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
Date: 09/22/2022

PROJECT

10-17 TACO BELL - MT. VERNON, IN

1328 E 4TH ST

MOUNT VERNON, IN

Client

Flynn Restaurant Group
6200 Oak Tree Boulevard
Suite 250
Independence, OH 44131

National TAB

Project: 10-17 TACO BELL - MT. VERNON, IN

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.

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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10-17 TACO BELL - MT. VERNON, IN

CheckList Information

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

CheckList Item Details

STORE FRONT

FuseITd4e28d6120164a....

RTU-1

FuseIT73f5386d20f84c....

RTU-2

FuseIT638fd0be396a47....

EF-1

FuseITe8c1730e9bec47....

EF-2

FuseIT5db947db47c244....

HOOD-1

FuseIT98e1f252bcff44....

Notes/Comments :

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10-17 TACO BELL - MT. VERNON, IN

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?	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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10-17 TACO BELL - MT. VERNON, IN

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?	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.	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
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?	NA
Gas piping is installed and valves are in on position?	NA
Heater tested and is functional?	NA
Internal motorized damper is fully opening?	NA
Motor is operating below the FLA rating?	NA
Unit free of noticeable noise and vibration?	NA
HOODS	
Kitchen equipment installed in proper places?	YES
Can kitchen equipment be turned on for final smoke test?	YES
DOCUMENTATION	
Have trades/general contractor been notified about any issues and are they created on FaciliBuild?	YES

Notes/Comments :

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10-17 TACO BELL - MT. VERNON, IN

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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10-17 TACO BELL - MT. VERNON, IN

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	ALL
List smoke candle type used	OBSERVED COOKING
Smoke test capture - Perimeter of hood	100%
Smoke test capture - Top of cooking surface	100%
WITNESS	
Date test was completed	10/18/2022
TAB tech name / Firm	TRAVIS HALTER / NATIONAL TAB
Site super name / Firm	NA
Owner representative name / Firm (if Applicable)	NA
Building pressure at front & back doors (All Systems On)	0.003" 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?	YES

Notes/Comments :

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10-17 TACO BELL - MT. VERNON, IN

CheckList Information

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

CheckList Item Details

FINAL DOCUMENTATION

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

Notes/Comments :

National TAB

Project: 10-17 TACO BELL - MT. VERNON, IN

System/Unit: AHU/RTU

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Asset: RTU1 AREA:DINING

Unit Data		
	Design	**Actual**
MFG	TRANE	TRANE
Serial Num	-	222612576L
Model Num	YHC092	YHC092F3RLA27F0C1A2A0B0A30000
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	1
OA Filter Size 1	-	35.5x15
Num Final Filter 1	-	4
Final Filter Size 1	-	20X25X2

Test Data		
	Design	**Actual**
SF CFM	2900	2937
SF RPM	-	979 (4.19 DCV)
RA CFM	2000	1956
OA CFM	900	981
RL Voltage	-	210/210/210
RL Amperage	-	1.4/1.4/1.4
SF Rotation	-	CW, CORRECT
Min OA Damper Position	-	1.75”
Min OA Damper Type	-	MOTORIZED DAMPER

Motor Data		
	Design	**Actual**
Motor MFG	-	NA
Frame	-	NA
Horsepower	2.75	2.75
Motor Rpm	-	NA
Phase	3	3
Rated Voltage	208	208
Rated Amperage	-	7.3

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.15”
Fan Suction SP	-	-0.33”
Fan Discharge SP	-	0.11”
Total ESP	0.76"	0.26”
Fan Total SP	-	0.44”

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

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

Completed By: Travis Halter

Notes:

National TAB

Project:10-17 TACO BELL - MT. VERNON, IN

AHU/RTU

Comfort. Under control.

Diffuser Supply (GRD)

RTU1/DINING

Asset									
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
SGRD1	DINING	S4	12"	450	1	591	532	439	97.6
SGRD2	DINING	S4	12"	450	1	473	521	427	94.9
SGRD3	DINING	S4	12"	450	1	388	543	445	98.9
SGRD4	DINING	S4	12"	450	1	596	523	429	95.3
SGRD5	CUSTOMER ORDERING	S4	12"	400	1	536	495	406	101.5
SGRD6	CUSTOMER ORDERING	S4	12"	400	1	454	456	374	93.5
SGRD7	RR HALLWAY	S1	8"	100	1	246	131	107	107.0
SGRD8	RESTROOM	S2	8"	100	1	208	186	158	158.0
SGRD9	RESTROOM	S2	8"	100	1	179	185	152	152.0

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Project: 10-17 TACO BELL - MT. VERNON, IN

System/Unit: AHU/RTU

Comfort. Under control.

Asset: RTU2 AREA:KITCHEN

Unit Data		
	Design	**Actual**
MFG	TRANE	TRANE
Serial Num	-	222910331D
Model Num	YHD150	YHD150G3RLD19F0C1A2A0B0A3000A
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	1
OA Filter Size 1	-	59.5x17.5
Num Final Filter 1	-	4
Final Filter Size 1	-	20X20X2
Num Final Filter 2	-	4
Final Filter Size 2	-	20X25X2

Test Data		
	Design	**Actual**
SF CFM	5000	4659
SF RPM	-	574
RA CFM	4400	4000
OA CFM	600	659
RL Voltage	-	211/211/211
RL Amperage	-	6.4/6.4/6.4
SF Rotation	-	CW, CORRECT
Min OA Damper Position	-	0.5”
Min OA Damper Type	-	ECONOMIZER

Motor Data		
	Design	**Actual**
Motor MFG	-	MARATHON\
Frame	-	56HZ
Horsepower	3	3
Motor Rpm	-	1725
Phase	3	3
Rated Voltage	208	208-230/460
Rated Amperage	-	9.4-9.2/4.6

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.24”
Fan Suction SP	-	-0.45”
Fan Discharge SP	-	0.38”
Total ESP	0.84"	0.62”
Fan Total SP	-	0.83”

Drive Data		
	Design	**Actual**
Motor Sheave Size	-	3.75”
Motor Bore Size	-	0.875”
Motor Sheave SetPt	-	2
Fan Sheave Size	-	10.375”
Fan Sheave Bore	-	1.125”
Belt CL Distance	-	22.25”
Num of Belts	-	1
Belt Size	-	BX68
Belt Alignment	-	GOOD

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

Completed By: Travis Halter

Notes:

National TAB

Project:10-17 TACO BELL - MT. VERNON, IN

AHU/RTU

Comfort. Under control.

Diffuser Supply (GRD)

RTU2/KITCHEN

Asset									
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
SGRD1	WASHING	S1	10"	300	1	462	321	321	107.0
SGRD2	KITCHEN	S1	10"	300	1	518	319	319	106.3
SGRD3	KITCHEN	S1	10"	300	1	396	322	322	107.3
SGRD4	KITCHEN	S1	12"	500	1	244	457	457	91.4
SGRD5	OFFICE	S1	10"	200	1	112	212	212	106.0
SGRD6	PREP	S1	12"	400	1	568	513	513	128.3
SGRD7	PREP	S1	12"	500	1	166	457	457	91.4
SGRD8	PREP	S1	12"	500	1	653	489	489	97.8
SGRD9	PREP	S1	12"	500	1	412	459	459	91.8
SGRD10	DRIVE THRU	S1	12"	500	1	401	455	455	91.0
SGRD11	COOKLINE	S1	12"	500	1	115	156	156	31.2
SGRD12	COOKLINE	S1	12"	500	1	467	499	499	99.8

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Project: 10-17 TACO BELL - MT. VERNON, IN

System/Unit: FAN - Exhaust

Comfort. Under control.

Asset: EF1 AREA:HOOD 1

Unit Data		
	Design	**Actual**
MFG	STRATOVENT	STRATOVENT
Model Num	SVDU50HFA	SV-DU50HFA
Serial Num	-	5448752
Type	UPBLAST	UPBLAST
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	**Actual**
Motor MFG	-	HSSA
Frame	-	48Y
Horsepower	1/2	0.5
Motor Rpm	-	1380
Phase	1	1
Voltage (rated)	120	115
Amperage (rated)	-	7.6
Service Factor	-	1.0

Test Data		
	Design	**Actual**
CFM	1050	1096
Fan RPM	1344	DD
Fan Rotation	-	CCW, CORRECT
Motor RPM	-	DD
System SetPt	-	LOW
RL Voltage	-	86
RL Amperage	-	4.6
Total ESP	0.9"	0.44”
Fan Inlet SP	-	-0.44”
Fan Discharge SP	-	ATM

Completed By: Travis Halter

Notes:

National TAB

Project: 10-17 TACO BELL - MT. VERNON, IN

System/Unit: FAN - Exhaust

Comfort. Under control.

Asset: EF2 AREA:RESTROOMS

Unit Data		
	Design	**Actual**
MFG	STRATOVENT	STRATOVENT
Model Num	SVDR30HFA	SV-DR30HFA
Serial Num	-	5448752
Type	DOWNBLAST	DOWNBLAST
Configuration	HORIZONTAL	VERTICAL

Motor Data		
	Design	**Actual**
Motor MFG	-	HSSA
Frame	-	48Y
Horsepower	1/4	0.25
Motor Rpm	-	1400
Phase	1	1
Voltage (rated)	120	115
Amperage (rated)	-	4.0
Service Factor	-	1.0

Test Data		
	Design	**Actual**
CFM	570	531
Fan RPM	1025	DD
Fan Rotation	-	CCW, CORRECT
Motor RPM	-	DD
System SetPt	-	LOW
RL Voltage	-	77
RL Amperage	-	2.3
Total ESP	0.375"	0.29”
Fan Inlet SP	-	-0.29”
Fan Discharge SP	-	ATM

Completed By: Travis Halter

Notes:

National TAB

Project:10-17 TACO BELL - MT. VERNON, IN

FAN - Exhaust

Comfort. Under control.

Diffuser Ret/Exh (GRD)

EF2/RESTROOMS

Asset									
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
EGRD1	FOOD PREP	E2	8"	300	1	538	542	271	90.3
EGRD2	RESTROOM	E1	8"	130	1	190	211	129	99.2
EGRD3	RESTROOM	E1	8"	140	1	296	271	131	93.6

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Project: 10-17 TACO BELL - MT. VERNON, IN

System/Unit: Kitchen Hood Type I

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Asset: HD1 AREA:FRYER

Unit Data		
	Design	**Actual**
MFG	STRATOVENT	STRATOVENT
Model Num	SVBD2	3650 SV-BD-2
Job / Serial Num	-	5448752
Type	TYPE I LOW PROXIMITY	TYPE I
Hood length	75"	75"
Hood Width	36"	36"

Test Data Exhaust		
	Design	**Actual**
Filter Type	BAFFLE	BAFFLE
Filter Size 1	16X16	16X16
Filter Qty 1	4	4
Filter AK factor size 1	1.66	1.66
Filter Total AK Area	6.64	6.64
Filter1 FPM	-	148
Filter2 FPM	-	177
Filter3 FPM	-	184
Filter4 FPM	-	149
Filter Ave FPM(corr)	-	165
CFM	1050	1096

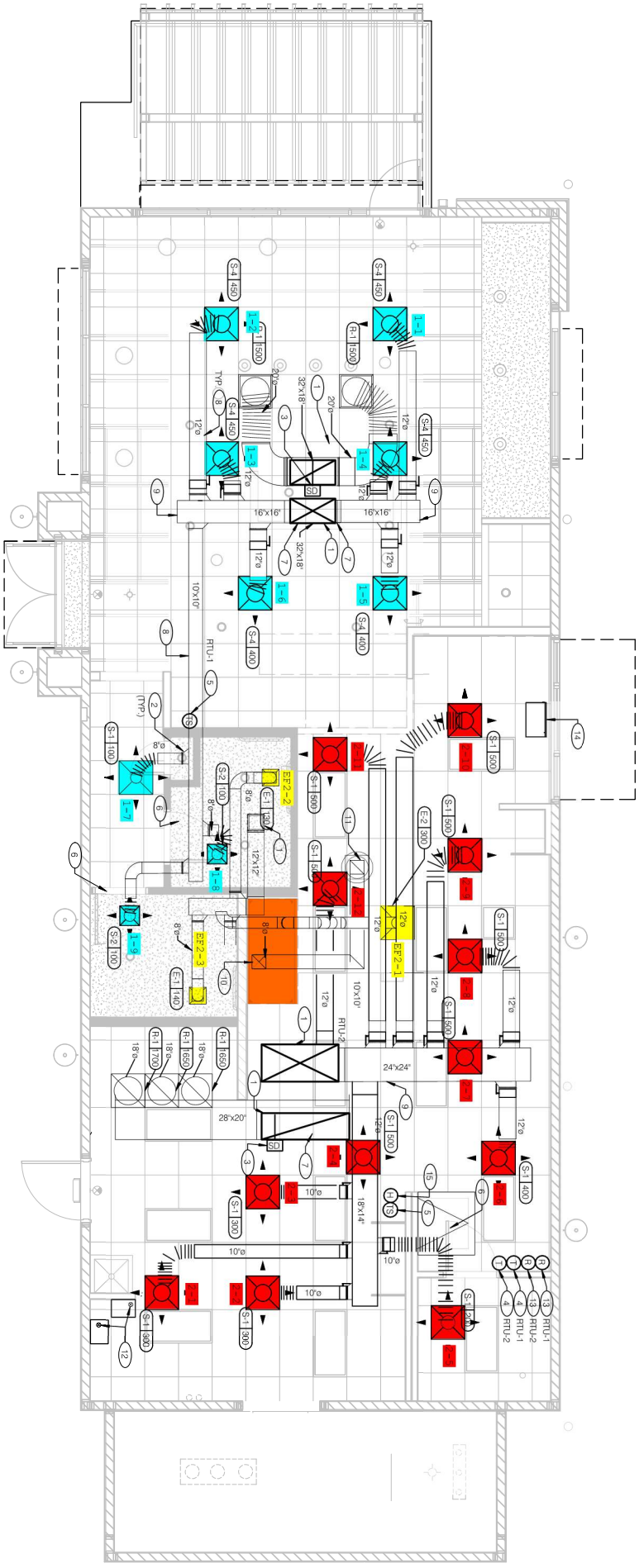
Cooking Equipment		
	Design	**Actual**
Item 1	-	BOILER
Item 2	-	FRYER

Performance Data		
	Design	**Actual**
Smoke Generation Type	-	SMOKE EMITTER
Hood Capture %	-	100%
End Panels Installed (Y/N)	-	YES

General		
	Design	**Actual**
Third Party Company	-	
Tech Witness	-	TRAVIS HALTER / NATIONAL TAB

Completed By: Travis Halter

Notes:



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10-17 TACO BELL - MT. VERNON, IN

Project Issue Information

Issue Name : Diffuser 2-11 Low on Flow

Description : The damper appears to be bound up and will only open about halfway, due to its placement I am unable to find what is binding it up to remove. This diffuser is also located on the main drop so even after it is unbound it may require a scoop to help divert flow into duct.

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

Status : Open

Originated Date : 10/18/2022 - Travis Halter - National TAB

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10-17 TACO BELL - MT. VERNON, IN

Project Issue Information

Issue Name : Diffusers 1-8 & 1-9 do not have dampers

Description : Dampers do not have dampers installed.

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

Status : Open

Originated Date : 10/18/2022 - Travis Halter - National TAB