

## Ferris Street Services

308 Ferris Street - Peekskill, NY 10566 - 914.458.1580 - info@ferrisstreet.com

Submittal

**To:**

National TAB  
1126 Swift Street  
North Kansas City, MO 64116  
855.682.6822

**Project:**

CAVA Harvard Cambridge MA  
22 Brattle Square  
Cambridge, MA 02138

**Ferris Street Project Number:**

5628

**Attn:**

Will Turnbough

**Date:**

7/8/2024

**Description:**

TAB report

# Testing, Adjusting and Balancing Report

CAVA Harvard Cambridge MA  
22 Brattle Square  
Cambridge, MA 02138

Ferris Street Project Number:  
5628

Architect:  
BKA Architecture  
305 7th Avenue 20th Floor  
New York, NY 10001  
617.530.1320

MEP Engineer:  
RZ Design Associates, Inc.  
750 Old Main Street Suite 202  
Rocky Hill CT 06067  
860.436.4336

Mechanical Contractor:  
National TAB  
1126 Swift Street  
North Kansas City, MO 64116  
855.682.6822

TAB Firm:  
Ferris Street Services  
308 Ferris Street  
Peekskill, NY 10566  
914.458.1580

The data represented 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 report summary.

<b>Project:</b>	CAVA Harvard Cambridge MA		
<b>Tech:</b>	Dakota Olenik	<b>Date:</b>	07/08/24

System	Notes
BC-1	Total air flow is at 85% of design; unit has very limited access could not evaluate condition of coil or filters. Unit is not cooling; RAT: 80F, SAT: 77F TD: 3.F; Balancing valve and PT ports not installed; could not access a section of pipe to achieve an ultrasonic reading; unable to measure water flow or temperatures; supply line was sweating, indicating it was cold. Could not determine control valve position; sweating indicated it was open. The CHW line did not have a strainer installed. Outside air flow not measured for this unit; see 'Outside Air'.
FCU-1	Cassette unit; airflow not measured. Unit is cooling: RAT: 73F, SAT: 52F TD: 21F.
FCU-2	Cassette unit; airflow not measured. Unit is cooling: RAT: 74F, SAT: 42F TD: 32F.
FCU-3	Airflow not measured; limited access provided to kitchen. Unit is cooling: RAT: 78F, SAT: 55F TD: 23F.
MAU-1	Airflow not measured; limited access provided to kitchen. Store pressure was neutral indicating MUA, OA and total exhaust were balanced.
OAF-1	Airflow not measured; limited access provided to kitchen; see 'Outside Air'. Store pressure was neutral indicating MUA, OA and total exhaust were balanced.
KEF-1	Airflow not measured; limited access provided to kitchen. Store pressure was neutral indicating MUA, OA and total exhaust were balanced.
EF-1	Total air flow is at 96% of design.
Outside Air	Total OA to BCU-1 and OAF-1 was measured at 106% of design.









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