

Report By:
United Test & Balance, Inc.
7013 Flagler Rd,
Nordland, WA 98358



I N T E L L I G E N C E

For:
National TAB
1126 Swift Street
North Kansas City, MO 64116

Report: TAB REPORT
Function: Test, Adjust, & Balance
Date: 04/02/2024

PROJECT
**03-25-24 CAVA MCKINNEY, TX (380 &
HARDIN)**

4010 W. UNIVERSITY DR

MCKINNEY, TX 75071

Client

CAVA

702 H ST NW

2nd floor

Washington, DC 20001

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.

Kitchen Exhaust Hood & Associated Fans

Each kitchen exhaust fan was measured at the hood filter bay utilizing a velocity matrix and a manufacturer's correction factor. Each filter velocity is multiplied by the manufacturer's corrected area. The sum of these readings equals the total flow of the exhaust fans. The total flow of the exhaust was then adjusted to within tolerance of the design flow. . Any EF's that fell outside of this tolerance is noted throughout the report.

MUA (Make Up Air Unit) w/ PSP

Total flow for the MAU (Make-up Air Unit) unit was measured by readings taken at the discharge of the hood's perforated supply plenum. Readings taken with a velocity matrix were averaged and multiplied by a manufacturer's corrected area. Adjustments to the fan speed were made in order to bring the unit to within design tolerance. Any MUA's that fell outside of this 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 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.

The hood capture was tested at the perimeter of the hood and the cook top level with the equipment heat on to ensure satisfactory hood capture and containment.

SYSTEM/UNIT: RTU-01
AREA: Kitchen

Tested By: Clayton Nelson
 Date: 3/26/2024



Design Airflow (CFM)	
Design Total	4200
Design Grille Total	4400
Design Return	2980
Design Min O/A	1220

Unit Design Data	
Submittal Make	Not Provided
Submittal Model #	-
Submittal Airflow	Not Provided
Sched./Sub. Volts	208
Sched./Sub. Phase	3
Sched./Sub. HP	4.7
Submittal BHP	Not Provided
Filter MERV Rating (Sched/Sub)	-

Design Static Pressures (in wg)	
Design Ext SP	0.75
Submittal Total SP	Not Provided
Submittal Clg Coil Δ SP	-

Filter Data	
Condition	Partially Loaded
Filter Type	Disposable
MERV Rating	-
Filter Size Set 1 (in)	18x24x2
# Filters Set 1	3
Filter Size Set 2 (in)	18x18x2
# Filters Set 2	3

Motor Nameplate Data	
Motor Make	No Access - Embedded Motor
Motor Frame	-
Motor HP	-
Motor RPM	-
Motor Volts	-
Motor Phase	-

Final Airflow (CFM)	
Actual Total CFM	4497
Actual Grille Total CFM	4497
Actual Return Air CFM	3159
Actual Min O/A CFM	1338
Fan CFM Test Method	Supply Outlet Total
OA Method/Instrument	Face Velocity/RVA
OA Ak (sq ft)	4.316
OA Damper % (High Spd)	45% Open
OA Damper % (Low Spd)	55% Open
RA Damper % (High Spd)	70% Open

Unit Data	
Make (tag)	Trane
Model # (tag)	Y5J15DA3S0M03K
Serial # (tag)	234912543L
Location	Roof
Unit Discharge	Downblast
Cooling Coil Location	Unit / Drawthru
Coil Area (sq ft)	15.8
Clg Coil Vel (FPM)	285
Fan Service	Supply
Fan Type	Centrifugal (FC)
Fan Discharge	Downblast
Fan Arrangement	DWDI

Fan Design Data	
Submittal Motor RPM	Not Provided
Submittal Fan RPM	-

Fan Data	
Actual Fan RPM/Speed	50%
Actual Motor RPM	Not Accessible

Electrical Data	
Measurement Method	Not Accessible
Motor Volts 1	Internal to ECM

SYSTEM/UNIT: RTU-01
AREA: Kitchen

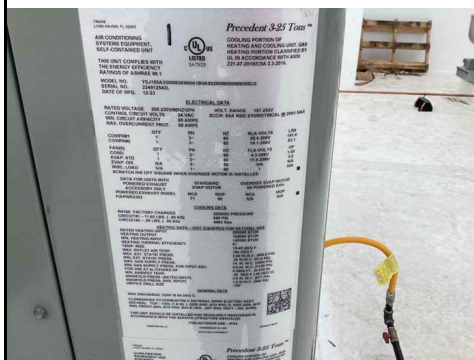
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 Date: 3/26/2024

Motor Nameplate Data	
Motor Amps	-
Motor S.F.	-
Motor % PF	-
Motor % Eff.	-
Other Motor Data	-

Electrical Data	
Motor Volts 2	-
Motor Volts 3	-
Motor Amps 1	-
Motor Amps 2	-
Motor Amps 3	-
Operating HZ	60.00
Approx. BHP	
Corr. Nameplate Amps	
Starter Data	Not Applicable
VFD Reference	Not Applicable

Drive Data	
Drive Type	Direct Drive
Sheave Type	-
Fan Sheave Make	-
Fan Shv Mod# or Size (in)	-
Fan Sheave Bore (in)	-
Motor Sheave Make	-
Mtr Shv Mod# or Size (in)	-
Motor Sheave Bore (in)	-
VP Range	-
Center Distance (in)	-
No of Belts	-
Belt Make	-
Belt Size	-
Other Data	-

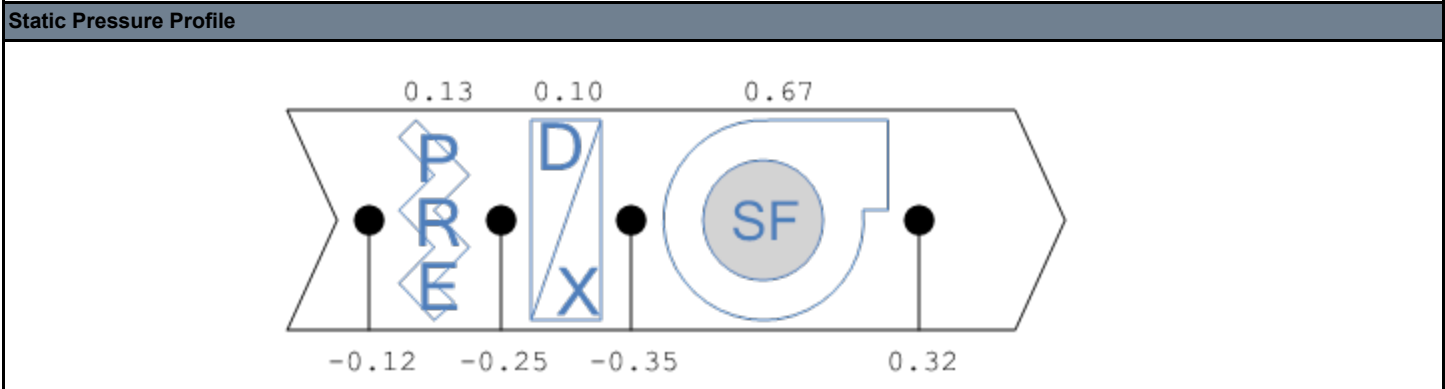
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SYSTEM/UNIT: RTU-01/Static Profile

Tested By: Refugio Montellano
Date: 3/26/2024



RTU-01 Supply Outlet Summary

System/Unit	Area Served	Type	Size / Area (in)	Design CFM	Prelim CFM	Final CFM	% Final	Instrument	Ak	Open (sq ft)	Final FPM
S-01	Janitor	CD	6	100	34	102	102	Capture Hood	1.000	1.000	102
S-02	Corridor	CD	8	200	154	203	102	Capture Hood	1.000	1.000	203
S-03	Restroom	CD	6	50	76	47	94	Capture Hood	1.000	1.000	47
S-04	Restroom	CD	6	50	32	45	90	Capture Hood	1.000	1.000	45
S-05	Dining	SW	20x10	400	275	423	106	RVA	1.002	1.389	422
S-06	Dining	SW	20x10	400	270	432	108	RVA	1.002	1.389	431
S-07	Dining	SW	20x10	400	1025	410	103	RVA	1.002	1.389	409
S-08	Dining	SW	20x10	400	917	407	102	RVA	1.002	1.389	406
S-09	Dining	SW	20x10	400	1375	421	105	RVA	1.002	1.389	420
S-10	Dining	SW	20x10	400	1641	400	100	RVA	1.002	1.389	399
S-11	Dining	SW	20x10	400	500	402	101	RVA	1.002	1.389	401
S-12	Dining	SW	20x10	400	895	398	100	RVA	1.002	1.389	397
S-13	Dining	SW	20x10	400	376	407	102	RVA	1.002	1.389	406
S-14	Dining	SW	20x10	400	300	400	100	RVA	1.002	1.389	399
Totals:		-	-	4400	7870	4497	102	-	-	-	-

SYSTEM/UNIT: RTU-02
AREA: Dining

Tested By: Omar Carreno
 Date: 3/26/2024



Design Airflow (CFM)	
Design Total	3400
Design Grille Total	3400
Design Return	3080
Design Min O/A	320

Unit Design Data	
Submittal Make	Not Provided
Submittal Model #	-
Submittal Airflow	Not Provided
Sched./Sub. Volts	208
Sched./Sub. Phase	3
Sched./Sub. HP	3.1
Submittal BHP	Not Provided
Filter MERV Rating (Sched/Sub)	-

Design Static Pressures (in wg)	
Design Ext SP	0.75
Submittal Total SP	Not Provided
Submittal Clg Coil Δ SP	-

Filter Data	
Condition	Partially Loaded
Filter Type	Disposable
MERV Rating	-
Filter Size Set 1 (in)	16x24x2
# Filters Set 1	3
Filter Size Set 2 (in)	18x24x2
# Filters Set 2	2

Motor Nameplate Data	
Motor Make	No Access - Embedded Motor
Motor Frame	-
Motor HP	-
Motor RPM	-
Motor Volts	-
Motor Phase	-

Final Airflow (CFM)	
Actual Total CFM	3576
Actual Grille Total CFM	3576
Actual Return Air CFM	3240
Actual Min O/A CFM	336
Fan CFM Test Method	Supply Outlet Total
OA Method/Instrument	Face Velocity/RVA
OA Ak (sq ft)	4.316
OA Damper % (High Spd)	16% Open
OA Damper % (Low Spd)	25% Open
RA Damper % (High Spd)	84% Open

Unit Data	
Make (tag)	Trane
Model # (tag)	YSJ120A3SOM04K000A1B0A
Serial # (tag)	0020000000000000B0
Serial # (tag)	234912539L
Location	Roof
Unit Discharge	Downblast
Cooling Coil Location	Unit / Drawthru
Coil Area (sq ft)	14.0
Clg Coil Vel (FPM)	255
Fan Service	Supply
Fan Type	Centrifugal (FC)
Fan Discharge	Downblast
Fan Arrangement	DWDI

Fan Design Data	
Submittal Motor RPM	Not Provided
Submittal Fan RPM	-

Fan Data	
Actual Fan RPM/Speed	67%
Actual Motor RPM	Not Accessible

Electrical Data	
Measurement Method	Not Accessible
Motor Volts 1	Internal to ECM

SYSTEM/UNIT: RTU-02
AREA: Dining

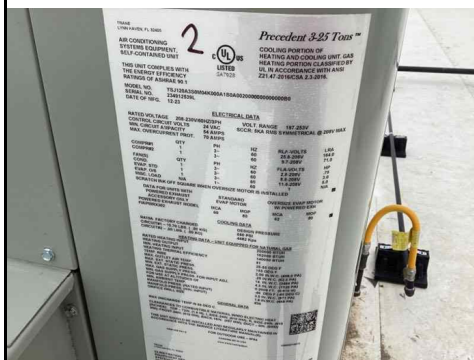
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 Date: 3/26/2024

Motor Nameplate Data	
Motor Amps	-
Motor S.F.	-
Motor % PF	-
Motor % Eff.	-
Other Motor Data	-

Electrical Data	
Motor Volts 2	-
Motor Volts 3	-
Motor Amps 1	-
Motor Amps 2	-
Motor Amps 3	-
Operating HZ	60.00
Approx. BHP	
Corr. Nameplate Amps	
Starter Data	Not Applicable
VFD Reference	Not Applicable

Drive Data	
Drive Type	Direct Drive
Sheave Type	-
Fan Sheave Make	-
Fan Shv Mod# or Size (in)	-
Fan Sheave Bore (in)	-
Motor Sheave Make	-
Mtr Shv Mod# or Size (in)	-
Motor Sheave Bore (in)	-
VP Range	-
Center Distance (in)	-
No of Belts	-
Belt Make	-
Belt Size	-
Other Data	-

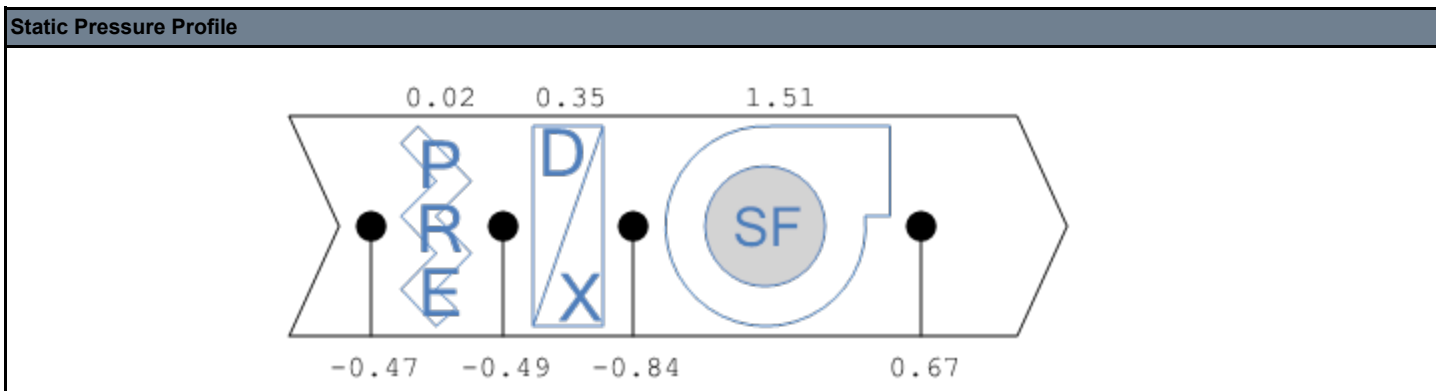
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SYSTEM/UNIT: RTU-02/Static Profile

Tested By: Omar Carreno
Date: 3/26/2024



RTU-02 Supply Outlet Summary

System/Unit	Area Served	Type	Size / Area (in)	Design CFM	Prelim CFM	Final CFM	% Final	Instrument	Ak	Open (sq ft)	Final FPM
S-01	Kitchen	CD	8	100	133	103	103	Capture Hood	1.000	1.000	103
S-02	Kitchen	CD	10	250	223	236	94	Capture Hood	1.000	1.000	236
S-03	Kitchen	CD	10	250	230	234	94	Capture Hood	1.000	1.000	234
S-04	Kitchen	CD	10x10	250	226	239	96	Capture Hood	1.000	1.000	239
S-05	Kitchen	CD	10x10	250	345	248	99	Capture Hood	1.000	1.000	248
S-06	Kitchen	CD	10x10	250	250	252	101	Capture Hood	1.000	1.000	252
S-07	Kitchen	CD	10x10	241	226	238	99	Capture Hood	1.000	1.000	238
S-08	Kitchen	CD	10x10	250	230	241	96	Capture Hood	1.000	1.000	241
S-09	Kitchen	CD	10x10	250	288	251	100	Capture Hood	1.000	1.000	251
S-10	Kitchen	CD	10x10	241	198	216	90	Capture Hood	1.000	1.000	216
S-11	Kitchen	CD	10x10	250	233	251	100	Capture Hood	1.000	1.000	251
S-12 & 13	Kitchen	PSP	136x6	1018	1067	1067	105	Velgrid	4.703	5.667	227
Totals:		-	-	3600	3649	3576	99	-	-	-	-

SYSTEM/UNIT: EF-02
AREA: Restroom

Tested By: Omar Carreno
 Date: 3/26/2024



Design Airflow (CFM)	
Design Airflow	150
Design Grille Airflow	150

Unit Design Data	
Submittal Make	Not Provided
Submittal Model #	-
Submittal Airflow	Not Provided
Sched./Sub. Volts	120
Sched./Sub. Phase	1
Sched./Sub. HP	0.1
Submittal BHP	Not Provided

Design Static Pressures (in wg)	
Design External SP	0.25
Submittal Total SP	Not Provided

Motor Nameplate Data	
Motor Make (tag)	HSSA
Motor Frame (tag)	Not Listed
Motor HP (tag)	1/15
Motor RPM (tag)	1550
Motor Volts (tag)	115
Motor Phase (tag)	1
Motor Amps (tag)	0.94
Motor S.F. (tag)	Not Listed
Mtr % PF (tag)	Not Listed
Mtr % Eff. (tag)	Not Listed
Other Motor Data	-

Drive Data	
Drive Type	Direct Drive
Sheave Type	-
Fan Sheave Make	-
Fan Shv Mod# or Size (in)	-
Fan Sheave Bore (in.)	-
Motor Sheave Make	-

Final Airflow (CFM)	
Actual Airflow	152
Actual Grille Airflow	152
Fan CFM Test Method	Inlet Total
Test Method Ak (sq ft)	Not Applicable

Unit Data	
Make (tag)	Captive Aire
Model # (tag)	DR10HFA
Serial # (tag)	6368604
Unit Location	Roof
Unit Discharge	Upblast
Fan Service	Exhaust
Fan Type	Centrifugal (BI)
Fan Discharge	Upblast
Fan Arrangement	SWSI

Fan Design Data	
Submittal Motor RPM	-
Submittal Fan RPM	-

Fan Data	
Actual Fan RPM/Speed	Single Speed
Actual Motor RPM	Not Accessible
Speed Cont. Position	70%

Electrical Data	
Measurement Method	Not Accessible
Motor Volts 1	Internal to ECM
Motor Volts 2	-
Motor Volts 3	-
Motor Amps 1	-
Motor Amps 2	-
Motor Amps 3	-
Operating HZ	60.0
Starter Data	Not Applicable
Approx. BHP	

SYSTEM/UNIT: EF-02
AREA: Restroom

Tested By: Omar Carreno
 Date: 3/26/2024

Drive Data	
Mtr Shv Mod# or Size (in)	-
Motor Sheave Bore (in.)	-
VP Range	-
Center Distance (in.)	-
No of Belts	-
Belt Make	-
Belt Size	-
Other Data	-

Electrical Data
Corr. Nameplate Amps

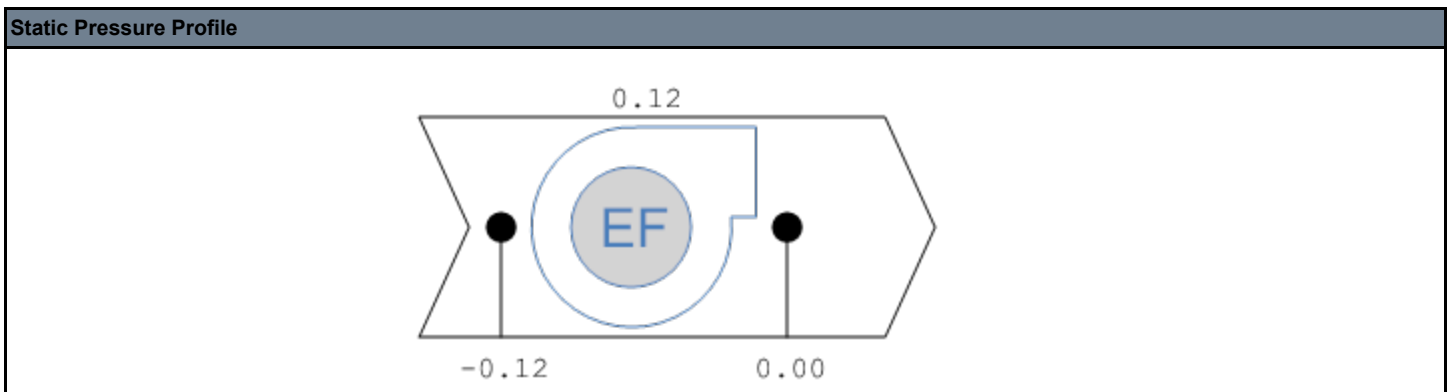
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SYSTEM/UNIT: EF-02/Static Profile

Tested By: Clayton Nelson
 Date: 3/26/2024



EF-02 Exhaust Inlet Summary

System/Unit	Area Served	Type	Size / Area (in)	Design CFM	Prelim CFM	Final CFM	% Final	Instrument	Ak	Open (sq ft)	Final FPM
E-01	Restroom	CD	6	75	136	74	99	Capture Hood	1.000	1.000	74
E-02	Restroom	CD	6	75	148	78	104	Capture Hood	1.000	1.000	78
	Totals:	-	-	150	284	152	101	-	-	-	-

SYSTEM/UNIT: KEF-01
AREA: Kitchen Hood

Tested By: Clayton Nelson
 Date: 3/26/2024



Design Airflow (CFM)	
Design Airflow	2344
Design Grille Airflow	NA

Unit Design Data	
Submittal Make	Not Provided
Submittal Model #	-
Submittal Airflow	Not Provided
Sched./Sub. Volts	208
Sched./Sub. Phase	3
Sched./Sub. HP	2
Submittal BHP	Not Provided

Design Static Pressures (in wg)	
Design External SP	1.25
Submittal Total SP	Not Provided

Motor Nameplate Data	
Motor Make (tag)	TECO
Motor Frame (tag)	184T
Motor HP (tag)	2
Motor RPM (tag)	1165
Motor Volts (tag)	230
Motor Phase (tag)	3
Motor Amps (tag)	7.51
Motor S.F. (tag)	1.15
Mtr % PF (tag)	-
Mtr % Eff. (tag)	87.5
Other Motor Data	-

Drive Data	
Drive Type	Direct Drive
Sheave Type	-
Fan Sheave Make	-
Fan Shv Mod# or Size (in)	-
Fan Sheave Bore (in.)	-
Motor Sheave Make	-

Final Airflow (CFM)	
Actual Airflow	2281
Actual Grille Airflow	2281
Fan CFM Test Method	See Kitchen Hood Sheet
Test Method Ak (sq ft)	Not Applicable

Unit Data	
Make (tag)	Captive Aire
Model # (tag)	DU180HFA
Serial # (tag)	6146916
Unit Location	Roof
Unit Discharge	Upblast
Fan Service	Exhaust
Fan Type	Centrifugal (BI)
Fan Discharge	Upblast
Fan Arrangement	SWSI

Fan Design Data	
Submittal Motor RPM	-
Submittal Fan RPM	-

Fan Data	
Actual Fan RPM/Speed	Single Speed
Actual Motor RPM	Not Accessible
Speed Cont. Position	Not Applicable

Electrical Data	
Measurement Method	VFD Display
Motor Volts 1	175
Motor Volts 2	-
Motor Volts 3	-
Motor Amps 1	5.6
Motor Amps 2	-
Motor Amps 3	-
Operating HZ	60.3
Starter Data	Not Applicable
Approx. BHP	1.13

SYSTEM/UNIT: KEF-01
AREA: Kitchen Hood

Tested By: Clayton Nelson
 Date: 3/26/2024

Drive Data	
Mtr Shv Mod# or Size (in)	-
Motor Sheave Bore (in.)	-
VP Range	-
Center Distance (in.)	-
No of Belts	-
Belt Make	-
Belt Size	-
Other Data	-

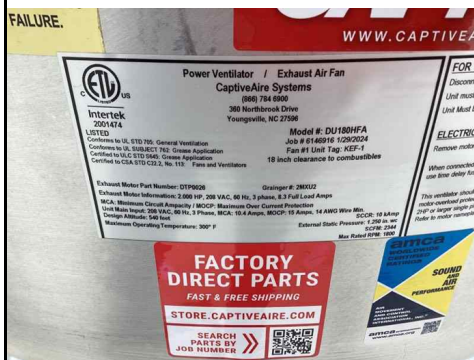
Electrical Data	
Corr. Nameplate Amps	9.9

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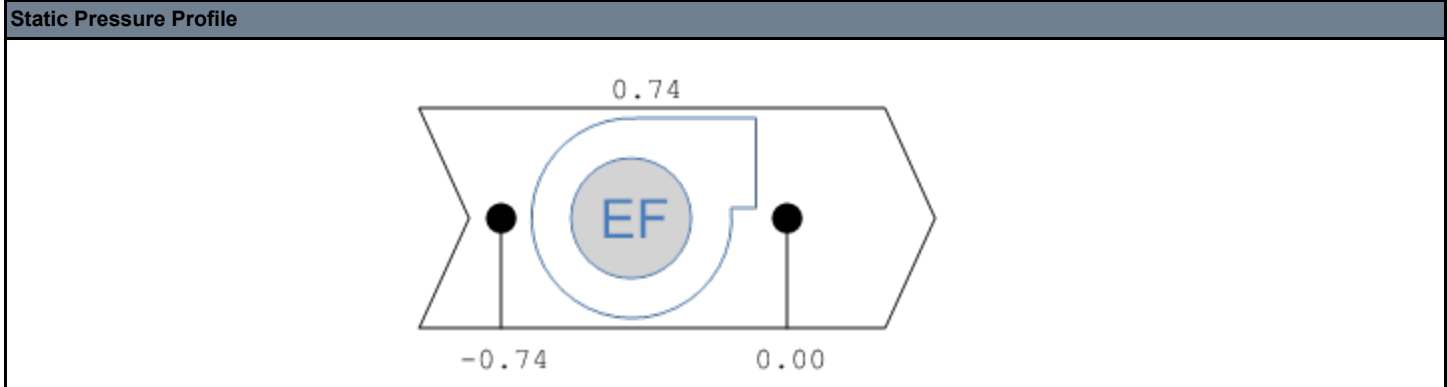
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SYSTEM/UNIT: KEF-01/Static Profile

Tested By: Clayton Nelson
Date: 3/26/2024



SYSTEM/UNIT: MAU-01
AREA: Kitchen Hood

Tested By: Clayton Nelson
 Date: 3/26/2024



Design Airflow (CFM)	
Design Airflow	1946
Design Grille Airflow	NA

Unit Design Data	
Submittal Make	Not Provided
Submittal Model #	-
Submittal Airflow	Not Provided
Sched./Sub. Volts	208
Sched./Sub. Phase	3
Sched./Sub. HP	2
Submittal BHP	Not Provided

Design Static Pressures (in wg)	
Design External SP	0.35
Submittal Total SP	Not Provided

Motor Nameplate Data	
Motor Make (tag)	TECO
Motor Frame (tag)	145T
Motor HP (tag)	2
Motor RPM (tag)	1740
Motor Volts (tag)	230
Motor Phase (tag)	3
Motor Amps (tag)	5.48
Motor S.F. (tag)	1.15
Mtr % PF (tag)	-
Mtr % Eff. (tag)	86.5
Other Motor Data	-

Drive Data	
Drive Type	Direct Drive
Sheave Type	-
Fan Sheave Make	-
Fan Shv Mod# or Size (in)	-
Fan Sheave Bore (in.)	-
Motor Sheave Make	-

Final Airflow (CFM)	
Actual Airflow	1939
Actual Grille Airflow	1939
Fan CFM Test Method	See Kitchen Hood Sheet
Test Method Ak (sq ft)	-

Unit Data	
Make (tag)	Captive Aire
Model # (tag)	A1-D-250-15D-MPU
Serial # (tag)	6146916
Unit Location	Roof
Unit Discharge	Downblast
Fan Service	Make-Up Air
Fan Type	Centrifugal (FC)
Fan Discharge	Downblast
Fan Arrangement	DWDI

Fan Design Data	
Submittal Motor RPM	-
Submittal Fan RPM	-

Fan Data	
Actual Fan RPM/Speed	Single Speed
Actual Motor RPM	Not Accessible
Speed Cont. Position	Not Applicable

Electrical Data	
Measurement Method	VFD Display
Motor Volts 1	147
Motor Volts 2	-
Motor Volts 3	-
Motor Amps 1	3.8
Motor Amps 2	-
Motor Amps 3	-
Operating HZ	58.5
Starter Data	Internal to VFD
Approx. BHP	0.89

SYSTEM/UNIT: MAU-01
AREA: Kitchen Hood

Tested By: Clayton Nelson
 Date: 3/26/2024

Drive Data	
Mtr Shv Mod# or Size (in)	-
Motor Sheave Bore (in.)	-
VP Range	-
Center Distance (in.)	-
No of Belts	-
Belt Make	-
Belt Size	-
Other Data	-

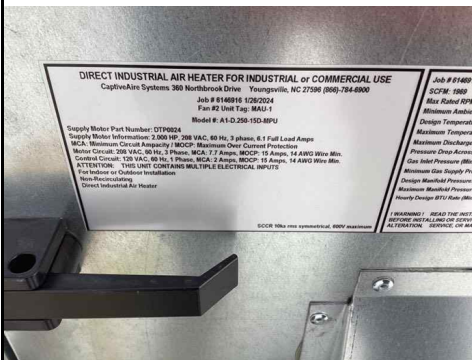
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Corr. Nameplate Amps	8.6

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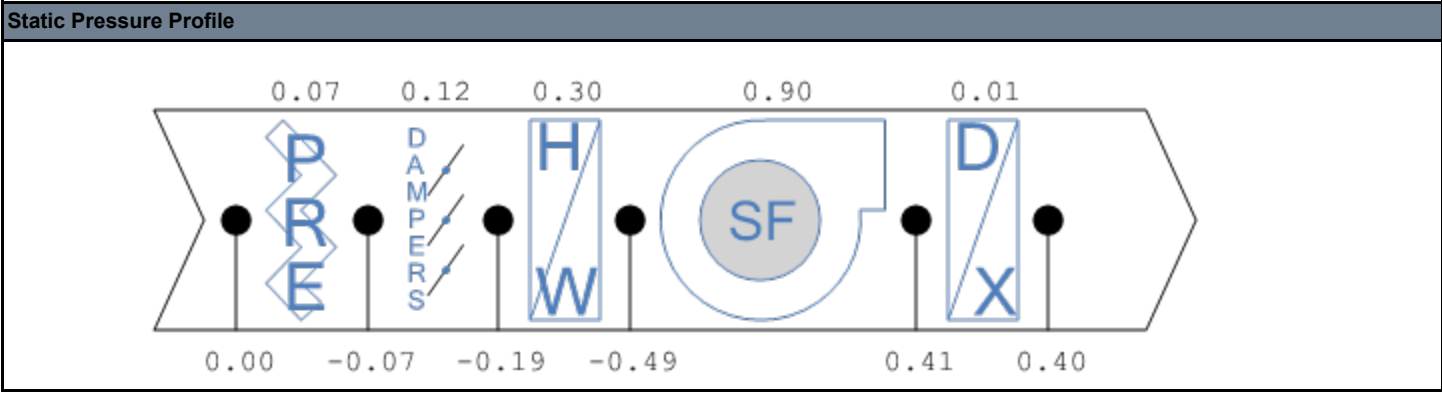
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SYSTEM/UNIT: MAU-01/Static Profile

Tested By: Clayton Nelson
Date: 3/26/2024



SYSTEM/UNIT: MAU-01/Kitchen Hood - Supply

Tested By: Clayton Nelson
Date: 3/26/2024

Design Airflow (CFM)	
Des. Make-up Air	1946
Halton Design SP	-

Filter Data	
MUA Filter (Type 1)	16x20
Qty MUA Filter (Type 1)	3
MUA Filter (Type 2)	-
Qty MUA Filter (Type 2)	-

Kitchen Hood Information	
Manufacturer	Captive Aire
Test Method	Perforated Supply

Final Airflow (CFM)	
Act. Make-up Air	1939
Halton Actual SP	-

Test Data	
PSP Length (in)	136
PSP Width (in)	14"
Correction Factor	0.90
Total MA Ak (sq ft)	11.90
Avg. MA Velocity (FPM)	163

