

**Report By:**

National TAB  
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SUITE 4210  
CINCINNATI, OH 45246



**Report: INSPECTION REPORT**  
**Function: Test, Adjust, & Balance**  
**Date: 12/10/2024**  
**Completed By: National TAB**

**PROJECT**  
**12-09-24 CULVERS PRINCETON, MN**

200 19th Ave N

Princeton , MN 55371

**Client**

Captive-Aire Region #60

# National TAB

Project: 12-09-24 CULVERS PRINCETON, MN

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## 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)

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.

### General Exhaust Fans

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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Project: 12-09-24 CULVERS PRINCETON, MN

## System/Unit: AHU/RTU

Asset: RTU1

AREA:DINIING

Unit Data		
	Design	Actual
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Serial Num	-	6938827
Model Num	CAS-HVAC1.400-24-20T	CAS-HVAC1.400-24-20T
Type	RTU	DOAS
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	4
OA Filter Size 1	-	16X25X2
Num Final Filter 1	-	8
Final Filter Size 1	-	20X25X2

Motor Data		
	Design	Actual
Motor MFG	-	TECO WESTINGHOUSE
Frame	-	215T
Horsepower	-	10.0
Motor Rpm	-	1755
Phase	3	3
Rated Voltage	208	230
Rated Amperage	-	24.3

Test Data		
	Design	Actual
SF CFM	6150	6167
SF RPM	-	1641
RA CFM	4400	4277
OA CFM	1750	1890
RL Voltage	-	183V @VFD
RL Amperage	-	22.6 @VFD
SF Rotation	-	CCW, CORRECT
SF System SetPt	-	56.1 HZ
RA Damper Position	-	MECHANICALLY LINKED
Min OA Damper Position	-	3.4V
Min OA Damper Type	-	ECONOMIZER

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

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# Unit Data - PHOTO LOG



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WWW

**Heating and Cooling Equipment**  
 CaytwoAire Systems 360 Northbrook Drive Troutman, NC 27196 (866) 714-8900  
 Job # 808227 10/2024  
 Fan #5 Unit Tag: RTU-1 Dining  
 Model #: CAS-HVACS1-400-24-207

Supply Motor Part Number: D779104  
 Supply Motor Information: 19.000 HP, 208 VAC, 3 phase-60 Hz, 27.0 Maximum Operating Current  
 Compressor Part Number: V2M11781  
 Compressor Information: 26.00 Ton, 190-240 VAC, 3 phase-60 Hz, 55.40 InputRatedCurrent, 88.30 LRA  
 Outdoor Fan Motor Part Number: E51198 Quantity: 3  
 Outdoor Fan Motor Information: 1.34 HP, 200-240 VAC, 3 phase-60 Hz, 3.8 Maximum Operating Current  
 MCA: Minimum Circuit Ampacity / MOCP: Maximum Over Current Protection  
 Unit Main Input: 208 VAC, 3 Phase-60 Hz, MCA: 104.1 Amps, MOCP: 125 Amps, 2 AWG Wire Min.  
 For Outdoor Installation Only  
**CATEGORY III APPLIANCE**  
 Indirect Air Heater

Patent #: US 8,777,119 (CA 278238)

Job # 808227  
 SCIM: 1150  
 Max Rated R  
 Minimum Am  
 Design Temp  
 Maximum Tem  
 Maximum Disc  
 Gas Inlet Press  
 Minimum Gas Si  
 Design Manufac  
 Maximum Manufac  
 Hourly Design ETU  
 Input ETU (Minimu  
**WARNING: REPA  
 BEFORE INSTALLA  
 ALTERATION, SET**

Conforms to ANSI STD 291.3  
 Certified to CSA STD 2.14  
 Conforms to UL STD 996  
 Certified to CSA STD C22.2 302.36  
 Tested in Accordance to AHRI Standard 340/360

**Intertek**  
 2091474

**ETL**  
 Intertek  
 EFM 3012280



# National TAB

Project: 12-09-24 CULVERS PRINCETON, MN

## System/Unit: AHU/RTU

Asset: RTU2

AREA: KITCHEN

Unit Data		
	Design	Actual
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Serial Num	-	6938827
Model Num	CAS-HVAC1.300-24-20T	CAS-HVAC1.300-24-20T
Type	RTU	DOAS
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	4
OA Filter Size 1	-	16X25X2
Num Final Filter 1	-	8
Final Filter Size 1	-	20X25X2

Motor Data		
	Design	Actual
Motor MFG	-	TECO WESTINGHOUSE
Frame	-	215T
Horsepower	-	10.0
Motor Rpm	-	1755
Phase	3	3
Rated Voltage	208	230
Rated Amperage	-	24.3 [1]

Test Data		
	Design	Actual
SF CFM	6150	6175
SF RPM	-	1697
RA CFM	4450	4364
OA CFM	1700	1811
RL Voltage	-	186 @ VFD
RL Amperage	-	24.8 @ VFD [1]
SF Rotation	-	CCW, CORRECT
SF System SetPt	-	58.0 HZ
RA Damper Position	-	MECHANICALLY LINKED
Min OA Damper Position	-	3.4V
Min OA Damper Type	-	ECONOMIZER

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

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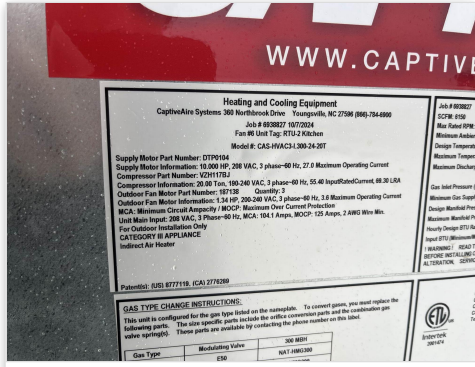
Notes:  
[1] UNIT LABEL FLA 27.0 BASED ON UNIT VOLTAGE OF 184. WITHIN MOTOR SF.

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# Unit Data - PHOTO LOG



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# National TAB

Project: 12-09-24 CULVERS PRINCETON, MN

System/Unit: FAN - Exhaust



Asset: EFA1

AREA:MOP

Unit Data		
	Design	Actual
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	CFA 100CA	CFA 100CA
Serial Num	-	6938827
Type	CEILING	CEILING
Configuration	VERTICAL	VERTICAL

Test Data		
	Design	Actual
CFM	75	81
Fan RPM	493	DD
Fan Rotation	-	CCW, CORRECT
Motor RPM	-	DD
System SetPt	-	SINGLE SPEED

Motor Data		
	Design	Actual
Motor MFG	-	BROAN
Horsepower	-	0.116
Motor Rpm	-	640
Phase	1	1
Voltage (rated)	115	115
Amperage (rated)	-	1.1

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## Unit Data - PHOTO LOG



# National TAB

Project: 12-09-24 CULVERS PRINCETON, MN

System/Unit: FAN - Exhaust



Asset: PRV1

AREA:RESTROOMS

Unit Data		
	Design	Actual
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	DR12HFA	DR12HFA
Serial Num	-	693
Type	DOWNBLAST	DOWNBLAST
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	TELCO GREEN
Horsepower	-	0.25
Motor Rpm	-	1800
Phase	1	1
Voltage (rated)	115	115
Amperage (rated)	-	2.9

Test Data		
	Design	Actual
CFM	375	372
Fan RPM	1369	988
Fan Rotation	-	CCW, CORRECT
Motor RPM	-	988
System SetPt	-	46%
RL Voltage	-	NR [1]
RL Amperage	-	NR [1]
Total ESP	0.50"	0.18"
Fan Inlet SP	-	-0.18"
Fan Discharge SP	-	ATM

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Notes:

[1] COULD NOT ACCESS SAFELY, LIGHT SWITCH DISCONNECT.

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## Unit Data - PHOTO LOG



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Project: 12-09-24 CULVERS PRINCETON, MN

## FAN - Exhaust



**Diffuser Ret/Exh (GRD)**

**PRV1/RESTROOMS**

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
EGRD1	M RR	EG1	8X8	150	1.0	195	143	147	98.0
EGRD2	W RR	EG1	8X8	150	1.0	234	180	144	96.0
EGRD3	TOILET	EG1	8X8	75	1.0	250	110	81	108.0
Total				375		679	433	372	99.2%

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Project: 12-09-24 CULVERS PRINCETON, MN

System/Unit: FAN - Exhaust



Asset: PRV2

AREA:HD-1 FRYER

Unit Data		
	Design	Actual
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	CFA 100CA	DU85HFA
Serial Num	-	6938827
Type	UPBLAST	UPBLAST
Configuration	VERTICAL	VERTICAL

Test Data		
	Design	Actual
CFM	1500	1619
Fan RPM	1406	1265
Fan Rotation	-	CCW, CORRECT
Motor RPM	-	1265
System SetPt	-	63%
RL Voltage	-	117
RL Amperage	-	3.5
Total ESP	1.412	0.86"
Fan Inlet SP	-	-0.86"
Fan Discharge SP	-	ATM

Motor Data		
	Design	Actual
Motor MFG	-	TELCO GREEN
Horsepower	-	1.0
Motor Rpm	-	1800
Phase	1	1
Voltage (rated)	115	115
Amperage (rated)	-	11.6

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## Unit Data - PHOTO LOG



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# National TAB

Project: 12-09-24 CULVERS PRINCETON, MN

System/Unit: FAN - Exhaust



Asset: PRV3

AREA:HD-2 GRIDDLE

Unit Data		
	Design	Actual
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	CFA 100CA	DU85HFA
Serial Num	-	6938827
Type	UPBLAST	UPBLAST
Configuration	VERTICAL	VERTICAL

Test Data		
	Design	Actual
CFM	1500	1542
Fan RPM	1348	1238
Fan Rotation	-	CCW, CORRECT
Motor RPM	-	1238
System SetPt	-	62%
RL Voltage	-	117
RL Amperage	-	3.5
Total ESP	1.25"	1.04"
Fan Inlet SP	-	-1.04"
Fan Discharge SP	-	ATM

Motor Data		
	Design	Actual
Motor MFG	-	TELCO GREEN
Horsepower	-	1.0
Motor Rpm	-	1800
Phase	1	1
Voltage (rated)	115	115
Amperage (rated)	-	11.6

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## Unit Data - PHOTO LOG



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# National TAB

Project: 12-09-24 CULVERS PRINCETON, MN  
System/Unit: Kitchen Hood Type I



Asset: HD1

AREA:FRYER

Unit Data		
	Design	Actual
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	3347BD-2	3347BD-2
Job / Serial Num	-	7095328
Type	TYPE I	TYPE I
Hood length	84"	84"
Hood Width	33"	33"

Test Data Exhaust		
	Design	Actual
Filter Type	SOLO FILTER	SOLO FILTER
Filter Size 1	16X16	16X16
Filter Qty 1	5	5
Filter AK factor size 1	1.53	1.53
Filter Total AK Area	7.65	7.65
Filter1 FPM	-	216
Filter2 FPM	-	218
Filter3 FPM	-	202
Filter4 FPM	-	208
Filter5 FPM	-	214
Filter Ave FPM(corr)	-	211.6
CFM	1500	1619

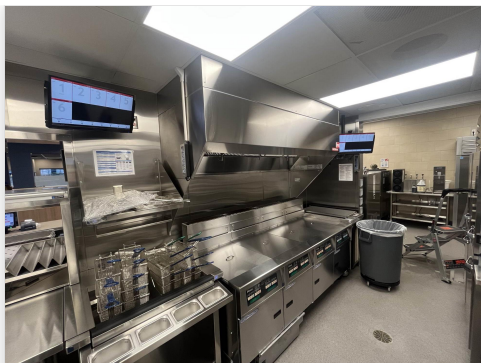
Cooking Equipment	
	Actual
Item 1	FRYER

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### Unit Data - PHOTO LOG



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# National TAB

Project: 12-09-24 CULVERS PRINCETON, MN  
System/Unit: Kitchen Hood Type I



Asset: HD2

AREA:GRIDDLE

Unit Data		
	Design	Actual
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	3347BD-2	3347BD-2
Job / Serial Num	-	6938827
Type	TYPE I	TYPE I
Hood length	66"	66"
Hood Width	33"	33"

Test Data Exhaust		
	Design	Actual
Filter Type	SOLO FILTER	SOLO FILTER
Filter Size 1	16X16	16X16
Filter Qty 1	4	4
Filter AK factor size 1	1.53	1.53
Filter Total AK Area	6.12	6.12
Filter1 FPM	-	253
Filter2 FPM	-	243
Filter3 FPM	-	257
Filter4 FPM	-	255
Filter Ave FPM(corr)	-	252
CFM	1500	1542

Cooking Equipment	
	Actual
Item 1	GRIDDLE

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### Unit Data - PHOTO LOG



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