

Report By:

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



**Report: TAB REPORT
Function: Test, Adjust, & Balance
Date: 01/27/2023**

**PROJECT
01-23-23 NVA #283 - VINTON, VA**

1311 EAST WASHINGTON AVE

VINTON, VA 24179

Client

National Veterinary Associates (NVA)
29229 CANWOOD ST, STE 100
AGOURA HILLS, CA 91301

National TAB

Project: 01-23-23 NVA #283 - VINTON, VA

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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.

AHU's w/ Diffusers

Each of the AHU's were measured at their terminal devices or via traverse to establish a total flow for that unit. Each AHU was adjusted to within tolerance of the engineer's design flow. Each outlet was then adjusted to within tolerance of the design flow. If provided with outside air, the flow was measured via traverse. The outside air is provided by the ERV for each AHU. Any equipment that fell outside of that tolerance is noted throughout the report.

ERV (Energy Recovery Ventilator)

The supply fan for each ERV was measured via traverse. The total flow for the fan was then adjusted so that the total flow was within design tolerance. The exhaust fan was measured by reading each grille with a flow hood. The total flow for the fan was then adjusted until it was within design tolerance. The individual grilles were then balanced so that each inlet was within design tolerance. Any airflows that could not be balanced are noted in the report.

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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01-23-23 NVA #283 - VINTON, VA

Project Issue Information

Issue Name : EF-3 NOT WORKING

Description : High/low was switch burnt out on the fan circuitry due to accidental faulty wiring during installation.

Created By : National TAB

Assigned To : National TAB - Andrew Loignon

Status : Open

Originated Date : 01/24/2023 - Andrew Loignon - National TAB

Project Issue File Details



EF-3.jpeg

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
ERV-1	IT/MECHANICAL	1000	1003	0	0	1000	1003	100.0%	100.0%					950	886
ERV-2	STORAGE 2	675	645	0	0	675	645	100.0%	100.0%					500	496
EF-1	RR													50	53
EF-2	RR2													50	51
EF-3	STORAGE 2													50	[1]
TOTALS		1675	1648	0	0	1675	1648			0	0	0	0	1600	1486

NET BUILDING AIRFLOW CALCULATION

TOTALS	DESIGN	ACTUAL
TOTAL OA	1675	1648
TOTAL EXHAUST	1600	1486
NET AIRFLOW	75	162

DOOR TESTED	BUILDING PRESSURE MEASUREMENTS (IN. H2O)
FRONT	0.0042
SIDE	0.0103
REAR	0.0026
AVERAGE	0.0057

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:

[1] : EF-3 IS NOT OPERABLE.



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CheckList Information

Name : TECH - SITE PICTURES **Status :** NotSubmitted
Assigned Organization : National TAB **Asset :**
Requesting Organization : National TAB

CheckList Item Details

STORE FRONT



STORE_FRONT.jpeg

F-01



F_1.jpeg

F-02



F_2.jpeg

ERV-1



ERV_1.jpeg

ERV-2



ERV_2.jpeg

EF-1



EF_1.jpeg

EF-2



EF_2.jpeg

EF-3



EF_3.jpeg

Notes/Comments :



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01-23-23 NVA #283 - VINTON, VA

CheckList Information

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

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
All diffusers and grilles are installed and match design?	YES
Thermostats have power?	YES
Have trades/general contractor been notified about any issues and are they created on FaciliBuild?	YES

Notes/Comments :



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CheckList Information

Name :	TECH - STEP 2: UNIT DATA AND EVAL	Status :	NotSubmitted
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	N/A
Economizers are assembled and functional?	N/A
DCV Max damper opening position is set to minimum?	N/A
Free cooling enthalpy set point set for lowest setting (Typically "D")	N/A
Motors are all operating below the FLA rating?	N/A
Are belts tight?	N/A
If direct drive unit is the speed controller working.	N/A
Is gas piping installed and valves turned on?	N/A
Unit free of noticeable noise and vibration	N/A
EF's	
Rotation is correct?	YES
Belts are tight?	N/A
There is no major leakage around base of fan?	NO LEAKAGE
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

Notes/Comments :



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CheckList Information

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

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".	N/A

Notes/Comments :



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CheckList Information

Name : TECH - STEP 4: FINAL TESTS **Status :** NotSubmitted
Assigned Organization : National TAB **Asset :**
Requesting Organization : National TAB

CheckList Item Details

FINAL TESTS

ADDITIONAL

Thermostats are programmed?	YES
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Notes/Comments :

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Project: 01-23-23 NVA #283 - VINTON, VA

System/Unit: AHU/RTU



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Asset: F-1

AREA:

Unit Data		
	Design	Actual
MFG	HEIL	HEIL
Serial Num	-	A192561456
Model Num	N9MSB1002120C	N9MSB1002120C1
Type	FURNACE	FURNACE
Configuration	VERTICAL	VERTICAL
Num Final Filter 1	-	1
Final Filter Size 1	-	10X25X1

Test Data		
	Design	Actual
SF CFM	1550	1620
SF RPM	-	NA
RA CFM	-	617
OA CFM	-	1003
RL Voltage	-	115
RL Amperage	-	6.7
SF Rotation	-	CCW

Motor Data		
	Design	Actual
Motor MFG	-	ZHONGSHAN
Frame	-	NL
Horsepower	0.75	0.75
Motor Rpm	-	NL
Phase	1	1
Rated Voltage	120	115
Rated Amperage	-	11.1

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.33"
Fan Suction SP	-	-0.35"
Fan Discharge SP	-	0.42"
Total ESP	-	0.75"
Fan Total SP	-	0.77"

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

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)

F-1/

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
SGRD1	RECEPTION	SD1	6"	100	1	89	100	108	108.0
SGRD2	RECEPTION	SD1	6"	150	1	128	141	158	105.3
SGRD3	RECEPTION	SD1	6"	150	1	136	150	160	106.7
SGRD4	TOILET	SD1	6"	40	1	150	70	41	102.5
SGRD5	TREATMENT	SD1	6"	150	1	111	133	149	99.3
SGRD6	TREATMENT	SD1	6"	150	1	130	147	161	107.3
SGRD7	TREATMENT	SD1	6"	150	1	150	171	162	108.0
SGRD8	TREATMENT	SD1	6"	150	1	191	160	164	109.3
SGRD9	KENNEL	SD1	6"	100	1	98	118	98	98.0
SGRD10	KENNEL	SD1	6"	100	1	92	110	94	94.0
SGRD11	XRAY	SD1	6"	110	1	139	152	113	102.7
SGRD12	MECHANICAL	SD3	6"	100	1	93	98	107	107.0
SGRD13	MECHANICAL	SD3	6"	100	1	112	87	105	105.0

Diffuser Ret/Exh (GRD)

F-1/

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
EGRD1	RECEPTION	RG1	8"	200	1	192	199	203	101.5
EGRD2	RECEPTION	RG1	8"	200	1	207	214	205	102.5
EGRD3	MECHANICAL	RG1	10X6	200	1	220	203	209	104.5

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Project: 01-23-23 NVA #283 - VINTON, VA

System/Unit: AHU/RTU



Comfort. Under control.

Asset: F-2

AREA:

Unit Data		
	Design	Actual
MFG	HEIL	HEIL
Serial Num	-	A192561449
Model Num	N9MSB1002120C	N9MSB1002120C1
Type	FURNACE	FURNACE
Configuration	VERTICAL	VERTICAL
Num Final Filter 1	-	1
Final Filter Size 1	-	20X25X1

Test Data		
	Design	Actual
SF CFM	1815	1786
SF RPM	-	NA
RA CFM	-	1141
OA CFM	-	645
RL Voltage	-	115
RL Amperage	-	7.2
SF Rotation	-	CCW

Motor Data		
	Design	Actual
Motor MFG	-	ZHONGSHAN
Frame	-	NL
Horsepower	0.75	0.75
Motor Rpm	-	NL
Phase	1	1
Rated Voltage	120	115
Rated Amperage	-	11.1

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.24"
Fan Suction SP	-	-0.28"
Fan Discharge SP	-	0.46"
Total ESP	-	0.70"
Fan Total SP	-	0.74"

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

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

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Project:01-23-23 NVA #283 - VINTON, VA

AHU/RTU



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Diffuser Supply (GRD)

F-2/

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
SGRD1	EXAM 2	SD1	6"	70	1	49	56	72	102.9
SGRD2	HALLWAY	SD1	8"	200	1	60	123	187	93.5
SGRD3	EXAM 1	SD1	6"	80	1	57	75	84	105.0
SGRD4	EXAM 3	SD1	6"	80	1	66	71	81	101.3
SGRD5	COMFORT ROOM	SD1	6"	120	1	113	131	111	92.5
SGRD6	HALLWAY	SD1	6"	120	1	95	101	117	97.5
SGRD7	CAT WARD	SD1	6"	50	1	98	70	53	106.0
SGRD8	ENTRANCE	SD2	6"	35	1	102	56	37	105.7
SGRD9	DENTAL SUITE	SD1	6"	100	1	126	108	106	106.0
SGRD10	DENTAL SUITE	SD1	6"	100	1	112	107	101	101.0
SGRD11	DENTAL SUITE	SD1	6"	120	1	100	105	112	93.3
SGRD12	BREAK ROOM	SD1	8"	200	1	161	175	188	94.0
SGRD13	UTILITY	SD3	6"	100	1	64	74	95	95.0
SGRD14	UTILITY	SD3	6"	130	1	72	96	119	91.5
SGRD15	RESTROOM	SD1	6"	40	1	111	77	43	107.5
SGRD16	RESTROOM	SD1	6"	60	1	136	100	60	100.0
SGRD17	SURGERY	SD1	6"	100	1	109	119	108	108.0
SGRD18	SURGERY	SD1	6"	110	1	117	107	112	101.8

Diffuser Ret/Exh (GRD)

F-2/

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
EGRD1	EXAM 2	RG1	6"	80	1	117	105	78	97.5
EGRD2	EXAM 1	RG1	6"	90	1	129	118	92	102.2
EGRD3	EXAM 3	RG1	6"	90	1	127	112	91	101.1
EGRD4	HALLWAY	RG1	8"	160	1	164	153	155	96.9
EGRD5	COMFORT RM	RG1	6"	130	1	115	108	137	105.4
EGRD6	HALLWAY	RG1	8"	230	1	172	166	233	101.3
EGRD7	BREAK ROOM	RG1	8"	260	1	261	254	249	95.8
EGRD8	UTILIRY ROOM	RG2	6X6	100	1	125	117	106	106.0

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Project: 01-23-23 NVA #283 - VINTON, VA

System/Unit: Energy Recovery Unit



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Asset: ERV1

AREA:

Unit Data		
	Design	Actual
MFG	GREENHECK	GREENHECK
Model Num	MINICORE-10-VG-F	MINIC10
Serial Num	-	21269804
Num Exh-Filters 1	-	1
Exh-Filter Size 1	-	20X20X2
Num OA-Filters 1	-	1
OA-Supply Size 1	-	20X20X2

Exhaust Fan Motor Data		
	Design	Actual
Motor MFG	-	VARIGREEN
Frame	-	NL
Horsepower	3/4	0.75
Motor Rpm	-	1750
Phase	-	1
Voltage (rated)	-	115
Amperage (rated)	-	8.8
Service Factor	-	NL

OA Fan Motor Data		
	Design	Actual
Motor MFG	-	VARIGREEN
Frame	-	NL
Horsepower	0.5	0.75
Motor Rpm	-	1750
Phase	-	1
Voltage (rated)	-	115
Amperage (rated)	-	8.8
Service Factor	-	NL

Exhaust Fan Test Data		
	Design	Actual
Exh-ERU CFM	950	886
Exh-ERU RPM	1451	NA
RL Voltage	-	115
RL Amperage	-	4.3

Exhaust Fan Performance Data		
	Design	Actual
Exh-ERU Filter Delta SP	-	0.55"
Exh-ERU Wheel Delta SP	-	0.84"
Exh-ERU Delta T	-	0.29"

OA Fan Test Data		
	Design	Actual
OA-ERU CFM	1000	1003
OA-ERU RPM	1193	NA
RL Voltage	-	115
RL Amperage	-	6.7

OA Fan Performance Data		
	Design	Actual
OA-ERU Filter Delta SP	-	0.93"
OA-ERU Wheel Delta SP	-	1.32"
OA-ERU Delta T	-	1.87"

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Project:01-23-23 NVA #283 - VINTON, VA

Energy Recovery Unit



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Diffuser Ret/Exh (GRD)

ERV1/

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
EGRD1	RECEPTION	RG1	6"	40	1	57	71	43	107.5
EGRD2	TREATMENT	RG1	10"	300	1	306	279	281	93.7
EGRD3	TREATMENT	RG1	10"	300	1	242	245	279	93.0
EGRD4	XRAY	RG1	8"	110	1	75	99	101	91.8
EGRD5	KENNEL ROOM	RG1	6"	200	1	196	190	182	91.0

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Project: 01-23-23 NVA #283 - VINTON, VA

System/Unit: Energy Recovery Unit



Comfort. Under control.

Asset: ERV2

AREA:

Unit Data		
	Design	Actual
MFG	GREENHECK	GREENHECK
Model Num	MINICORE-5-VG-F	MINIC5
Serial Num	-	21269805
Num Exh-Filters 1	-	1
Exh-Filter Size 1	-	15X20X2
Num OA-Filters 1	-	1
OA-Supply Size 1	-	15X20X2

Exhaust Fan Motor Data		
	Design	Actual
Motor MFG	-	VARIGREEN
Frame	-	NL
Horsepower	0.22	0.25
Motor Rpm	1725	1750
Phase	-	1
Voltage (rated)	-	115
Amperage (rated)	-	2.85
Service Factor	-	1.25

OA Fan Motor Data		
	Design	Actual
Motor MFG	-	VARIGREEN
Frame	-	NL
Horsepower	0.25	0.25
Motor Rpm	1725	1750
Phase	-	1
Voltage (rated)	-	115
Amperage (rated)	-	2.85
Service Factor	-	1.25

Exhaust Fan Test Data		
	Design	Actual
Exh-ERU CFM	505	496
Exh-ERU RPM	1075	NA
RL Voltage	-	115
RL Amperage	-	1.01

Exhaust Fan Performance Data		
	Design	Actual
Exh-ERU Filter Delta SP	-	0.49"
Exh-ERU Wheel Delta SP	-	0.76"
Exh-ERU Delta T	-	0.23"

OA Fan Test Data		
	Design	Actual
OA-ERU CFM	675	645
OA-ERU RPM	1199	NA
RL Voltage	-	115
RL Amperage	-	1.52

OA Fan Performance Data		
	Design	Actual
OA-ERU Filter Delta SP	-	0.79"
OA-ERU Wheel Delta SP	-	1.23"
OA-ERU Delta T	-	1.71"

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Project:01-23-23 NVA #283 - VINTON, VA

Energy Recovery Unit



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Diffuser Ret/Exh (GRD)

ERV2/

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
EGRD1	CAT WARD	RG1	6"	60	1	87	79	62	103.3
EGRD2	DENTAL SUITE	RG1	6"	110	1	84	95	108	98.2
EGRD3	DENTAL SUITE	RG1	6"	110	1	125	101	105	95.5
EGRD4	SURGERY	RG1	6"	110	1	114	122	107	97.3
EGRD5	SURGERY	RG1	6"	110	1	95	107	114	103.6

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Project: 01-23-23 NVA #283 - VINTON, VA
System/Unit: FAN - Exhaust



Comfort. Under control.

Asset: EF1

AREA:RESTROOM

Unit Data		
	Design	Actual
MFG	GREENHECK	GREENHECK
Model Num	SP-110-VG	SP-A110-QD
Serial Num	-	21235475
Type	CEILING	CEILING
Configuration	VERTICAL	VERTICAL

Test Data		
	Design	Actual
CFM	50	53
Fan Rotation	-	CW
RL Voltage	-	115
RL Amperage	-	0.06
Total ESP	-	0.34"
Fan Inlet SP	-	-0.34"
Fan Discharge SP	-	ATM

Motor Data		
	Design	Actual
Motor MFG	-	GREENHECK
Frame	-	NL
Horsepower	0.01	NL
Motor Rpm	940	950
Phase	1	1
Voltage (rated)	120	115
Amperage (rated)	-	0.19
Service Factor	-	NL

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Project: 01-23-23 NVA #283 - VINTON, VA
System/Unit: FAN - Exhaust



Comfort. Under control.

Asset: EF2

AREA:RESTROOM 2

Unit Data		
	Design	Actual
MFG	GREENHECK	GREENHECK
Model Num	SP-110-VG	SP-A110-QD
Serial Num	-	21235476
Type	CEILING	CEILING
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	GREENHECK
Frame	-	NL
Horsepower	0.01	NL
Motor Rpm	940	950
Phase	1	1
Voltage (rated)	120	115
Amperage (rated)	-	0.19
Service Factor	-	NL

Test Data		
	Design	Actual
CFM	50	51
Fan Rotation	-	CW
RL Voltage	-	115
RL Amperage	-	0.08
Total ESP	-	0.41"
Fan Inlet SP	-	-0.41"
Fan Discharge SP	-	ATM

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Project: 01-23-23 NVA #283 - VINTON, VA
System/Unit: FAN - Exhaust



Comfort. Under control.

Asset: EF3

AREA: STORAGE 2

Unit Data		
	Design	Actual
MFG	GREENHECK	GREENHECK
Model Num	SP-110-VG	SP-A110-QD
Serial Num	-	21235477
Type	CEILING	CEILING
Configuration	VERTICAL	VERTICAL

Test Data		
	Design	Actual

Motor Data		
	Design	Actual
Motor MFG	-	GREENHECK
Frame	-	NL
Horsepower	0.01	NL
Motor Rpm	940	950
Phase	1	1
Voltage (rated)	120	115
Amperage (rated)	-	0.19
Service Factor	-	NL

Completed By: Brianna Biggs

Notes: THIS FAN IS NON OPERABLE.

