan Discharge SP	-	ATM

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Unit Data - PHOTO LOG

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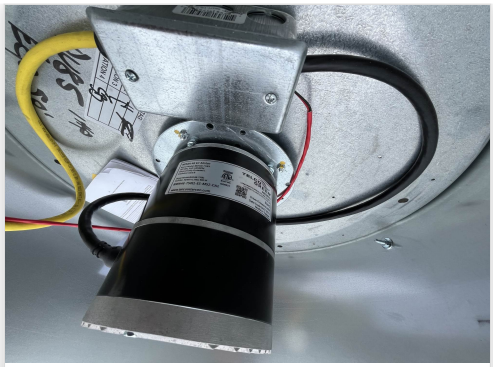

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Project: 05-05-25 CAVA DENVER, CO (STAPLETON)

System/Unit: Kitchen Hood Type I

Asset: HD1 AREA:

Unit Data		
	Design	**Actual**
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	6030 ND-2-ACPSP-F	6030 ND-2-ACPSP-F
Job / Serial Num	-	7327435
Type	TYPE I CANOPY	TYPE 1 CANOPY
Hood length	127"	127
Hood Width	60"	60”
Supply Plenum Type	-	ACPSP
Supply Plenum Width	12"	12”
Supply Plenum Length	140"	140”

Test Data Exhaust		
	Design	**Actual**
Filter Type	CAPTRATE SOLO	CAPTRATE SOLO
Filter Size 1	16X20	16X20
Filter Qty 1	7	7
Filter AK factor size 1	2.08	2.08
Filter Total AK Area	14.56	14.56
Filter1 FPM	-	148
Filter2 FPM	-	145
Filter3 FPM	-	151
Filter4 FPM	-	153
Filter5 FPM	-	150
Filter6 FPM	-	148
Filter7 FPM	-	135
Filter Ave FPM(corr)	-	147
CFM	2117	2140

Cooking Equipment	
	Actual
Item 1	OVEN
Item 2	RANGE
Item 3	GRIDDLE
Item 4	FRYER

Test Data Supply		
	Design	**Actual**
Total Area	-	11.66
Kv factor (Vel)	-	0.87
Num of Readings	-	8
Reading1 FPM	-	187
Reading2 FPM	-	135
Reading3 FPM	-	146
Reading4 FPM	-	159
Reading5 FPM	-	181
Reading6 FPM	-	134
Reading7 FPM	-	153
Reading8 FPM	-	182
Ave FPM(corr)	-	159
CFM	1694	1613

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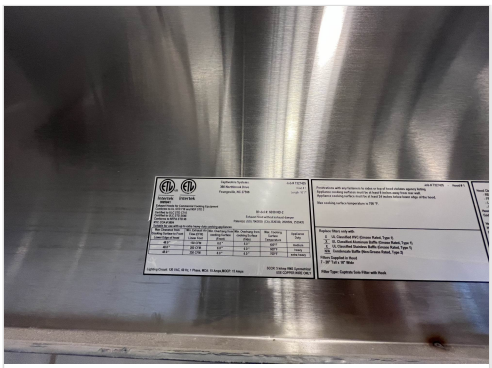
Unit Data - PHOTO LOG



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