

Report By:

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

NATIONAL

TAB

Comfort. Under control.

**Report: TAB REPORT
Function: Test, Adjust, & Balance
Date: 06/13/2023**

PROJECT

06-05-23 BARNES & NOBLE #3312

200 NORTH CATTLEMAN RD

SARASOTA , FL 34243

Client

Brinco Mechanical Management Services, Inc.
125 South Main St
Freeport, NY 11520

Issue List

- No Dampers Installed on Supply Ductwork

CheckList List

- SITE PICTURES
- TECH - STEP 1: INITIAL WALKTHROUGH
- TECH - STEP 2: UNIT DATA AND EVAL
- TECH - STEP 3: TEST, ADJUST AND BALANCE
- TECH - STEP 4: FINAL TESTS



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06-05-23 BARNES & NOBLE #3312

Project Issue Information

Issue Name : No Dampers Installed on Supply Ductwork
Description : There were no dampers found installed at any supply diffusers or grilles. Plans indicate dampers are to be installed. Unable to balance individual diffusers to design airflow without dampers installed.
Created By : National TAB **Assigned To :** National TAB - Ian Fuller
Status : Open
Originated Date : 06/13/2023 - Ian Fuller - National TAB

Project Issue File Details



MissingDamper
06/13/2023

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.

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 and that the pressure measurement coincides with the actual and design net airflow. Any deviations from these standards are noted throughout the report.

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	CAFÉ SERV.	3600	3649	2700	2728	900	921	25.0%	25.2%						
RTU-2	CAFÉ SERV.	4200	4280	3200	3234	1000	1046	23.8%	24.4%						
RTU-3	SALES	4400	4194	3300	3142	1100	1052	25.0%	25.1%						
RTU-4	SALES	4400	4660	3300	3457	1100	1203	25.0%	25.8%						
RTU-5	SALES	4400	4794	3300	3663	1100	1131	25.0%	23.6%						
RTU-6	OFFICE/BRK	960	1004	810	842	150	162	15.6%	16.1%						
RTU-7	SITOCK	2400	2546	2250	2385	150	161	6.3%	6.3%						
RTU-8	CAFÉ WRK.	2100	2043	2000	1938	100	105	4.8%	5.1%						
EF-1	ELEC. RM													750	712
EF-2	REST RMS.													300	315
EF-3	SERVER													500	476
EF-4	CAFÉ													500	515
TOTALS		26460	27170	20860	21389	5600	5781			0	0	0	0	2050	2018

NET BUILDING AIRFLOW CALCULATION

TOTALS	DESIGN	ACTUAL
TOTAL OA	5600	5781
TOTAL EXHAUST	2050	2018
NET AIRFLOW	3550	3763

DOOR TESTED	BUILDING PRESSURE MEASUREMENTS (IN. H2O)
FRONT	0.0097
SIDE	
REAR	
AVERAGE	0.0097

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:



RTU2
06/05/2023

RTU-3



RTU3(1)
06/05/2023

RTU-4



RTU4
06/05/2023

RTU-5



RTU5
06/05/2023

RTU-6



RTU6
06/05/2023

RTU-7



RTU7
06/05/2023

RTU-8



RTU8
06/05/2023

EF-1



EF1
06/06/2023

EF-2



EF2
06/06/2023

EF-3



EF3(1)
06/06/2023

EF-4



EF4
06/06/2023



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CheckList Information

Name : TECH - STEP 1: INITIAL WALKTHROUGH **Status :** Completed

Assigned Organization : National TAB **Asset :**

Requesting Organization : National TAB

CheckList Item Details

INITIAL SITE WALKTHROUGH

Review Plan Review Checklist, has it been signed off and meets our standards to start balancing? If not contact processor to ensure job is ready.	YES
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All diffusers and grilles are installed and match design?	YES
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Thermostats have power?	YES
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Have trades/general contractor been notified about any issues and are they created on FaciliBuild?	
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06-05-23 BARNES & NOBLE #3312

CheckList Information

Name : TECH - STEP 2: UNIT DATA AND EVAL **Status :** Completed

Assigned Organization : National TAB **Asset :**

Requesting Organization : National TAB

CheckList Item Details

UNIT DATA AND EVALUATION WHILE GATHERING UNIT DATA CHECK THE FOLLOWING:

RTU's/AHU's	
Economizers are assembled and functional?	YES
DCV Max damper opening position is set to minimum?	YES
Free cooling enthalpy set point set for lowest setting (Typically "D")	YES
Motors are all operating below the FLA rating?	YES
Are belts tight?	YES
If direct drive unit is the speed controller working.	YES
Is gas piping installed and valves turned on?	YES
Unit free of noticeable noise and vibration	YES
EF's	
Rotation is correct?	YES
Belts are tight?	NA
There is no major leakage around base of fan?	NONE OBSERVED
Is the motor operating below the motor FLA rating?	YES
For restroom fan(s) is the back draft damper installed and can it fully open?	YES

Unit free of noticeable noise and vibration?

YES

DOCUMENTATION

Have trades/general contractor been notified about any issues and are they created on FaciliBuild?

YES



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CheckList Information

Name : TECH - STEP 3: TEST, ADJUST AND BALANCE **Status :** Completed

Assigned Organization : National TAB **Asset :**

Requesting Organization : National TAB

CheckList Item Details

TEST, ADJUST, AND BALANCE ALL EQUIPMENT:

DURING TESTING MAKE NOTE OF THE FOLLOWING:

Is space free of drafting?	YES
Is space comfortable in all areas?	YES
Is the space free of ventilation noise?	YES
If deviations from design were necessary to resolve 1-3 what were they? Otherwise put "NA".	NA



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06-05-23 BARNES & NOBLE #3312

CheckList Information

Name : TECH - STEP 4: FINAL TESTS **Status :** Not Completed

Assigned Organization : National TAB **Asset :**

Requesting Organization : National TAB

CheckList Item Details

ADDITIONAL

Thermostats are programmed?	YES
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Project: 06-05-23 BARNES & NOBLE #3312

System/Unit: AHU/RTU



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Asset: RTU1

AREA:

Unit Data		
	Design	Actual
MFG	LENNOX	LENNOX
Serial Num	-	5619G01452
Model Num	LGH092H4B	LGH092H4MM3G
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	2
OA Filter Size 1	-	23X14
Num Final Filter 1	-	4
Final Filter Size 1	-	20X25X2

Motor Data		
	Design	Actual
Motor MFG	-	US MOTORS
Frame	-	56HZ
Horsepower	-	2
Motor Rpm	-	1750
Phase	3	3
Rated Voltage	460	460
Rated Amperage	-	2.9

Drive Data		
	Design	Actual
Motor Sheave Size	-	MVL40
Motor Bore Size	-	0.875"
Motor Sheave SetPt	-	3.5 TURNS OUT
Fan Sheave Size	-	5.5"
Fan Sheave Bore	-	1.0"
Belt CL Distance	-	22.0"
Num of Belts	-	1
Belt Size	-	AX55
Belt Alignment	-	GOOD

Test Data		
	Design	Actual
SF CFM	3600	3649
SF RPM	-	NA
RA CFM	2700	2728
OA CFM	900	921
RL Voltage	-	428/426/426
RL Amperage	-	2.0/2.2/2.0
SF Rotation	-	CCW
RA Damper Position	-	60%
Min OA Damper Position	-	40%
Min OA Damper Type	-	ECONOMIZER
OA Enthalpy Setpt	-	10

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.39"
Fan Suction SP	-	-0.71"
Fan Discharge SP	-	0.43"
Total ESP	0.8"	0.82"
Fan Total SP	1.4'	1.14"

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

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Project: 06-05-23 BARNES & NOBLE #3312

System/Unit: AHU/RTU



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Asset: RTU2

AREA:

Unit Data		
	Design	Actual
MFG	LENNOX	LENNOX
Serial Num	-	5619K10775
Model Num	LGH120H4B	LGH120H4MM3G
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	2
OA Filter Size 1	-	23X14
Num Final Filter 1	-	4
Final Filter Size 1	-	20X25X2

Motor Data		
	Design	Actual
Motor MFG	-	INTERLINK
Frame	-	56HZ
Horsepower	-	3
Motor Rpm	-	1750
Phase	3	3
Rated Voltage	460	460
Rated Amperage	-	5.0

Drive Data		
	Design	Actual
Motor Sheave Size	-	4.25"
Motor Bore Size	-	0.875"
Motor Sheave SetPt	-	0.5 TURNS OUT
Fan Sheave Size	-	7.0"
Fan Sheave Bore	-	1.0"
Belt CL Distance	-	21.5"
Num of Belts	-	1
Belt Size	-	AX58
Belt Alignment	-	GOOD

Test Data		
	Design	Actual
SF CFM	4200	4280
SF RPM	-	NA
RA CFM	3200	3234
OA CFM	1000	1046
RL Voltage	-	424/422/424
RL Amperage	-	4.7/4.9/4.7
SF Rotation	-	CCW
RA Damper Position	-	70%
Min OA Damper Position	-	30%
Min OA Damper Type	-	ECONOMIZER
OA Enthalpy Setpt	-	10

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.44"
Fan Suction SP	-	-0.81"
Fan Discharge SP	-	0.36"
Total ESP	0.9'	0.8"
Fan Total SP	1.8"	1.17"

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

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Project: 06-05-23 BARNES & NOBLE #3312

System/Unit: AHU/RTU



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Asset: RTU3

AREA:

Unit Data		
	Design	Actual
MFG	LENNOX	LENNOX
Serial Num	-	5619G01467
Model Num	LGH150H4M	LGH150H4MH1G
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	2
OA Filter Size 1	-	23X14
Num Final Filter 1	-	4
Final Filter Size 1	-	20X25X2

Motor Data		
	Design	Actual
Motor MFG	-	INTERLINK
Frame	-	56HZ
Horsepower	-	3
Motor Rpm	-	1750
Phase	3	3
Rated Voltage	460	460
Rated Amperage	-	5.0

Drive Data		
	Design	Actual
Motor Sheave Size	-	1VP50
Motor Bore Size	-	0.875"
Motor Sheave SetPt	-	3 TURNS OUT
Fan Sheave Size	-	7.0"
Fan Sheave Bore	-	1.0"
Belt CL Distance	-	22.0"
Num of Belts	-	1
Belt Size	-	AX58
Belt Alignment	-	GOOD

Test Data		
	Design	Actual
SF CFM	4400	4194
SF RPM	-	NA
RA CFM	3300	3142
OA CFM	1100	1052
RL Voltage	-	422/424/422
RL Amperage	-	4.5/4.7/4.5
SF Rotation	-	CCW
RA Damper Position	-	80%
Min OA Damper Position	-	20%
Min OA Damper Type	-	ECONOMIZER
OA Enthalpy Setpt	-	10

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.46"
Fan Suction SP	-	-0.91"
Fan Discharge SP	-	0.46"
Total ESP	1.0"	0.92"
Fan Total SP	1.6"	1.37"

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

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Project: 06-05-23 BARNES & NOBLE #3312

System/Unit: AHU/RTU



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Asset: RTU4

AREA:

Unit Data		
	Design	Actual
MFG	LENNOX	LENNOX
Serial Num	-	5619G01456
Model Num	LGH150H4M	LGH150H4MH1G
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	2
OA Filter Size 1	-	23X14
Num Final Filter 1	-	4
Final Filter Size 1	-	20X25X2

Motor Data		
	Design	Actual
Motor MFG	-	INTERLINK
Frame	-	56HZ
Horsepower	-	3
Motor Rpm	-	1750
Phase	3	3
Rated Voltage	460	460
Rated Amperage	-	5.0

Drive Data		
	Design	Actual
Motor Sheave Size	-	1VP50
Motor Bore Size	-	0.875"
Motor Sheave SetPt	-	3 RURNS OUT
Fan Sheave Size	-	7.0"
Fan Sheave Bore	-	1.0"
Belt CL Distance	-	22.0"
Num of Belts	-	1
Belt Size	-	AX58
Belt Alignment	-	GOOD

Test Data		
	Design	Actual
SF CFM	4400	4660
SF RPM	-	NA
RA CFM	3300	3457
OA CFM	1100	1203
RL Voltage	-	422/424/422
RL Amperage	-	4.1/4.0/4.0
SF Rotation	-	CCW
RA Damper Position	-	85%
Min OA Damper Position	-	15%
Min OA Damper Type	-	ECONOMIZER
OA Enthalpy Setpt	-	10

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.52"
Fan Suction SP	-	-0.82"
Fan Discharge SP	-	0.38"
Total ESP	1.0"	0.9"
Fan Total SP	1.6"	1.14"

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

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Project:06-05-23 BARNES & NOBLE #3312

AHU/RTU



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Diffuser Supply (GRD)

RTU4/

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
SGRD1	SALES	SG-A	18X18	550	1.51	362	362	362	65.8
SGRD2	SALES	SG-A	18X18	550	1.51	390	390	390	70.9
SGRD3	SALES	SG-A	18X18	550	1.51	455	455	455	82.7
SGRD4	SALES	SG-A	18X18	550	1.51	467	467	467	84.9
SGRD5	SALES	SG-A	18X18	550	1.51	622	622	622	113.1
SGRD6	SALES	SG-A	18X18	550	1.51	738	738	738	134.2
SGRD7	SALES	SG-A	18X18	550	1.51	466	466	466	84.7
SGRD8	SALES	SG-A	18X18	550	1.51	565	565	565	102.7
SGRD9	SALES	SG-A	18X18	550	1.51	595	595	595	108.2

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Project: 06-05-23 BARNES & NOBLE #3312

System/Unit: AHU/RTU



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Asset: RTU5

AREA:

Unit Data		
	Design	Actual
MFG	LENNOX	LENNOX
Serial Num	-	5619G01457
Model Num	LGH150H4M	LGH150H4MH1G
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	2
OA Filter Size 1	-	23X14
Num Final Filter 1	-	4
Final Filter Size 1	-	20X25X2

Motor Data		
	Design	Actual
Motor MFG	-	INTERLINK
Frame	-	56HZ
Horsepower	-	3
Motor Rpm	-	1750
Phase	3	3
Rated Voltage	460	460
Rated Amperage	-	5.0

Drive Data		
	Design	Actual
Motor Sheave Size	-	1VP50
Motor Bore Size	-	0.875"
Motor Sheave SetPt	-	3 TURNS OUT
Fan Sheave Size	-	7.0"
Fan Sheave Bore	-	1.0"
Belt CL Distance	-	22.0"
Num of Belts	-	1
Belt Size	-	AX58
Belt Alignment	-	GOOD

Test Data		
	Design	Actual
SF CFM	4400	4794
SF RPM	-	NA
RA CFM	3300	3663
OA CFM	1100	1131
RL Voltage	-	422/424/423
RL Amperage	-	4.2/4.1/3.9
SF Rotation	-	CCW
RA Damper Position	-	90%
Min OA Damper Position	-	10%
Min OA Damper Type	-	ECONOMIZER
OA Enthalpy Setpt	-	10

Performance Data		
	Design	Actual
MA Plenum SP	-	0.49"
Fan Suction SP	-	-0.97"
Fan Discharge SP	-	0.52"
Total ESP	1.0"	1.01"
Fan Total SP	1.6"	1.49"

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

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AHU/RTU



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Diffuser Supply (GRD)

RTU5/

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
SGRD1	VESTIBLE	LD-1	12"	400	1.87	396	396	396	99.0
SGRD2	SALES	SG-A	18X14	1000	1.87	1030	1030	1030	103.0
SGRD3	SALES	SG-A	18X14	1000	1.87	1123	1123	1123	112.3
SGRD4	SALES	SG-A	18X14	1000	1.87	1280	1280	1280	128.0
SGRD5	SALES	SG-A	18X14	1000	1.87	965	965	965	96.5

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Project: 06-05-23 BARNES & NOBLE #3312

System/Unit: AHU/RTU



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Asset: RTU6

AREA:

Unit Data		
	Design	Actual
MFG	LENNOX	LENNOX
Serial Num	-	5619G00832
Model Num	LGH036H4E	LGH036H4EM4G
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	2
OA Filter Size 1	-	15.5X14
Num Final Filter 1	-	4
Final Filter Size 1	-	16X20X2

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Frame	-	N/L
Horsepower	-	0.5
Motor Rpm	-	1075
Phase	3	1
Rated Voltage	460	208-230
Rated Amperage	-	4.1

Drive Data		
	Design	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	960	1004
SF RPM	-	30%
RA CFM	810	842
OA CFM	150	162
RL Voltage	-	209
RL Amperage	-	3.6
SF Rotation	-	CCW
RA Damper Position	-	95%
Min OA Damper Position	-	5%
Min OA Damper Type	-	ECONOMIZER
OA Enthalpy Setpt	-	10

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.21"
Fan Suction SP	-	0.49"
Fan Discharge SP	-	0.25"
Total ESP	0.8"	0.46"
Fan Total SP	0.9"	0.74"

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

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Project:06-05-23 BARNES & NOBLE #3312

AHU/RTU



Comfort. Under control.

Diffuser Supply (GRD)

RTU6/

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
SGRD1	BREAK RM.	CD-A	10"	355	1	393	393	393	110.7
SGRD2	BREAK RM	CD-A	10"	355	1	350	350	350	98.6
SGRD3	OFFICE	CD-B	10"	250	1	261	261	261	104.4

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Project: 06-05-23 BARNES & NOBLE #3312

System/Unit: AHU/RTU



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Asset: RTU7

AREA:

Unit Data		
	Design	Actual
MFG	LENNOX	LENNOX
Serial Num	-	5619G01455
Model Num	LGH092H4B	LGH092H4MM3G
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	2
OA Filter Size 1	-	23X14
Num Final Filter 1	-	4
Final Filter Size 1	-	20X25X2

Motor Data		
	Design	Actual
Motor MFG	-	US MOTORS
Frame	-	56HZ
Horsepower	-	2
Motor Rpm	-	1750
Phase	3	3
Rated Voltage	460	460
Rated Amperage	-	3.2

Drive Data		
	Design	Actual
Motor Sheave Size	-	MVL40
Motor Bore Size	-	0.875"
Motor Sheave SetPt	-	3 TURNS OUT
Fan Sheave Size	-	5.5"
Fan Sheave Bore	-	1.0"
Belt CL Distance	-	22.0"
Num of Belts	-	1
Belt Size	-	AX55
Belt Alignment	-	GOOD

Test Data		
	Design	Actual
SF CFM	2400	2546
SF RPM	-	NA
RA CFM	2350	2385
OA CFM	150	161
RL Voltage	-	421/422/424
RL Amperage	-	2.8/3.0/3.0
SF Rotation	-	CCW
RA Damper Position	-	97%
Min OA Damper Position	-	3%
Min OA Damper Type	-	ECONOMIZER
OA Enthalpy Setpt	-	10

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.32"
Fan Suction SP	-	-0.54"
Fan Discharge SP	-	0.30"
Total ESP	0.8"	0.62"
Fan Total SP	-	0.84"

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

Completed By: Ian Fuller on 06/07/2023

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Project:06-05-23 BARNES & NOBLE #3312

AHU/RTU



Comfort. Under control.

Diffuser Supply (GRD)

RTU7/

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
SGRD1	STOCK	SG-A	12X8	300	1.4	436	436	436	145.3
SGRD2	STOCK	SG-A	12X8	300	1.4	370	370	370	123.3
SGRD3	STOCK	SG-A	12X8	300	1.4	404	404	404	134.7
SGRD4	STOCK	SG-A	12X8	300	1.4	361	361	361	120.3
SGRD5	STOCK	SG-A	18X18	1200	1.4	975	975	975	81.3

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National TAB

Project: 06-05-23 BARNES & NOBLE #3312

System/Unit: AHU/RTU



Comfort. Under control.

Asset: RTU8

AREA:

Unit Data		
	Design	Actual
MFG	LENNOX	LENNOX
Serial Num	-	5619G00829
Model Num	LGH060H4E	LGH060H4EU4G
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	2
OA Filter Size 1	-	15.5X14
Num Final Filter 1	-	4
Final Filter Size 1	-	20X20X2

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Frame	-	N/L
Horsepower	-	1
Motor Rpm	-	N/L
Phase	3	1
Rated Voltage	460	240
Rated Amperage	-	6.13

Drive Data		
	Design	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	2100	2043
SF RPM	-	NA
RA CFM	2000	1938
OA CFM	100	105
RL Voltage	-	208
RL Amperage	-	4.8
SF Rotation	-	CCW
RA Damper Position	-	98%
Min OA Damper Position	-	2%
Min OA Damper Type	-	ECONOMIZER
OA Enthalpy Setpt	-	10

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.22"
Fan Suction SP	-	-0.53"
Fan Discharge SP	-	0.25"
Total ESP	0.8"	0.47"
Fan Total SP	1.1"	0.88"

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

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National TAB

Project:06-05-23 BARNES & NOBLE #3312

AHU/RTU



Comfort. Under control.

Diffuser Supply (GRD)

RTU8/

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
SGRD1	WORK RM	CD-1	10"	350	1.38	292	292	292	83.4
SGRD2	WORK RM	CD-1	10"	350	1.38	339	339	339	96.9
SGRD3	WORK RM	CD-1	10"	350	1.38	267	267	267	76.3
SGRD4	WORK RM	CD-1	10"	350	1.38	370	370	370	105.7
SGRD5	WORK RM	CD-1	10"	350	1.38	415	415	415	118.6
SGRD6	WORK RM	CD-1	10"	350	1.38	360	360	360	102.9

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Project: 06-05-23 BARNES & NOBLE #3312

System/Unit: FAN - Exhaust



Comfort. Under control.

Asset: EF1

AREA:

Unit Data		
	Design	Actual
MFG	GREENHECK	GREENHECK
Model Num	G-133-VG	G-103-VS-4-X
Serial Num	-	16035782
Type	ROOF MTD	DOWNBLAST
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	VARI-GREEN
Frame	-	N/L
Horsepower	-	0.25
Motor Rpm	-	300-1750
Phase	1	1
Voltage (rated)	115	115
Amperage (rated)	-	2.85
Service Factor	-	N/L

Test Data		
	Design	Actual
CFM	750	712
Fan RPM	846	1025
Fan Rotation	-	CCW
Motor RPM	-	1025
System SetPt	-	6.0
RL Voltage	-	122
RL Amperage	-	2.1
Total ESP	0.35"	0.27"
Fan Inlet SP	-	-0.27"
Fan Discharge SP	-	ATM

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Project: 06-05-23 BARNES & NOBLE #3312

System/Unit: FAN - Exhaust



Comfort. Under control.

Asset: EF2

AREA:

Unit Data		
	Design	Actual
MFG	GREENHECK	GREENHECK
Model Num	G-090-VG	G-090-VG-X
Serial Num	-	16035762
Type	ROOF MTD	DOWNBLAST
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	VARI-GREEN
Frame	-	N/L
Horsepower	-	0.1
Motor Rpm	1201	300-1750
Phase	1	1
Voltage (rated)	115	115
Amperage (rated)	-	1.38
Service Factor	-	N/L

Test Data		
	Design	Actual
CFM	300	315
Fan RPM	1201	490
Fan Rotation	-	CCW
Motor RPM	-	490
System SetPt	-	3.5
RL Voltage	-	121
RL Amperage	-	0.8
Total ESP	0.35"	0.22"
Fan Inlet SP	-	-0.22
Fan Discharge SP	-	ATM

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Project:06-05-23 BARNES & NOBLE #3312

FAN - Exhaust



Diffuser Ret/Exh (GRD)

EF2/

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
EGRD1	RESTROO M	EG-A	8"	100	1	109	109	109	109.0
EGRD2	RESTROO M	EG-A	8'	100	1	96	96	96	96.0
EGRD3	JANITOR CLST.	EG-B	8"	100	1	110	110	110	110.0

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Project: 06-05-23 BARNES & NOBLE #3312

System/Unit: FAN - Exhaust



Comfort. Under control.

Asset: EF3

AREA:

Unit Data		
	Design	Actual
MFG	GREENHECK	GREENHECK
Model Num	G-090-VG	G-090-VG-X
Serial Num	-	16035778
Type	ROOF MTD	DOWNBLAST
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	VARI-GREEN
Frame	-	N/L
Horsepower	-	0.1
Motor Rpm	-	300-1750
Phase	1	1
Voltage (rated)	115	115
Amperage (rated)	-	1.38
Service Factor	-	N/L

Test Data		
	Design	Actual
CFM	500	476
Fan RPM	1441	943
Fan Rotation	-	CCW
Motor RPM	-	943
System SetPt	-	6.5
RL Voltage	-	122
RL Amperage	-	1.1
Total ESP	0.35"	0.29"
Fan Inlet SP	-	-0.29"
Fan Discharge SP	-	ATM

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Project: 06-05-23 BARNES & NOBLE #3312

System/Unit: FAN - Exhaust



Comfort. Under control.

Asset: EF4

AREA:

Unit Data		
	Design	Actual
MFG	GREENHECK	GREENHECK
Model Num	G-090-VG	G-123-VG-4-X
Serial Num	-	16035753
Type	ROOF MTD	DOWNBLAST
Configuration	VEERTICAL	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	VARIGREEN
Frame	-	N/L
Horsepower	-	0.25
Motor Rpm	-	300-1750
Phase	1	1
Voltage (rated)	115	115
Amperage (rated)	-	2.85
Service Factor	-	N/L

Test Data		
	Design	Actual
CFM	500	515
Fan RPM	1441	652
Fan Rotation	-	CCW
Motor RPM	-	652
System SetPt	-	4.5
RL Voltage	-	122
RL Amperage	-	1.4
Total ESP	0.35"	0.23"
Fan Inlet SP	-	-0.23"
Fan Discharge SP	-	ATM

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