

Report By:

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

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TAB

Comfort. Under control.

Report: TAB REPORT
Function: Test, Adjust, & Balance
Date: 02/15/2023

PROJECT

02-13-23 NIKE - LANHAM, MD

2250 PETRIE LANE

LANHAM, MD

Client

Lakeview Construction

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Project: 02-13-23 NIKE - LANHAM, MD

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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

Each of the RTU's were measured at their terminal devices utilizing a flow hood. The sum of these readings is equal to the total flow for that particular unit. The total flow of each RTU was then adjusted within tolerance of the specified design. Each terminal diffuser was balanced to within tolerance of the engineer's design volume utilizing the provided hand damper located at the takeoff of the main & branch trunk line(s). Any equipment that fell outside of this tolerance is noted throughout the report.

Variable Air Volume (VAV) Terminals

The VAV's were calibrated in a call for max cooling and the correction factors are reported on the individual asset. While in a call for full cooling, the individual air devices were then balanced within design tolerance. The VAVs were then stroked to minimum cool and the airflow values reported. The VAV was then stroked to heating and the airflow values reported. It was verified that there was a sufficient temp rise on each VAV.

General Exhaust Fans

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.

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Project: 02-13-23 NIKE - LANHAM, MD
System/Unit: AHU/RTU



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Asset: RTU1

AREA:BOH

Unit Data		
	Design	Actual
MFG	CARRIER	CARRIER
Serial Num	-	3622C0981
Model Num	48GCDM04	48GCDM04A2Q6A3W1C0
Type	RTU	RTU
Configuration	VERTICAL	Vertical
Num OA Filters 1	-	1
OA Filter Size 1	-	28X14
Num Final Filter 1	-	2
Final Filter Size 1	-	16X25X2

Motor Data		
	Design	Actual
Motor MFG	-	N/L
Frame	-	N/L
Horsepower	-	N/L
Motor Rpm	-	N/L
Phase	3	3
Rated Voltage	480	460
Rated Amperage	-	1.2

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	1200	1226
SF RPM	-	2200
RA CFM	1010	842
OA CFM	190	384
RL Voltage	-	478/477/477
RL Amperage	-	0.4/0.4/0.5
SF Rotation	-	CCW
RA Damper Position	-	56%
Min OA Damper Position	-	44%
Min OA Damper Type	-	SBD
OA Enthalpy Setpt	-	NA

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.48"
Fan Suction SP	-	-0.84"
Fan Discharge SP	-	0.41"
Total ESP	0.8"	0.89"
Fan Total SP	-	1.25"

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

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Notes: OA design is at 13%. OA 53.3 DB 34.9 WB Return 70.0 DB 44.1 WB Supply 93.4 DB 55.3 WB

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Project:02-13-23 NIKE - LANHAM, MD

AHU/RTU



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Diffuser Supply (GRD)

RTU1/BOH

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
SGRD1	RESTROOM CORRIDOR	CSD3	8	100	1	119	107	107	107.0
SGRD2	WOMENS RR	CSD3	6	50	1	87	49	49	98.0
SGRD3	MENS RR	CSD3	6	50	1	92	54	54	108.0
SGRD4	EMPLOYEE LOUNGE	CSD2	10	250	1	244	240	240	96.0
SGRD5	EMPLOYEE LOUNGE	CSD2	10	250	1	314	270	270	108.0
SGRD6	HC OFFICE	CSD1	8	150	1	164	144	144	96.0
SGRD7	ASM OFFICE	CSD1	8	175	1	190	180	180	102.9
SGRD8	ASM OFFICE	CSD1	8	175	1	200	182	182	104.0

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Project: 02-13-23 NIKE - LANHAM, MD
System/Unit: AHU/RTU



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Asset: RTU2

AREA:STOCKROOM

Unit Data		
	Design	Actual
MFG	CARRIER	CARRIER
Serial Num	-	5122P70299
Model Num	48HCEE08	48HCEE08A2Q6A2W1J0
Type	RTU	RTU
Configuration	VERTICAL	Vertical
Num OA Filters 1	-	1
OA Filter Size 1	-	35X19
Num Final Filter 1	-	4
Final Filter Size 1	-	20X20X2

Motor Data		
	Design	Actual
Motor MFG	-	Marathon
Frame	-	56HZ
Horsepower	-	2.4 BHP
Motor Rpm	-	1670
Phase	3	3
Rated Voltage	480	460
Rated Amperage	-	3.3

Drive Data		
	Design	Actual
Motor Sheave Size	-	4 1/2"
Motor Bore Size	-	1/2"
Motor Sheave SetPt	-	3.5 Turns Out
Fan Sheave Size	-	AFD74
Fan Sheave Bore	-	1"
Belt CL Distance	-	16 5/8"
Num of Belts	-	1
Belt Size	-	A48
Belt Alignment	-	Good

Test Data		
	Design	Actual
SF CFM	2500	2422
SF RPM	-	793
RA CFM	1925	1589
OA CFM	575	833
RL Voltage	-	476/478/477
RL Amperage	-	0.7/0.9/0.6
SF Rotation	-	CCW
RA Damper Position	-	65%
Min OA Damper Position	-	35%
Min OA Damper Type	-	SBD
OA Enthalpy Setpt	-	NA

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.20"
Fan Suction SP	-	-0.47"
Fan Discharge SP	-	0.90"
Total ESP	0.6"	1.10"
Fan Total SP	-	1.37"

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

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Notes: OA design position is at 27% OA 54.8 DB 35.7 WB Return 70.0 DB 44.1 WB Supply 109.3 DB 60.1 WB

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Project:02-13-23 NIKE - LANHAM, MD

AHU/RTU



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Diffuser Supply (GRD)

RTU2/STOCKROOM

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
SGRD1	IT CLOSET	CSD3	10	250	1	178	243	243	97.2
SGRD2	STOCKROOM	FABRIC DUCT		550	0.57"	343	547	547	99.5
SGRD3	STOCKROOM	FABRIC DUCT		550	0.49"	526	519	519	94.4
SGRD4	STOCKROOM	FABRIC DUCT		450	0.42"	655	433	433	96.2
SGRD5	STOCKROOM	FABRIC DUCT		500	0.54"	623	489	489	97.8
SGRD6	EXIT CORRIDOR	WSG1	8X8	100	0.69	108	94	94	94.0
SGRD7	EXIT CORRIDOR	WSG1	8X8	100	0.69	120	97	97	97.0

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Project: 02-13-23 NIKE - LANHAM, MD
System/Unit: AHU/RTU



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Asset: RTU3

AREA:SALES

Unit Data		
	Design	Actual
MFG	CARRIER	CARRIER
Serial Num	-	5122P70259
Model Num	48HCCEE08	48HCDD08AQ6A2W1J0
Type	RTU	RTU
Configuration	VERTICAL	Vertical
Num OA Filters 1	-	1
OA Filter Size 1	-	35X19
Num Final Filter 1	-	4
Final Filter Size 1	-	20X20X2

Motor Data		
	Design	Actual
Motor MFG	-	Marathon
Frame	-	56HZ
Horsepower	-	2.4 BHP
Motor Rpm	-	1670
Phase	3	3
Rated Voltage	480	460
Rated Amperage	-	3.3

Drive Data		
	Design	Actual
Motor Sheave Size	-	4 1/2"
Motor Bore Size	-	1/2"
Motor Sheave SetPt	-	3.5 Turns out
Fan Sheave Size	-	AFD74
Fan Sheave Bore	-	1"
Belt CL Distance	-	16 5/8"
Num of Belts	-	1
Belt Size	-	A48
Belt Alignment	-	Good

Test Data		
	Design	Actual
SF CFM	2500	2453
SF RPM	-	800
RA CFM	1660	1614
OA CFM	840	839
RL Voltage	-	477/476/477
RL Amperage	-	0.9/0.9/0.8
SF Rotation	-	CCW
RA Damper Position	-	65%
Min OA Damper Position	-	35%
Min OA Damper Type	-	SBD
OA Enthalpy Setpt	-	NA

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.41"
Fan Suction SP	-	-0.64"
Fan Discharge SP	-	0.81"
Total ESP	0.8"	1.22"
Fan Total SP	-	1.43"

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

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Notes: OA 51.3 DB 33.7 WB Return 71.2 DB 45.5 WB Supply 122.8 DB 65.6 WB

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Project:02-13-23 NIKE - LANHAM, MD

AHU/RTU



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Diffuser Supply (GRD)

RTU3/SALES

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
SGRD1	SALES	FABRIC DUCT	18	2500	0.56"	2120	2453	2453	98.1

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System/Unit: AHU/RTU



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Asset: RTU4

AREA:SALES

Unit Data		
	Design	Actual
MFG	CARRIER	CARRIER
Serial Num	-	4422P41919
Model Num	48HCEE08	48TCDD08A2A6A0A0AG0
Type	RTU	RTU
Configuration	VERTICAL	Vertical
Num OA Filters 1	-	NA
OA Filter Size 1	-	NA
Num Final Filter 1	-	4
Final Filter Size 1	-	16X25X2

Motor Data		
	Design	Actual
Motor MFG	-	Marathon
Frame	-	56HZ
Horsepower	-	2.9 BHP
Motor Rpm	-	1735
Phase	3	3
Rated Voltage	480	460
Rated Amperage	-	3.8

Drive Data		
	Design	Actual
Motor Sheave Size	-	4 3/4"
Motor Bore Size	-	7/8"
Motor Sheave SetPt	-	3 Turns out
Fan Sheave Size	-	AFD4W
Fan Sheave Bore	-	1"
Belt CL Distance	-	17 5/8"
Num of Belts	-	1
Belt Size	-	AX52
Belt Alignment	-	Good

Test Data		
	Design	Actual
SF CFM	2500	2661
SF RPM	-	786
RA CFM	1660	2661
OA CFM	840	0
RL Voltage	-	477/478/476
RL Amperage	-	0.9/1.1/1.1
SF Rotation	-	CCW
RA Damper Position	-	100%
Min OA Damper Position	-	NA
Min OA Damper Type	-	SBD
OA Enthalpy Setpt	-	NA

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.12"
Fan Suction SP	-	-0.42"
Fan Discharge SP	-	0.79"
Total ESP	0.8"	0.91"
Fan Total SP	-	1.21"

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

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Notes: OA 52.6 DB 34.7 WB Return 70.2 DB 44.0 WB Supply 131.3 DB 69.1 WB // No OA intakes installed on the temporary RTU. Increased OA on other RTU's to compensate.

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Project:02-13-23 NIKE - LANHAM, MD

AHU/RTU



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Diffuser Supply (GRD)

RTU4/SALES

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
SGRD1	SALES	FABRIC DUCT		1300	0.26"	1464	1428	1428	109.8
SGRD2	SALES	FABRIC DUCT		700	0.27"	623	720	720	102.9
SGRD3	FITTING RM VEST	CSD4	8	100	1	131	97	97	97.0
SGRD4	FITTING RM VEST	CSD4	8	100	1	169	105	105	105.0
SGRD5	FITTING RM 1	CSD4	8	100	1	124	93	93	93.0
SGRD6	FITTING RM 2	CSD4	8	100	1	168	110	110	110.0
SGRD7	ACCESSIBLE FITTING RM	CSD4	8	100	1	145	108	108	108.0

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Project: 02-13-23 NIKE - LANHAM, MD
System/Unit: AHU/RTU



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Asset: RTU5

AREA:SALES

Unit Data		
	Design	Actual
MFG	CARRIER	CARRIER
Serial Num	-	4422P41914
Model Num	48HCEE08	48TCDD08A2A6A0A0G0
Type	RTU	RTU
Configuration	VERTICAL	Vertical
Num OA Filters 1	-	NA
OA Filter Size 1	-	NA
Num Final Filter 1	-	4
Final Filter Size 1	-	16X20X2

Motor Data		
	Design	Actual
Motor MFG	-	Marathon
Frame	-	56HZ
Horsepower	-	2.9 BHP
Motor Rpm	-	1735
Phase	3	3
Rated Voltage	480	460
Rated Amperage	-	3.8

Drive Data		
	Design	Actual
Motor Sheave Size	-	4 3/4"
Motor Bore Size	-	7/8"
Motor Sheave SetPt	-	3 Turns out
Fan Sheave Size	-	AFD84
Fan Sheave Bore	-	1"
Belt CL Distance	-	17 5/8"
Num of Belts	-	1
Belt Size	-	AX52
Belt Alignment	-	Good

Test Data		
	Design	Actual
SF CFM	2500	2619
SF RPM	-	783
RA CFM	1660	2619
OA CFM	840	0
RL Voltage	-	478/476/477
RL Amperage	-	0.8/1.2/1.0
SF Rotation	-	CCW
RA Damper Position	-	100%
Min OA Damper Position	-	NA
Min OA Damper Type	-	SBD
OA Enthalpy Setpt	-	NA

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.23"
Fan Suction SP	-	-0.49"
Fan Discharge SP	-	0.63"
Total ESP	0.8"	0.84"
Fan Total SP	-	1.12"

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

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Notes: OA 50.6 DB 33.3 WB Return 72.0 DB 45.2 WB Supply 129.0 DB 69.4 WB // No OA intakes installed on the temporary RTU. Increased OA on other RTU's to compensate.

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Project:02-13-23 NIKE - LANHAM, MD

AHU/RTU



Comfort. Under control.

Diffuser Supply (GRD)

RTU5/SALES

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
SGRD1	SALES	FABRIC DUCT	16	1800	0.29"	1976	-	1976	109.8
SGRD2	SALES	FABRIC DUCT	10	700	0.27"	643	-	643	91.9

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Project: 02-13-23 NIKE - LANHAM, MD
System/Unit: AHU/RTU



Comfort. Under control.

Asset: RTU6

AREA: SOLAR ZONE

Unit Data		
	Design	Actual
MFG	CARRIER	CARRIER
Serial Num	-	3722C10153
Model Num	48GCDM04	48GCDM04A2Q6A3W1C0
Type	RTU	RTU
Configuration	VERTICAL	Vertical
Num OA Filters 1	-	1
OA Filter Size 1	-	28X14
Num Final Filter 1	-	4
Final Filter Size 1	-	16X25X2

Motor Data		
	Design	Actual
Motor MFG	-	N/L
Frame	-	N/L
Horsepower	-	N/L
Motor Rpm	-	N/L
Phase	3	3
Rated Voltage	480	460
Rated Amperage	-	1.2

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	1200	1249
SF RPM	-	2186
RA CFM	-	1249
OA CFM	-	0
RL Voltage	-	477/477/476
RL Amperage	-	0.4/0.4/0.4
SF Rotation	-	CCW
RA Damper Position	-	100%
Min OA Damper Position	-	0%
Min OA Damper Type	-	SBD
OA Enthalpy Setpt	-	NA

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.47"
Fan Suction SP	-	0.66"
Fan Discharge SP	-	0.92"
Total ESP	0.6"	1.39"
Fan Total SP	-	1.58"

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

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Notes: OA 50.7 DB 33.4 WB Return 70.9 DB 44.6 WB Supply 90.2 DB 53.3 WB

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Project:02-13-23 NIKE - LANHAM, MD

AHU/RTU



Comfort. Under control.

Diffuser Supply (GRD)

RTU6/SOLAR ZONE

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
SGRD1	SOLAR ZONE	FABRIC DUCT	14	1200	0.49"	968	1249	1249	104.1

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Project: 02-13-23 NIKE - LANHAM, MD

System/Unit: FAN - Exhaust



Comfort. Under control.

Asset: EF1

AREA:

Unit Data		
	Design	Actual
MFG	GREENHECK	GREENHECK
Model Num	SQ-100-VG	SQ-100-VG-X
Serial Num	-	20375606
Type	INLINE	Inline
Configuration	HORIZONTAL	Horizontal

Motor Data		
	Design	Actual
Motor MFG	-	N/L
Frame	-	N/L
Horsepower	1/4	1/4
Motor Rpm	-	1725
Phase	1	1
Voltage (rated)	120	115
Amperage (rated)	-	2.8
Service Factor	-	N/L

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

Test Data		
	Design	Actual
CFM	1000	1064
Fan RPM	1513	1610
Fan Rotation	-	CCW
Motor RPM	-	1610
RL Voltage	-	123
RL Amperage	-	1.6
Suction ESP	-	-0.17"
Discharge ESP	-	0.15"
Total ESP	-	0.32"

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Project: 02-13-23 NIKE - LANHAM, MD
System/Unit: FAN - Exhaust



Comfort. Under control.

Asset: EF2

AREA:

Unit Data		
	Design	Actual
MFG	GREENHECK	GREENHECK
Model Num	G-80-VG	G-80-VG
Serial Num	-	N/L
Type	DOWNBLAST	Downblast
Configuration	VERTICAL	Vertical

Motor Data		
	Design	Actual
Motor MFG	-	Vari-Green
Frame	-	N/L
Horsepower	1/6	1/10
Motor Rpm	-	1750
Phase	1	1
Voltage (rated)	120	115
Amperage (rated)	-	1.38
Service Factor	-	N/L

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

Test Data		
	Design	Actual
CFM	275	285
Fan RPM	1444	1497
Fan Rotation	-	CCW
Motor RPM	-	1497
RL Voltage	-	123
RL Amperage	-	0.6
Suction ESP	-	-0.23
Discharge ESP	-	ATM
Total ESP	-	0.23"

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Notes:

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Project:02-13-23 NIKE - LANHAM, MD

FAN - Exhaust



Comfort. Under control.

Diffuser Supply (GRD)

EF2/

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
SGRD1	JANITORS CLOSET	CEG1	6	75	1	28	63	77	102.7
SGRD2	WOMEN RR	CEG1	8	100	1	119	80	103	103.0
SGRD3	MEN RR	CEG1	8	100	1	81	81	105	105.0

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