Report By:

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

Report: TAB Report

Function: Test, Adjust, & Balance

Date: 04/15/2024

PROJECT

04-08-24 CHUY'S - MUELLER, TX

2027 Aldrich Street

Austin, TX 78723

Client

CORNERSTONE COMMERCIAL

PO BOX 703568

DALLAS, TX 75370

National TAB

Project: 04-08-24 CHUY'S - MUELLER, TX

Table Of Contents

NATIONAL TAB

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	1600	1615	1200	1204	400	411	25.0%	25.4%						
RTU-2	KITCHEN	1600	1545	1200	945	400	600	25.0%	38.8%						
RTU-3	KITCHEN	1600	1565	1200	1123	400	442	25.0%	28.2%						
RTU-4	DINING	1600	1603	1200	1168	400	435	25.0%	27.1%						
RTU-5	DINING	1600	1621	1200	1195	400	426	25.0%	26.3%						
RTU-6	DINING	1600	709	1200	709	400		25.0%	0.0%						
RTU-7	DINING	1600	1626	1200	1219	400	407	25.0%	25.0%						
RTU-8	DINING	1600	1558	1200	1173	400	385	25.0%	24.7%						
RTU-9	KITCHEN	1600	1603	1200	1183	400	420	25.0%	26.2%						
RTU-10	DINING	1600	1532	1200	1170	400	362	25.0%	23.6%						
RTU-11	KITCHEN	1600	1467	1200	608	400	859	25.0%	58.6%						
MUA-1	HOODS 2-5									6227	6080				
EF-1	HOODS											8907	8806		
EF-3														600	597
EF-4														400	421
TOTALS		17600	16444	13200	11697	4400	4747			6227	6080	8907	8806	1000	1018

NET BUILDING AIRFLOW CALCULATION

TOTALS	DESIGN	ACTUAL
TOTAL OA	10627	10827
TOTAL EXHAUST	9907	9824
NET AIRFLOW	720	1003

DOOR TESTED	BUILDING PRESSURE MEASUREMENTS (IN. H20)
FRONT	0.005
SIDE	0.004
REAR	
AVERAGE	**0.0045**

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:

Project Summary

The summary below provides a quick understanding of our scope of work and general testing procedures. Enclosed in the report are further details 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.

AHU's w/ Diffusers

Each of the AHU's were measured at their terminal devices to establish a total flow for that unit. These readings and calculations were used to adjust each AHU to within tolerance of the engineer's total 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. Both hoods and their fans are operating within design, however KEH-2 is on the low end of design airflow (92%). When fan speed is increased beyond current setpoint, the airflow does not increase. Suspect duct design is causing a restriction. Both hoods performed well with hood capture smoke test, but cooking equipment was not yet installed.

General Exhaust Fans w/ Grilles

The restroom fan was 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" W.C. to +0.02" W.C. 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.

Issue List

- AHU-1 Dampers Not Located
- AHU-11 OA Damper Not Located
- AHU-2 Final Filter
- AHU-2 OA Damper Not Located
- AHU-2 Temperature Control Concern
- AHU-3 OA Damper Not Located
- AHU-4 Final Filter Damaged
- AHU-5 No Accessible Balance Dampers
- AHU-6 Return Not Complete
- AHUs 5,6, and 7 Not Accessible
- Diffuser 11-3 Damaged
- Diffuser 7-3 Damper Not Accessible
- Hood 1 Damaged Filter

04-08-24 CHUY'S - MUELLER, TX

Project Issue Information

Issue Name : AHU-1 Dampers Not Located

Description : Volume dampers could not be located for diffusers 1-5, and 7 on AHU-1. Only unit totals were set to design.

Created By : National TAB

Assigned To : National TAB - Will Turnbough

Status : Open

Priority : High

Asset Tag :

Originated Date : 04/10/2024 - Stephen Tassinaro - National TAB

Project Issue File Details

MissingDampers
04/16/2024

04-08-24 CHUY'S - MUELLER, TX

Project Issue Information

Issue Name : AHU-11 OA Damper Not Located

Description : The outside air damper could not be located for AHU-11. When inspecting the interior of the duct it appears there is a damper present, but after much investigation no exterior handle could be located. The handle is potentially not installed or buried in insulation. The OA and Return has not been balanced as a result.

Created By : National TAB

Assigned To : National TAB - Will Turnbough

Status : Open

Priority : Urgent

Asset Tag :

Originated Date : 04/16/2024 - Stephen Tassinaro - National TAB

Project Issue File Details

OA_Damper
04/16/2024

04-08-24 CHUY'S - MUELLER, TX

Project Issue Information

Issue Name : AHU-2 Final Filter

Description : The AHU-2 final filter was significantly damaged and pulled into the evaporator coil. NTi removed damaged filter and left it out for balancing. A new 20x25x1 filter will need to be installed.

Created By : National TAB

Assigned To : National TAB - Will Turnbough

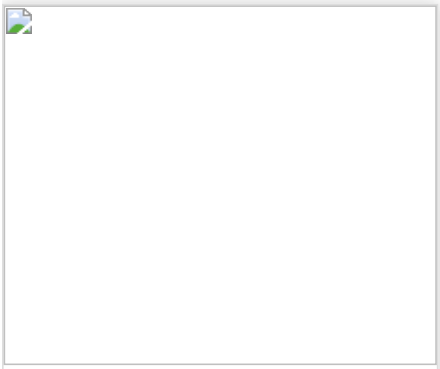
Status : Open

Priority : High

Asset Tag :

Originated Date : 04/10/2024 - Stephen Tassinaro - National TAB

Project Issue File Details



DamagedFilter
04/16/2024

04-08-24 CHUY'S - MUELLER, TX

Project Issue Information

Issue Name :	AHU-2 OA Damper Not Located		
Description :	The outside air damper could not be located for AHU-2. When inspecting the interior of the duct it appears there is a damper present, but after much investigation no exterior handle could be located. The handle is potentially not installed or buried in insulation. The OA and Return has not been balanced as a result.		
Created By :	National TAB	**Assigned To :**	National TAB - Will Turnbough
Status :	Open		
Priority :	Urgent	**Asset Tag :**	
Originated Date :	04/16/2024 - Stephen Tassinaro - National TAB		

04-08-24 CHUY'S - MUELLER, TX

Project Issue Information

Issue Name :	AHU-2 Temperature Control Concern		
Description :	AHU-2 supply serves the kitchen space, near Hood #3. The thermostat is located in a different part of the space, not in or near the kitchen, and operates off its own internal temperature sensor. This setup will not allow the unit to correctly control the temperature in the kitchen and will negatively effect the comfort of the space.		
Created By :	National TAB	**Assigned To :**	National TAB - Will Turnbough
Status :	Open		
Priority :	Urgent	**Asset Tag :**	
Originated Date :	04/10/2024 - Stephen Tassinaro - National TAB		

04-08-24 CHUY'S - MUELLER, TX

Project Issue Information

Issue Name : AHU-3 OA Damper Not Located

Description : The outside air damper could not be located for AHU-3. When inspecting the interior of the duct it appears there is a damper present, but after much investigation no exterior handle could be located. The handle is potentially not installed or buried in insulation. The OA and Return has not been balanced as a result.

Created By : National TAB

Assigned To : National TAB - Will Turnbough

Status : Open

Priority : Urgent

Asset Tag :

Originated Date : 04/09/2024 - Stephen Tassinaro - National TAB

Project Issue File Details

AHU3_MixingBox
04/09/2024

AHU3_No_OA_Damper
04/09/2024

04-08-24 CHUY'S - MUELLER, TX

Project Issue Information

Issue Name : AHU-4 Final Filter Damaged

Description : AHU-4 final filter had to be removed from the unit as it was damaged and pulled into the cooling coil. A 25x25x1 filter was modified and installed, the correct size is 20x25x1. Recommend replacing all final filters with the correct 20x25x1 filters.

Created By :	National TAB	**Assigned To :**	National TAB - Will Turnbough
Status :	Open		
Priority :	Medium	**Asset Tag :**	
Originated Date :	04/09/2024 - Stephen Tassinaro - National TAB		

Project Issue File Details

IMG_2609
04/09/2024

04-08-24 CHUY'S - MUELLER, TX

Project Issue Information

Issue Name :	AHU-5 No Accessible Balance Dampers		
Description :	No volume dampers could be located on the AHU-5 supply ductwork. As a result only the unit total has been set.		
Created By :	National TAB	**Assigned To :**	National TAB - Will Turnbough
Status :	Open		
Priority :	Urgent	**Asset Tag :**	
Originated Date :	04/09/2024 - Stephen Tassinaro - National TAB		

04-08-24 CHUY'S - MUELLER, TX

Project Issue Information

Issue Name : AHU-6 Return Not Complete

Description : AHU-6 return is not completed. The duct is not connected to the return grille and there is also a restriction in the system (potentially a damper that has not been located). The unit will not output any airflow unless the outside air damper is opened.

Created By : National TAB

Assigned To : National TAB - Will Turnbough

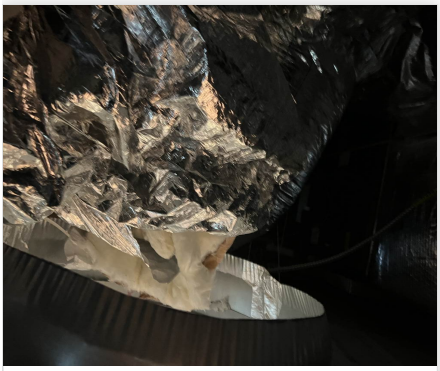
Status : Open

Priority : Urgent

Asset Tag :

Originated Date : 04/09/2024 - Stephen Tassinaro - National TAB

Project Issue File Details



AHU6_Return_2_ 04/09/2024

AHU6_Return 04/09/2024

04-08-24 CHUY'S - MUELLER, TX

Project Issue Information

Issue Name : AHUs 5,6, and 7 Not Accessible

Description : AHUs 5,6 and 7 are not accessible. They are located partially above a hard ceiling and partially above a light fixtures. NTi cannot access the electrical compartments to make speed adjustments, or gather voltage/amperage data. The light would need to be removed or potentially an access panel installed in order to access this part of the unit.

Created By : National TAB

Assigned To : National TAB - Will Turnbough

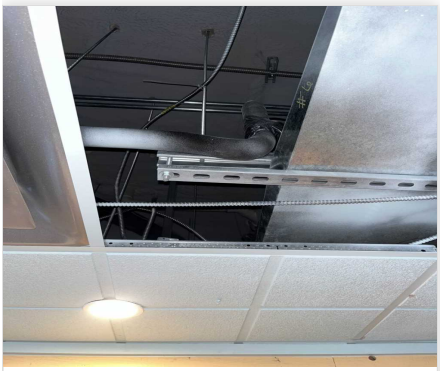
Status : Open

Priority : Urgent

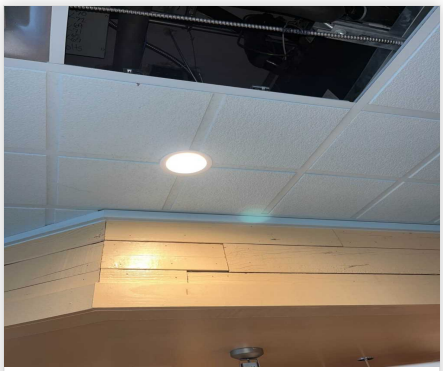
Asset Tag :

Originated Date : 04/09/2024 - Stephen Tassinaro - National TAB

Project Issue File Details



InaccessbleAHU
04/09/2024



InaccessibleAHU
04/09/2024

04-08-24 CHUY'S - MUELLER, TX

Project Issue Information

Issue Name : Diffuser 11-3 Damaged

Description : Diffuser 11-3 is damaged and the perforated cover is falling off as a result. NTi reinstalled the cover several times throughout the day. Recommend repair/replacement.

Created By : National TAB

Assigned To : National TAB - Will Turnbough

Status : Open

Priority : Low

Asset Tag :

Originated Date : 04/08/2024 - Stephen Tassinaro - National TAB

Project Issue File Details

Diffuser11_3
04/08/2024

IMG_2597
04/08/2024

04-08-24 CHUY'S - MUELLER, TX

Project Issue Information

Issue Name : Diffuser 7-3 Damper Not Accessible

Description : The volume damper is not accessible on diffuser 7-3. There is a damper installed but it is located above the hard ceiling and cannot be reached. Airflow is currently 329CFM out of 250CFM design (131%).

Created By : National TAB

Assigned To : National TAB - Will Turnbough

Status : Open

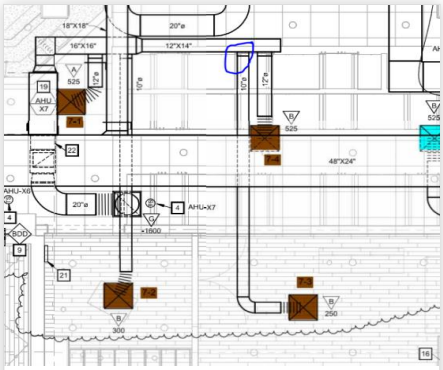
Priority : Urgent

Asset Tag :

Originated Date : 04/09/2024 - Stephen Tassinaro - National TAB

Project Issue File Details

Diffuser7_3_Access.jp..
04/09/2024



Diffuser7_3
04/09/2024

04-08-24 CHUY'S - MUELLER, TX

Project Issue Information

Issue Name : Hood 1 Damaged Filter

Description : Hood 1 has a damaged grease filter, it is not effecting performance in any way.

Created By : National TAB

Assigned To : National TAB - Will Turnbough

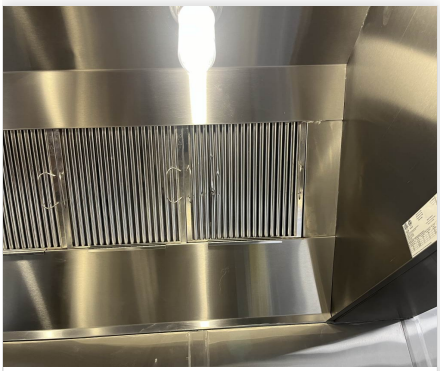
Status : Open

Priority : InfoOnly

Asset Tag :

Originated Date : 04/08/2024 - Stephen Tassinaro - National TAB

Project Issue File Details



IMG_2596
04/08/2024

CheckList List

- TECH - SITE PICTURES
- TECH - STEP 1: INITIAL SITE WALKTHROUGH
- TECH - STEP 2: UNIT DATA AND EVAL
- TECH - STEP 3: TEST, ADJUST AND BALANCE
- TECH - STEP 4: FINAL TESTS

04-08-24 CHUY'S - MUELLER, TX

CheckList Information

Name :	TECH - SITE PICTURES	**Status :**	Not Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	04/04/2024 - Brian Turnbough - National TAB		

CheckList Item Details

STORE FRONT

Comment:

Storefront
04/16/2024

AHU-1

Comment:

AHU1
04/16/2024

AHU-2

Comment:

AHU2
04/16/2024

AHU-3

Comment:

AHU3
04/16/2024

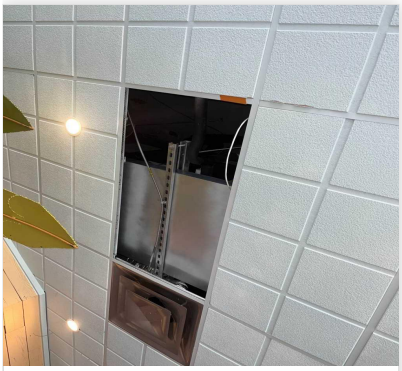
AHU-4

Comment:

AHU4
04/16/2024

AHU-5

Comment:



AHU5
04/16/2024

AHU-6

Comment:

AHU6
04/16/2024

AHU-7

Comment:

AHU7
04/16/2024

AHU-8

Comment:

AHU8
04/16/2024

AHU-9

Comment:

AHU9
04/16/2024

AHU-10

Comment:

AHU10
04/16/2024

AHU-11

Comment:

AHU11
04/11/2024

MAU-1

Comment:

MAU1
04/16/2024

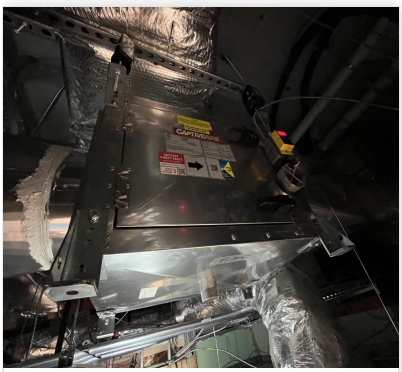
EF-1

Comment:

EF1
04/16/2024

EF-2

Comment:



EF2
04/16/2024

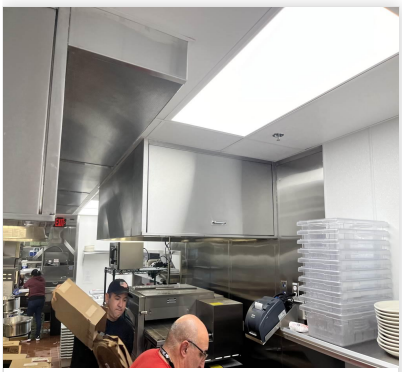
EF-3

Comment:

EF3
04/16/2024

HOOD-1

Comment:



Hood1
04/16/2024

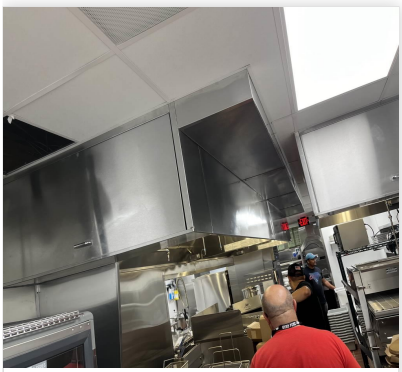
HOOD-2 & HOOD-3

Comment:

Hoods2_3
04/16/2024

HOOD-4 & HOOD-5

Comment:



Hoods4_5
04/16/2024

04-08-24 CHUY'S - MUELLER, TX

CheckList Information

Name :	TECH - STEP 1: INITIAL SITE WALKTHROUGH	**Status :**	Not Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	04/04/2024 - Brian Turnbough - National TAB		

CheckList Item Details

INITIAL SITE WALKTHROUGH

All diffusers and grilles are installed and match design?	Yes
Comment:	
All hood filters installed and accounted for?	Yes
Comment:	
Hoods are wired and have power?	Yes
Comment:	
Hood is free of alarms?	Yes
Comment:	
Thermostats have power?	Yes
Comment:	

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

Comment:

YES

04-08-24 CHUY'S - MUELLER, TX

CheckList Information

Name :	TECH - STEP 2: UNIT DATA AND EVAL	**Status :**	Not Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	04/04/2024 - Brian Turnbough - 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?	N/A
Comment:	
DCV Max damper opening position is set to minimum?	N/A
Comment:	
Free cooling enthalpy set point set for lowest setting (Typically "D")	N/A
Comment:	
Motors are all operating below the FLA rating?	Yes
Comment:	
Are belts tight?	
Comment:	
N/A - DIRECT DRIVE	
If direct drive unit is the speed controller working.	

Comment:

YES - SPEED TAPS

Is gas piping installed and valves turned on?	N/A

Comment:

Unit free of noticeable noise and vibration	Yes

Comment:

EF's

Rotation is correct?	Yes

Comment:

Belts are tight?

Comment:

N/A - DIRECT DRIVE

Grease cup installed on hood fan?	No

Comment:

TO BE INSTALLED PER CHUY'S

Hinge kit installed installed on hood fan?	N/A

Comment:

Lean fan back. Is grease duct installation adequate and is duct ran all the way to the base of the fan?	Yes

Comment:

Flex conduit is long enough so that fan can be completely tilted back?	N/A

Comment:

There is no major leakage around base of fan?	No

Comment:

NO LEAKAGE FOUND

Is the motor operating below the motor FLA rating?	Yes

Comment:

For restroom fan(s) is the back draft damper installed and can it fully open?	N/A

Comment:

Unit free of noticeable noise and vibration?	Yes

Comment:

MUA

Rotation is correct?	Yes

Comment:

Gas piping is installed and valves are in on position?	N/A

Comment:

N/A - ELECTRIC HEAT

Heater tested and is functional?	Yes

Comment:

Internal motorized damper is fully opening?	Yes

Comment:

Motor is operating below the FLA rating?	Yes

Comment:

Unit free of noticeable noise and vibration?	Yes

Comment:

HOODS

Kitchen equipment installed in proper places?	Yes

Comment:

Can kitchen equipment be turned on for final smoke test?	No

Comment:

DOCUMENTATION

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

Comment:

04-08-24 CHUY'S - MUELLER, TX

CheckList Information

Name :	TECH - STEP 3: TEST, ADJUST AND BALANCE	**Status :**	Not Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	04/04/2024 - Brian Turnbough - National TAB		

CheckList Item Details

TEST, ADJUST, AND BALANCE ALL EQUIPMENT:

DURING TESTING MAKE NOTE OF THE FOLLOWING:

Is space free of drafting?	Yes
Comment:	
Is space comfortable in all areas?	Yes
Comment:	
Is the space free of ventilation noise?	Yes
Comment:	

If deviations from design were necessary to resolve 1-3 what were they? Otherwise put "NA".

Comment:

N/A

04-08-24 CHUY'S - MUELLER, TX

CheckList Information

Name :	TECH - STEP 4: FINAL TESTS	**Status :**	Not Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	04/04/2024 - Brian Turnbough - National TAB		

CheckList Item Details

FINAL TESTS

HOOD CAPTURE TEST

List equipment turned on for testing

Comment:

NONE

List smoke candle type used

Comment:

45S SMOKE EMITTER

Smoke test capture - Perimeter of hood

Comment:

100%

Smoke test capture - Top of cooking surface

Comment:

100%

WITNESS

Date test was completed	04/10/2024

Comment:

TAB tech name / Firm

Comment:

STEPHEN TASSINARO / NTi

Site super name / Firm

Comment:

N/A

Owner representative name / Firm (if Applicable)

Comment:

N/A

Building pressure at front & back doors (All Systems On)

Comment:

+0.0045"

ADDITIONAL

Do actual net building airflow, design net building airflow, and pressure coincide? If not why? (All three should either be positive or negative)

Comment:

YES

Thermostats are programmed?	Yes

Comment:

National TAB

Project: 04-08-24 CHUY'S - MUELLER, TX

System/Unit: AHU/RTU

Asset: AHU1 AREA:

Unit Data		
	Design	**Actual**
MFG	GOODMAN	U.S. ALUMACOIL
Serial Num	-	2308174601
Model Num	ASPT61D14	AMST60DU1400AA
Type	AHU	AHU
Configuration	VERTICAL	HORIZONTAL
Num OA Filters 1	-	N/A
OA Filter Size 1	-	N/A
Num Final Filter 1	-	1
Final Filter Size 1	-	20X25X1

Motor Data		
	Design	**Actual**
Horsepower	1.0	1.0
Phase	1	1
Rated Voltage	208	208/240
Rated Amperage	-	6.9

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

Test Data		
	Design	**Actual**
SF CFM	1600	1615
SF RPM	-	SPEED TAP 5
RA CFM	1200	1204
OA CFM	400	411
RL Voltage	-	211
RL Amperage	-	4.6
SF Rotation	-	CORRECT
RA Damper Position	-	OPEN
Min OA Damper Position	-	HALF OPEN
Min OA Damper Type	-	MANUAL VOLUME DAMPER

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.19”
Fan Suction SP	-	-1.21”
Fan Discharge SP	-	0.06”
Total ESP	0.8"	0.25"
Fan Total SP	-	1.27"

General		
	Design	**Actual**
Fan Rotation Correct	-	YES
Unit Filters Clean	-	NO
Condensate Drain Installed	-	YES

Completed By: Stephen Tassinaro on 04/10/2024

National TAB

Project:04-08-24 CHUY'S - MUELLER, TX

AHU/RTU

Diffuser Supply (GRD)

AHU1/

Asset									
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
AHU1-SGRD1	DINING	B	10"	200	1	268	270	270	135.0
AHU1-SGRD2	DINING	B	10"	200	1	250	256	256	128.0
AHU1-SGRD3	DINING	B	10"	300	1	261	263	263	87.7
AHU1-SGRD4	DINING	B	8"	200	1	183	187	187	93.5
AHU1-SGRD5	DINING	D	10"	350	1	310	314	314	89.7
AHU1-SGRD6	DINING	C	8"	200	1	238	204	204	102.0
AHU1-SGRD7	DINING	F	8"	150	1	105	121	121	80.7
Total				1600		1615	1615	1615	100.94%

Completed By: Stephen Tassinaro on 04/10/2024

Asset	Notes	Date	Written By
AHU1-SGRD1	NO DAMPER LOCATED	04/10/2024	Stephen Tassinaro
AHU1-SGRD2	NO DAMPER	04/10/2024	Stephen Tassinaro
AHU1-SGRD7	READ VIA SUBTRACTING DIFFUSERS 1-6 FROM TOTAL GATHERED VIA RETURN.	04/10/2024	Stephen Tassinaro

National TAB

Project: 04-08-24 CHUY'S - MUELLER, TX

System/Unit: AHU/RTU

Asset: AHU2 AREA:

Unit Data		
	Design	**Actual**
MFG	GOODMAN	U.S. ALUMACOIL
Serial Num	-	2308066301
Model Num	ASPT61D14	AMST60DU1400AA
Type	AHU	AHU
Configuration	VERTICAL	HORIZONTAL
Num OA Filters 1	-	N/A
OA Filter Size 1	-	N/A
Num Final Filter 1	-	1
Final Filter Size 1	-	20X25X1

Motor Data		
	Design	**Actual**
Horsepower	1.0	1.0
Phase	1	1
Rated Voltage	208	208/240
Rated Amperage	6.9	6.9

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

Test Data		
	Design	**Actual**
SF CFM	1600	1545
SF RPM	-	SPEED TAP 5
RA CFM	1200	945
OA CFM	400	600
RL Voltage	-	210
RL Amperage	-	4.2
SF Rotation	-	CORRECT
RA Damper Position	-	OPEN
Min OA Damper Position	-	OPEN
Min OA Damper Type	-	MANUAL VOLUME DAMPER

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.17"
Fan Suction SP	-	-0.65"
Fan Discharge SP	-	0.41"
Total ESP	0.8"	0.58"
Fan Total SP	-	1.06"

General		
	Design	**Actual**
Fan Rotation Correct	-	YES
Unit Filters Clean	-	NO
Condensate Drain Installed	-	YES

Completed By: Stephen Tassinaro on 04/10/2024

Notes:
NO OUTSIDE AIR DAMPER HANDLE ACCESSIBLE. // FINAL FILTER WAS DAMAGED, REMOVED FOR TAB. NEW FILTER WILL NEED TO BE INSTALLED. // DIFFUSER LOCATIONS DO NOT EXACTLY MATCH MECHANICAL PLANS. SEE GRD MARKUP ON LAST PAGE OF REPORT.

Written By: Stephen Tassinaro on 04/10/2024

National TAB

Project:04-08-24 CHUY'S - MUELLER, TX

AHU/RTU

Diffuser Supply (GRD)

AHU2/

Asset									
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
AHU2-SGRD1	KITCHEN	D	12"	525	1	488	502	502	95.6
AHU2-SGRD2	KITCHEN	D	14"	525	1	451	530	530	101.0
AHU2-SGRD3	KITCHEN	D	14"	550	1	442	513	513	93.3
Total				1600		1381	1545	1545	96.56%

Completed By: Stephen Tassinaro on 04/10/2024

National TAB

Project: 04-08-24 CHUY'S - MUELLER, TX

System/Unit: AHU/RTU

Asset: AHU3 AREA:

Unit Data		
	Design	**Actual**
MFG	GOODMAN	U.S. ALUMACOIL
Serial Num	-	2308174619
Model Num	ASPT61D14	AMST60DU1400AA
Type	AHU	AHU
Configuration	VERTICAL	HORIZONTAL
Num OA Filters 1	-	NA
OA Filter Size 1	-	NA
Num Final Filter 1	-	1
Final Filter Size 1	-	20X25X1

Motor Data		
	Design	**Actual**
Horsepower	1.0	1.0
Phase	1	1
Rated Voltage	208	208/240
Rated Amperage	6.9	6.9

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

Test Data		
	Design	**Actual**
SF CFM	1600	1565
SF RPM	-	SPEED TAP 5
RA CFM	1200	1123
OA CFM	400	442
RL Voltage	-	210
RL Amperage	-	3.5
SF Rotation	-	CORRECT
RA Damper Position	-	OPEN
Min OA Damper Position	-	OPEN
Min OA Damper Type	-	MANUAL VOLUME DAMPER

Performance Data		
	Design	**Actual**
MA Plenum SP	-	NOT ACCESSIBLE
Fan Suction SP	-	-1.15”
Fan Discharge SP	-	0.26”
Total ESP	0.8"	-
Fan Total SP	-	1.41"

General		
	Design	**Actual**
Fan Rotation Correct	-	YES
Unit Filters Clean	-	NO
Condensate Drain Installed	-	YES

Completed By: Stephen Tassinaro on 04/10/2024

Notes:
NO ACCESSIBLE OA DAMPER LOCATED.

Written By: Stephen Tassinaro on 04/10/2024

National TAB

Project:04-08-24 CHUY'S - MUELLER, TX

AHU/RTU

Diffuser Supply (GRD)

AHU3/

Asset									
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
AHU3-SGRD1	DINING	D	12"	525		494	494	494	94.1
AHU3-SGRD2	DINING	D	12"	550		585	585	585	106.4
AHU3-SGRD3	DINING	D	12"	525		486	486	486	92.6
Total				1600		1565	1565	1565	97.81%

Completed By: Stephen Tassinaro on 04/10/2024

National TAB

Project: 04-08-24 CHUY'S - MUELLER, TX

System/Unit: AHU/RTU

Asset: AHU4 AREA:

Unit Data		
	Design	**Actual**
MFG	GOODMAN	U.S. ALUMACOIL
Serial Num	-	2308174606
Model Num	ASPT61D14	AMST60DU1400AA
Type	AHU	AHU
Configuration	VERTICAL	HORIZONTAL
Num OA Filters 1	-	N/A
OA Filter Size 1	-	N/A
Num Final Filter 1	-	1
Final Filter Size 1	-	20X25X1

Motor Data		
	Design	**Actual**
Horsepower	1.0	1.0
Phase	1	1
Rated Voltage	208	208/240
Rated Amperage	-	6.9

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

Test Data		
	Design	**Actual**
SF CFM	1600	1603
SF RPM	-	SPEED TAP 5
RA CFM	1200	1168
OA CFM	400	435
RL Voltage	-	210
RL Amperage	-	3.4
SF Rotation	-	CORRECT
RA Damper Position	-	OPEN
Min OA Damper Position	-	HALF CLOSED
Min OA Damper Type	-	MANUAL VOLUME DAMPER

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.13"
Fan Suction SP	-	-0.55"
Fan Discharge SP	-	0.18"
Total ESP	0.8"	0.31"
Fan Total SP	-	0.73"

General		
	Design	**Actual**
Fan Rotation Correct	-	YES
Unit Filters Clean	-	NO
Condensate Drain Installed	-	YES

Completed By: Stephen Tassinaro on 04/09/2024

Notes:
FINAL FILTER REMOVED FOR TESTING AS IT WAS DAMAGED AND PULLED INTO THE EVAPORATOR COIL.

Written By: Stephen Tassinaro on 04/09/2024

National TAB

Project:04-08-24 CHUY'S - MUELLER, TX

AHU/RTU

Diffuser Supply (GRD)

AHU4/

Asset									
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
AHU4-SGRD1	DINING	B	12"	400	1	524	387	393	98.3
AHU4-SGRD2	DINING	A	12"	600	1	173	491	613	102.2
AHU4-SGRD3	DINING	A	12"	600	1	585	464	597	99.5
Total				1600		1282	1342	1603	100.19%

Completed By: Stephen Tassinaro on 04/09/2024

National TAB

Project: 04-08-24 CHUY'S - MUELLER, TX

System/Unit: AHU/RTU

Asset: AHU5 AREA:

Unit Data		
	Design	**Actual**
MFG	GOODMAN	U.S. ALUMACOIL
Serial Num	-	2308174603
Model Num	ASPT61D14	AMST60DU1400AA
Type	AHU	AHU
Configuration	VERTICAL	HORIZONTAL
Num OA Filters 1	-	N/A
OA Filter Size 1	-	N/A
Num Final Filter 1	-	1
Final Filter Size 1	-	20X25X1

Motor Data		
	Design	**Actual**
Horsepower	1.0	1.0
Phase	1	1
Rated Voltage	208	208/240
Rated Amperage	-	6.9

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

Test Data		
	Design	**Actual**
SF CFM	1600	1621
SF RPM	-	SPEED TAP 5**
RA CFM	1200	1195
OA CFM	400	426
RL Voltage	-	NOT ACCESSIBLE
RL Amperage	-	-
SF Rotation	-	CORRECT
RA Damper Position	-	OPEN
Min OA Damper Position	-	HALF CLOSED
Min OA Damper Type	-	MANUAL VOLUME DAMPER

Performance Data		
	Design	**Actual**
MA Plenum SP	-	NOT ACCESSIBLE
Fan Suction SP	-	-
Fan Discharge SP	-	-

General		
	Design	**Actual**
Fan Rotation Correct	-	YES
Unit Filters Clean	-	NO
Condensate Drain Installed	-	YES

Completed By: Stephen Tassinaro on 04/10/2024

Notes:
**Y1 NEEDS TO BE MOVED TO SPEED TAP 5. PER MC THESE AHU ONLY HAVE SINGLE STAGE COOLING WHICH IS DEFAULT SET TO SPEED TAP 3. TAP 5 REQUIRED FOR DESIGN AIRFLOW.

Written By: Stephen Tassinaro on 04/10/2024

National TAB

Project:04-08-24 CHUY'S - MUELLER, TX

AHU/RTU

Diffuser Supply (GRD)

AHU5/

Asset									
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
AHU5-SGRD1	DINING	A	12"	525	1	570	570	570	108.6
AHU5-SGRD2	DINING	A	12"	525	1	602	602	602	114.7
AHU5-SGRD3	DINING	A	12"	550	1	449	449	449	81.6
Total				1600		1621	1621	1621	101.31%

Completed By: Stephen Tassinaro on 04/09/2024

Asset	Notes	Date	Written By
AHU5-SGRD2	NO ACCESSIBLE DAMPER LOCATED	04/10/2024	Stephen Tassinaro

National TAB

Project: 04-08-24 CHUY'S - MUELLER, TX

System/Unit: AHU/RTU

Asset: AHU6 AREA:

Unit Data		
	Design	**Actual**
MFG	GOODMAN	U.S. ALUMACOIL
Serial Num	-	230874602
Model Num	ASPT61D14	AMST60DU1400AA
Type	AHU	AHU
Configuration	VERTICAL	HORIZONTAL
Num OA Filters 1	-	N/A
OA Filter Size 1	-	N/A
Num Final Filter 1	-	1
Final Filter Size 1	-	20X25X1

Motor Data		
	Design	**Actual**
Horsepower	1.0	1.0
Rated Voltage	208	208/240
Rated Amperage	-	6.9

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

Test Data		
	Design	**Actual**
SF CFM	1600	709
SF RPM	-	SPEED TAP 3 (DEFAULT)**
RA CFM	1200	-
OA CFM	400	-
RL Voltage	-	-
RL Amperage	-	-
SF Rotation	-	CORRECT
RA Damper Position	-	CLOSED/RESTRICTED
Min OA Damper Position	-	HALF OPEN
Min OA Damper Type	-	MANUAL VOLUME DAMPER

Performance Data		
	Design	**Actual**
MA Plenum SP	-	NOT ACCESSIBLE
Fan Suction SP	-	-
Fan Discharge SP	-	-

General		
	Design	**Actual**
Fan Rotation Correct	-	YES
Unit Filters Clean	-	NO
Condensate Drain Installed	-	YES

Completed By: Stephen Tassinaro on 04/09/2024

Notes:
Electrical compartment not accessible. Unable to adjust speed taps or measure voltage & amperage. // **SF CFM does not accurately represent unit total. Diffuser 2 cannot be read, and the total flow cannot be determined due to an incomplete return system. // **Y1 NEEDS TO BE MOVED TO SPEED TAP 5. PER MC THESE AHU ONLY HAVE SINGLE STAGE COOLING WHICH IS DEFAULT SET TO SPEED TAP 3. TAP 5 REQUIRED FOR DESIGN AIRFLOW.

Written By: Stephen Tassinaro on 04/10/2024

National TAB

Project:04-08-24 CHUY'S - MUELLER, TX

AHU/RTU

Diffuser Supply (GRD)

AHU6/

Asset									
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
AHU6-SGRD1	DINING	B	12"	500	1	395	395	395	79.0
AHU6-SGRD2	DINING	B	12"	600	1				-
AHU6-SGRD3	DINING	A	12"	500	1	314	314	314	62.8
Total				1600		709	709	709	44.31%

Completed By: Stephen Tassinaro on 04/09/2024

Asset	Notes	Date	Written By
AHU6-SGRD2	Diffuser cannot be read due to installation location. Airflow can be determined by subtracting diff user 1 & 3 airflows from the unit total. Unit total cannot be determined due to incomplete return s ystem. See issues.	04/09/2024	Stephen Tassinaro

National TAB

Project: 04-08-24 CHUY'S - MUELLER, TX

System/Unit: AHU/RTU

Asset: AHU7 AREA:

Unit Data		
	Design	**Actual**
MFG	GOODMAN	U.S. ALUMACOIL
Serial Num	-	2308063845
Model Num	ASPT61D14	AMST60DU1400AA
Type	AHU	AHU
Configuration	VERTICAL	HORIZONTAL
Num OA Filters 1	-	N/A
OA Filter Size 1	-	N/A
Num Final Filter 1	-	1
Final Filter Size 1	-	20X25X1

Motor Data		
	Design	**Actual**
Horsepower	1.0	1.0
Phase	1	1
Rated Voltage	208	208/240
Rated Amperage	6.9	6.9

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

Test Data		
	Design	**Actual**
SF CFM	1600	1626
SF RPM	-	SPEED TAP 5**
RA CFM	1200	1219
OA CFM	400	407
RL Voltage	-	INACCESSIBLE
RL Amperage	-	-
SF Rotation	-	CORRECT
RA Damper Position	-	OPEN
Min OA Damper Position	-	3/4 CLOSED
Min OA Damper Type	-	MANUAL VOLUME DAMPER

Performance Data		
	Design	**Actual**
MA Plenum SP	-	INACCESSIBLE
Fan Suction SP	-	-
Fan Discharge SP	-	-
Total ESP	0.8"	-
Fan Total SP	-	-

General		
	Design	**Actual**
Fan Rotation Correct	-	YES
Unit Filters Clean	-	NO
Condensate Drain Installed	-	YES

Completed By: Stephen Tassinaro on 04/10/2024

Notes:
**Y1 NEEDS TO BE MOVED TO SPEED TAP 5. PER MC THESE AHU ONLY HAVE SINGLE STAGE COOLING WHICH IS DEFAULT SET TO SPEED TAP 3. TAP 5 REQUIRED FOR DESIGN AIRFLOW.

Written By: Stephen Tassinaro on 04/10/2024

National TAB

Project:04-08-24 CHUY'S - MUELLER, TX

AHU/RTU

Diffuser Supply (GRD)

AHU7/

Asset									
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
AHU7-SGRD1	DINING	A	12"	525		455	455	469	89.3
AHU7-SGRD2	DINING	B	10"	300		329	329	297	99.0
AHU7-SGRD3	DINING	B	10"	250		309	309	329	131.6
AHU7-SGRD4	DINING	B	12"	525		492	492	531	101.1
Total				1600		1585	1585	1626	101.63%

Completed By: Stephen Tassinaro on 04/10/2024

Asset	Notes	Date	Written By
AHU7-SGRD3	DAMPER IS NOT ACCESSIBLE DUE TO HARD CEILING	04/10/2024	Stephen Tassinaro

National TAB

Project: 04-08-24 CHUY'S - MUELLER, TX

System/Unit: AHU/RTU

Asset: AHU8 AREA:

Unit Data		
	Design	**Actual**
MFG	GOODMAN	U.S. ALUMACOIL
Serial Num	-	230806842
Model Num	ASPT61D14	AMST60DU1400AA
Type	AHU	AHU
Configuration	VERTICAL	HORIZONTAL
Num OA Filters 1	-	N/A
OA Filter Size 1	-	N/A
Num Final Filter 1	-	1
Final Filter Size 1	-	20X25X1

Motor Data		
	Design	**Actual**
Horsepower	1.0	1.0
Phase	1	1
Rated Voltage	208	208/240
Rated Amperage	6.9	6.9

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

Test Data		
	Design	**Actual**
SF CFM	1600	1558
SF RPM	-	SPEED TAP 5
RA CFM	1200	1173
OA CFM	400	385
RL Voltage	-	211
RL Amperage	-	5.7
SF Rotation	-	CORRECT
RA Damper Position	-	OPEN
Min OA Damper Position	-	HALF OPEN
Min OA Damper Type	-	MANUAL VOLUME DAMPER

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.17”
Fan Suction SP	-	-1.19”
Fan Discharge SP	-	0.14”
Total ESP	0.8"	0.31”
Fan Total SP	-	1.33”

General		
	Design	**Actual**
Fan Rotation Correct	-	YES
Unit Filters Clean	-	NO
Condensate Drain Installed	-	YES

Completed By: Stephen Tassinaro on 04/10/2024

National TAB

Project:04-08-24 CHUY'S - MUELLER, TX

AHU/RTU

Diffuser Supply (GRD)

AHU8/

Asset									
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
AHU8-SGRD1	DINING	B	12"	525	1	483	483	483	92.0
AHU8-SGRD2	DINING	A	12"	550	1	585	585	585	106.4
AHU8-SGRD3	DINING	A	12"	525	1	490	490	490	93.3
Total				1600		1558	1558	1558	97.38%

Completed By: Stephen Tassinaro on 04/10/2024

National TAB

Project: 04-08-24 CHUY'S - MUELLER, TX

System/Unit: AHU/RTU

Asset: AHU9 AREA:

Unit Data		
	Design	**Actual**
MFG	GOODMAN	U.S. ALUMACOIL
Serial Num	-	2307173964
Model Num	ASPT61D14	AMST60DU1400AA
Type	AHU	AHU
Configuration	VERTICAL	HORIZONTAL
Num OA Filters 1	-	N/A
OA Filter Size 1	-	N/A
Num Final Filter 1	-	1
Final Filter Size 1	-	20X25X1

Motor Data		
	Design	**Actual**
Horsepower	1.0	1.0
Phase	1	1
Rated Voltage	208	208/240
Rated Amperage	6.9	6.9

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

Test Data		
	Design	**Actual**
SF CFM	1600	1603
SF RPM	-	SPEED TAB
RA CFM	1200	1183
OA CFM	400	420
RL Voltage	-	211
RL Amperage	-	4.4
SF Rotation	-	CORRECT
RA Damper Position	-	OPEN
Min OA Damper Position	-	3/4 CLOSED
Min OA Damper Type	-	MANUAL VOLUME DAMPER

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.09"
Fan Suction SP	-	-1.12"
Fan Discharge SP	-	0.17"
Total ESP	0.8"	0.26"
Fan Total SP	-	1.29"

General		
	Design	**Actual**
Fan Rotation Correct	-	YES
Unit Filters Clean	-	NO
Condensate Drain Installed	-	YES

Completed By: Stephen Tassinaro on 04/11/2024

Notes:
DIFFUSER LOCATIONS DO NOT EXACTLY MATCH MECHANICAL PLANS. SEE GRD MARKUP ON LAST PAGE OF REPORT.

Written By: Stephen Tassinaro on 04/10/2024

National TAB

Project:04-08-24 CHUY'S - MUELLER, TX

AHU/RTU

Diffuser Supply (GRD)

AHU9/

Asset									
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
AHU9-SGRD1	DINING	D	16"	750	1	777	735	735	98.0
AHU9-SGRD2	PATIO	E	12X10	425	1	437	421	421	99.1
AHU9-SGRD3	PATIO	E	12X10	425	1	347	447	447	105.2
Total				1600		1561	1603	1603	100.19%

Completed By: Stephen Tassinaro on 04/11/2024

National TAB

Project: 04-08-24 CHUY'S - MUELLER, TX

System/Unit: AHU/RTU

Asset: AHU10 AREA:

Unit Data		
	Design	**Actual**
MFG	GOODMAN	U.S. ALUMACOIL
Serial Num	-	2308174604
Model Num	ASPT61D14	AMST60DU1400AA
Type	AHU	AHU
Configuration	VERTICAL	HORIZONTAL
Num OA Filters 1	-	N/A
OA Filter Size 1	-	N/A
Num Final Filter 1	-	1
Final Filter Size 1	-	20X25X1

Motor Data		
	Design	**Actual**
Horsepower	1.0	1.0
Phase	1	1
Rated Voltage	208	208/240
Rated Amperage	6.9	6.9

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

Test Data		
	Design	**Actual**
SF CFM	1600	1532
SF RPM	-	SPEED TAP 5
RA CFM	1200	1170
OA CFM	400	362
RL Voltage	-	211
RL Amperage	-	4.4
SF Rotation	-	CORRECT
RA Damper Position	-	OPEN
Min OA Damper Position	-	HALF OPEN
Min OA Damper Type	-	MANUAL VOLUME DAMPER

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.14"
Fan Suction SP	-	-0.95"
Fan Discharge SP	-	NOT ACCESSIBLE

General		
	Design	**Actual**
Fan Rotation Correct	-	YES
Unit Filters Clean	-	NO
Condensate Drain Installed	-	YES

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National TAB

Project:04-08-24 CHUY'S - MUELLER, TX

AHU/RTU

Diffuser Supply (GRD)

AHU10/

Asset									
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
AHU10-SGRD1	DINING	A	12"	525	1	121	459	537	102.3
AHU10-SGRD2	DINING	A	12"	525	1	726	562	498	94.9
AHU10-SGRD3	DINING	A	12"	550	1	726	601	497	90.4
Total				1600		1573	1622	1532	95.75%

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National TAB

Project: 04-08-24 CHUY'S - MUELLER, TX

System/Unit: AHU/RTU

Asset: AHU11 AREA:

Unit Data		
	Design	**Actual**
MFG	GOODMAN	U.S. ALUMACOIL
Serial Num	-	2308174607
Model Num	ASPT61D14	AMST60DU1400AA
Type	AHU	AHU
Configuration	VERTICAL	HORIZONTAL
Num OA Filters 1	-	N/A
OA Filter Size 1	-	N/A
Num Final Filter 1	-	1
Final Filter Size 1	-	20X25X1

Motor Data		
	Design	**Actual**
Horsepower	1.0	1.0
Phase	1	1
Rated Voltage	208	208/240
Rated Amperage	6.9	6.9

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

Test Data		
	Design	**Actual**
SF CFM	1600	1467
SF RPM	-	SPEED TAB
RA CFM	1200	608
OA CFM	400	859
RL Voltage	-	210
RL Amperage	-	4.5
SF Rotation	-	CORRECT
RA Damper Position	-	OPEN
Min OA Damper Position	-	OPEN
Min OA Damper Type	-	MANUAL VOLUME DAMPER

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.10"
Fan Suction SP	-	-1.38"
Fan Discharge SP	-	0.12"
Total ESP	0.8"	0.22"
Fan Total SP	-	1.50"

General		
	Design	**Actual**
Fan Rotation Correct	-	YES
Unit Filters Clean	-	NO
Condensate Drain Installed	-	YES

Completed By: Stephen Tassinaro on 04/11/2024

Notes:
NO OA DAMPER HANDLE ACCESSIBLE.

Written By: Stephen Tassinaro on 04/11/2024

National TAB

Project:04-08-24 CHUY'S - MUELLER, TX

AHU/RTU

Diffuser Supply (GRD)

AHU11/

Asset									
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
AHU11-SGRD1	KITCHEN	D	14"	800	1	491	731	731	91.4
AHU11-SGRD2	KITCHEN	D	14"	400	1	519	375	375	93.8
AHU11-SGRD3	KITCHEN	D	16"	400	1	532	361	361	90.3
Total				1600		1542	1467	1467	91.69%

National TAB

Project: 04-08-24 CHUY'S - MUELLER, TX

System/Unit: FAN - Exhaust

Asset: EF1 AREA:

Unit Data		
	Design	**Actual**
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	USBI36DD-RM	USBI36DD-RM
Serial Num	-	6099250
Type	DIRECT DRIVE	CENTRIFUGAL
Configuration	VERTICAL	UPBLAST

Motor Data		
	Design	**Actual**
Motor MFG	-	WEG
Frame	-	284/6T
Horsepower	10	10
Motor Rpm	-	880
Phase	3	3
Voltage (rated)	480	230/460
Amperage (rated)	-	26.8/13.4
Service Factor	-	1.25

Test Data		
	Design	**Actual**
CFM	8907	8806
Fan RPM	-	757
Fan Rotation	-	CORRECT
Motor RPM	-	757
System SetPt	-	51.6Hz
RL Voltage	-	490 VFD
RL Amperage	-	12.8VFD
Total ESP	2.5	INACCESSIBLE
Fan Inlet SP	-	-
Fan Discharge SP	-	-

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National TAB

Project: 04-08-24 CHUY'S - MUELLER, TX

System/Unit: FAN - Exhaust

Asset: EF2 AREA:

Unit Data		
	Design	**Actual**
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	SIF11DD-SS	SIF11DD-SS
Serial Num	-	6099250
Type	DIRECT DRIVE	INLINE
Configuration	VERTICAL	HORIZONTAL

Motor Data		
	Design	**Actual**
Motor MFG	-	NL
Frame	-	NL
Horsepower	1/2	0.5
Motor Rpm	-	NL
Phase	1	1
Voltage (rated)	120	115
Amperage (rated)	-	6.3
Service Factor	-	NL

Test Data		
	Design	**Actual**
CFM	600	597
Fan RPM	-	1864
Fan Rotation	-	CORRECT
Motor RPM	-	1864
System SetPt	-	93P
RL Voltage	-	INACCESSIBLE
RL Amperage	-	-
Total ESP	1.0"	-
Fan Inlet SP	-	INACCESSIBLE
Fan Discharge SP	-	0.16”

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National TAB

Project: 04-08-24 CHUY'S - MUELLER, TX

System/Unit: FAN - Exhaust

Asset: EF3 AREA:

Unit Data		
	Design	**Actual**
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	SIF10DD	SIF11DD
Serial Num	-	6099250
Type	DIRECT DRIVE	INLINE
Configuration	VERTICAL	HORIZONTAL

Motor Data		
	Design	**Actual**
Motor MFG	-	NL
Frame	-	NL
Horsepower	0.18	0.5
Motor Rpm	-	NL
Phase	1	1
Voltage (rated)	120	115
Amperage (rated)	-	8.4
Service Factor	-	NL

Test Data		
	Design	**Actual**
CFM	400	421
Fan RPM	-	DD
Fan Rotation	-	CORRECT
Motor RPM	-	DD
System SetPt	-	SPEED CONTROLLER
RL Voltage	-	NOT ACCESSIBLE
RL Amperage	-	-
Total ESP	1.0	0.88"
Fan Inlet SP	-	-0.36"
Fan Discharge SP	-	0.52"

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National TAB

Project: 04-08-24 CHUY'S - MUELLER, TX

System/Unit: FAN - Supply

Asset: MUA1 AREA:

Unit Data		
	Design	**Actual**
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	A3-E.1224-24D-MPU	A3-E.1224-24D-MPU
Serial Num	-	6099250
Type	MUA	MUA
Configuration	VERTICAL	HORIZONTAL

Motor Data		
	Design	**Actual**
Motor MFG	-	NL
Frame	-	NL
Horsepower	10.000	10.0
Motor Rpm	-	NL
Phase	3	3
Voltage (rated)	460	460
Amperage (rated)	-	12.2
Service Factor	-	NL

Gas Heat		
	Design	**Actual**
Heater Operates (y/n)	-	YES
Flame Status (pass/fail)	-	N/A
Inlet Air Temp SetPt	-	55
Discharge Air Temp SetPt	-	60
Air Flow Switch SP Actual	-	NO PORTS

Test Data		
	Design	**Actual**
CFM	6227	6080
SF System SetPt	-	45.8Hz
RL Voltage	-	490 VFD
RL Amperage	-	5.8 VFD

General		
	Design	**Actual**
Fan Rotation Correct	-	YES

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National TAB

Project: 04-08-24 CHUY'S - MUELLER, TX

System/Unit: Kitchen Hood Type I

Asset: HD1 AREA:

Unit Data		
	Design	**Actual**
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	4824 ND-2	4824 ND-2
Job / Serial Num	-	6099250
Type	TYPE 1 HOOD CANOPY	TYPE I CANOPY
Hood length	48"	72”
Hood Width	48"	48”

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	1.62
Filter Total AK Area	6.48	6.48
Filter1 FPM	-	160
Filter2 FPM	-	174
Filter3 FPM	-	172
Filter4 FPM	-	152
Filter Ave FPM(corr)	-	164
CFM	1050	1066

Cooking Equipment		
	Design	**Actual**
Item 1	-	OVEN
Item 2	-	OVEN

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National TAB

Project: 04-08-24 CHUY'S - MUELLER, TX

System/Unit: Kitchen Hood Type I

Asset: HD2 AREA:

Unit Data		
	Design	**Actual**
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	5424 ND-2-PSP-F	5424 ND-2
Job / Serial Num	-	6099250
Type	TYPE 1 CANOPY	TYPE I CANOPY
Hood length	150"	144”
Hood Width	54"	54”
Supply Plenum Type	-	PSP
Supply Plenum Width	12"	12”
Supply Plenum Length	148"	144”

Test Data Exhaust		
	Design	**Actual**
Filter Type	CAPTRATE SOLO	CAPTRATE SOLO
Filter Size 1	20X16	20X16
Filter Qty 1	9	9
Filter AK factor size 1	2.08	2.08
Filter Total AK Area	18.72	18.72
Filter1 FPM	-	99
Filter2 FPM	-	98
Filter3 FPM	-	128
Filter4 FPM	-	135
Filter5 FPM	-	128
Filter6 FPM	-	126
Filter7 FPM	-	103
Filter8 FPM	-	108
Filter9 FPM	-	95
Filter Ave FPM(corr)	-	113
CFM	2097	2122

Cooking Equipment		
	Design	**Actual**
Item 1	-	OVEN
Item 2	-	STOVE
Item 3	-	BPM-30EC

Test Data Supply		
	Design	**Actual**
Total AK Area	12.0	12.0
Kv factor (Vel)	0.87	0.87
Num of Readings	-	9
Reading1 FPM	-	177
Reading2 FPM	-	171
Reading3 FPM	-	170
Reading4 FPM	-	189
Reading5 FPM	-	107
Reading6 FPM	-	127
Reading7 FPM	-	149
Reading8 FPM	-	117
Reading9 FPM	-	135
Ave FPM(corr)	-	149
CFM	1573	1557

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National TAB

Project: 04-08-24 CHUY'S - MUELLER, TX

System/Unit: Kitchen Hood Type I

Asset: HD3 AREA:

Unit Data		
	Design	**Actual**
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	5424 ND-2-PSP-F	5424 ND-2
Job / Serial Num	-	6099250
Type	TYPE 1 CANOPY	TYPE I CANOPY
Hood length	128"	132”
Hood Width	54"	54”
Supply Plenum Type	-	PSP
Supply Plenum Width	12"	12”
Supply Plenum Length	140"	144”

Test Data Exhaust		
	Design	**Actual**
Filter Type	CAPTRATE SOLO FILTER	CAPTRATE SOLO
Filter Size 1	20X16	20X16
Filter Qty 1	8	8
Filter AK factor size 1	2.08	2.08
Filter Total AK Area	16.64	16.64
Filter1 FPM	-	99
Filter2 FPM	-	104
Filter3 FPM	-	110
Filter4 FPM	-	124
Filter5 FPM	-	137
Filter6 FPM	-	129
Filter7 FPM	-	106
Filter8 FPM	-	88
Filter Ave FPM(corr)	-	112
CFM	1813	1866

Cooking Equipment		
	Design	**Actual**
Item 1	-	BPM-40EC
Item 2	-	WEDGE PRESS
Item 3	-	GRIDDLE

Test Data Supply		
	Design	**Actual**
Total AK Area	12.0	12.0
Kv factor (Vel)	0.87	0.87
Num of Readings	-	9
Reading1 FPM	-	170
Reading2 FPM	-	132
Reading3 FPM	-	117
Reading4 FPM	-	137
Reading5 FPM	-	131
Reading6 FPM	-	125
Reading7 FPM	-	75
Reading8 FPM	-	122
Reading9 FPM	-	187
Ave FPM(corr)	-	133
CFM	1450	1387

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National TAB

Project: 04-08-24 CHUY'S - MUELLER, TX

System/Unit: Kitchen Hood Type I

Asset: HD4 AREA:

Unit Data		
	Design	**Actual**
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	5424 ND-2-PSP-F	5424 ND-2
Job / Serial Num	-	6099250
Type	TYPE 1 CANOPY	TYPE I CANOPY
Hood length	102"	102”
Hood Width	54"	54”
Supply Plenum Type	-	PSP
Supply Plenum Width	114"	16”
Supply Plenum Length	16"	114”

Test Data Exhaust		
	Design	**Actual**
Filter Type	CAPTRATE SOLO FILTER	CAPTRATE SOLO
Filter Size 1	20X16	20X16
Filter Qty 1	6	6
Filter AK factor size 1	2.08	2.08
Filter Total AK Area	12.48	12.48
Filter1 FPM	-	133
Filter2 FPM	-	136
Filter3 FPM	-	158
Filter4 FPM	-	165
Filter5 FPM	-	136
Filter6 FPM	-	121
Filter Ave FPM(corr)	-	141.5
CFM	1742	1766

Cooking Equipment		
	Design	**Actual**
Item 1	-	FRYER
Item 2	-	FRYER
Item 3	-	GRILL

Test Data Supply		
	Design	**Actual**
Total AK Area	12.67	12.67
Kv factor (Vel)	0.91	0.91
Num of Readings	-	6
Reading1 FPM	-	116
Reading2 FPM	-	120
Reading3 FPM	-	120
Reading4 FPM	-	125
Reading5 FPM	-	129
Reading6 FPM	-	148
Ave FPM(corr)	-	126
CFM	1742	1560

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National TAB

Project: 04-08-24 CHUY'S - MUELLER, TX

System/Unit: Kitchen Hood Type I

Asset: HD5 AREA:

Unit Data		
	Design	**Actual**
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	5424 ND-2-PSP-F	5424 ND-2
Job / Serial Num	-	6099250
Type	TYPE 1 CANOPY	TYPE I CANOPY
Hood length	108"	108”
Hood Width	54"	54”
Supply Plenum Type	-	PSP
Supply Plenum Width	16"	16”
Supply Plenum Length	108"	108”

Test Data Exhaust		
	Design	**Actual**
Filter Type	CAPTRATE SOLO	CAPTRATE SOLO
Filter Size 1	20X16	20X16
Filter Qty 1	6	6
Filter AK factor size 1	2.08	2.08
Filter Total AK Area	12.48	12.48
Filter1 FPM	-	153
Filter2 FPM	-	159
Filter3 FPM	-	175
Filter4 FPM	-	175
Filter5 FPM	-	155
Filter6 FPM	-	138
Filter Ave FPM(corr)	-	159
CFM	2205	1986

Cooking Equipment		
	Design	**Actual**
Item 1	-	GRILL
Item 2	-	GRIDDLE
Item 3	-	OVEN

Test Data Supply		
	Design	**Actual**
Total AK Area	12.0	12.0
Kv factor (Vel)	0.91	0.91
Num of Readings	-	6
Reading1 FPM	-	189
Reading2 FPM	-	152
Reading3 FPM	-	146
Reading4 FPM	-	143
Reading5 FPM	-	150
Reading6 FPM	-	173
Ave FPM(corr)	-	159
CFM	2205	1576

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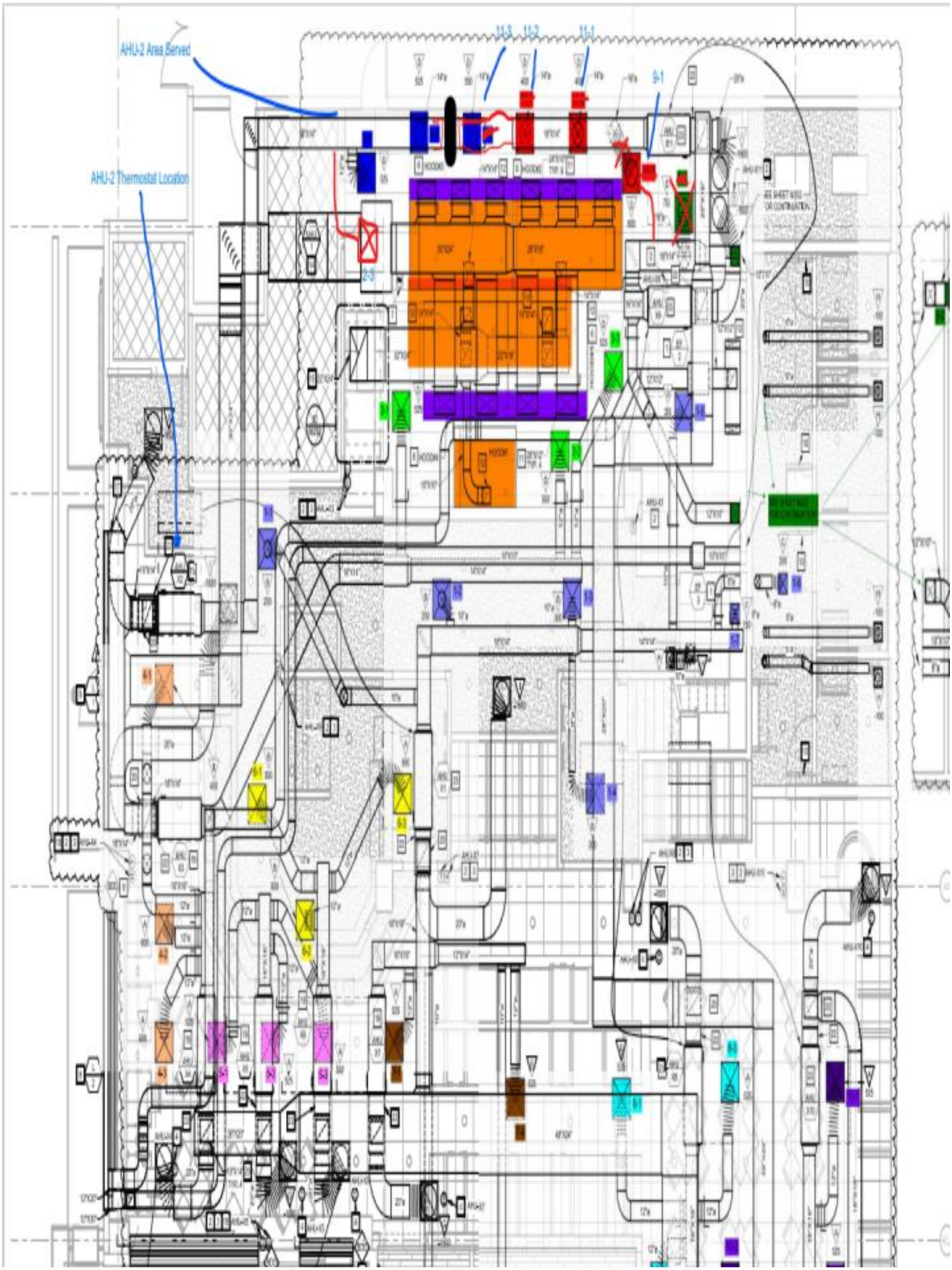
AHU-2 Area Served
AHU-2 Thermostat Location