

Report By:

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



Report: TECH

Function: Test, Adjust, & Balance

Date: 05/13/2024

PROJECT

03-18-24 PENN STATION - GREENFIELD, OH

1453b WAGNER AVE

GREENFIELD, OH 45331

Client

C&T DESIGN

4025 PORT UNION RD.

FAIRFIELD, OH 45014

National TAB

Project: 03-18-24 PENN STATION - GREENFIELD, OH

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National TAB

Project: 03-18-24 PENN STATION - GREENFIELD, OH

System/Unit: AHU/RTU



Asset: GF1

AREA:DINING

Unit Data		
	Design	Actual
MFG	TRANE	TRANE
Serial Num	-	23501H24KG
Model Num	S9X1C100U5PSBAB	S9X1C100U5PSBAB
Type	AHU	AHU
Configuration	VERTICAL	VERTICAL
Num Final Filter 1	-	1
Final Filter Size 1	-	20"X25"X1"

Motor Data		
	Design	Actual
Motor MFG	-	NA
Frame	-	NA
Horsepower	-	NA
Motor Rpm	-	NA
Phase	1	1
Rated Voltage	120	120
Rated Amperage	-	NA

Test Data		
	Design	Actual
SF CFM	3200	2658
SF RPM	-	
RA CFM	1440	
OA CFM	160	
RL Voltage	-	
RL Amperage	-	
SF Rotation	-	CCW
RA Damper Position	-	
Min OA Damper Position	-	
Min OA Damper Type	-	MOTORIZED
OA Enthalpy Setpt	-	

Performance Data		
	Design	Actual
Fan Suction SP	-	
Fan Discharge SP	-	
Total ESP	0.75"	
Fan Total SP	-	

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

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Project:03-18-24 PENN STATION - GREENFIELD, OH

AHU/RTU



Diffuser Supply (GRD)

GF1/DINING

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
SGRD1	DINING		10"	350	1	191		191	54.6
SGRD2	DINING		10"	350	1	176		176	50.3
SGRD3	DINING		10"	275	1	164		164	59.6
SGRD4	DINING		10"	275	1	234		234	85.1
SGRD5	DINING		10"	350	1	199		199	56.9
SGRD6	DINING		10"	350	1	171		172	49.1
SGRD7	DINING		10"	350	1	207		207	59.1
SGRD8	WOMENS RR		6"	100	1	100		100	100.0
SGRD9	MENS RR		6"	100	1	93		93	93.0
SGRD10	PREP AREA		8"	150	1	326		326	217.3
SGRD11	PREP AREA		10"	200	1	341		341	170.5
SGRD12	PREP AREA		8"	200	1	207		207	103.5
SGRD13	DRY STORAGE		8"	150	1	249		249	166.0
Total				3200		2658	0	2659	83.09%

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Project: 03-18-24 PENN STATION - GREENFIELD, OH

System/Unit: AHU/RTU



Asset: GF2

AREA:

Unit Data		
	Design	Actual
MFG	TRANE	TRANE
Serial Num	-	23495TMWKG
Model Num	S9X1C100U5PSBAB	S9X1C100U5PSBAB
Type	AHU	AHU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	NA
OA Filter Size 1	-	NA
Num Final Filter 1	-	1
Final Filter Size 1	-	20"X25"X1"
Num Final Filter 2	-	
Final Filter Size 2	-	

Test Data		
	Design	Actual
OA CFM	240	

Performance Data		
	Design	Actual
Fan Suction SP	-	
Fan Discharge SP	-	
Total ESP	0.75"	
Fan Total SP	-	

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

Motor Data		
	Design	Actual
Motor MFG	-	NA
Frame	-	NA
Horsepower	-	NA
Motor Rpm	-	NA
Phase	1	1
Rated Voltage	120	120
Rated Amperage	-	NA

Drive Data		
	Design	Actual
Motor Sheave Size	-	
Motor Bore Size	-	
Motor Sheave SetPt	-	
Fan Sheave Size	-	
Fan Sheave Bore	-	
Belt CL Distance	-	
Num of Belts	-	
Belt Size	-	
Belt Alignment	-	

Notes:
UNITS 1A AND 1B ARE TWINNED. SEE 1A FOR AIRFLOWS.

Written By: Brianna Biggs on 03/21/2024

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Project: 03-18-24 PENN STATION - GREENFIELD, OH

System/Unit: AHU/RTU



Asset: RTU1

AREA:RESTAURANT

Unit Data		
	Design	Actual
MFG	CARRIER	LENNOX
Serial Num	-	5623J09125
Model Num	48GCEM14A2M5-6W0A0	LGT072H4EX1Y
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	1
OA Filter Size 1	-	30"X15"
Num Final Filter 1	-	4
Final Filter Size 1	-	20"X20"X2"

Motor Data		
	Design	Actual
Motor MFG	-	EBMPAPST
Frame	-	NA
Horsepower	-	NA
Motor Rpm	-	NA
Phase	3	3
Rated Voltage	208	230
Rated Amperage	-	4.4

Test Data		
	Design	Actual
SF CFM	2350	
SF RPM	-	
RA CFM	-	
OA CFM	-	
RL Voltage	-	
RL Amperage	-	
SF Rotation	-	
RA Damper Position	-	
Min OA Damper Position	-	
Min OA Damper Type	-	
OA Enthalpy Setpt	-	

Performance Data		
	Design	Actual
MA Plenum SP	-	
Fan Suction SP	-	
Fan Discharge SP	-	
Total ESP	-	
Fan Total SP	-	

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

Notes:

Initial fan speed set point was 83%

Written By: Jordan Best on 05/13/2024

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Project:03-18-24 PENN STATION - GREENFIELD, OH

AHU/RTU



Diffuser Supply (GRD)

RTU1/RESTAURANT

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
SGRD2	SERVING		8"	200	1.16	316			-
SGRD3	SERVING		10"	400	1.16	685			-
SGRD4	SERVING		10"	400	1.16	350			-
SGRD6	GRILL HOOD		72"X6"	465	3	900			-
SGRD7	FRY HOOD		50"X6"	250	2.08	661			-
Total				1715		2912	0	0	0%

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Project: 03-18-24 PENN STATION - GREENFIELD, OH

System/Unit: FAN - Exhaust



Asset: EF4

AREA:WOMENS RR

Unit Data		
	Design	Actual
MFG	NA	NA
Model Num	NA	NA
Serial Num	-	NA
Type	-	CEILING

Test Data		
	Design	Actual
CFM	75	50

Completed By: Jordan Best on 05/02/2024

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Project: 03-18-24 PENN STATION - GREENFIELD, OH

System/Unit: FAN - Exhaust



Asset: EF5

AREA:MENS RR

Unit Data		
	Design	Actual
MFG	NA	NA
Model Num	NA	NA
Serial Num	-	NA
Type	-	CEILING
Configuration	-	

Motor Data		
	Design	Actual
Motor MFG	-	
Frame	-	
Horsepower	-	
Motor Rpm	-	
Phase	-	
Voltage (rated)	-	
Amperage (rated)	-	
Service Factor	-	

Test Data		
	Design	Actual
CFM	75	
Fan RPM	-	
Fan Rotation	-	
Motor RPM	-	
System SetPt	-	
RL Voltage	-	
RL Amperage	-	
Total ESP	-	
Fan Inlet SP	-	
Fan Discharge SP	-	

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Project: 03-18-24 PENN STATION - GREENFIELD, OH

System/Unit: FAN - Exhaust



Asset: KEF1

AREA:HD 1 GRILL

Unit Data		
	Design	Actual
MFG	CAPTIVEAIRE	ECON-AIR
Model Num	DU85HFA	EADU85HFA
Serial Num	-	6277370
Type	UPBLAST	UPBLAST
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	NEMA
Frame	-	NA
Horsepower	0.750	0.750
Motor Rpm	-	1800
Phase	1	1
Voltage (rated)	115	115
Amperage (rated)	-	8.9
Service Factor	-	NA

Test Data		
	Design	Actual
CFM	1120	
Fan RPM	1215	
Fan Rotation	-	
Motor RPM	-	
System SetPt	-	
RL Voltage	-	
RL Amperage	-	
Total ESP	1.150"	
Fan Inlet SP	-	
Fan Discharge SP	-	

Completed By: Austin McFall on 05/13/2024

Notes:

See Captive Aire balancing report

Written By: Austin McFall on 05/13/2024

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Project: 03-18-24 PENN STATION - GREENFIELD, OH

System/Unit: FAN - Exhaust



Asset: KEF2

AREA:HD 2 OVEN

Unit Data		
	Design	Actual
MFG	CAPTIVEAIRE	ECON-AIR
Model Num	DU33HFA	EADU33HFA
Serial Num	-	6277370
Type	UPBLAST	UPBLAST
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	
Frame	-	
Horsepower	0.333	
Motor Rpm	-	
Phase	1	
Voltage (rated)	115	
Amperage (rated)	-	
Service Factor	-	

Test Data		
	Design	Actual
CFM	600	
Fan RPM	1360	
Fan Rotation	-	
Motor RPM	-	
System SetPt	-	
RL Voltage	-	
RL Amperage	-	
Total ESP	0.600"	
Fan Inlet SP	-	
Fan Discharge SP	-	

Completed By: Austin McFall on 05/13/2024

Notes:

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Written By: Austin McFall on 05/13/2024

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Project: 03-18-24 PENN STATION - GREENFIELD, OH

System/Unit: FAN - Exhaust



Asset: KEF3

AREA:HD 3 FRY

Unit Data		
	Design	Actual
MFG	CAPTIVEAIRE	ECON-AIR
Model Num	DU85HFA	EADU85HFA
Serial Num	-	6277370
Type	UPBLAST	UPBLAST
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	
Frame	-	
Horsepower	0.750	
Motor Rpm	-	
Phase	1	
Voltage (rated)	115	
Amperage (rated)	-	
Service Factor	-	

Test Data		
	Design	Actual
CFM	850	
Fan RPM	1144	
Fan Rotation	-	
Motor RPM	-	
System SetPt	-	
RL Voltage	-	
RL Amperage	-	
Total ESP	1.150"	
Fan Inlet SP	-	
Fan Discharge SP	-	

Completed By: Austin McFall on 05/13/2024

Notes:

See Captive Aire balancing report

Written By: Austin McFall on 05/13/2024

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Project: 03-18-24 PENN STATION - GREENFIELD, OH

System/Unit: FAN - Supply



Asset: MUA1

AREA:COOKLINE

Unit Data		
	Design	Actual
MFG	CAPTIVEAIRE	ECON-AIR
Model Num	A1-D.250-15D	EA1-D.250-15D
Serial Num	-	6277370
Type	MUA	MUA
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	NEMA
Frame	-	145T
Horsepower	1.5	1.5
Motor Rpm	-	1740
Phase	3	3
Voltage (rated)	208	230
Amperage (rated)	-	4.03
Service Factor	-	1

Gas Heat		
	Design	Actual
Heater Operates (y/n)	-	
Flame Status (pass/fail)	-	
Inlet Air Temp SetPt	55	
Discharge Air Temp SetPt	60	
Air Flow Switch SP Actual	-	

Test Data		
	Design	Actual
CFM	1630	
SF RPM	1855	
Motor RPM	-	
SF System SetPt	-	
RL Voltage	-	
RL Amperage	-	
Total ESP	-	
Fan Discharge SP	-	

General		
	Design	Actual
Fan Rotation Correct	-	

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Project: 03-18-24 PENN STATION - GREENFIELD, OH

System/Unit: Kitchen Hood Type I



Asset: HD1

AREA:GRILL

Unit Data		
	Design	Actual
MFG	CAPTIVEAIRE	ECON-AIR
Model Num	3650 ELPX-2	3650 ELPX-2
Job / Serial Num	-	6277370
Type	TYPE I LOW PROXIMITY	TYPE I CANOPY
Hood length	72"	72"
Hood Width	36"	36"

Test Data Exhaust		
	Design	Actual
Filter Type	CAPTRATE SOLO	CAPTRATE SOLO
Filter Size 1	16X16	16X16
Filter Qty 1	4	4
Filter AK factor size 1	1.62	
Filter Total AK Area	6.48	
Filter1 FPM	-	
Filter2 FPM	-	
Filter3 FPM	-	
Filter4 FPM	-	
Filter Ave FPM(corr)	-	
CFM	1120	

Cooking Equipment		
	Design	Actual
Item 1	-	
Item 2	-	

Completed By: Austin McFall on 05/13/2024

Notes:

See Captive Aire balancing report

Written By: Austin McFall on 05/13/2024

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Project: 03-18-24 PENN STATION - GREENFIELD, OH

System/Unit: Kitchen Hood Type I



Asset: HD2

AREA:OVEN

Unit Data		
	Design	Actual
MFG	CAPTIVEAIRE	NA
Model Num	4412 PS-OVN	4412 PS-OVN
Job / Serial Num	-	
Type	TYPE I CANOPY	
Hood length	21.25"	
Hood Width	44"	

Test Data Exhaust		
	Design	Actual
Filter Type	BAFFLE	
Filter Size 1	20X10	
Filter Qty 1	2	
Filter AK factor size 1	-	
Filter Total AK Area	-	
Filter1 FPM	-	
Filter2 FPM	-	
Filter3 FPM	-	
Filter4 FPM	-	
Filter5 FPM	-	
Filter6 FPM	-	
Filter7 FPM	-	
Filter8 FPM	-	
Filter9 FPM	-	
Filter10 FPM	-	
Filter11 FPM	-	
Filter12 FPM	-	
Filter Ave FPM(corr)	-	
CFM	600	

Cooking Equipment		
	Design	Actual
Item 1	-	
Item 2	-	

Completed By: Austin McFall on 05/13/2024

Notes:

See Captive Aire balancing report

Written By: Austin McFall on 05/13/2024

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Project: 03-18-24 PENN STATION - GREENFIELD, OH

System/Unit: Kitchen Hood Type I



Asset: HD3

AREA:FRY

Unit Data		
	Design	Actual
MFG	CAPTIVEAIRE	ECON -AIR
Model Num	3650 ELPX-2	3650 ELPX-2
Job / Serial Num	-	6277370
Type	TYPE I LOW PROXIMITY	TYPE I CANOPY
Hood length	50"	50"
Hood Width	36"	36"

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	
Filter Total AK Area	4.86	
Filter1 FPM	-	
Filter2 FPM	-	
Filter3 FPM	-	
Filter4 FPM	-	
Filter5 FPM	-	
Filter6 FPM	-	
Filter7 FPM	-	
Filter8 FPM	-	
Filter9 FPM	-	
Filter10 FPM	-	
Filter11 FPM	-	
Filter12 FPM	-	
Filter Ave FPM(corr)	-	
CFM	850	

Cooking Equipment		
	Design	Actual
Item 1	-	
Item 2	-	

Completed By: Austin McFall on 05/13/2024

Notes:

See Captive Aire balancing report

Written By: Austin McFall on 05/13/2024

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Project: 03-18-24 PENN STATION - GREENFIELD, OH

System/Unit: Kitchen Hood Type I



Asset: HD-PSP1

AREA:

Unit Data		
	Design	Actual
MFG	CAPTIVEAIRE	ECON-AIR
Model Num	246 MISC ACPSP ONLY	3650ELPX2
Supply Plenum Type	ACPSP	ACPSP
Supply Plenum Width	14"	14"
Supply Plenum Length	72"	72"

Test Data Supply		
	Design	Actual
AK factor	7	
Kv factor (Vel)	0.89	
Num of Readings	-	
Reading1 FPM	-	
Reading2 FPM	-	
Reading3 FPM	-	
Reading4 FPM	-	
Reading5 FPM	-	
Reading6 FPM	-	
Reading7 FPM	-	
Reading8 FPM	-	
Reading9 FPM	-	
Reading10 FPM	-	
Reading11 FPM	-	
Reading12 FPM	-	
Reading13 FPM	-	
Reading14 FPM	-	
Ave FPM(corr)	-	
CFM	1000	

Completed By: Austin McFall on 05/13/2024

Notes:

See Captive Aire balancing report

Written By: Austin McFall on 05/13/2024

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Project: 03-18-24 PENN STATION - GREENFIELD, OH

System/Unit: Kitchen Hood Type I



Asset: HD-PSP3

AREA:

Unit Data		
	Design	Actual
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	246 MISC ACPSP-ONLY	246 MISC ACPSP-ONLY
Supply Plenum Type	ACPSP	ACPSP
Supply Plenum Width	14"	14"
Supply Plenum Length	50"	50"

Test Data Supply		
	Design	Actual
AK factor	4.86	
Kv factor (Vel)	0.89	
Num of Readings	-	
Reading1 FPM	-	
Reading2 FPM	-	
Reading3 FPM	-	
Reading4 FPM	-	
Reading5 FPM	-	
Reading6 FPM	-	
Reading7 FPM	-	
Reading8 FPM	-	
Reading9 FPM	-	
Reading10 FPM	-	
Reading11 FPM	-	
Reading12 FPM	-	
Reading13 FPM	-	
Reading14 FPM	-	
Ave FPM(corr)	-	
CFM	630	

Completed By: Austin McFall on 05/13/2024

Notes:

See Captive Aire balancing report

Written By: Austin McFall on 05/13/2024