Report By:

National TAB
1329 E Kemper Rd, Ste 4210
Cincinnati, OH 45246

Report: **Test and Balance**
Date: **7/24/2020**

PROJECT

FREDDY'S - TYLER, TX

7715 SOUTH BROADWAY AVE
TYLER, TX

Client

Epoch Development, Inc.
3595 N Webb Rd, Suite 100
Wichita, KS 67226

National TAB

Project: FREDDY'S - TYLER, TX

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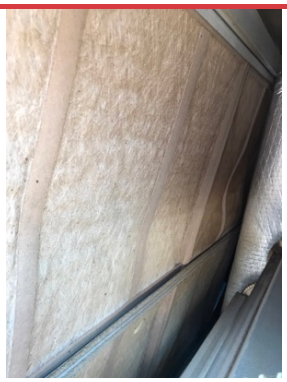
DRAIN KITCHEN RTU3

RTU3 drain is full of debris and needs cleaned

FAN BELT KITCHEN RTU3

Fan belt needed to be tightened. Was loose and squealing on start up



FILTERS KITCHEN RTU3

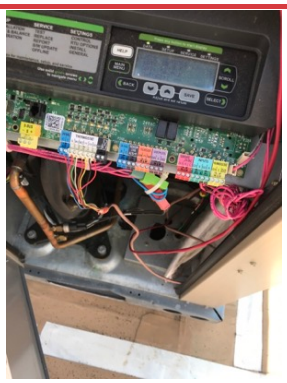
Filters need replaced

DRAIN DINING RTU2

RTU2 drain needs to be cleaned

OA FILTERS

Outside air filters for RTU's 1&2 need to be cleaned. RTU2 is exceptionally dirty.



HUMIDITY SENSORS

Humidity sensors are not installed for RTU's 1 & 2

CONFIGURATION ID'S

Dining RTU1 &2 ID's were not matching in Prodigy to factory installation configuration

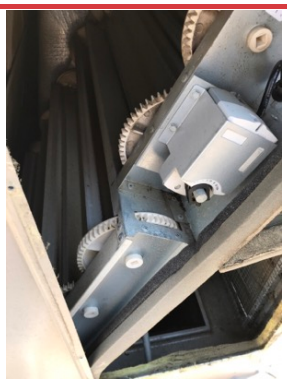
DRAIN DINING RTU1

RTU Dining drain was clogged and causing alarm

DRAIN PAN RTU1

Drain pan was full.

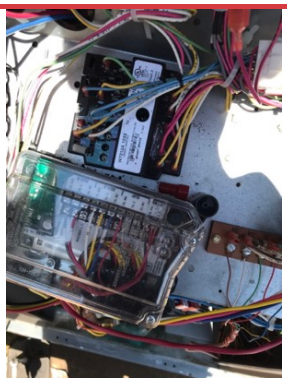
Tapped along drain line until obstruction loss ended enough to empty pan. Needs to be cleaned



OA DAMPER RTU3

Outside air damper for Kitchen RTU3 doesn’t not work.

Loosened damper to set manualyy



OA DAMPER CONTORLLER RTU3

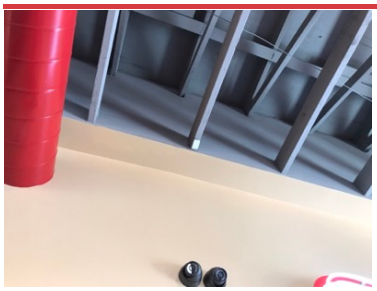
Potentiometer is not operating to set minimum position. Kitchen RTU3 does not use Prodigy controller

HUMIDITY SENSOR RTU1

No sensor installed but showing reading on t-stat

HUMIDITY SENSOR RTU2

No sensor installed but showing reading on t-sta



ROOM TEMP SENSOR

Temp sensor for RTU2 above corridor to restrooms

ROOM TEMP SENSOR

Temp sensor RTU1 above serve line

Project Summary

Preface
The summary below provides a quick understanding of how well your HVAC systems balanced in respect to the design criteria. The summary concludes with a quick understanding of your building environment and possible suggestions for each of your systems after testing has been performed. 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. Our focus is 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. Also, enclosed are pictures of building assets and items listed below that will provide your team with more insight

Facility Identification and TAB Requirements
Freddy's is located at 7715 S. Broadway Ave. Tyler, Tx. 75703. The mechanical equipment to be tested, adjusted, and balanced includes: (3) Roof Top Units (RTU), (4) Exhaust Fans (EF), (1) Make Up Air Units (MUA), (3) Kitchen Hoods, and all associated air devices.

Constant Volume RTU's with Lay-In Ceiling Diffusers
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 to +/-10% of the specified design. Each terminal diffuser was balanced to within +/-10% of the engineer's design volume utilizing the provided hand damper located at the takeoff of the main & branch trunk line(s).

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 +/-10% of the engineers design flow.
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 +/-10% of design criteria.

General Exhaust Fans
KEF1 & KEF2 were measured by reading each air device with a velocity matrix. 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 +/-10% of design. Each terminal device was balanced to within +/-10% of the design volume using the installed volume dampers.
EF1 & 2 were measured by reading each air device with a flow hood. The total airflow is equivalent to the sum of these readings. Fan speed was then adjusted so that the airflow was within +/-10% of design. Each terminal device was balanced to within +/-10% of the design volume using the installed volume dampers.

Final Building Tests
After completing the test and balance, the final building pressure was recorded at 0.0012" W.C. average. This pressure falls within the recommended tolerances by the International Mechanical Code of +0.02" W.C. to -0.02" W.C. The building is designed for a net positive pressure and this measurement coincides with that requirement.
The hood capture was tested at the perimeter of the hood and the cook top level with the equipment heat "on" and 100% capture was observed.

TECH - STEP 1 INITIAL SITE WALKTHROUGH

Assigned Organization: National TAB

Status: Not Submitted

Asset:

INITIAL SITE WALKTHROUGH	
All diffusers and grilles are installed and match design?	Yes
All hood filters installed and accounted for?	Yes
Hoods are wired and have power?	Yes
Hood is free of alarms?	Yes
Thermostats have power?	Yes
Have trades/general contractor been notified about any issues and are they created on FaciliBuild?	NA

Notes/Comments:

TECH - STEP 2 UNIT DATA AND EVAL

Assigned Organization: National TAB

Status: Not Submitted

Asset:

UNIT DATA AND EVALUATION WHILE GATHERING UNIT DATA CHECK THE FOLLOWING:	
RTU's/AHU's	
Economizers are assembled and functional?	No
DCV Max damper opening position is set to minimum?	Yes
Free cooling enthalpy set point set for lowest setting (Typically "D")	Yes
Motors are all operating below the FLA rating?	Yes
Are belts tight?	YES
If direct drive unit is the speed controller working.	N/A
Is gas piping installed and valves turned on?	Yes
Unit free of noticeable noise and vibration	Yes
EF's	
Rotation is correct?	Yes
Belts are tight?	YES
Grease cup installed on hood fan?	Yes
Hinge kit installed installed on hood fan?	Yes
Lean fan back. Is grease duct installation adequate and is duct ran all the way to the base of the fan?	Yes
Flex conduit is long enough so that fan can be completely tilted back?	Yes
There is no major leakage around base of fan?	Yes
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
MUA	
Rotation is correct?	Yes

Gas piping is installed and valves are in on position?	Yes
Heater tested and is functional?	Yes
Internal motorized damper is fully opening?	Yes
Motor is operating below the FLA rating?	Yes
Unit free of noticeable noise and vibration?	Yes
HOODS	
Kitchen equipment installed in proper places?	Yes
Can kitchen equipment be turned on for final smoke test?	Yes
Griddle is completely centered underneath hood?	Yes
PICTURES TAKEN OF:	
All Issues	Yes
Each Piece of equipment	Yes
Each Hood	Yes
Front of Store	Yes

Notes/Comments:

RTU-3 ECONOMIZER CONTROLLER WILL NOT OPEN THE OA DAMPER.

TECH - STEP 3 TEST
ADJUST AND BALANCE

Assigned Organization: National TAB

Status: Not Submitted

Asset:

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".	NA

Notes/Comments:

TECH - STEP 4 FINAL TESTS

Assigned Organization: National TAB

Status: Not Submitted

Asset:

FINAL TESTS	
HOOD CAPTURE TEST	
List equipment turned on for testing	ALL
List smoke candle type used	COOKING
Smoke test capture - Perimeter of hood	100%
Smoke test capture - Top of cooking surface	100%
WITNESS	
Date test was completed	7/20/2020
TAB tech name / Firm	Brian Irvin / National TAB
Building pressure at front & back doors (All Systems On)	FRONT .0012/ BACK .0011
ADDITIONAL	
Do actual net building airflow, design net building airflow, and pressure coincide? If not why? (All three should either be positive or negative)	YES
Thermostats are programmed?	Yes
Thermostats Schdedules: Program all thermostats to following settings:	
All three thermostats have correct time/date? (if not set correctly)	Yes
Occupied Time: 8am-11:55pm	Yes
Occupied Fan ON	Yes
Occupied cooling 74	Yes
Occupied heating 68	Yes
Unoccupied Time 11:55pm-8am	Yes
Unoccupied Fan Auto	Yes
Unoccupied cooling 79	Yes
Unoccupied heating 63	Yes
Set a Partial Screen Lock for Thermostats (i.e., make sure temperature is adjustable but not schedule)	Yes
Password is set to 999 for Partial Screen Lock?	Yes

RTU Economizers	
Note: These instructions are for Lennox units. There are similar settings for other OEMs. Call office for assistance if needed.	
Enthalpy is set to "D" for all three units	Yes
"DCV Set" dials turned all the way to the left (counter clockwise)	Yes
"DCV Max" dials turned all the way to the left (counter clockwise)	Yes

Notes/Comments:

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Project: FREDDY'S - TYLER, TX

System/Unit: AHU/RTU

Asset: RTU1 AREA: DINING

Unit Data		
	Design	**Actual**
MFG	LENNOX	LENNOX
Model Num	LGH092H4B	LGH092H4B
Serial Num	-	5618C06731
Type	RTU	RTU
Configuration	VERTICAL DISCHARGE	VERTICAL DISCHARGE
Num OA Filters 1	-	2
OA Filter Size 1	-	16X25
Num Final Filter 1	-	4
Final Filter Size 1	-	20X25X2
Num Final Filter 2	-	N/A
Final Filter Size 2	-	N/A

Motor Data		
	Design	**Actual**
Motor MFG	-	INTERLINK
Frame	-	56HZ
Horsepower	3	3
Motor Rpm	-	1750
Phase	3	3
Rated Voltage	208	208
Rated Amperage	-	8.0

Drive Data		
	Design	**Actual**
Motor Sheave Size	-	1VP44
Motor Bore Size	-	7/8”
Motor Sheave SetPt	-	5 TURNS OPEN
Fan Sheave Size	-	AK74
Fan Sheave Bore	-	1”
Belt CL Distance	-	21 7/8”
Num of Belts	-	1
Belt Size	-	AX58
Belt Alignment	-	CORRECT

Test Data		
	Design	**Actual**
SF CFM	3000	3353
SF RPM	-	737
RA CFM	2500	2877
OA CFM	500	476
RL Voltage	-	213/212/210
RL Amperage	-	5.0/5.1/4.6
SF Rotation	-	CCW
RA Damper Position	-	60%
Min OA Damper Position	-	40%
Min OA Damper Type	-	OBD
Brake Horse Power	-	1.84

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-.21”
Fan Suction SP	-	-.48”
Fan Discharge SP	-	.62”
Total ESP	0.80"	.83”
Fan Total SP	-	1.10”

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

Completed By: Robert Sepeda on 07/26/2018

Notes: VARIABLE SHEAVE SET TO MIN PITCH. UNABLE TO FURTHER REDUCE TOTAL AIRFLOW.

System/Unit: AHU/RTU

Diffuser Supply (GRD)

RTU1 / DINING

Asset	Area Served	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
SGRD1	DINING	SD5	12"	425		826	435	435	102.4
SGRD2	DINING	SD5	12"	425		583	493	493	116.0
SGRD3	DINING	SD5	12"	425		463	439	439	103.3
SGRD4	DINING	SD5	12"	425		418	492	492	115.8
SGRD5	DINING	SD5	12"	425		69	500	500	117.6
SGRD6	DINING	SD5	12"	425		695	456	456	107.3
SGRD7	DINING	SD5	12"	450		790	545	545	121.1

Completed By: Robert Sepeda on 07/26/2018

Asset	Area Served	Notes

National TAB

Project: FREDDY'S - TYLER, TX

System/Unit: AHU/RTU

Asset: RTU2 AREA: DINING

Unit Data		
	Design	**Actual**
MFG	LENNOX	LENNOX
Model Num	LGH092H4B	LGH092H4B
Serial Num	-	5618C06730
Type	RTU	RTU
Configuration	VERTICAL DISCHARGE	VERTICAL DISCHARGE
Num OA Filters 1	-	2
OA Filter Size 1	-	16X25
Num Final Filter 1	-	4
Final Filter Size 1	-	20X25X2
Num Final Filter 2	-	N/A
Final Filter Size 2	-	N/A

Motor Data		
	Design	**Actual**
Motor MFG	-	INTERLINK
Frame	-	56HZ
Horsepower	3	3
Motor Rpm	-	1750
Phase	3	3
Rated Voltage	208	208
Rated Amperage	-	8.0

Drive Data		
	Design	**Actual**
Motor Sheave Size	-	1VP44
Motor Bore Size	-	7/8”
Motor Sheave SetPt	-	5 TURNS OPEN
Fan Sheave Size	-	AK74
Fan Sheave Bore	-	1
Belt CL Distance	-	21 7/8”
Num of Belts	-	1
Belt Size	-	AX58
Belt Alignment	-	CORRECT

Test Data		
	Design	**Actual**
SF CFM	3000	3461
SF RPM	-	727
RA CFM	2500	2978
OA CFM	500	483
RL Voltage	-	212/211/210
RL Amperage	-	5.0/5.2/4.8
SF Rotation	-	CCW
RA Damper Position	-	72%
Min OA Damper Position	-	28%
Min OA Damper Type	-	OBD
Brake Horse Power	-	1.88

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-.24”
Fan Suction SP	-	-.57”
Fan Discharge SP	-	.44”
Total ESP	0.80"	.68”
Fan Total SP	-	1.01”

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

Completed By: Robert Sepeda on 07/26/2018

Notes: SUPPLY DIFFUSERS 1 AND 2 DID NOT HAVE BALANCING DAMPERS INSTALLED. VARIABLE SHEAVE SET TO MIN PITCH. UNABLE TO FURTHER REDUCE TOTOAL AIRFLOW.

System/Unit: AHU/RTU

Diffuser Supply (GRD)

RTU2 / DINING

Asset	Area Served	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
SGRD1	ENTRY	SD3	8"	150		160	181	181	120.7
SGRD2	DINING	SD5	12"	400		840	840	840	210.0
SGRD3	DINING	SD5	12"	400		679	468	438	109.5
SGRD4	DINING	SD5	12"	425		142	383	383	90.1
SGRD5	DINING	SD5	12"	425		440	391	391	92.0
SGRD6	DINING	SD5	12"	425		457	450	450	105.9
SGRD7	DINING	SD5	12"	400		988	420	420	105.0
SGRD8	RESTROOM	SD4	8"	100		132	108	108	108.0
SGRD9	RESTROOM	SD3	8"	175		139	160	160	91.4
SGRD10	RESTROOM	SD4	8"	100		62	90	90	90.0

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Asset	Area Served	Notes
SGRD1	ENTRY	NO BALANCING DAMPER INSTALLED.
SGRD2	DINING	NO BALANCING DAMPER INSTALLED.

National TAB

Project: FREDDY'S - TYLER, TX

System/Unit: AHU/RTU

Asset: RTU3 AREA: KITCHEN

Unit Data		
	Design	**Actual**
MFG	LENNOX	LENNOX
Model Num	KGA150S4B	KGA150S4B
Serial Num	-	5618C06144
Type	RTU	RTU
Configuration	VERTICAL DISCAHRGE	VERTICAL DISCHARGE
Num OA Filters 1	-	2
OA Filter Size 1	-	16X25
Num Final Filter 1	-	4
Final Filter Size 1	-	20X25
Num Final Filter 2	-	N/A
Final Filter Size 2	-	N/A

Motor Data		
	Design	**Actual**
Motor MFG	-	US MOTORS
Frame	-	184TZ
Horsepower	5	5
Motor Rpm	-	1765
Phase	3	3
Rated Voltage	208	208
Rated Amperage	-	13.8

Drive Data		
	Design	**Actual**
Motor Sheave Size	-	1VP50
Motor Bore Size	-	1 1/8”
Motor Sheave SetPt	-	4 TURNS OPEN
Fan Sheave Size	-	BK77
Fan Sheave Bore	-	1”
Belt CL Distance	-	21 1/2”
Num of Belts	-	1
Belt Size	-	BX59
Belt Alignment	-	CORRECT

Test Data		
	Design	**Actual**
SF CFM	5000	5109
SF RPM	-	1110
RA CFM	4584	5109
OA CFM	416	0
RL Voltage	-	210/212/211
RL Amperage	-	12.0/12.4/12.2
SF Rotation	-	CCW
RA Damper Position	-	OPEN
Min OA Damper Position	-	SHUT
Min OA Damper Type	-	OBD
Brake Horse Power	-	4.42

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-1.27”
Fan Suction SP	-	-1.82”
Fan Discharge SP	-	.75”
Total ESP	0.80"	2.02”
Fan Total SP	-	2.57”

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

Completed By: Robert Sepeda on 07/26/2018

Notes: OA DAMPER CONTROLLER DOES NOT OPERATE.

Diffuser Supply (GRD)

RTU3 / KITCHEN

Asset	Area Served	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
SGRD1	ORDERING	SD1	12"	450		518	493	493	109.6
SGRD2	DRIVE-THRU	SD1	12"	450		511	432	432	96.0
SGRD3	PREP	SD2	12"	425		380	422	422	99.3
SGRD4	OFFICE	SD6	8"	200		30	196	196	98.0
SGRD5	PREP	SD2	12"	400		69	390	390	97.5
SGRD6	PREP	SD2	12"	325		630	351	351	108.0
SGRD7	STORAGE	SR1	10"	475		377	466	466	98.1
SGRD8	PREP	SD2	12"	400		708	429	429	107.3
SGRD9	PREP	SD2	12"	400		565	412	412	103.0
SGRD10	PREP	SD2	12"	425		546	452	452	106.4
SGRD11	HOOD 2 ACPSP	ACPSP	60X6	306		443	312	312	102.0
SGRD12	HOOD 1B ACPSP	ACPSP	82X6	372		355	379	379	101.9
SGRD13	HOOD 1A ACPSP	ACPSP	82X6	372		464	375	375	100.8

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Asset	Area Served	Notes

National TAB

Project: FREDDY'S - TYLER, TX

System/Unit: FAN - Supply

Asset: MAU1 AREA: HOOD 1A, 1B, 2

Unit Data		
	Design	**Actual**
MFG	CAPTIVE-AIRE	CAPTIVE-AIRE
Model Num	A2-D.250-G15-MPU	A2-D.250-G15-MPU
Serial Num	-	3118783
Type	MAU	MAU
Configuration	VERTICAL DISCHARGE	VERTICAL DISCHARGE

Motor Data		
	Design	**Actual**
Motor MFG	-	WEG
Frame	-	56HZ
Horsepower	1.5	2.0
Motor Rpm	-	1740
Phase	3	3
Voltage (rated)	208	208
Amperage (rated)	-	5.95
Service Factor	-	1.0

Drive Data		
	Design	**Actual**
Motor Sheave Size	-	1VL40
Motor Bore Size	-	7/8”
Fan Sheave Size	-	AK46
Fan Sheave Bore	-	3/4”
Belt CL Distance	-	14 1/4”
Num of Belts	-	1
Belt Size	-	AX39
Belt Alignment Verified	-	YES

Gas Heat		
	Design	**Actual**
Heater Operates (y/n)	-	YES
Flame Status (pass/fail)	-	PASS
Inlet Air Temp SetPt	55	55
Discharge Air Temp SetPt	60	60
Air Flow Switch SP Actual	-	.55”

Test Data		
	Design	**Actual**
CFM	2743	2716
SF RPM	804	1345
Motor RPM	-	1730
RL Voltage	-	205/206/204
RL Amperage	-	3.9/4.1/4.0
Total ESP	0.40"	N/A
Fan Discharge SP	-	N/A

Evaporator DX Coil		
	Design	**Actual**
EAT (db/wb)	100/76	N/A
LAT (db/wb)	84.7/70.6	N/A

General		
	Design	**Actual**
Fan Rotation Correct	-	YES

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Notes:

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Project: FREDDY'S - TYLER, TX

System/Unit: FAN - Exhaust

Asset: EF1 AREA: RESTROOM

Unit Data		
	Design	**Actual**
MFG	COOK	COOK
Model Num	GC-184	GC-184
Serial Num	-	NOT VISIBLE
Type	CENTRIFUGAL	CENTRIFUGAL
Configuration	CEILLING	CEILING

Motor Data		
	Design	**Actual**
Motor MFG	-	GREENHECK
Frame	-	NOT LISTED
Horsepower	183W	1/30
Motor Rpm	-	1000
Phase	1	1
Voltage (rated)	120	120
Amperage (rated)	-	.56
Service Factor	-	NOT LISTED

Test Data		
	Design	**Actual**
CFM	225	264
Fan RPM	1404	DIRECT DRIVE
Fan Rotation	-	CCW
Motor RPM	-	DIRECT DRIVE
System SetPt	-	CONSTANT
RL Voltage	-	121
RL Amperage	-	.51
Total ESP	0.25"	N/A
Fan Inlet SP	-	N/A
Fan Discharge SP	-	N/A

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Notes:

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Project: FREDDY'S - TYLER, TX

System/Unit: FAN - Exhaust

Asset: EF2 AREA: RESTROOM

Unit Data		
	Design	**Actual**
MFG	COOK	COOK
Model Num	GC-184	GC-184
Serial Num	-	NOT VISIBLE
Type	CENTRIFUGAL	CENTRIFUGAL
Configuration	CEILLING	CEILING

Motor Data		
	Design	**Actual**
Motor MFG	-	GREENHECK
Frame	-	NOT LISTED
Horsepower	183W	1/30
Motor Rpm	-	1000
Phase	1	1
Voltage (rated)	120	120
Amperage (rated)	-	.56
Service Factor	-	NOT LISTED

Test Data		
	Design	**Actual**
CFM	225	271
Fan RPM	1404	DIRECT DRIVE
Fan Rotation	-	CCW
Motor RPM	-	DIRECT DRIVE
System SetPt	-	CONSTANT
RL Voltage	-	119
RL Amperage	-	.54
Total ESP	0.25"	N/A
Fan Inlet SP	-	N/A
Fan Discharge SP	-	N/A

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Notes:

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Project: FREDDY'S - TYLER, TX

System/Unit: FAN - Exhaust

Asset: KEF1 AREA: HOOD 1A & 1B - GRIDDLE

Unit Data		
	Design	**Actual**
MFG	CAPTIVE-AIRE	CAPTIVE-AIRE
Model Num	NCA16HPFA	NCA16HPFA
Serial Num	-	3119783
Type	CENTRIFUGAL	CENTRIFUGAL
Configuration	UPBLAST	UPBLAST

Motor Data		
	Design	**Actual**
Motor MFG	-	WEG
Frame	-	56H
Horsepower	1.5	1.5
Motor Rpm	-	1760
Phase	3	3
Voltage (rated)	208	208
Amperage (rated)	-	4.64
Service Factor	-	1.0

Drive Data		
	Design	**Actual**
Motor Sheave Size	-	1VL40
Motor Bore Size	-	5/8”
Motor Sheave SetPt	-	4 TURNS OPEN
Fan Sheave Size	-	3 3/4”
Fan Sheave Bore	-	1”
Belt CL Distance	-	6 5/16”
Num of Belts	-	1
Belt Size	-	AX22

Test Data		
	Design	**Actual**
CFM	2584	1944
Fan RPM	1329	1378
Fan Rotation	-	CCW
Motor RPM	-	1745
RL Voltage	-	208/206/205
RL Amperage	-	4.5/4.6/4.4
Suction ESP	-	-1.95”
Discharge ESP	-	N/A
Total ESP	1.40"	1.95”
Brake Horse Power	-	1.45

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Notes: MOTOR IS AT MAX AMPS. UNABLE TO INCREASE AIRFLOW.

National TAB

Project: FREDDY'S - TYLER, TX

System/Unit: FAN - Exhaust

Asset: KEF2 AREA: HOOD 2 - FRYER

Unit Data		
	Design	**Actual**
MFG	CAPTIVE-AIRE	CAPTIVE-AIRE
Model Num	DU50HFA	DU50HFA
Serial Num	-	3119783
Type	CENTRIFUGAL	CENTRIFUGAL
Configuration	UPBLAST	UPBLAST

Motor Data		
	Design	**Actual**
Motor MFG	-	HSSA
Frame	-	48Y
Horsepower	0.5	1/2
Motor Rpm	-	1625
Phase	1	1
Voltage (rated)	115	115
Amperage (rated)	-	8.4
Service Factor	-	1.0

Test Data		
	Design	**Actual**
CFM	775	739
Fan RPM	1441	DIRECT DRIVE
Fan Rotation	-	CCW
Motor RPM	-	DIRECT DRIVE
System SetPt	-	MID ON VSC
RL Voltage	-	86.0
RL Amperage	-	4.4
Total ESP	1.25"	1.19”
Fan Inlet SP	-	-1.19”
Fan Discharge SP	-	N/A

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Notes:

National TAB

Project: FREDDY'S - TYLER, TX

System/Unit: Kitchen Hood Type I

Asset: HD1 AREA: HOOD 1 A

Unit Data		
	Design	**Actual**
MFG	CAPTIVE-AIRE	CAPTIVE-AIRE
Model Num	4824 ND-2-ACPSP-F	4824 ND-2-ACPSP-F
Job / Serial Num	-	3119783
Type	TYPE I CANOPY	TYPE I CANOPY
Hood length	82	82
Hood Width	48	48
Supply Plenum Type	ACPSP	ACPSP
Supply Plenum Width	14	14
Supply Plenum Length	82	82

Test Data Exhaust		
	Design	**Actual**
Filter Type	CAPTRATE SOLO	CAPTRATE SOLO
Filter Size 1	16X16	16X16
Filter Qty 1	5	5
Filter AK factor size 1	1.62	1.62
Filter Total AK Area	8.1	8.1
Filter1 FPM	-	108
Filter2 FPM	-	119
Filter3 FPM	-	137
Filter4 FPM	-	125
Filter5 FPM	-	116
Filter Ave FPM(corr)	-	121
CFM	1292	980

Cooking Equipment		
	Design	**Actual**
Item 1	-	GRIDDLE
Item 2	-	N/A
Item 3	-	N/A
Item 4	-	N/A
Item 5	-	N/A

Test Data Supply		
	Design	**Actual**
AK factor	1	1
Total AK Area	7.97	7.97
Kv factor (Vel)	0.90	.90
Num of Readings	-	6
Reading1 FPM	-	166
Reading2 FPM	-	144
Reading3 FPM	-	128
Reading4 FPM	-	127
Reading5 FPM	-	136
Reading6 FPM	-	148
Reading7 FPM	-	N/A
Reading8 FPM	-	N/A
Reading9 FPM	-	N/A
Reading10 FPM	-	N/A
Ave FPM(corr)	-	127
CFM	1034	1012

Performance Data		
	Design	**Actual**
Exh-Supply Net CFM	258	-32
Smoke Generation Type	-	COOKING
Cooking Equip Heat On	-	YES
Hood Capture %	-	100
End Panels Installed (Y/N)	-	N/A
Space Offset Temp Riser 1	-	N/A
Space Offset Temp Riser 2	-	N/A
Riser Temp F (idle) Riser 1	-	N/A
Riser Temp F (idle) Riser 2	-	N/A
Ambient Room Temp	-	N/A

General		
	Design	**Actual**
Third Party Witness	-	FREDDYS
Third Party Company	-	BRANDON
Tech Witness	-	ROBERT SEPEDA
Tech Company	-	NATIONAL TAB

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Notes:

National TAB

Project: FREDDY'S - TYLER, TX

System/Unit: Kitchen Hood Type I

Asset: HD2 AREA: HOOD 1B

Unit Data		
	Design	**Actual**
MFG	CAPTIVE-AIRE	CAPTIVE-AIRE
Model Num	4824 ND-2-ACPSP-F	4824 ND-2-ACPSP-F
Job / Serial Num	-	3119783
Type	TYPE I CANOPY	TYPE I CANOPY
Hood length	82	82
Hood Width	48	48
Supply Plenum Type	ACPSP	ACPSP
Supply Plenum Width	14	14
Supply Plenum Length	82	82

Test Data Exhaust		
	Design	**Actual**
Filter Type	CAPTRATE SOLO	CAPTRATE SOLO
Filter Size 1	16X16	16X16
Filter Qty 1	5	5
Filter AK factor size 1	1.62	1.62
Filter Total AK Area	8.1	8.1
Filter1 FPM	-	111
Filter2 FPM	-	122
Filter3 FPM	-	127
Filter4 FPM	-	120
Filter5 FPM	-	114
Filter Ave FPM(corr)	-	119
CFM	1292	964

Cooking Equipment		
	Design	**Actual**
Item 1	-	GRIDDLE
Item 2	-	N/A
Item 3	-	N/A
Item 4	-	N/A
Item 5	-	N/A

Test Data Supply		
	Design	**Actual**
AK factor	1	1
Total AK Area	7.97	7.97
Kv factor (Vel)	0.90	.90
Num of Readings	-	6
Reading1 FPM	-	149
Reading2 FPM	-	136
Reading3 FPM	-	156
Reading4 FPM	-	125
Reading5 FPM	-	148
Reading6 FPM	-	162
Reading7 FPM	-	N/A
Reading8 FPM	-	N/A
Reading9 FPM	-	N/A
Reading10 FPM	-	N/A
Ave FPM(corr)	-	131
CFM	1034	1044

Performance Data		
	Design	**Actual**
Exh-Supply Net CFM	258	-80
Smoke Generation Type	-	COOKING
Cooking Equip Heat On	-	YES
Hood Capture %	-	100
End Panels Installed (Y/N)	-	N/A
Space Offset Temp Riser 1	-	N/A
Space Offset Temp Riser 2	-	N/A
Riser Temp F (idle) Riser 1	-	N/A
Riser Temp F (idle) Riser 2	-	N/A
Ambient Room Temp	-	N/A

General		
	Design	**Actual**
Third Party Witness	-	FREDDYS
Third Party Company	-	BRANDON
Tech Witness	-	ROBERT SEPEDA
Tech Company	-	NATIONAL TAB

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Notes:

National TAB

Project: FREDDY'S - TYLER, TX

System/Unit: Kitchen Hood Type I

Asset: HD3 AREA: HOOD 2

Unit Data		
	Design	**Actual**
MFG	CAPTIVE-AIRE	CAPTIVE-AIRE
Model Num	5424 ND-2-ACPSP-F	5424 ND-2-ACPSP-F
Job / Serial Num	-	3119783
Type	TYPE I CANOPY	TYPE I CANOPY
Hood length	60	60
Hood Width	54	54
Supply Plenum Type	PSP	ACPSP
Supply Plenum Width	12	12
Supply Plenum Length	72	72

Test Data Exhaust		
	Design	**Actual**
Filter Type	CAPTRATE SOLO	CAPTRATE SOLO
Filter Size 1	16X16	16X16
Filter Qty 1	3	3
Filter AK factor size 1	1.62	1.62
Filter Total AK Area	4.86	4.86
Filter1 FPM	-	149
Filter2 FPM	-	157
Filter3 FPM	-	149
Filter Ave FPM(corr)	-	152
CFM	775	739

Cooking Equipment		
	Design	**Actual**
Item 1	-	DEEP FRYERS
Item 2	-	N/A
Item 3	-	N/A
Item 4	-	N/A
Item 5	-	N/A

Test Data Supply		
	Design	**Actual**
AK factor	1	1
Total AK Area	6	6
Kv factor (Vel)	0.87	.87
Num of Readings	-	6
Reading1 FPM	-	111
Reading2 FPM	-	118
Reading3 FPM	-	126
Reading4 FPM	-	124
Reading5 FPM	-	131
Reading6 FPM	-	145
Reading7 FPM	-	N/A
Ave FPM(corr)	-	110
CFM	675	660

Performance Data		
	Design	**Actual**
Exh-Supply Net CFM	100	79
Smoke Generation Type	-	COOKING
Cooking Equip Heat On	-	YES
Hood Capture %	-	100
End Panels Installed (Y/N)	-	Y
Space Offset Temp Riser 1	-	N/A
Space Offset Temp Riser 2	-	N/A
Riser Temp F (idle) Riser 1	-	N/A
Riser Temp F (idle) Riser 2	-	N/A
Ambient Room Temp	-	N/A

General		
	Design	**Actual**
Third Party Witness	-	FREDDYS
Third Party Company	-	BRANDON
Tech Witness	-	ROBERT SEPEDA
Tech Company	-	NATIONAL TAB

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Notes: