Report By:

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

Report: TAB REPORT

Function: Test, Adjust, & Balance

Date: 07/18/2024

Completed by: Ferris Street Services

PROJECT

07-08-24 SWEETGREEN WESTPORT, CT (WESTPORT COMPO ACRES) TAB, IAQ

374 Post Rd E

Westport, CT

Client

DGC Capital Contracting Corp.

506 South 9th Ave

Mount Vernon, NY 10550

National TAB

Project: 07-08-24 SWEETGREEN WESTPORT, CT (WESTPORT COMPO ACRES) TAB, IAQ

Table Of Contents

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.

Kitchen Exhaust Hood (Type II) & Associated Fans

Each kitchen exhaust fan was measured by traversing the ductwork or ductwork opening at the hood. The total flow of the exhaust fan was then adjusted to tolerance of the design flow. Any EF's 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.

NATIONAL TAB

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	2700	2746	2320	2336	380	410	14.1%	14.9%						
RTU-2	DINING	1700	1795	1240	1326	460	469	27.1%	26.1%						
RTU-3	DINING	2100	2115	1545	1551	555	564	26.4%	26.7%						
EF-1	HOOD 1											1140	1160		
EF-3														150	156
TOTALS		6500	6656	5105	5213	1395	1443			0	0	1140	1160	150	156

NET BUILDING AIRFLOW CALCULATION

TOTALS	DESIGN	ACTUAL
TOTAL OA	1395	1443
TOTAL EXHAUST	1290	1316
NET AIRFLOW	105	127

DOOR TESTED	BUILDING PRESSURE MEASUREMENTS (IN. H20)
FRONT	0.02
SIDE	
REAR	0.01
AVERAGE	**0.015**

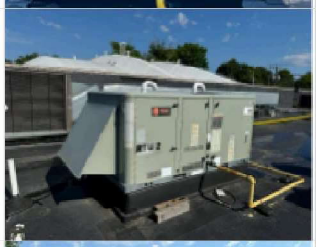
FINAL CHECKS

ACTUAL NET AIRFLOW COINCIDES WITH DESIGN: ✓

MEASURED PRESSURES COINCIDES WITH ACTUAL NET AIRFLOW: ✓

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

NOTES:

Description	Photo 1	Photo 2	Photo 3
Store Front			
RTU-1			
RTU-2			
RTU-3			

Description	Photo 4	Photo 5
Store Front		
RTU-1		
RTU-2		
RTU-3		

Description	Photo 1	Photo 2	Photo 3
EF-1			
EF-2			

Fan Test Sheet

Project:	Sweetgreen Westport	**System:**	RTU-1
Location:	Roof	**Serves:**	Kitchen
Instrument:	Shortridge ADM-860c	**Date:**	07/08/24

Fan Data	
Make:	Trane
Model:	YHC092F3RM
Serial No.:	144811065

Air Flow Data		
	Design	Actual
Total	2,700	2,746
Outside Air	380	410

Static Pressure	
Total Design:	in.w.c.
Suction:	in.w.c.
Discharge:	in.w.c.
Total Actual:	in.w.c.

Motor Data			
HP:		RPM:	
Phase:	1	SF:	1.15
	Rated		Actual
Volts:	208-230/460		207
Amps:			2.2
Hz:	60		60

Drive Data		
	Size	Bore
Motor		
Fan		
Belts	Direct Drive	
Centerline Dist.		
	Design	Actual
Fan RPM		Speed 50%

Duct					**Design**		**Actual**				**Notes**
No.	**Height**	**Width**	**Insul.**	**Area**	**FPM**	**CFM**	**AFPM**	**CFM**	**SP**	**%**	
1	16	38		4.22	90	380	97	410		108%	OA intake

Notes:

Outside air min position 25%.

Project:	Sweetgreen Westport		
System:	RTU-1	**Location:**	Kitchen
Instrument:	Shortridge ADM-860c	**Date:**	07/08/24

Area Served	Outlet					Design		Final		Notes
	Drwg	No.	Type	Size	Ak	FPM	CFM	FPM	CFM	
1st Floor	M-100	1	CD	8	DR		225		208	
1st Floor	M-100	2	CD	8	DR		225		211	
1st Floor	M-100	3	CD	6	DR		100		108	
1st Floor	M-100	4	CD	6	DR		100		102	
1st Floor	M-100	5	CD	6	DR		100		101	
1st Floor	M-100	6	CD	8	DR		225		235	
1st Floor	M-100	7	CD	6	DR		100		98	
1st Floor	M-100	8	CD	8	DR		225		206	
1st Floor	M-100	9	CD	10	DR		300		324	
1st Floor	M-100	10	CD	10	DR		300		321	
1st Floor	M-100	11	CD	10	DR		300		311	
1st Floor	M-100	12	CD	14	DR		500		521	
							2700		2746	
Notes:										

Fan Test Sheet

Project:	Sweetgreen Westport	**System:**	RTU-2
Location:	Roof	**Serves:**	Dining
Instrument:	Shortridge ADM-860c	**Date:**	07/08/24

Fan Data	
Make:	Trane
Model:	YHC060F3RMAO
Serial No.:	144911513L

Air Flow Data		
	Design	Actual
Total	1,700	1,795
Outside Air	460	469

Static Pressure		
Total Design:		in.w.c.
Suction:	0.33	in.w.c.
Discharge:	0.68	in.w.c.
Total Actual:	0.35	in.w.c.

Motor Data			
HP:	1.00	RPM:	1725
Phase:	3	SF:	1.15
	Rated		Actual
Volts:	200-230/460		203-204-203
Amps:	4-5/2.5		2.6-2.5-2.4
Hz:	60		60

Drive Data		
	Size	Bore
Motor	2.50	56.00
Fan	5.00	0.75
Belts	AX29	
Centerline Dist.	9.00	
	Design	Actual
Fan RPM		838

Duct					**Design**		**Actual**				**Notes**
No.	**Height**	**Width**	**Insul.**	**Area**	**FPM**	**CFM**	**AFPM**	**CFM**	**SP**	**%**	
1	38	16		4.22	109	460	111	469		102%	OA intake
2											

Notes:

Outside air min position 25%.

Project:	Sweetgreen Westport		
System:	RTU-2	**Location:**	Dining
Instrument:	Alnor RVA801	**Date:**	07/08/24

Area Served	Outlet					Design		Final		Notes
	Drwg	No.	Type	Size	Ak	FPM	CFM	FPM	CFM	
1st Floor	M-100	13	SG	12x6	0.35	717	250	764	266	
1st Floor	M-100	14	SG	12x6	0.35	717	250	758	264	
1st Floor	M-100	15	SG	12x6	0.35	645	225	701	244	
1st Floor	M-100	16	SG	12x6	0.35	645	225	682	238	
1st Floor	M-100	17	SG	12x6	0.35	645	225	675	235	
1st Floor	M-100	18	SG	12x6	0.35	746	260	794	277	
1st Floor	M-100	19								deleted
1st Floor	M-100	20	SG	12x6	0.35	760	265	774	270	
							1700		1795	
Notes:										

Fan Test Sheet

Project:	Sweetgreen Westport	**System:**	RTU-3
Location:	Roof	**Serves:**	Dining
Instrument:	Shortridge ADM-860c	**Date:**	07/08/24

Fan Data	
Make:	Trane
Model:	YHCOGOE3RH
Serial No.:	231810215L

Air Flow Data		
	Design	Actual
Total	2,100	2,115
Outside Air	555	564

Static Pressure		
Total Design:		in.w.c.
Suction:	-0.32	in.w.c.
Discharge:	0.65	in.w.c.
Total Actual:	0.97	in.w.c.

Motor Data			
HP:	1.00	RPM:	1725
Phase:	3	SF:	1.15
	Rated		Actual
Volts:	200-230/460		204-203-203
Amps:	3.4-3.3/1.6		2.8-2.8-2.7
Hz:	60		60

Drive Data		
	Size	Bore
Motor	2.5 VP	56.00
Fan	5.00	0.75
Belts	AX29	
Centerline Dist.	9.00	
	Design	Actual
Fan RPM		845

Duct					**Design**		**Actual**				**Notes**
No.	**Height**	**Width**	**Insul.**	**Area**	**FPM**	**CFM**	**AFPM**	**CFM**	**SP**	**%**	
1	36	16		4.00	139	555	141	564		102%	OA Intake

Notes:

Outside air min position 25%.

Project:	Sweetgreen Westport		
System:	RTU-3	**Location:**	Dining
Instrument:	Alnor RVA801	**Date:**	07/08/24

Area Served	Outlet					Design		Final		Notes
	Drwg	No.	Type	Size	Ak	FPM	CFM	FPM	CFM	
1st Floor	M-100	21	SG	16x6	0.47					deleted
1st Floor	M-100	22	SG	16x6	0.47	804	380	824	389	
1st Floor	M-100	23	SG	16x6	0.47	1005	475	988	467	
1st Floor	M-100	24	SG	16x6	0.47	963	455	986	466	
1st Floor	M-100	25	SG	16x6	0.47	677	320	686	324	
1st Floor	M-100	26	SG	16x6	0.47	995	470	991	468	
							2100		2115	
Notes:										
Outlet 21 was deleted, and the design was changed on outlets 23 to 26 per Tom Lang.										

Fan Test Sheet

Project:	Sweetgreen Westport	**System:**	EF-1
Location:	Roof	**Serves:**	Kitchen Hood
Instrument:	Shortridge ADM-860c	**Date:**	07/08/24

Fan Data	
Make:	Econ-Air
Model:	EADU85H
Serial No.:	6586898

Air Flow Data		
	Design	Actual
Total	1,140	1,160

Static Pressure		
Total Design:		in.w.c.
Suction:	-0.42	in.w.c.
Discharge:	Free	in.w.c.
Total Actual:		in.w.c.

Motor Data			
HP:	0.8	RPM:	
Phase:	1	SF:	1.15
	Rated		Actual
Volts:	115		118
Amps:	8.90		4.30
Hz:	60		60

Drive Data		
	Size	Bore
Motor		
Fan		
Belts	Direct Drive	
Centerline Dist.		
	Design	Actual
Fan RPM		Speed 26%

Notes:

Outlet Test Sheet

Project:	Sweetgreen Westport		
System:	EF-1	**Location:**	Kitchen
Instrument:	Alnor RVA801	**Date:**	07/08/24

Area Served	Outlet					Design		Final		Notes
	Drwg	No.	Type	Size	Ak	FPM	CFM	FPM	CFM	
1st Floor	M-100		Hood	14	1.07	1067	1140	1086	1160	
Notes:										

Fan Test Sheet

Project:	Sweetgreen Westport	**System:**	EF-2
Location:	Roof	**Serves:**	Restrooms
Instrument:	Shortridge ADM-860c	**Date:**	07/08/24

Fan Data	
Make:	Econ-Air
Model:	EADR12H
Serial No.:	6586898

Air Flow Data		
	Design	Actual
Total	150	156

Static Pressure		
Total Design:		in.w.c.
Suction:	-0.25	in.w.c.
Discharge:	Free	in.w.c.
Total Actual:		in.w.c.

Motor Data			
HP:	0.3	RPM:	
Phase:	1	SF:	1.15
	Rated		Actual
Volts:	115		118
Amps:	2.90		1.30
Hz:	60		60

Drive Data		
	Size	Bore
Motor		
Fan		
Belts	Direct Drive	
Centerline Dist.		
	Design	Actual
Fan RPM		Speed 52%

Notes:

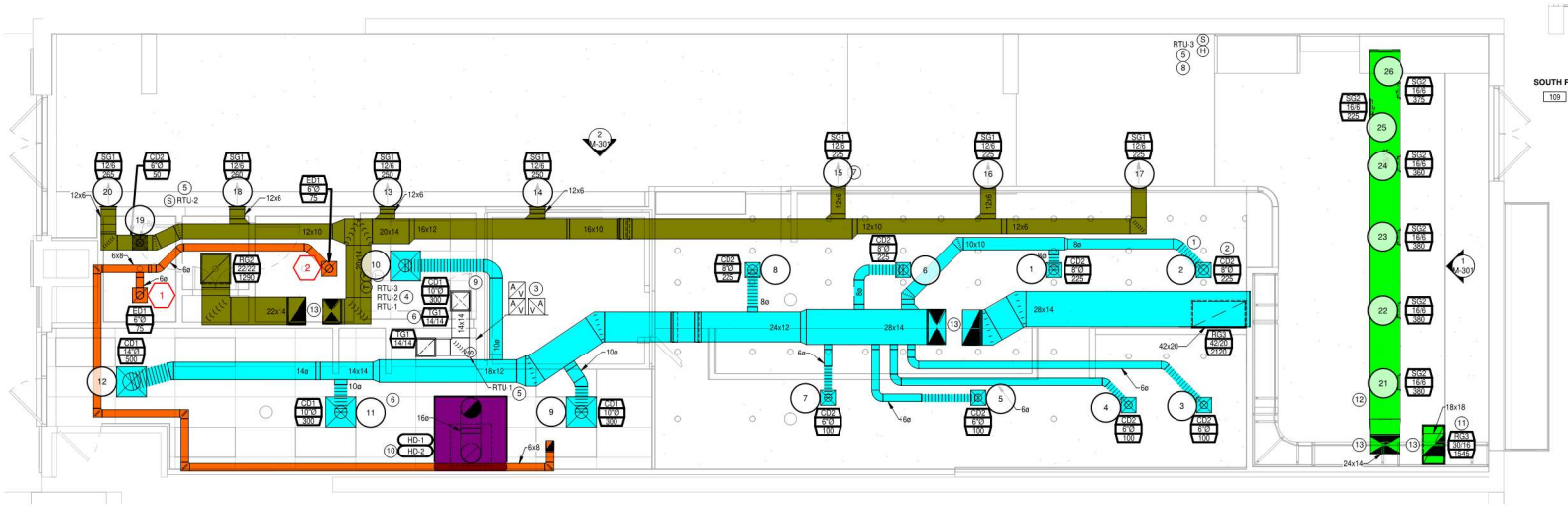
Outlet Test Sheet

Project:	Sweetgreen Westport		
System:	EF-2	**Location:**	Dining
Instrument:	Shortridge ADM-860c	**Date:**	07/08/24

Area Served	Outlet					Design		Final		Notes
	Drwg	No.	Type	Size	Ak	FPM	CFM	FPM	CFM	
1st Floor	M-100	1	CR	6	DR		75		75	
1st Floor	M-100	2	CR	6	DR		75		81	
							150		156	
Notes:										

Abbreviation	Meaning	Abbreviation	Meaning
p	Air Changes per Hour	LD	Linear Diffuser
AFPM	Actual Feet per Minute	LR	Linear Return
AHU	Air Handling Unit	LWT	Leaving Water Temperature
Ak	Area Factors	MA	Mixed Air
AMPS	Amperages	MAU, MUA	Make-Up Air Unit
BHP	Brake Horsepower	Max	Maximum
BMS	Building Management System	MBH	Thousand BTUs per Hour
BR	Bottom Return	Mfr	Manufacturer
BTU	British Thermal Unit	Min	Minimum
CD	Ceiling Diffuser	N/A	Not Available, Not Accessible
CEF	Ceiling Exhaust Fan	No.	Number
CF	Cabinet Fan	OA	Outside Air
CF for DDC	BMS Correction Factor	OBD	Opposed Blade Damper
CFM	Cubic Feet per Minute	OD	Outside Diameter
CH	Chiller	OED	Open End Duct
CHWC, CC	Chilled Water Coil, Cooling Coil	PSI	Pounds per Square Inch
CR	Ceiling Return	RA	Return Air
CS	Circuit Setter	RCP	Radiant Ceiling Panel
CT	Cooling Tower	Rdgs	Readings
CV	Constant Volume	Req'd	Required
dB	Decibel	RG	Return Grille
Dia	Diameter	RGD(s)	Register(s), Grille(s), Diffuser(s)
Dist	Distribution	RHC	Reheat Coil
dP, DP	Differential Pressure	Rm Press	Room Pressure
DR	Direct Read	RP	Radiant Panel
Drwg	Drawing	RPM	Revolutions per Minute
EADB	Entering Air Dry Bulb	RR	Return Register
EAWB	Entering Air Wet Bulb	RTU	Roof Top Unit
EF	Exhaust Fan	SA	Supply Air
EG	Exhaust Grille	SD	Supply Diffuser
ER	Exhaust Register	SG	Supply Grille
ESP	External Static Pressure	SL	Slot
EWT	Entering Water Temperature	SNRKL	Snorkel
EX / EXH	Exhaust	SP	Static Pressure
F	Fahrenheit	SqFt	Square Feet
FCU	Fan Coil Unit	SR	Supply Register
FLA	Full Load Amperage	Stpt	Setpoint
FPB	Fan Powered Box	TADBF	Total Air Delivered by Fan
FPM	Feet per Minute	Tech	Technician
FtHd	Feet of Head	Temp	Temperature
GPM	Gallons per Minute	TF	Thermafuser
HP	Horsepower	TR	Top Register
HWC, HC	Hot Water Coil, Heating Coil	Trav	Traverse
HX	Heat Exchanger	TSP	Total Static Pressure
Hz	Hertz	V	Volt / Voltage
incw	Inches Water Column	VAV	Variable Air Volume
Insul	Insulation	VFD	Variable Frequency Drive
kW	Kilowatt	WMS	Wire Mesh Screen
LADB	Leaving Air Dry Bulb		
LAWB	Leaving Air Wet Bulb		

Functions/ Instrument Type	NEBB Required Specifications			Qualifying Instrument			
	Minimum Range	Accuracy	Resolution	Manufacturer	Model No.	Serial No.	Calibration Date
Rotation Measurement	0-5000 RPM	± 2% of reading ± 2 RPM	1 RPM	Monarch	PLT-200	1957130	9/26/2023
Temperature Measurement	-40 to 240o F	± 0.5% of reading + 1.4o F	0.2o F	Fluke	52II	1218659	9/23/2023
Temperature Measurement Air	-40 to 240o F	± 0.5% of reading + 1.4o F	0.2o F	Fluke	80PK-24	I193656	9/25/2023
Temperature Measurement Immersion	-40 to 240o F	± 0.5% of reading + 1.4o F	0.2o F	Fluke	80PK-22	I193657	9/25/2023
Temperature Measurement Contact	-40 to 240o F	± 0.5% of reading + 1.4o F	0.2o F	Fluke	80PK-3A	I193658	10/17/2023
Electrical Measurement CAT III True RMS							
Volts AC	0 to 600 VAC	± 2% of reading ± 5 digits	1.0 Volt	Fluke	323	33090237WS	9/27/2023
Amperes	0 to 100 Amps	± 2% of reading ± 5 digits	0.1 Ampere	Fluke	323	33090237WS	9/27/2023
Air Pressure Measurement	0 to 10.00 in w.g.	± 2% of reading ± 0.001 in w.g.	0.001 in w.g ≤ 1 in w.g. 0.01 in w.g. > 1 in w.g.	Shortridge	ADM-860c	M15383	9/27/2023
Air Velocity Measurement Hot Wire Anemometer OR Airfoil with Digital Meter	50 to 3900 fpm	±5% of reading, not less than ±7 fpm	1.0 fpm	Shortridge	ADM-860c	M15383	9/27/2023
Air Velocity Measurement Rotating Vane	50 to 2500 fpm	± 2% of reading ± 4 fpm	1.0 fpm	Extech	AN300	A04783	11/13/2023
Humidity Measurement	10 to 90% RH	± 3% RH	1.00%	Extech	RH390	A22070840	9/29/2023
Direct Reading Hood	100 to 2000 cfm	± 5% of reading ± 7 cfm	1 cfm	Shortridge	8403	M15383	9/27/2023
Hydronic Pressure Measurement	-30 in h.g. to 60 PSI	± 2% of reading ± 1 PSI	0.5 PSI	Shortridge	HDM-250	W18094	9/23/2023
	0 to 100 PSI	± 2% of reading ± 1 PSI	1.0 PSI	Shortridge	HDM-250	W18094	9/23/2023
	0 to 200 PSI	± 2% of reading ± 1 PSI	2.5 PSI	Shortridge	HDM-250	W18094	9/23/2023
Hydronic Differential Pressure Measurement	0 to 100 in w.g.	± 2% of reading ± 2 in. w.g.	1.0 ft. w.g.	Shortridge	HDM-250	W18094	9/23/2023
	0 to 200 ft. w.g.	± 2% of reading ± 0.2 ft. w.g	1.0 ft. w.g.	Shortridge	HDM-250	W18094	9/23/2023



TRUE NORTH PLAN NORTH

1 **HVAC PLAN**
1/4" = 1'-0"