

Date	1/10/2025			Customer Purchase Order Number
ABC WO #	0984	Phase	011	Verbal
Project Title	Emergency Kitchen EF Issue			
Action Item	A bar had its cooking hood cleaned and the fan that serves it became "too unstable". We were asked to investigate the issue and solve it so the customer could use it for the Friday Night Fish Fry in the next day or so.		Sara Brewers The Bar on the Ridge 623 Main Street Ridgeway, WI 53582 Phone: 1-608-284-0399 Estimating@airtemperature.com	

**Testing and Balancing Report for
The Bar on the Ridge
623 Main Street
Ridgeway, WI 53582
1-608-284-0399**

Summary Sheet

Date	1/10/2025
Building Name	Emergency Kitchen EF Issue
Building Number	NA
ABC Work Order #	0984
Phase	011

Contact Person	Sara Brewers
Action Item	A bar had its cooking hood cleaned and the fan that serves it became "too unstable". We were asked to investigate the issue and solve it so the customer could use it for the Friday Night Fish Fry in the next day or so.

Summary and TABB Certifications

We received a phone call that there was a "fan issue" at Brewski's on the Ridge" and we were asked to drive out there and "solve the problems". The business owner, Sara Bresters, stated that Jason with Fire and Safety Equipment III, LLC (Cell 1-608-330-3901) would be compensating us for our time. We proceeded and discovered several issues and they are explained below.

- 1 The Kitchen Hood and Kitchen Exhaust Fan were installed at least 10 years ago but were installed in one project. It was recently cleaned and was now having some issues the cleaning contractor was willing to pay us to solve and just have us send him the bill when we were finished.

- 2 The side mounted Kitchen Exhaust Fan was definitely "wobbling and struggling to operate".

Brief overview - Side mounted Kitchen Exhaust Fan - This type of fan is a simple piece of equipment and is made up of a housing, a shaft, two bearings, a blower wheel and an electric motor. The problem is speculated to have been caused by the cleaning contractor but I speculate there were more problems than met the eye and those problems were NOT caused by the cleaning contractor. This is because the wobbling wasn't all due to some of the particulate that came off with the recent cleaning. Very little effort was used on some of the blower wheel grease so some may have freed itself after more air was passing though the now "cleaned system" and may have just magnified a bit more with the passing of a little time. Either way, we cleaned the wheel and now it seems fine to operate and Sara can now cook and make some money.

- 1 Fan Housing - It is in great shape. Probably good for 5 years.

- 2 Blower wheel shaft - It is in great shape. Probably good for 5 years.

- 3 Two Blower wheel bearings - The are in good shape and show no signs of any "wobbling or play" in them. They should be lubricated. Probably good for 5 years if they get lubricated.

- 4 Blower wheel - This contained both really old, caked-on grease and newly formed grease. We cleaned it and then slowed the unit down. Probably good for a good one (1) year but should be serviced with the cleaning of the Captive-Aire Kitchen Hood. Please see the pictures at the end for more information.

5 Electric Motor - The real problem is that sometime in the past two to three years a new blower motor was installed on the inside of the fan housing and it has several problems but those problems were NOT caused by the cleaning contractor, yet needed to get addressed ASAP for the fan to operate safely. They are as follows:

A The unit was reported to have been "tripping" on and off, over the past year, since the change of ownership.

B The newly installed motor's synchronous speed was "3450" RPM, not a "1750" RPM, as the manufacture's tag indicated the previous motor was, which more than likely double the airflow as to what the original motor was exhausting, thus causing the tripping issue.

C The accessories to connect the new electric motor windings wires to the disconnects "whip" were NOT secured to through a UL Approved fastener (See "As Found" pictures) AND the incorrect wire nuts were used.

D The electric wire housing cover was NOT installed to the top of the motor. It was resting on the inside mount of the motor housing.

E The motor was discovered drawing 20 amperes of the 13.8 amperes it was rated for. We could not work with the motor without leather gloves, it was that hot. Also, it explained why she later stated the breaker had tripped several times this past summer.

We went in, as an independent, third-party, testing and balancing company, and inspected, tested and cleaned all the inlet blades and re-sheaved the blower motor to satisfy the building owner. We also confirmed that the hood is moving about 15 air changes per hour when it is on.

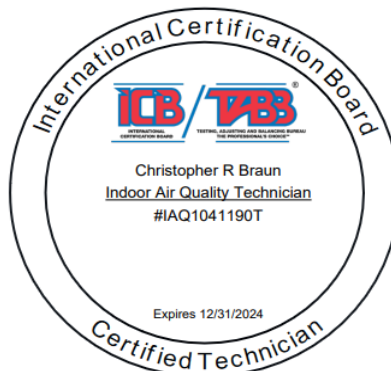
We ended up buying a gallon of Lacquer Thinner, a box of rags, some electric fittings to so the motor installation was up to code and a new sheave and belt for the motor assembly brought down the excessive current draw. The motor was found drawing 20 amps of the 13.8 rated. We came back the next day and installed a new driven sheave 6.4 inches in diameter and a larger, newer, AL25 Belt. The current draw dropped to 10 amps and both the noise and smoke removal was acceptable for the owner, Sara Brewers.

We worked on, and hereby approve, the one exhaust fans and kitchen exhaust hood to be compliant with all of the above parties.

Our as found and as left results are listed herein the report that follows. Should anyone have any comments or question, please feel free to write or call us at either christopher.braun@abcmws.com o 1-608-884-0420.

Thank you.

Chris Braun
TABB Certified.



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Return / Exhaust Fan Summary Sheet

Date	1/10/2025	Contact Person	Sara Brewers
Building Name	Emergency Kitchen EF Issue	Action item	
Building Number			
ABCMWS WO #	0984		
Phase	010		
Action item			

Fan ID	EF - 1 (As Installed)		EF - 1 (As Left)		
Location	Southern Exterior Wall		Southern Exterior Wall		
	Up about 10 feet		Up about 10 feet		
Service	Bar Grill Canopy Hood		Bar Grill Canopy Hood		
Manufacture	FloAire - Intertek		FloAire - Intertek		
Model #	BDU15		BDU15		
Serial #	Job # 1449399		Job # 1449399		
Type/ Class	Backward Incline / 1		Backward Incline / 1		
	Below is the		Below is the		
	Mauf. Desired Motor		Actual "New" Motor		
Motor Make/ Style	Replaced		US Electric / Open		
Model #	Below is the				
Serial #	Mauf. Desired Motor				
Horse Power	0.5		1.0		
Volts / Phase / Hertz	115	-1 / 60	115	1 / 60	
Full Load Amps / SF	8	1.15	8	1.15	
RPM	1755		1755		
Frame / Power Factor	56	NA	56	NA	
Efficiency	NA		NA		
Motor Sheave Make	Browning		Browning		
Dia / Bore	4.0	5 / 8	4.0	5 / 8	
Actual Diameter	3.3		3.3		
Fan Sheave Make	Browning		Browning		
Dia / Bore	AK56	3 / 4	AK56	3 / 4	
Actual Diameter	5.2		5.2		
Center to Center Distance	5.5		5.5		
# of belts / Make / Size	1 / Dayco / 4L220		1 / Dayco / 4L220		
Actual belt Length	22		22		
	-				
Heater Make	NA		NA		
Heater Size	NA		NA		
Starter Location	In bar next to Canopy		In bar next to Canopy		
	UL - 762 Grease Application				
	UL - 705 Gen Ventilation				

	Design	Actual	Design	Actual	Design	Actual
Fan Total CFM	NA	NA	NA	NA		
Inlet CFM	NA	NA	NA	2642		
Fan RPM	NA	1886	NA	1658		
Motor RPM	NA	3392	NA	3445		
Freq. Drive Hz	NA	60	NA	60		
Static Pressure In	NA	NA	NA	NA		
Static Pressure Out	NA	NA	NA	NA		
Inlet VP	NA	NA	NA	NA		
Fan Delta P	NA	NA	NA	NA		
System SP Delta P	NA	NA	NA	NA		
Voltage	NA	120	NA	120		
Amperage	NA	NA	NA	NA		
Amperage	NA	NA	NA	NA		
Amperage	NA	NA	NA	NA		
Average Amps	NA	20	NA	10		

DUCT TRAVERSE READINGS
ZONE TOTALS

DATE 1/10/2025

BUILDING NAME Emergency Kitchen EF Issue

PROJECT The Bar on the Ridge

SYSTEM Kitchen Exh Hood AREA SERVED Kitchen

Area Served	Duct Size	Area Sq. Ft.	Design		Actual			
			Velocity	CFM	SP	Velocity	CFM	
KEF - 1 Exh	79 X 14	7.68	130	1,000		344 Ft/min	2642	As Left Readings

9072
158526.67
17.47428

Kitchen Exhaust Fan - 1 Calculations Sheet

Date	1/10/2025	Project	Emergency Kitchen EF Issue
Building Name	Emergency Kitchen EF Issue	System	All equipment
Building Number		Area Served	All areas
Work Order #	0984		
Phase	011		
Contact person	Sara Brewers		
Problem			

KEF Calculations

Motor Data	As Found Data		
	Fan RPM	1866	Current
			1.4493
3450	Motor RPM	3392	Brake HP
	Suction Pressure	0.4	Fan
	Voltage	120	Max RPM
120	Amps	20	to reach
13.8	Motor Horse Power	1	Full Load Amps
1	Fan Sheave Diameter	5.2	of
	Motor Sheave Dia	3.1	
	Belt Length	22	Dia of new
	Center-to-Center	5.5	Speed
	Inlet Velocity	400	Fan Sheave
	Inlet Area	4.2	Calculated
	Inlet CFM	1680	Belt
	Design CFM	1200	Length
	Actual CFM	1680	Calculated
			Belt
			Length with
			New Fan
			Sheave

Partial Photo Log - More available upon request

Date	<u>1/10/2025</u>	Project	<u>Emergency Kitchen EF Issue</u>
Building Name	<u>Emergency Kitchen EF Issue</u>	System	<u>All equipment</u>
Building Number	<u>0984</u>	Area Served	<u>All areas</u>
Work Order #	<u>0984</u>		
Phase	<u>011</u>		
Contact person	<u>Sara Brewers</u>		
Problem	<u></u>		

