Report By:

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

NATIONAL TAB

Comfort. Under control.

Report: FINAL TAB REPORT
Function: Test, Adjust, & Balance
Date1: 09/23/2022

PROJECT

09-05 FREDDY'S - TOMBALL, TX

27645 TOMBALL PLWY

TOMBALL, TX 77377

Client

Houston Custard, LLC

National TAB

Project: 09-05 FREDDY'S - TOMBALL, TX

Table Of Contents

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.

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09-05 FREDDY'S - TOMBALL, TX

Project Issue Information

Issue Name : ISSUE 1

Description : ALL RTUs MISSING ECONOMIZERS.

Created By : National TAB **Assigned To :** National TAB - Will Turnbough

Status : Open

Originated Date : 09/06/2022 - Wesley John - National TAB

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09-05 FREDDY'S - TOMBALL, TX

Project Issue Information

Issue Name : ISSUE 2

Description : DOAS SET TO 60 Hz AND MEASURED AT 84% (2257/2688) OF DESIGN AIR FLOW. SUPPLY DUCT MEASURES 22x18 PER DESIGN. LEFT CALL BACK NUMBER WITH CAS TECHNICAL SUPPORT TO SEE HOW HIGH UNIT CAN BE SET.

Created By : National TAB **Assigned To :** National TAB - Will Turnbough

Status : Open

Originated Date : 09/06/2022 - Wesley John - National TAB

NATIONAL TAB

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
RTU-1	KITCHEN	2400	2438	2060	2438	340	0	14.2%	0.0%						
RTU-2	DINING	2200	2193	1590	2193	610	0	27.7%	0.0%						
RTU-3	DINING	2400	2205	1790	2205	610	0	25.4%	0.0%						
MUA-1	COOKLINE									2688	2295				
KEF-1	HD1											2584	2754		
KEF-2	HD2											775	826		
EF-1	WOMENS RR													140	144
EF-2	MENS RR													140	159
EF-3	SUPPLIES													125	87
TOTALS		7000	6836	5440	6836	1560	0			2688	2295	3359	3580	405	390

NET BUILDING AIRFLOW CALCULATION

TOTALS	DESIGN	ACTUAL
TOTAL OA	4248	2295
TOTAL EXHAUST	3764	3970
NET AIRFLOW	484	-1675

DOOR TESTED	BUILDING PRESSURE MEASUREMENTS (IN. H20)
FRONT	-0.13
SIDE	-0.13
REAR	-0.12
AVERAGE	**-0.1267**

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:

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09-05 FREDDY'S - TOMBALL, TX

CheckList Information

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

CheckList Item Details

STORE FRONT

IMG_9239.jpeg

RTU-1

IMG_9233.jpeg

RTU-2

IMG_9234.jpeg

RTU-3

IMG_9235.jpeg

DOAS-1

Image_2022_09_07T2206...

KEF-1

Image_2022_09_07T2206...

KEF-2

Image_2022_09_07T2206...

HOOD-1&2

IMG_9240.jpeg

HOOD-3

IMG_9241.jpeg

Notes/Comments :

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09-05 FREDDY'S - TOMBALL, TX

CheckList Information

Name :	TECH - STEP 1: INITIAL WALKTHROUGH	**Status :**	Submitted
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		

CheckList Item Details

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?	"B1 DE-ENERGIZED" ALARM ON HOOD. (CANOPY LIGHTS NOT TURNING ON)

Image_2022_09_07T2108...

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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09-05 FREDDY'S - TOMBALL, TX

CheckList Information

Name :	TECH - STEP 2: UNIT DATA AND EVAL	**Status :**	Submitted
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

Economizers are assembled and functional?	ECONOMIZERS ARE NOT INSTALLED ON RTUs. PER GC ECONOMIZERS ARE 2-3 WEEKS OUT FROM TIME OF BALANCE (9/7).

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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?	YES
Are belts tight?	YES
If direct drive unit is the speed controller working.	YES

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?	N/A
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?	RESTROOM FANS ARE CEILING MOUNTED.
Unit free of noticeable noise and vibration?	YES
MUA (DOAS)	
DOAS is free of alarms?	CLOGGED FILTER ALARM ON DOAS.

Image_2022_09_07T2108...

DOAS is free of damage?	DAMAGED DOOR LATCHES ON SUCTION DOOR.

Image_2022_09_07T2108...

Rotation is correct?	YES
Gas piping is installed and valves are in on position?	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?	COOKING EQUIPMENT NOT STARTED AT TIME OF BALANCE.
Griddle is completely centered underneath hood?	YES
DOCUMENTATION	
Have trades/general contractor been notified about any issues and are they created on FaciliBuild?	YES
PICTURES TAKEN OF:	
All Issues	YES
Each Piece of equipment	YES
Each Hood	YES
Front of Store	YES

Notes/Comments :

DESIGN CHANGED FROM MUA TO DOAS. DOAS AT MAX SPEED PER CAS TECHNICAL SUPPORT. SUPPLY DUCT SIZE MATCHES DESIGN. UNIT MEASURED AT 85% OF DESIGN AIR FLOW.

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09-05 FREDDY'S - TOMBALL, TX

CheckList Information

Name :	TECH - STEP 3: TEST, ADJUST AND BALANCE	**Status :**	Submitted
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?	MINOR DRAFTING OF TABLE LIGHTS IN DINING WHEN CEILING FANS ARE ON.
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 :

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09-05 FREDDY'S - TOMBALL, TX

CheckList Information

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

CheckList Item Details

FINAL TESTS	
HOOD CAPTURE TEST	
List equipment turned on for testing	NONE. EQUIPMENT NOT YET STARTED AT TIME OF BALANCE.
List smoke candle type used	45 SECOND SMOKE CARTRIDGE.
Smoke test capture - Perimeter of hood	100%
Smoke test capture - Top of cooking surface	100%
WITNESS	
Date test was completed	09/07/2022
TAB tech name / Firm	WESLEY JOHN / NATIONAL TAB
Site super name / Firm	GREG DIXON / ACCEL CONSTRUCTION
Owner representative name / Firm (if Applicable)	N/A
Building pressure at front & back doors (All Systems On)	FRONT -0.13" / BACK -0.12"
ADDITIONAL	
Do actual net building airflow, design net building airflow, and pressure coincide? If not why? (All three should either be positive or negative)	DESIGN BUILDING PRESSURE IS POSITIVE. ACTUAL NET AIR FLOW AND BUILDING PRESSURE IS NEGATIVE DUE TO MISSING ECONOMIZERS AND DOAS OPERATING AT 85%.
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	8AM-1AM PER STORE MANAGER
Occupied Fan ON	YES
Occupied cooling 74	72 PER STORE MANAGER
Occupied heating 68	69 PER STORE MANAGER
Unoccupied Time 11:55pm-8am	1A-8A PER STORE MANAGER
Unoccupied Fan Auto	YES
Unoccupied cooling 79	78 PER STORE MANAGER
Unoccupied heating 63	65 PER STORE MANAGER
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?	PASSWORD NOT ADJUSTABLE. STORE MANAGER WAS PRESENT AND RECORDED PASSWORDS.

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	N/A
"DCV Set" dials turned all the way to the left (counter clockwise)	N/A
"DCV Max" dials turned all the way to the left (counter clockwise)	N/A

Notes/Comments :

BUILDING IS VERY NEGATIVELY PRESSURIZED DUE TO DOAS OPERATING AT 85% OF DESIGN, AND ALL RTUs MISSING ECONOMIZERS. NET PRESSURIZATION -1675 CFM.

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09-05 FREDDY'S - TOMBALL, TX

CheckList Information

Name :	TECH - STEP 5: FINAL DOCUMENTATION	**Status :**	Submitted
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		

CheckList Item Details

FINAL DOCUMENTATION

Marked Data capture complete for all assets?	YES
Picture file sent to processing team or uploaded?	YES
Balance schedule complete and uploaded?	YES
Prelim report generated and reviewed?	YES

Notes/Comments :

National TAB

Project: 09-05 FREDDY'S - TOMBALL, TX

System/Unit: AHU/RTU

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Asset: DOAS1 AREA:KITCHEN

Unit Data		
	Design	**Actual**
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Serial Num	-	5034628
Model Num	CASRTU3-I.250-15-20T-DOAS	CASRTU3-I.250-15-20T-DOAS
Type	DOAS	DOAS
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	4
OA Filter Size 1	-	16x25x2
Num Final Filter 1	-	8
Final Filter Size 1	-	20x20x2

Motor Data		
	Design	**Actual**
Motor MFG	-	TECO
Frame	-	145T
Horsepower	2	2
Motor Rpm	-	1740
Phase	3	3
Rated Voltage	208	208
Rated Amperage	-	6.06

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

Test Data		
	Design	**Actual**
SF CFM	2688	2295
SF RPM	-	1769
RA CFM	0	0
OA CFM	2850	2295
RL Voltage	-	209
RL Amperage	-	5.4
SF Rotation	-	CCW
RA Damper Position	-	CLOSED
Min OA Damper Position	-	OPEN
Min OA Damper Type	-	OPPOSED BLADE

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.08”
Fan Suction SP	-	-0.63”
Fan Discharge SP	-	0.31”
Total ESP	0.500"	0.39”
Fan Total SP	-	0.94”

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

Completed By: Wesley John

Notes:

National TAB

Project:09-05 FREDDY'S - TOMBALL, TX

AHU/RTU

Comfort. Under control.

Diffuser Supply (GRD)

DOAS1/KITCHEN

Asset									
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
SGRD1	COOKLINE	A	14"	713	1.0	762	853	581	81.5
SGRD2	COOKLINE	A	14"	712	1.0	342	460	560	78.7
SGRD3	COOKLINE	A	14"	713	1.0	412	554	576	80.8
SGRD4	COOKLINE	A	14"	712	1.0	347	461	578	81.2

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Project: 09-05 FREDDY'S - TOMBALL, TX

System/Unit: AHU/RTU

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Asset: RTU1 AREA:KITCHEN

Unit Data		
	Design	**Actual**
MFG	TRANE	ICP
Serial Num	-	P220532727
Model Num	YSC092	RGS089HDAA0AAAA
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL DISCHARGE
Num OA Filters 1	-	[1]
OA Filter Size 1	-	[1]
Num Final Filter 1	-	4
Final Filter Size 1	-	16x20x2

Motor Data		
	Design	**Actual**
Motor MFG	-	MARATHON
Frame	-	56HZ
Horsepower	-	NL
Motor Rpm	-	1725
Phase	3	3
Rated Voltage	208	208
Rated Amperage	-	5.2

Drive Data		
	Design	**Actual**
Motor Sheave Size	-	1VL34
Motor Bore Size	-	5/8”
Motor Sheave SetPt	-	1.0 TURN OPEN
Fan Sheave Size	-	AK71
Fan Sheave Bore	-	1”
Belt CL Distance	-	17 3/4”
Num of Belts	-	1
Belt Size	-	AX48
Belt Alignment	-	CORRECT

Test Data		
	Design	**Actual**
SF CFM	2400	2438
SF RPM	-	729
RA CFM	2060	2438
OA CFM	340	0
RL Voltage	-	212/208/210
RL Amperage	-	3.3/3.0/3.1
SF Rotation	-	CCW

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.36”
Fan Suction SP	-	-0.60”
Fan Discharge SP	-	0.43”
Total ESP	1.00"	0.79"
Fan Total SP	-	1.03"

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

Completed By: Wesley John

Notes:

National TAB

Project:09-05 FREDDY'S - TOMBALL, TX

AHU/RTU

Comfort. Under control.

Diffuser Supply (GRD)

RTU1/KITCHEN

Asset									
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
SGRD1	CUSTOMER ORDERING	A	12"	300	1.0	336	392	305	101.7
SGRD2	DRIVE THRU	F	12"	300	1.0	163	181	294	98.0
SGRD3	FOOD PREP	D	12"	210	1.0	237	262	216	102.9
SGRD4	FOOD PREP	D	10"	210	1.0	218	236	225	107.1
SGRD5	OFFICE	D	8"	150	1.0	137	157	146	97.3
SGRD6	STAGING	D	10"	210	1.0	178	194	213	101.4
SGRD7	STORAGE	D	8"	185	1.0	143	158	179	96.8
SGRD8	STAGING	D	10"	210	1.0	206	229	223	106.2
SGRD9	SCULLERY	D	8"	210	1.0	130	137	197	93.8
SGRD10	KITCHEN	D	10"	210	1.0	219	234	215	102.4
SGRD11	FOOD PREP	D	10"	210	1.0	261	293	225	107.1

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Project: 09-05 FREDDY'S - TOMBALL, TX

System/Unit: AHU/RTU

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Asset: RTU2 AREA:DINING

Unit Data		
	Design	**Actual**
MFG	TRANE	ICP
Serial Num	-	C214707969
Model Num	YSC072	RGV072HDDA0AAAA
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	[1]
OA Filter Size 1	-	[1]
Num Final Filter 1	-	4
Final Filter Size 1	-	16x16x2

Motor Data		
	Design	**Actual**
Motor MFG	-	NL
Frame	-	NL
Horsepower	-	NL
Motor Rpm	-	NL
Phase	3	1
Rated Voltage	208	208
Rated Amperage	-	7.8

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

Test Data		
	Design	**Actual**
SF CFM	2200	2193
SF RPM	-	2246
RA CFM	1830	2193
OA CFM	370	0
RL Voltage	-	205
RL Amperage	-	7.0
SF Rotation	-	CCW

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.12”
Fan Suction SP	-	-0.32”
Fan Discharge SP	-	0.15”
Total ESP	1.00"	0.27"
Fan Total SP	-	0.47"

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

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Notes:

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Project:09-05 FREDDY'S - TOMBALL, TX

AHU/RTU

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Diffuser Supply (GRD)

RTU2/DINING

Asset									
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
SGRD1	CUSTOMER ORDERING	E	12"	365	1.0	359	-	398	109.0
SGRD2	DINING	E	12"	365	1.0	334	-	369	101.1
SGRD3	DINING	E	12"	365	1.0	408	-	362	99.2
SGRD4	DINING	E	12"	365	1.0	532	-	353	96.7
SGRD5	DINING	E	12"	365	1.0	331	-	355	97.3
SGRD6	DINING	E	12"	365	1.0	323	-	356	97.5

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Project: 09-05 FREDDY'S - TOMBALL, TX

System/Unit: AHU/RTU

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Asset: RTU3 AREA:DINING

Unit Data		
	Design	**Actual**
MFG	TRANE	ICP
Serial Num	-	P220834827
Model Num	YSC092	RGS089HDAA0AAAA
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL DISCHARGE
Num OA Filters 1	-	[1]
OA Filter Size 1	-	[1]
Num Final Filter 1	-	4
Final Filter Size 1	-	16x20x2

Motor Data		
	Design	**Actual**
Motor MFG	-	MARATHON
Frame	-	56HZ
Horsepower	-	NL
Motor Rpm	-	1725
Phase	3	3
Rated Voltage	208	208
Rated Amperage	-	5.2

Drive Data		
	Design	**Actual**
Motor Sheave Size	-	1VL34
Motor Bore Size	-	5/8”
Motor Sheave SetPt	-	CLOSED
Fan Sheave Size	-	AK71
Fan Sheave Bore	-	1”
Belt CL Distance	-	17 1/2”
Num of Belts	-	1
Belt Size	-	AX48
Belt Alignment	-	CORRECT

Test Data		
	Design	**Actual**
SF CFM	2400	2205
SF RPM	-	777
RA CFM	1915	2205
OA CFM	485	0
RL Voltage	-	210/212/212
RL Amperage	-	3.6/3.8/3.8
SF Rotation	-	CCW

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.45”
Fan Suction SP	-	-0.64”
Fan Discharge SP	-	0.77”
Total ESP	1.00"	1.21"
Fan Total SP	-	1.41"

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

Completed By: Wesley John

Notes:

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Project:09-05 FREDDY'S - TOMBALL, TX

AHU/RTU

Comfort. Under control.

Diffuser Supply (GRD)

RTU3/DINING

Asset									
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
SGRD1	CORRIDOR	B	12"	300	1.0	224	240	273	91.0
SGRD2	DINING	E	12"	360	1.0	327	311	329	91.4
SGRD3	DINING	E	12"	360	1.0	291	305	326	90.6
SGRD4	DINING	E	12"	360	1.0	287	352	334	92.8
SGRD5	DINING	E	12"	360	1.0	235	316	325	90.3
SGRD6	DINING	E	12"	360	1.0	366	386	338	93.9
SGRD7	HALLWAY	A	8"	100	1.0	129	136	98	98.0
SGRD8	MENS RR	C	6"	100	1.0	83	80	90	90.0
SGRD9	WOMENS RR	C	6"	100	1.0	87	86	92	92.0

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National TAB

Project: 09-05 FREDDY'S - TOMBALL, TX

System/Unit: FAN - Exhaust

Comfort. Under control.

Asset: EF1 AREA:WOMENS RR

Unit Data		
	Design	**Actual**
MFG	COOK	BROAN
Model Num	GC-186	N/A
Serial Num	-	N/A
Type	CEILING	CENTRIFUGAL
Configuration	VERTICAL	CEILING

Motor Data		
	Design	**Actual**
Motor MFG	-	NL
Frame	-	NL
Horsepower	70W	NL
Motor Rpm	-	NL
Phase	1	1
Voltage (rated)	120	120
Amperage (rated)	-	1.8
Service Factor	-	NL

Test Data		
	Design	**Actual**
CFM	140	144
Fan RPM	915	DD
Fan Rotation	-	CCW
Motor RPM	-	DD
System SetPt	-	SINGLE SPEED
RL Voltage	-	121
RL Amperage	-	0.75
Total ESP	0.50"	N/A
Fan Inlet SP	-	N/A
Fan Discharge SP	-	NL

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Notes:

National TAB

Project: 09-05 FREDDY'S - TOMBALL, TX

System/Unit: FAN - Exhaust

Comfort. Under control.

Asset: EF2 AREA:MENS RR

Unit Data		
	Design	**Actual**
MFG	COOK	BROAN
Model Num	GC-186	N/A
Serial Num	-	N/A
Type	CEILING	CENTRIFUGAL
Configuration	VERTICAL	CEILING

Motor Data		
	Design	**Actual**
Motor MFG	-	NL
Frame	-	NL
Horsepower	70W	NL
Motor Rpm	-	NL
Phase	1	1
Voltage (rated)	120	120
Amperage (rated)	-	1.8
Service Factor	-	NL

Test Data		
	Design	**Actual**
CFM	140	159
Fan RPM	915	DD
Fan Rotation	-	CCW
Motor RPM	-	DD
System SetPt	-	SINGLE SPEED
RL Voltage	-	121
RL Amperage	-	0.75
Total ESP	0.50"	NA
Fan Inlet SP	-	N/A
Fan Discharge SP	-	NA

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Notes:

National TAB

Project: 09-05 FREDDY'S - TOMBALL, TX

System/Unit: FAN - Exhaust

Comfort. Under control.

Asset: EF3 AREA:KITCHEN

Unit Data		
	Design	**Actual**
MFG	COOK	BROAN
Model Num	GC-164	NL
Serial Num	-	NL
Type	CEILING	CENTRIFUGAL
Configuration	VERTICAL	CEILING

Motor Data		
	Design	**Actual**
Motor MFG	-	NL
Frame	-	NL
Horsepower	126W	NL
Motor Rpm	-	NL
Phase	1	1
Voltage (rated)	120	120
Amperage (rated)	-	NL
Service Factor	-	NL

Test Data		
	Design	**Actual**
CFM	125	87
Fan RPM	1115	DD
Fan Rotation	-	CCW
Motor RPM	-	DD
System SetPt	-	SINGLE SPEED
RL Voltage	-	[1]
RL Amperage	-	[1]
Total ESP	0.25"	N/A
Fan Inlet SP	-	N/A
Fan Discharge SP	-	N/A

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Notes:

National TAB

Project: 09-05 FREDDY'S - TOMBALL, TX

System/Unit: FAN - Exhaust

Comfort. Under control.

Asset: KEF1 AREA:HD 1 & 2

Unit Data		
	Design	**Actual**
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	NCA16HPFA	DU180HFA
Serial Num	-	5034628
Type	UPBLAST	UPBLAST
Configuration	VERTICAL	CENTRIFUGAL

Motor Data		
	Design	**Actual**
Motor MFG	-	TECO
Frame	-	182T
Horsepower	3	3
Motor Rpm	-	1755
Phase	3	3
Voltage (rated)	208	208
Amperage (rated)	-	8.6
Service Factor	-	1.15

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

Test Data		
	Design	**Actual**
CFM	2584	2754
Fan RPM	1327	995
Fan Rotation	-	CCW
Motor RPM	-	995
RL Voltage	-	81
RL Amperage	-	5.7
Suction ESP	-	-0.53"
Discharge ESP	-	ATM
Total ESP	1.8"	0.53”

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Notes:

National TAB

Project: 09-05 FREDDY'S - TOMBALL, TX

System/Unit: FAN - Exhaust

Comfort. Under control.

Asset: KEF2 AREA:HD3

Unit Data		
	Design	**Actual**
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	DU50HFA	DU50HFA
Serial Num	-	5034628
Type	UPBLAST	CENTRIFUGAL
Configuration	VERTICAL	UPBLAST

Motor Data		
	Design	**Actual**
Motor MFG	-	TELCO
Frame	-	NL
Horsepower	0.5	450 W
Motor Rpm	-	1800
Phase	1	1
Voltage (rated)	208	208
Amperage (rated)	-	NL
Service Factor	-	NL

Test Data		
	Design	**Actual**
CFM	775	826
Fan RPM	1435	1080
Fan Rotation	-	CCW
Motor RPM	-	1080
System SetPt	-	60%
RL Voltage	-	122
RL Amperage	-	1.6
Total ESP	1.000"	0.56”
Fan Inlet SP	-	-0.56”
Fan Discharge SP	-	ATM

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Notes:

National TAB

Project: 09-05 FREDDY'S - TOMBALL, TX

System/Unit: Kitchen Hood Type I

Comfort. Under control.

Asset: HD1 AREA:

Unit Data		
	Design	**Actual**
MFG	CAPTIVEAIRE	CAPTIVE-AIRE
Model Num	4824 ND-2-PSP-F	4824 ND-2
Job / Serial Num	-	5034268
Type	TYPE I LOW PROXIMITY	TYPE I CANOPY
Hood length	82"	82
Hood Width	48"	48

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	-	178
Filter2 FPM	-	170
Filter3 FPM	-	172
Filter4 FPM	-	174
Filter5 FPM	-	171
Filter Ave FPM(corr)	-	173
CFM	1292	1401

Cooking Equipment		
	Design	**Actual**
Item 1	-	GRIDDLE

Test Data Supply		
	Design	**Actual**

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Notes:

National TAB

Project: 09-05 FREDDY'S - TOMBALL, TX

System/Unit: Kitchen Hood Type I

Comfort. Under control.

Asset: HD2 AREA:

Unit Data		
	Design	**Actual**
MFG	CAPTIVEAIRE	CAPTIVE-AIRE
Model Num	4824 ND-2-PSP-F	4824 ND-2
Job / Serial Num	-	5034628
Type	TYPE I LOW PROXIMITY	TYPE I CANOPY
Hood length	82"	82”
Hood Width	48"	48”

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	-	177
Filter2 FPM	-	157
Filter3 FPM	-	173
Filter4 FPM	-	166
Filter5 FPM	-	159
Filter Ave FPM(corr)	-	167
CFM	1292	1353

Cooking Equipment		
	Design	**Actual**
Item 1	-	GRIDDLE

Test Data Supply		
	Design	**Actual**

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Notes:

National TAB

Project: 09-05 FREDDY'S - TOMBALL, TX

System/Unit: Kitchen Hood Type I

Comfort. Under control.

Asset: HD3 AREA:

Unit Data		
	Design	**Actual**
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	5424 ND-2-PSP-F	5424 ND-2
Job / Serial Num	-	5034628
Type	TYPE I LOW PROXIMITY	TYPE I CANOPY
Hood length	60"	60”
Hood Width	54"	54”

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	-	173
Filter2 FPM	-	165
Filter3 FPM	-	173
Filter Ave FPM(corr)	-	170
CFM	775	826

Cooking Equipment		
	Design	**Actual**
Item 1	-	FRYER

Test Data Supply		
	Design	**Actual**

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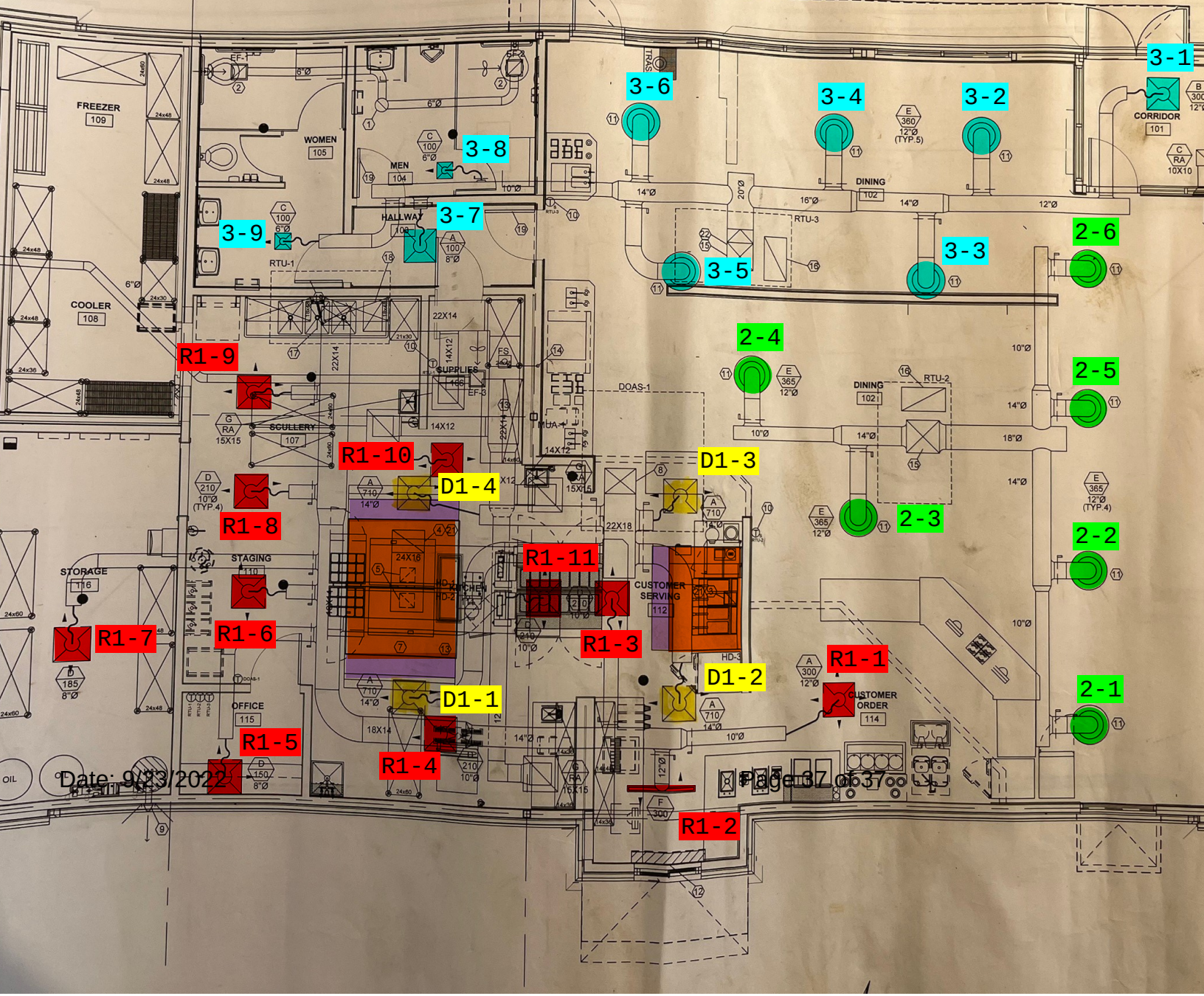
Notes: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