



Comfort. Under control.

08-29 FAMILY DOLLAR - MARENGO, IA

CheckList Information

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

CheckList Item Details

STORE FRONT



FuseITc0d63be48f5c48....

RTU-1



FuseITadeb128dfc2843....

RTU-2



FuseIT5931954860ba44....

RTU-3



FuseITad12749bdb3e4e....

RTU-4



FuseITca573142969f42....

EF-1



FuseIT66062774c9bc4b....

EF-2



FuseIT70350eb507f04c....

Notes/Comments :



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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

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.	NA
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 :	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?	YES
DCV Max damper opening position is set to minimum?	NO PLACE TO SET DCV
Free cooling enthalpy set point set for lowest setting (Typically "D")	HONEYWELL CONTROLLER
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?	DD
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

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 :** 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?	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 :



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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	NA
List smoke candle type used	NA
Smoke test capture - Perimeter of hood	NA
Smoke test capture - Top of cooking surface	NA

WITNESS

Date test was completed	
TAB tech name / Firm	NA
Site super name / Firm	NA
Owner representative name / Firm (if Applicable)	NA
Building pressure at front & back doors (All Systems On)	0.009" AVE

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?	PROGRAMMED BY BUILDING CONTROLS

Notes/Comments :



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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
Prelim report generated and reviewed?	YES

Notes/Comments :

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.

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.

National TAB

Project: 08-29 FAMILY DOLLAR - MARENGO, IA

System/Unit: AHU/RTU



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Asset: RTU1

AREA:STORAGE

Unit Data		
	Design	Actual
MFG	CARRIER	CARRIER
Serial Num	-	2122C09381
Model Num	HC	48GCEM05A2M5A6W1F0
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	1
OA Filter Size 1	-	28.25x14
Num Final Filter 1	-	2
Final Filter Size 1	-	16x25x2
Num Final Filter 2	-	
Final Filter Size 2	-	

Motor Data		
	Design	Actual
Motor MFG	-	[1]
Frame	-	[1]
Horsepower	-	[1]
Motor Rpm	-	[1]
Phase	3	1
Rated Voltage	208	208/230
Rated Amperage	-	7.1

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

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Notes:

Test Data		
	Design	Actual
SF CFM	1400	1447
SF RPM	-	1614
RA CFM	1250	1286
OA CFM	150	161
RL Voltage	-	215
RL Amperage	-	3.2
SF Rotation	-	CCW, CORRECT
RA Damper Position	-	72%
Min OA Damper Position	-	4.25V
Min OA Damper Type	-	ECONOMIZER

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.32"
Fan Suction SP	-	-0.49"
Fan Discharge SP	-	0.20"
Total ESP	1.00"	0.52"
Fan Total SP	-	0.69"

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

National TAB

Project:08-29 FAMILY DOLLAR - MARENGO, IA

AHU/RTU



Diffuser Supply (GRD)

RTU1/STORAGE

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
SGRD1	STORAGE	D	14X6	275	0.58	359	359	291	105.8
SGRD2	STORAGE	D	14X6	275	0.58	339	339	274	99.6
SGRD3	STORAGE	D	14X6	275	0.58	347	347	281	102.2
SGRD4	STORAGE	D	14X6	275	0.58	351	351	284	103.3
SGRD5	OFFICE	A	8"	100	1	132	132	107	107.0
SGRD6	RR HALLWAY	A	8"	100	1	129	129	104	104.0
SGRD7	RESTROOM	C	8"	50	1	66	66	53	106.0
SGRD8	RESTROOM	C	8"	50	1	66	66	53	106.0

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National TAB

Project: 08-29 FAMILY DOLLAR - MARENGO, IA

System/Unit: AHU/RTU



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Asset: RTU2

AREA: EAST SALES

Unit Data		
	Design	Actual
MFG	CARRIER	CARRIER
Serial Num	-	1622P80809
Model Num	HC	48HCED08A2M5A6W1M0
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	1
OA Filter Size 1	-	35x19
Num Final Filter 1	-	4
Final Filter Size 1	-	20x20x2

Motor Data		
	Design	Actual
Motor MFG	-	MARATHON
Frame	-	56HZ
Horsepower	-	NL
Motor Rpm	-	1670
Phase	3	3
Rated Voltage	208	208-230/460
Rated Amperage	-	6.7-6.6/3.3

Drive Data		
	Design	Actual
Motor Sheave Size	-	VL44
Motor Bore Size	-	0.625"
Motor Sheave SetPt	-	5
Fan Sheave Size	-	7.75"
Fan Sheave Bore	-	1"
Belt CL Distance	-	16.75"
Num of Belts	-	1
Belt Size	-	A48
Belt Alignment	-	GOOD

Test Data		
	Design	Actual
SF CFM	2800	2926
SF RPM	-	764
RA CFM	2150	2302
OA CFM	650	624
RL Voltage	-	212/212/212
RL Amperage	-	4.3/4.3/4.3
SF Rotation	-	CCW, CORRECT
RA Damper Position	-	77.5 HI /59% LOW
Min OA Damper Position	-	3.80 V HI/ 5.30V LOW
Min OA Damper Type	-	ECONOMIZER

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.52"
Fan Suction SP	-	-0.71"
Fan Discharge SP	-	0.20"
Total ESP	1.00"	0.72"
Fan Total SP	-	0.91"

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

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Notes:

National TAB

Project:08-29 FAMILY DOLLAR - MARENGO, IA

AHU/RTU



Comfort. Under control.

Diffuser Supply (GRD)

RTU2/EAST SALES

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
SGRD1	SALES	B	12"	350	1	355	355	355	101.4
SGRD2	SALES	B	12"	350	1	379	379	379	108.3
SGRD3	SALES	B	12"	350	1	382	382	382	109.1
SGRD4	SALES	B	12"	350	1	369	369	369	105.4
SGRD5	SALES	B	12"	350	1	342	342	342	97.7
SGRD6	SALES	B	12"	350	1	381	381	381	108.9
SGRD7	SALES	B	12"	350	1	385	385	385	110.0
SGRD8	SALES	B	12"	350	1	333	333	333	95.1

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National TAB

Project: 08-29 FAMILY DOLLAR - MARENGO, IA

System/Unit: AHU/RTU



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Asset: RTU3

AREA:WEST SALES

Unit Data		
	Design	Actual
MFG	CARRIER	CARRIER
Serial Num	-	1622P808010
Model Num	HC	48HCED08A2M5A6W1M0
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	1
OA Filter Size 1	-	35x19
Num Final Filter 1	-	4
Final Filter Size 1	-	20x20x2

Motor Data		
	Design	Actual
Motor MFG	-	MARATHON
Frame	-	56HZ
Horsepower	-	NL
Motor Rpm	-	1670
Phase	3	3
Rated Voltage	208	208-230/460
Rated Amperage	-	6.7-6.6/3.3

Drive Data		
	Design	Actual
Motor Sheave Size	-	VL44
Motor Bore Size	-	0.625"
Motor Sheave SetPt	-	5
Fan Sheave Size	-	7.75"
Fan Sheave Bore	-	1"
Belt CL Distance	-	16.75"
Num of Belts	-	1
Belt Size	-	A48
Belt Alignment	-	GOOD

Test Data		
	Design	Actual
SF CFM	2800	2928
SF RPM	-	763
RA CFM	2150	2279
OA CFM	650	649
RL Voltage	-	213/213/213
RL Amperage	-	4.3/4.3/4.3
SF Rotation	-	CCW, CORRECT
RA Damper Position	-	77.5 HI /59% LOW
Min OA Damper Position	-	3.80 V HI/ 5.30V LOW
Min OA Damper Type	-	ECONOMIZER

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.58"
Fan Suction SP	-	-0.76"
Fan Discharge SP	-	0.32"
Total ESP	1.00"	0.90"
Fan Total SP	-	1.08"

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

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Notes:

National TAB

Project:08-29 FAMILY DOLLAR - MARENGO, IA

AHU/RTU



Comfort. Under control.

Diffuser Supply (GRD)

RTU3/WEST SALES

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
SGRD1	SALES	B	12"	350	1	362	362	362	103.4
SGRD2	SALES	B	12"	350	1	381	381	381	108.9
SGRD3	SALES	B	12"	350	1	379	379	379	108.3
SGRD4	SALES	B	12"	350	1	356	356	356	101.7
SGRD5	SALES	B	12"	350	1	339	339	339	96.9
SGRD6	SALES	B	12"	350	1	363	363	363	103.7
SGRD7	SALES	B	12"	350	1	381	381	381	108.9
SGRD8	SALES	B	12"	350	1	367	367	367	104.9

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National TAB

Project: 08-29 FAMILY DOLLAR - MARENGO, IA

System/Unit: AHU/RTU



Comfort. Under control.

Asset: RTU4

AREA:SOUTH SALES

Unit Data		
	Design	Actual
MFG	CARRIER	CARRIER
Serial Num	-	0822P96804
Model Num	HC	48HCED12A2M5A6W1M0
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	1
OA Filter Size 1	-	35x19
Num Final Filter 1	-	4
Final Filter Size 1	-	20x20x2

Motor Data		
	Design	Actual
Motor MFG	-	MARATHON
Frame	-	56HZ
Horsepower	-	NL
Motor Rpm	-	1750
Phase	3	3
Rated Voltage	208	230/460
Rated Amperage	-	9.2/4.6

Drive Data		
	Design	Actual
Motor Sheave Size	-	4.75"
Motor Bore Size	-	0.875"
Motor Sheave SetPt	-	5
Fan Sheave Size	-	7.25"
Fan Sheave Bore	-	1"
Belt CL Distance	-	17"
Num of Belts	-	1
Belt Size	-	AX49
Belt Alignment	-	GOOD

Test Data		
	Design	Actual
SF CFM	3500	3446
SF RPM	-	897
RA CFM	2725	2693
OA CFM	775	753
RL Voltage	-	213/213/213
RL Amperage	-	5.5/5.5/5.5
SF Rotation	-	CCW, CORRECT
RA Damper Position	-	80% HI / 65% LOW
Min OA Damper Position	-	3.60V HI / 4.85V LOW
Min OA Damper Type	-	ECONOMIZER

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.88"
Fan Suction SP	-	-1.11"
Fan Discharge SP	-	0.14"
Total ESP	1.00"	1.02"
Fan Total SP	-	1.25"

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

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Notes:

National TAB

Project:08-29 FAMILY DOLLAR - MARENGO, IA

AHU/RTU



Comfort. Under control.

Diffuser Supply (GRD)

RTU4/SOUTH SALES

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
SGRD1	SALES	B	12"	440	1	428	428	428	97.3
SGRD2	SALES	B	12"	435	1	454	454	454	104.4
SGRD3	SALES	B	12"	435	1	459	459	459	105.5
SGRD4	SALES	B	12"	440	1	443	443	443	100.7
SGRD5	SALES	B	12"	440	1	399	399	399	90.7
SGRD6	SALES	B	12"	435	1	412	412	412	94.7
SGRD7	SALES	B	12"	435	1	448	448	448	103.0
SGRD8	SALES	B	12"	440	1	403	403	403	91.6

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National TAB

Project: 08-29 FAMILY DOLLAR - MARENGO, IA

System/Unit: FAN - Exhaust



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Asset: EF1

AREA:RESTROOMS

Unit Data		
	Design	Actual
MFG	GREENHECK	BROAN
Model Num	SP-B110	LP80-B
Serial Num	-	NL
Type	CEILING	CEILING
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	NL
Frame	-	NL
Horsepower	80W	NL
Motor Rpm	-	NL
Phase	1	1
Voltage (rated)	120	120
Amperage (rated)	-	0.3
Service Factor	-	1.0

Test Data		
	Design	Actual
CFM	75	99
Fan RPM	-	DD
Fan Rotation	-	CW, CORRECT
Motor RPM	-	DD
System SetPt	-	SINGLE SPEED
RL Voltage	-	121
RL Amperage	-	0.18
Total ESP	0.25"	[1]
Fan Inlet SP	-	ATM
Fan Discharge SP	-	[1]

Completed By: Travis Halter

Notes:

National TAB

Project: 08-29 FAMILY DOLLAR - MARENGO, IA

System/Unit: FAN - Exhaust



Comfort. Under control.

Asset: EF2

AREA:RESTROOMS

Unit Data		
	Design	Actual
MFG	GREENHECK	BROAN
Model Num	SP-B110	LP80-B
Serial Num	-	NL
Type	CEILING	CEILING
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	NL
Frame	-	NL
Horsepower	80W	NL
Motor Rpm	-	NL
Phase	1	1
Voltage (rated)	120	120
Amperage (rated)	-	0.3
Service Factor	-	1.0

Test Data		
	Design	Actual
CFM	75	93
Fan RPM	-	DD
Fan Rotation	-	CW, CORRECT
Motor RPM	-	DD
System SetPt	-	SINGLE SPEED
RL Voltage	-	121
RL Amperage	-	0.19
Total ESP	0.25"	[1]
Fan Inlet SP	-	ATM
Fan Discharge SP	-	[1]

Completed By: Travis Halter

Notes: