

Report By:

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

NATIONAL

TAB

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Report: TAB RPT
Function: Test, Adjust, & Balance
Date: 7/1/2022

PROJECT

05-16 CULVERS - INDIANAPOLIS, IN (SHEAR AVE)

5115 SHEAR AVE

INDIANAPOLIS, IN

Client

Campbell Construction
810 Swan Dr, Suite A
Mukwonago, WI 53149

National TAB

Project: 05-16 CULVERS - INDIANAPOLIS, IN (SHEAR AVE)

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Project Summary

The original balancing was completed in 2021. A new RTU was installed in the back of house and a return trip was requested to balance this new unit. The original TAB data is included in the balance schedule for reference and for the building pressurization calculation. The following pages have issues related to the scope of work. Checklists, pictures, and asset pages are also included.



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05-16 CULVERS - INDIANAPOLIS, IN (SHEAR AVE)

Project Issue Information

Issue Name : DIFFUSER 2-7 IS ABOVE THE CEILING AND NOT INSTALLED IN THE GRID

Description : Diffuser is above ceiling and needs to be installed in the grid. Diffuser 2-8 is installed where 2-7 would go. Ceiling grid may be too small to install a 2'x2' diffuser. May need to install a 1'x2' perforated diffuser. There is some smoke loss out right side of fryer hood as a result.

Created By : National TAB

Assigned To : National TAB - Will Turnbough

Status : Open

Originated Date : 05/20/2022 - Will Turnbough - National TAB

Project Issue File Details



Screenshot_2022_05_20_11082
0.png

Project Issue Response Details

- **07/01/2022** National TAB - Will Turnbough

- Recommend location



Screenshot_2022_07_01_09
4103.png

- 05/20/2022 National TAB - Will Turnbough
 - DIFFUSER NOMENCLATURE



Screenshot_2022_05_20_11
1140.png



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Project Issue Information

Issue Name : leakage source

Description : Located above the light near the triple sink the collar is disconnected from the main trunk for the back of the house diffusers

Created By : National TAB

Assigned To : National TAB - Tyler Youells

Status : Open

Originated Date : 05/20/2022 - Tyler Youells - National TAB

Project Issue File Details



FuseITf6b6481ed3924d39837f67
6ce96b7376.jpeg



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Project Issue Information

Issue Name : RTU-2 CURB ADAPTER

Description : Curb adapter does not place the supply fans centered above the main duct drop.

Created By : National TAB

Assigned To : National TAB - Tyler Youells

Status : Open

Originated Date : 05/20/2022 - Tyler Youells - National TAB

Project Issue File Details



FuselTddb2542e8c0249bb93ca34
5f42e7c85f.jpeg



FuselTbe39cad71028464a9a5d6
78abe6ce405.jpeg



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05-16 CULVERS - INDIANAPOLIS, IN (SHEAR AVE)

Project Issue Information

Issue Name : RTU-2 Duct drop

Description : RTU-2 drop is 20X28". Per the drawing the unit should have a 24x16 and a 28X16" drop from the unit.

Created By : National TAB

Assigned To : National TAB - Tyler Youells

Status : Open

Originated Date : 05/20/2022 - Tyler Youells - National TAB

Project Issue File Details



**FuseIT6f02c8b4e89d4fb3b2d00b
7fb259583b.jpeg**

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	DINING	6150	6064	4150	4126	2000	1938	32.5%	32.0%						
RTU-2	KITCHEN	6000	5371	4000	3651	2000	1720	33.3%	32.0%						
PRV-1	RESTROOMS													375	372
PRV-2	HD1 GRILL											1500	1475		
PRV-3	HD2 FRYER											1500	1567		
PRV-4	CONDENSATE											350	339		
EF-1	MOP ROOM													75	72
EF-2	EMPLOYER													75	77
TOTALS		12150	11435	8150	7777	4000	3658			0	0	3350	3381	525	521

NET BUILDING AIRFLOW CALCULATION

TOTALS	DESIGN	ACTUAL
TOTAL OA	4000	3658
TOTAL EXHAUST	3875	3902
NET AIRFLOW	125	-244

DOOR TESTED	BUILDING PRESSURE MEASUREMENTS (IN. H2O)
FRONT	-0.004
SIDE	-0.032
REAR	-0.001
AVERAGE	-0.0123

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:

[1] Pressure on the side door reading higher a negative due to wind gusting on the side of the building



STOREFRONT



RTU-2

Note curb adaptor



RTU-2 PRODIGY WIRING IS CORRECT



FOUND DIFFUSER 2-8 ABOVE THE CEILING



MOVED DIFFUSER 2-8 DOWN FOR TESTING TOTAL FLOW



RTU-2 MAIN DROP

21X29" subtracting the Internal liner gives flow area of 20x28"



CURB ADAPTOR/ DUCT DROP ALIGNMENT

Marked in blue are the fan discharges, note the fan on the bottom is not aligned near the duct drop. For best performance red duct drop should be centered between the two fan discharges in blue.



SHOWN IS DUCT DROP ALIGNED DIRECTLY UNDER FAN 2



INSTALLING DIFFUSER 2-8

Diffuser 2-8 needs to be installed where drawn to improve the hood capture. This is done preferably by installing a 12"x24" diffuser in front of the ansul cabinet inline with the other diffusers. If that's not possible moving the diffuser to the spot marked in blue is the next best option. The missing diffuser is allowing smoke to escape out the right side of the fryer hood



LEAKAGE SOURCE

Located above the light that is above the triple sink. Branch duct that is connected to main TRUNKLINE



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CheckList Information

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

CheckList Item Details

INITIAL SITE WALKTHROUGH

All diffusers and grilles are installed and match design?	No
Perforated diffusers are installed on the cook line? (4-ways will disrupt hood capture)	Yes
All hood filters installed and accounted for?	Yes
Hoods are wired and have power?	Yes
Thermostats have power?	Yes
Have trades/general contractor been notified about any issues and are they created on FaciliBuild?	YES
On the cookline diffusers neck is there 18" (12" minimum) straight rigid duct run attached?	NO

Notes/Comments :



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CheckList Information

Name : TECH - STEP 2: UNIT DATA AND EVAL **Status :** NotSubmitted
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
Thermostat wire run from OCP on the RTU to the Ec terminal at the thermostat? If no, jumper can be installed from R to OCP temporarily. (The economizers will not open without OCP being energized.)	Yes
Motors are all operating below the FLA rating?	Yes
Are belts tight?	yes
If direct drive unit is the speed controller working.	
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?	
Grease cup installed on hood fan?	Yes
Hinge kit installed installed on hood fan?	Yes
Lean grease rated fans 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
The hood exhaust fans are installed in correct positions and are not switched?	Yes

HOODS

Kitchen equipment installed in proper places?	Yes
Can kitchen equipment be turned on for final smoke test?	Yes
Second stage Grease Grabber filters are installed on the griddle hood?	Yes

DOCUMENTATION

Have trades/general contractor been notified about any issues and are they created on FaciliBuild?	Yes
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Notes/Comments :



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CheckList Information

Name : TECH - STEP 3: TEST, ADJUST AND BALANCE **Status :** NotSubmitted

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".	n/a

Notes/Comments :



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CheckList Information

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

CheckList Item Details

FINAL TESTS

HOOD CAPTURE TEST

List equipment turned on for testing	All equipment on
List smoke candle type used	45 sec smoke
Smoke test capture - Perimeter of hood	Griddle hood 100%, Fryer Hood 100%
Smoke test capture - Top of cooking surface	Griddle Hood 100%, Fryer Hood 90%

WITNESS

Date test was completed	05/20/2022
TAB tech name / Firm	Tyler/NTAB
Site super name / Firm	n/a
Owner representative name / Firm (if Applicable)	n/a
Building pressure at front & back doors (All Systems On)	Yes

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

PRODIGY SETTINGS FOR RTU'S

Parameter 65 set to 0	Yes
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Parameter 78 set to 0	Yes
Parameter 105 set to 6	Yes
Parameter 156 set to 70 (Dining unit only)	Yes
Parameter 156 set to 65 (Kitchen Unit Only)	Yes
Parameter 170 set to 75 (Dining Unit Only)	Yes
Parameter 170 set to 70 (Kitchen Unit Only)	Yes
Parameter 131 set to the same % as OA minimum position?	Yes
Parameter 117 set to the same % as OA minimum position?	Yes

Notes/Comments :

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Project: 05-16 CULVERS - INDIANAPOLIS, IN (SHEAR AVE)

System/Unit: AHU/RTU



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Asset: RTU2

AREA:KITCHEN

Unit Data		
	Design	Actual
MFG	LENNOX	LENNOX
Serial Num	-	5622B05253
Model Num	LGH210H4B	LGH210H4B
Type	-	RTU
Configuration	-	VERTICAL
Num OA Filters 1	-	3
OA Filter Size 1	-	25X16
Num Final Filter 1	-	6
Final Filter Size 1	-	24X24X2

Motor Data		
	Design	Actual
Motor MFG	-	US MOTOR
Frame	-	184TZ
Horsepower	-	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	-	1.125"
Motor Sheave SetPt	-	0 Turns Out
Fan Sheave Size	-	BK100
Fan Sheave Bore	-	1.1875"
Belt CL Distance	-	20.75"
Num of Belts	-	1
Belt Size	-	BX61
Belt Alignment	-	GOOD

Test Data		
	Design	Actual
SF CFM	6000	5371
SF RPM	847	883
RA CFM	4000	3651
OA CFM	2000	1720
RL Voltage	-	209.6/210.7/211.1
RL Amperage	-	9.7/10.0/10.1
SF Rotation	-	CCW
RA Damper Position	-	MECHANICAL LINKAGE
Min OA Damper Position	-	47%
Min OA Damper Type	-	ECONOMIZER
OA Enthalpy Setpt	-	10ma

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.56"
Fan Suction SP	-	-0.95"
Fan Discharge SP	-	0.55"
Total ESP	0.75"	1.11"
Fan Total SP	-	1.5"

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

Completed By: Tyler Youells

Notes: AIRFLOW IS LOW DUE TO SEVERAL ISSUES. SEE ISSUES LIST

Asset	Notes

