

Report By:

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



Report: Rosen TAB Report
Function: Test, Adjust, & Balance
Date: 05/22/2025
Completed By: National TAB

PROJECT
Rosen Laundry (Orlando, FL)

4100 Destination Parkway

Orlando, FL 32819

Client

Shaw Mechanical Services
350 State Road 434 West

Longwood, FL 32750

National TAB

Project: Rosen Laundry (Orlando, FL)

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Testing, Adjusting, and Balancing Equipment

Function		Range	Minimum Accuracy	Instrument Information	Calibration Date	Date Due
AIR	AIR PRESSURE	0 in wg to 10 in wg	2% +/- 0.001 in wg	Shortridge ADM-880C S/N M05066	10/15/2024	10/15/2025
	AIR VELOCITY INSTRUMENT	50 fpm to 3900 fpm	+/- 5 % +/- 7 fpm	Shortridge ADM-880C S/N M05066	10/15/2024	10/15/2025
	DIRECT HOOD READING	100 cfm to 2000 cfm	+/- 3 % +/- 7 cfm	Shortridge Flow Hood	10/15/2024	10/15/2025
TEMPERATURE	AIR METER	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - SRH77A S/N 081820093	10/15/2024	10/15/2025
	AIR PROBE	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - PD1388 7-6 S/N 5028	10/15/2024	10/15/2025
	IMMERSION METER	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - SRH77A S/N 081820093	10/15/2024	10/15/2025
	IMMERSION PROBE	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - PD1388 7-6 S/N 1075	10/15/2024	10/15/2025
	CONTACT METER	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - SRH77A S/N 081820093	10/15/2024	10/15/2025
	CONTACT PROBE	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - PD1388 7-6 S/N 4011	10/15/2024	10/15/2025
HUMIDITY	HUMIDITY PROBE	10 % RH to 90 % RH	3% of reading	Cooper ATKINS - SRH77A S/N 090315046	10/15/2024	10/15/2025
ELECTRICAL	VOLTAGE MEASUREMENT	0 VAC to 600 VAC	2 % reading +/- 5 digits	Dwyer CM-1 - S/N 190800099	10/15/2024	10/15/2025
	AMPERAGE MEASUREMENT	0 Amperers to 100 Amperes	2 % reading +/- 5 digits	Dwyer CM-1 - S/N 190800099	10/15/2024	10/15/2025
ROTATION	ROTATION MEASUREMENT	60 rpm to 5000 rpm	2 % reading 2 rpm	Dwyer TAC-L - S/N S1100123	10/15/2024	10/15/2025
HYDRONIC	PRESSURE MEASUREMENT	-30 in Hg to 200 psi	±2% of reading +/- 1 psi	Dwyer 490W-6 - S/N 01L6NK	6/3/2024	6/3/2025
	DIFFERENTIAL PRESSURE MEASUREMENT	0 psi - 80 psi	±2% of reading +/- 1 psi	Dwyer 490W-6 - S/N 01L6NK	6/3/2024	6/3/2025
DALT	DUCT LEAKAGE	-10"- +10" wc	±1% of reading +/- .0004" wc	Kanomax DALT 6900 S/N: 080439	3/2025	3/1/2026

Abbreviation List

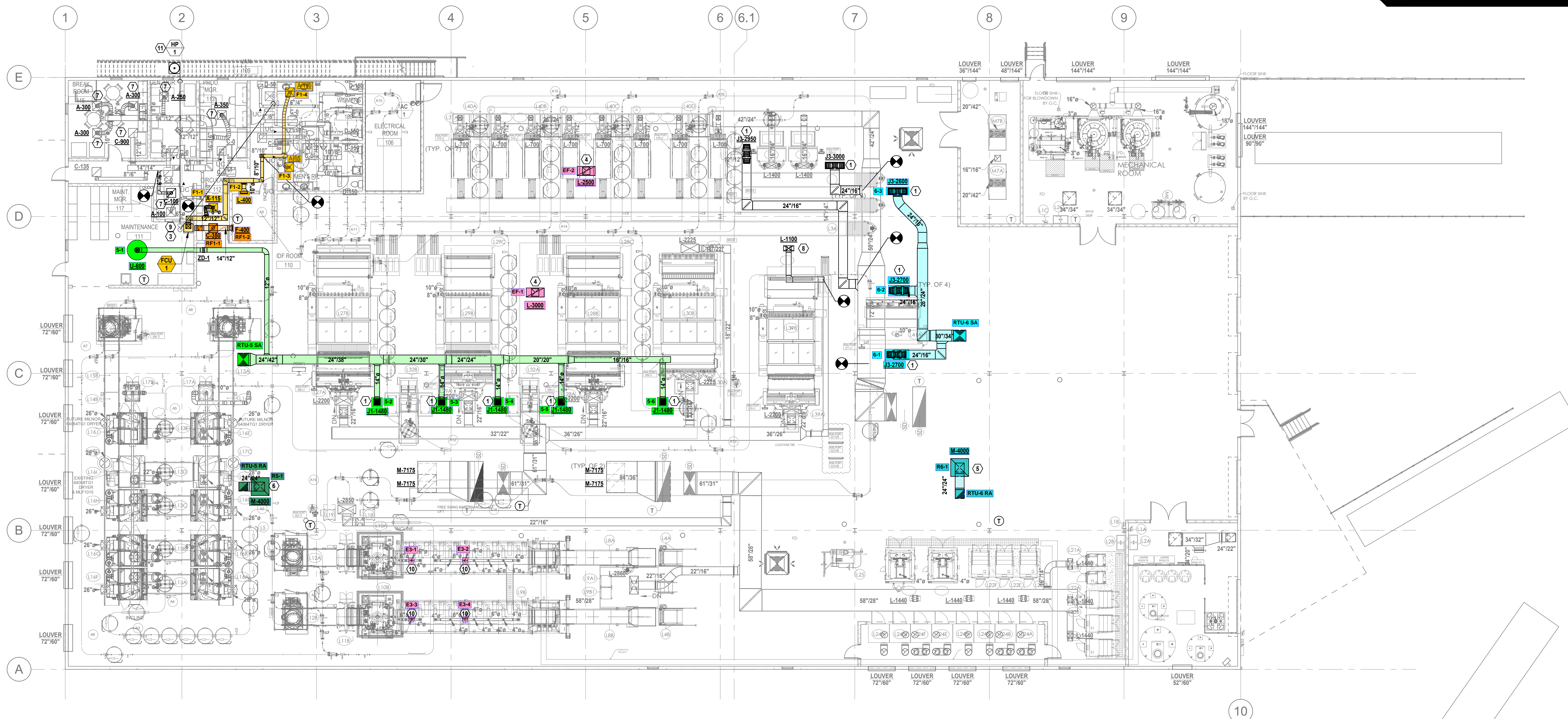
A = Area (ft ²)	S.F. = Service Factor
AHU = Air Handling Unit	SF = Supply Fan
A _k = Effective Area	SP = Static Pressure
BHP = Brake Horsepower (IP) HP	SR = Supply Register
Btu = British Thermal Unit	T = Temperature
Btu/h = Btuh = BTUH = BTU/Hour	T _{ma} = Mixed Air Temperature
CL = Center Distance (used in belt formula)	T _{oa} = Outside Air Temperature
CD = Ceiling Diffuser	T _{ra} = Return Air Temperature
CF = Correction Factor	H = Head (in wc, ft wc, psi)
CFM = Volumetric Flow: Cubic Feet Per Minute	h = Enthalpy
CO ₂ = Carbon Dioxide	HP = Horsepower
CO = Carbon Monoxide	hr = Hour
C _v = Flow Constant	K _v = Flow constant (SI)
d = Diameter (in.) IP	kW = Kilowatt = 1000 Watts
Δ = Difference or Change (Final - Initial)	LAT = Leaving Air Temperature
DB = Dry Bulb	lb = Pounds
EA = Exhaust Air	LWT = Leaving Water Temperature
EAT = Entering Air Temperature	ma = Mixed Air
EF = Exhaust Fan	MIN = Minimum
Eff = Efficiency	MAX = Maximum
EG = Exhaust Grille	N/A = Not Applicable
ESP = External Static Pressure	NA = No Access
EWT = Entering Water Temperature	NL = Not Listed
°F = Degrees Fahrenheit, °F	NPSHA = Net Positive Suction Head Available
FPB = Fan Powered Box	NS = Not Specified
FLA = Full Load Amps	OA = Outside Air
fpm = Feet per Minute (fpm)	OAT = Outside Air Temperature
ft = Foot	PD = Sheave Pitch Diameter
gal = Gallons	P.D. = Pressure Drop
GPM = Gallons Per Minute (GPM)	PF = Power Factor
h = Enthalpy (BTU/lb dry air)	SG = Supply Grille
P = Pressure	SR = Supply Register
ppm = parts per million	TP = Total Pressure
psi = Pounds Per Square Inch	T _{ra} = Return Air Temperature
psid = PSI Differential	TS = Tip Speed (fpm) IP, (m/s) SI
r = Radius (in)	TSP = Total Static Pressure
% _{ra} = % of Return Air	V = Velocity
RA = Return Air	VAV = Variable Air Volume
RAT = Return Air Temperature	VD = Volume Damper
RF = Return Fan	VFD = Variable Frequency Drive
RG = Return Grille	W = Watt
RH = Relative Humidity	WB = Wet Bulb
RPM = Revolutions Per Minute	wg = wc = water gauge = water column
RTU = Roof Top Unit	WHP = Water Horsepower (IP)
SA = Supply Air	ω = Humidity Ratio

SHEET REFERENCE NOTES:

- 1) EXTEND SUPPLY DUCT DOWN SO THAT DIFFUSER HEIGHT FROM FINISH FLOOR MATCHES EXISTING DIFFUSERS IN AREA.
- 2) ALL EXISTING DUCTWORK, PIPING AND EQUIPMENT TO REMAIN. NOT SHOWN FOR CLARITY.
- 3) MOUNT VERTICAL FAN COIL UNIT AS SHOWN IN DETAIL ON SHEET M-4.0. COORDINATE EXACT LOCATION OF UNIT AND THERMOSTAT WITH ELECTRICAL CONTRACTOR. SEE MANUFACTURER'S RECOMMENDATION FOR LINE SIZE. ROUTE TO HEAT PUMP ON 6" PAD ON GRADE. DO NOT EXCEED PIPE LENGTHS FOR REFRIGERANT PIPING AS RECOMMENDED BY THE MANUFACTURER.
- 4) KEEP GRILLE AS HIGH AS POSSIBLE FOR 20" X 20" EXHAUST DUCT UP TO EXHAUST FAN ON ROOF.
- 5) EXTEND RETURN AIR DUCTS DOWN SO THAT RETURN GRILLE IS 12'-0" ABOVE FINISHED FLOOR.
- 6) EXTEND RETURN AIR DUCTS DOWN AS LOW AS POSSIBLE WITHOUT BLOCKING THE CLEARANCES FOR THE EQUIPMENT BELOW. FINAL HEIGHT TO BE APPROVED BY OWNER.
- 7) REBALANCE EXISTING GRILLES TO NEW VALUES SHOWN.
- 8) SHIFT EXISTING DIFFUSER. BRING DOWN TO MATCH HEIGHT OF EXISTING DIFFUSERS IN AREA.
- 9) PROVIDE WITH LITTLE GIANT CONDENSATE PUMP. ROUTE CONDENSATE TO JANITOR'S SINK.
- 10) MODIFY DUCTWORK WHERE TUNNEL WASHER EXHAUST FAN WAS REMOVED TO CREATE A FULLY FUNCTIONING EXHAUST SYSTEM. EXISTING 6" ROUND UP TO NEW UTILITY FANS ON ROOF. SEE SHEET M-2.2 FOR NEW FAN LOCATION.
- 11) HEAT PUMP LOCATED ON GRADE UNDERNEATH STAIRS. INSTALL HEAT PUMP ON PAD PER DETAIL ON SHEET M-4.0.

GENERAL NOTES:

1. CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS AND ADJUST DUCT ROUTING AS NECESSARY TO FIT WITHIN CURRENT STRUCTURAL LAYOUT.
2. THE FINAL LOCATION OF GRILLES/DIFFUSERS ARE TO BE APPROVED BY OWNER BEFORE CONSTRUCTION BEGINS.



1 FLOOR PLAN - MECHANICAL
3/32" = 1'-0"

02/22/2024 ISSUE FOR PERMIT

NO	REVISION/ SUBMISSION	DATE

2023 Rosen Laundry HVAC Enhancement
4100 Destination Parkway, Orlando, FL 32819

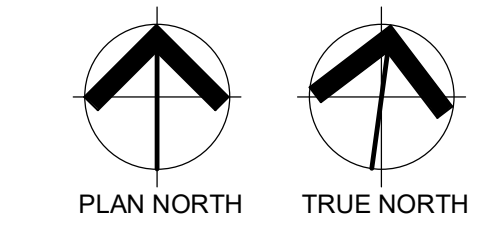
CA# 26306

INGENUITY ENGINEERS, INC.
"PROACTIVE ENGINEERING SOLUTIONS"
8275 HAZELTINE NATIONAL DR. ORLANDO, FLORIDA | 407.996.6007

DRAWN BY: CJZ CHECKED/APPROVED BY: BSH
123364.00

FLOOR PLAN - MECHANICAL

BRIAN S HESSINGER
PE 52660
SHEET NUMBER:
M-2.0



National TAB

Project: Rosen Laundry (Orlando, FL)
System/Unit: AHU/RTU



Asset: RTU-5

AREA:

Unit Data		
	Design	Actual
MFG	NA	CAPTIVE AIRE
Serial Num	-	6252085
Model Num	NA	CAS-HVAC4-E.904-30-40T
Configuration	VERTICAL	HORIZONTAL
Num OA Filters 1	-	8
OA Filter Size 1	-	20X20X2
Num PreFilter 1	-	24
PreFilter Size 1	-	20X20X2

Test Data		
	Design	Actual
SF CFM	8000	7796
RA CFM	4000	3861
OA CFM	4000	3935
RL Voltage	460	468V VFD
RL Amperage	20.2/10.1	9.6A VFD
SF Motor Freq(HZ)	-	60.6Hz
OA Damper Position	-	4.70VDC
Brake Horse Power	-	7.13

Motor Data		
	Design	Actual
Motor MFG	-	TECO WESTINGHOUSE
Frame	-	254T
Horsepower	7.50	7.5
Motor Rpm	-	1170
Phase	3	3
Rated Voltage	460	230/460
Rated Amperage	20.2/10.1	20.2/10.1
Service Factor	-	1.15

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.16 [2]
Fan Suction SP	-	-0.92
Fan Discharge SP	-	0.53
Total ESP	1.00	0.69
Fan Total SP	-	1.45
Cooling Coil P.D.	-	0.76

Completed By: Stephen Tassinaro on 05/13/2025

Notes:

- [1] Setpoint: 60.6Hz - Set via duct traverse.
- [2] Taken in return duct.

Written By: Stephen Tassinaro on 05/13/2025

Unit Data - PHOTO LOG



04/28/2025



05/13/2025

National TAB

Project: Rosen Laundry (Orlando, FL)

AHU/RTU



Diffuser Supply (GRD)

RTU-5/

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
SGRD1	111	U	12	600	0	633	105.5
SGRD2		J1	16	1480	1549	1467	99.1
SGRD3		J1	16	1480	1466	1360	91.9
SGRD4		J1	16	1480	1571	1483	100.2
SGRD5		J1	16	1480	1586	1479	99.9
SGRD6		J1	16	1480	1474	1374	92.8
Total				8000	7646	7796	97.45%

Diffuser Ret/Exh (GRD)

RTU-5/

Asset								
Asset Name	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
EGRD1	M	24X24	4000	1	3118	3861	3861	96.5
Total			4000		3118	3861	3861	96.52%

Completed By: Stephen Tassinaro on 05/13/2025

National TAB

Project: Rosen Laundry (Orlando, FL)
System/Unit: AHU/RTU



Asset: RTU-6

AREA:

Unit Data		
	Design	Actual
MFG	NA	CAPTIVE AIRE
Serial Num	-	6252085
Model Num	NA	CAS-HVAC4-E.904-30-40T
Configuration	VERTICAL	HORIZONTAL
Num OA Filters 1	-	8
OA Filter Size 1	-	20X20X2
Num PreFilter 1	-	24
PreFilter Size 1	-	20X20X2

Test Data		
	Design	Actual
SF CFM	8000	8065
RA CFM	4000	3921
OA CFM	4000	4144
RL Voltage	460	448V VFD
RL Amperage	20.2/10.1	9.0A VFD
SF Motor Freq(HZ)	-	58.6Hz
OA Damper Position	-	5.2V
Brake Horse Power	-	6.68

Motor Data		
	Design	Actual
Motor MFG	-	TECO WESTINGHOUSE
Frame	-	254T
Horsepower	7.50	7.5
Motor Rpm	-	1170
Phase	3	3
Rated Voltage	460	230/460
Rated Amperage	20.2/10.1	20.2/10.1
Service Factor	-	1.15

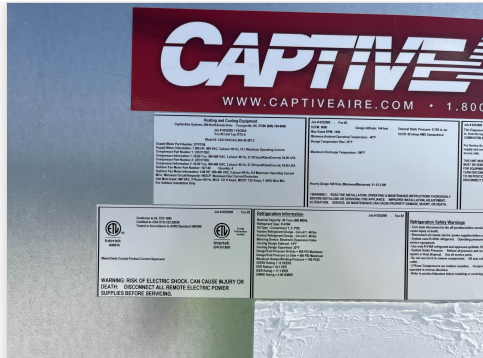
Performance Data		
	Design	Actual
MA Plenum SP	-	-0.22
Fan Suction SP	-	-0.86
Fan Discharge SP	-	0.47
Total ESP	1.00	0.69
Fan Total SP	-	1.33
Cooling Coil P.D.	-	0.64

Completed By: Stephen Tassinaro on 05/13/2025

Unit Data - PHOTO LOG



05/13/2025



04/28/2025

National TAB

Project: Rosen Laundry (Orlando, FL)

AHU/RTU



Diffuser Supply (GRD)

RTU-6/

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
SGRD1		J3	16	2700	3361	2778	102.9
SGRD2		J3	16	2700	574	2699	100.0
SGRD3		J3	16	2600	3862	2588	99.5
Total				8000	7797	8065	100.81%

Diffuser Ret/Exh (GRD)

RTU-6/

Asset								
Asset Name	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
EGRD1	M	24X24	4000	1	4355	3921	3921	98.0
Total			4000		4355	3921	3921	98.02%

Completed By: Stephen Tassinaro on 05/13/2025

National TAB

Project: Rosen Laundry (Orlando, FL)
System/Unit: Fan Coil



Asset: FCU-1

AREA:IDF ROOM 110

Unit Data		
	Design	Actual
MFG	NA	DAIKEN
Model Num	NA	AMST24BU1300AA
Serial Num	-	2407264284
Configuration	VERTICAL	VERTICAL

Test Data		
	Design	Actual
SFAN CFM	750	722
Motor Speed SetPt	-	TAP 6
RL Voltage	208	208
RL Amperage	4.6	1.9
RA CFM	750	722
OA CFM	0	0

Motor Data		
	Design	Actual
Horsepower	0.75	0.75
Phase	1	1
Voltage (rated)	208	208/240
Amperage (rated)	-	4.6

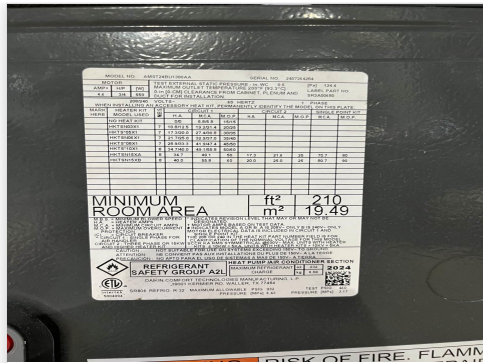
Performance Data		
	Design	Actual
Suction ESP	-	-0.31"
Discharge ESP	-	0.11"
Total ESP	0.50	0.42"

Completed By: Stephen Tassinaro on 05/13/2025

Unit Data - PHOTO LOG



04/28/2025



04/28/2025

National TAB

Project: Rosen Laundry (Orlando, FL)

Fan Coil



Diffuser Supply (GRD)

FCU-1/IDF ROOM 110

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
SGRD1	112	A	8	115	229	107	93.0
SGRD2	110	L	10	400	312	369	92.3
SGRD3	107	A	6	85	147	79	92.9
SGRD4	108	A	6	150	308	167	111.3
Total				750	996	722	96.27%

Diffuser Ret/Exh (GRD)

FCU-1/IDF ROOM 110

Asset								
Asset Name	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
EGRD1	C		350	1	510	380	350	100.0
EGRD2	F	12X12	400	1	368	403	366	91.5
Total			750		878	783	716	95.47%

Completed By: Stephen Tassinaro on 05/13/2025

Asset	Notes	Date	Written By
SGRD4	No accessible damper - existing ductwork.	05/13/2025	Stephen Tassinaro

National TAB

Project: Rosen Laundry (Orlando, FL)
System/Unit: FAN - Exhaust



Asset: EF-1

AREA:

Unit Data		
	Design	Actual
MFG	NA	GREENHECK
Model Num	NA	CUBE-300XP-20-1-40-X
Serial Num	-	25726271 24K
Type	CRE	CENTRIFUGAL

Test Data		
	Design	Actual
CFM	3000	2873
Fan RPM	-	1107
RL Voltage	460	491/492/491
RL Amperage	5.8/2.9	2.6/2.6/2.6
Suction ESP	-	-0.85
Discharge ESP	-	ATM
Total ESP	2.0	0.85
Brake Horse Power	-	1.79

Motor Data		
	Design	Actual
Motor MFG	-	BALDOR
Frame	-	56H
Horsepower	2.0	2.0
Motor Rpm	1151	1770
Phase	3	3
Voltage (rated)	460	208-230/460
Amperage (rated)	-	5.8/2.9
Service Factor	-	1.15

Drive Data	
	Actual
Motor Sheave Size	VP44
Motor Bore Size	5/8"
Motor Sheave SetPt	2.5 TURNS OUT
Fan Sheave Size	5.5"
Fan Sheave Bore	1 7/16"
Belt CL Distance	11.0"
Num of Belts	1
Belt Size	A34

Completed By: Stephen Tassinaro on 05/13/2025

Unit Data - PHOTO LOG



04/28/2025



05/13/2025

National TAB

Project: Rosen Laundry (Orlando, FL)
System/Unit: FAN - Exhaust



Asset: EF-2

AREA:

Unit Data		
	Design	Actual
MFG	NA	GREENHECK
Model Num	NA	CUBE-300XP-20-1-40-X
Serial Num	-	2572673 24K
Type	CRE	CENTRIFUGAL

Motor Data		
	Design	Actual
Motor MFG	-	BALDOR
Frame	-	56H
Horsepower	2.0	2.0
Motor Rpm	1769	1770
Phase	3	3
Voltage (rated)	460	208-230/460
Amperage (rated)	-	5.8/2.9
Service Factor	-	1.15

Drive Data	
	Actual
Motor Sheave Size	VP44
Motor Bore Size	5/8"
Motor Sheave SetPt	3.5 TURNS OUT
Fan Sheave Size	5.5"
Fan Sheave Bore	1 7/16"
Belt CL Distance	11.125"
Num of Belts	1
Belt Size	A34

Test Data		
	Design	Actual
CFM	2500	2395
Fan RPM	-	996
RL Voltage	460	491/492/493
RL Amperage	5.8/2.9	2.6/2.7/2.6
Suction ESP	-	-0.53 [1]
Discharge ESP	-	ATM
Total ESP	2.0	0.53
Brake Horse Power	-	1.82

Completed By: Stephen Tassinaro on 05/13/2025

Notes:
[1] Static pressure reading low. Potentially due to lack of exhaust grille and very short duct run.

Written By: Stephen Tassinaro on 05/13/2025

Unit Data - PHOTO LOG



04/28/2025



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National TAB

Project: Rosen Laundry (Orlando, FL)
System/Unit: FAN - Exhaust



Asset: EF-3-1

AREA:

Unit Data		
	Design	Actual
MFG	NA	GREENHECK
Model Num	NA	USF-10-5-B6-0-02-02
Serial Num	-	25742559 24K
Type	CRE	CENTRIFUGAL

Test Data		
	Design	Actual
CFM	1200	1123
System SetPt	-	50Hz
RL Voltage	460	319V VFD
RL Amperage	1.9	1.3A VFD
Suction ESP	-	-3.83
Discharge ESP	-	0.09
Total ESP	3.0	3.92

Motor Data		
	Design	Actual
Motor MFG	-	BALDOR
Frame	-	143T
Horsepower	1.5	1.5
Motor Rpm	2941	3500
Phase	3	3
Voltage (rated)	460	460
Amperage (rated)	-	1.9
Service Factor	-	1.15

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Unit Data - PHOTO LOG



04/28/2025



04/28/2025

National TAB

Project: Rosen Laundry (Orlando, FL)
System/Unit: FAN - Exhaust



Asset: EF-3-2

AREA:

Unit Data		
	Design	Actual
MFG	NA	GREENHECK
Model Num	NA	USF-10-5-B6-0-02-02
Serial Num	-	25742554 24K
Type	CRE	CENTRIFUGAL

Test Data		
	Design	Actual
CFM	1200	1151
System SetPt	-	50Hz
RL Voltage	460	319V VFD
RL Amperage	1.9	1.3A VFD
Suction ESP	-	-3.66
Discharge ESP	-	0.10
Total ESP	-	3.76

Motor Data		
	Design	Actual
Motor MFG	-	BALDOR
Frame	-	143T
Horsepower	1.5	1.5
Motor Rpm	-	3500
Phase	3	3
Voltage (rated)	460	460
Amperage (rated)	-	1.9
Service Factor	-	1.15

Completed By: Stephen Tassinaro on 05/13/2025

Unit Data - PHOTO LOG



04/28/2025



04/28/2025

National TAB

Project: Rosen Laundry (Orlando, FL)
System/Unit: FAN - Exhaust



Asset: EF-3-3

AREA:

Unit Data		
	Design	Actual
MFG	NA	GREENHECK
Model Num	NA	USF-10-5-B6-0-02-02
Serial Num	-	25742555 24K
Type	CRE	CENTRIFUGAL

Test Data		
	Design	Actual
CFM	1200	1173
System SetPt	-	50Hz
RL Voltage	460	319V VFD
RL Amperage	1.9	1.2A VFD
Suction ESP	-	-3.83
Discharge ESP	-	0.13
Total ESP	-	3.96

Motor Data		
	Design	Actual
Motor MFG	-	BALDOR
Frame	-	143T
Horsepower	1.5	1.5
Motor Rpm	-	3500
Phase	3	3
Voltage (rated)	460	460
Amperage (rated)	-	1.9
Service Factor	-	1.15

Completed By: Stephen Tassinaro on 05/13/2025

Unit Data - PHOTO LOG



04/28/2025



04/28/2025

National TAB

Project: Rosen Laundry (Orlando, FL)
System/Unit: FAN - Exhaust



Asset: EF-3-4

AREA:

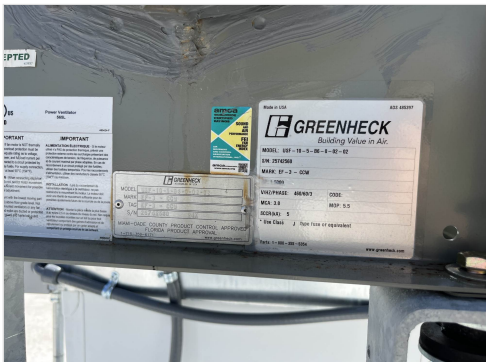
Unit Data		
	Design	Actual
MFG	NA	GREENHECK
Model Num	NA	USF-10-5-B6-0-02-02
Serial Num	-	25742560 24K
Type	CRE	CENTRIFUGAL

Test Data		
	Design	Actual
CFM	1200	1189
System SetPt	-	50Hz
RL Voltage	460	318V VFD
RL Amperage	1.9	1.3A
Suction ESP	-	-3.75
Discharge ESP	-	0.10
Total ESP	-	3.85

Motor Data		
	Design	Actual
Motor MFG	-	BALDOR
Frame	-	143T
Horsepower	1.5	1.5
Motor Rpm	-	3500
Phase	3	3
Voltage (rated)	460	460
Amperage (rated)	-	1.9
Service Factor	-	1.15

Completed By: Stephen Tassinaro on 05/13/2025

Unit Data - PHOTO LOG



04/28/2025



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