Report by:
United T&B
7013 Flagler Rd, Nordland, WA
98358

NATIONAL TAB

Comfort. Under control.

For:
National TAB
1329 E. Kemper Road
Suite 4210
Cincinnati, OH 45246

Report: FINAL TAB REPORT
Function: Test, Adjust, & Balance
Date: 10/24/2022

PROJECT

10-10 CHIPOTLE #02-4407 PAYSON II, AZ (PAYSON)

108 S Beeline Hwy

PAYSON, AZ 85541

Client

Chipotle Mexican Grill

1401 Wynkoop Street, Suite 500

Denver, CO 80202

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.

MUA (Make Up Air Unit) w/ PSP

Total flow for the MAU (Make-up Air Unit) unit was measured by readings taken at the discharge of the hood's perforated supply plenum. Readings taken with a velocity matrix were averaged and multiplied by a manufacturer's corrected area. Adjustments to the fan speed were made in order to bring the unit to within design tolerance. Any MUA'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.

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	KITCHEN	3000	3060	2500	2561	500	499	16.7%	16.3%						
RTU-2	DINING	3200	3216	2200	2248	1000	968	31.3%	30.1%						
MUA-1	KITCHEN HOOD									1950	2080				
EF-1	KITCHEN HOOD											1600	1627		
EF-2												1600	1713		
EF-3	RESTROOM													150	155
TOTALS		6200	6276	4700	4809	1500	1467			1950	2080	3200	3340	150	155

NET BUILDING AIRFLOW CALCULATION

TOTALS	DESIGN	ACTUAL
TOTAL OA	3450	3547
TOTAL EXHAUST	3350	3495
NET AIRFLOW	100	52

DOOR TESTED	BUILDING PRESSURE MEASUREMENTS (IN. H20)
FRONT	0.0012
SIDE	0.0016
REAR	0.0022
AVERAGE	**0.0017**

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:

Date: 10/24/2022

SYSTEM/UNIT: Project Checklist

Tested By: Clayton Nelson
Date: 10/14/2022

Inspection Data - Project Checklist

	Verification	Response	Notes	By	Date/Time
1	All diffusers and grilles are installed and match design?	Yes		CN	10/13/22 13:13
2	Deflector plates are removed from 1x1 diffusers on the serve line (double check that this is specified on the diffuser schedule first)	Yes		CN	10/13/22 13:13
3	All hood filters installed and accounted for?	Yes		CN	10/13/22 13:13
4	Hoods are wired and have power?	Yes		CN	10/13/22 13:13
5	Hood is free of alarms?	No		CN	10/13/22 17:24
6	Thermostats have power?	Yes		CN	10/13/22 13:13
7	Have trades/general contractor been notified about any issues and are they created on FaciliBuild?	Yes		CN	10/13/22 13:14

General - Project Checklist

	Verification	Response	Notes	By	Date/Time
1	Is space free of drafting?	Yes		CN	10/13/22 13:14
2	Is space comfortable in all areas?	Yes		CN	10/13/22 13:14
3	Is the space free of ventilation noise?	Yes		CN	10/13/22 13:14
4	If deviations from design were necessary to resolve 103 what were they? Otherwise put "NA"	Yes		CN	10/13/22 13:14

Log:

Project Checklist	10/13/2022	Clayton Nelson	T-stats not mounted to wall. Grid point system not yet installed.
Project Checklist	10/13/2022	Clayton Nelson	Hood showing alarm for supply fan VFD. Configuration screen in hood is also not monitoring amps from supply fan. All fans continue to run when turned off on HDMI.

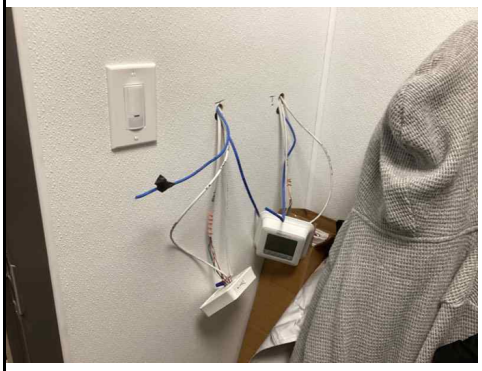
Issue ID:	0001	Status:	Open	Issue Priority:	
Equipment:	Project Checklist				Created Date: 13-Oct-22

Issue Description:

T-stats not mounted to wall. Grid point system not yet installed.

Issue Type: Installation
Role Assignment: Mechanical Contractor
Comments / Signature:

Issue Photos:



Name: Thermostats have power? - Yes - T -stats not mounte.jpg
Captured: 10/13/2022 1:14 PM

Issue ID:	0002	Status:	Open	Issue Priority:	
Equipment:	Project Checklist				Created Date: 13-Oct-22

Issue Description:

Hood showing alarm for supply fan VFD. Configuration screen in hood is also not monitoring amps from supply fan. All fans continue to run when turned off on HDMI.

Issue Type: Installation
Role Assignment: Mechanical Contractor
Comments / Signature:

Issue Photos:

Name: Hood is free of alarms? - No - Hood showing alarm .jpg
Captured: 10/13/2022 5:26 PM

Issue ID:	0003	Status:	Accepted as is	Issue Priority:	
Equipment:	RTU-01				Created Date: 13-Oct-22
					Completed Date: 13-Oct-22
Issue Description:					
Return damper in duct jammed shut limiting unit to 80% of design CFM. Damper was removed and flex duct replaced by tab contractor.					
Issue Type:	Installation				
Role Assignment:	Mechanical Contractor				
Comments / Signature:					

Issue ID:	0004	Status:	Corrected	Issue Priority:	
Equipment:	RTU-01/S-05				Created Date: 13-Oct-22
Area:	Service Line				Completed Date: 13-Oct-22
Issue Description:					
4 way deflector not removed.					
Issue Type:	Installation				
Role Assignment:	Mechanical Contractor				
Comments / Signature:					

Issue ID:	0005	Status:	Corrected	Issue Priority:	
Equipment:	RTU-01/S-06				Created Date: 13-Oct-22
Area:	Service Line				Completed Date: 13-Oct-22
Issue Description:					
4 way deflector not removed.					
Issue Type:	Installation				
Role Assignment:	Mechanical Contractor				
Comments / Signature:					

Issue ID:	0006	Status:	Corrected	Issue Priority:	
Equipment:	RTU-01/S-07				Created Date: 13-Oct-22
Area:	Service Line				Completed Date: 13-Oct-22
Issue Description:					
4 way deflector not removed.					
Issue Type:	Installation				
Role Assignment:	Mechanical Contractor				
Comments / Signature:					

Issue ID:	0007	Status:	Corrected	Issue Priority:	
Equipment:	RTU-01/S-08				Created Date: 13-Oct-22
Area:	Service Line				Completed Date: 13-Oct-22
Issue Description:					
4 way deflector not removed.					
Issue Type:	Installation				
Role Assignment:	Mechanical Contractor				
Comments / Signature:					

SYSTEM/UNIT: RTU-01

Tested By: Clayton Nelson
Date: 10/14/2022

Design Airflow (CFM)	
Design Total	3000
Design Grille Total	3000
Design Return	2500
Design Min O/A	500

Unit Design Data	
Submittal Make	Trane
Submittal Model #	48HC-D08
Submittal Airflow	Not Provided
Sched./Sub. Volts	208
Sched./Sub. Phase	3
Sched./Sub. HP	Not Listed
Submittal BHP	Not Provided
Filter MERV Rating (Sched/Sub)	Not Listed

Design Static Pressures (in wg)	
Design Ext SP	0.8
Submittal Total SP	Not Provided
Submittal Clg Coil Δ SP	-

Filter Data	
Condition	Partially Loaded
Filter Type	Disposable
MERV Rating	-
Filter Size Set 1 (in)	20x20x2
# Filters Set 1	4
Filter Size Set 2 (in)	-
# Filters Set 2	-

Motor Nameplate Data	
Motor Make	Marathon
Motor Frame	56HZ
Motor HP	-
Motor RPM	1670
Motor Volts	208
Motor Phase	3

Final Airflow (CFM)	
Actual Total CFM	3060
Actual Grille Total CFM	3060
Actual Return Air CFM	2561
Actual Min O/A CFM	499
Fan CFM Test Method	Supply Outlet Total
OA Method/Instrument	Face Velocity/RVA
OA Ak (sq ft)	3.694
OA Damper Position	16% Open
RA Damper Position	84% Open

Unit Data	
Make (tag)	Carrier
Model # (tag)	48HCDD08A2M5A6F4J0
Serial # (tag)	2922P79367
Location	Roof
Unit Discharge	Downblast
Cooling Coil Location	Unit / Drawthru
Coil Area (sq ft)	11.1
Clg Coil Vel (FPM)	276
Fan Service	Supply
Fan Type	Centrifugal (FC)
Fan Discharge	Downblast
Fan Arrangement	DWDI

Fan Design Data	
Submittal Motor RPM	Not Provided
Submittal Fan RPM	-

Fan Data	
Actual Fan RPM/Speed	939
Actual Motor RPM	1735

Electrical Data	
Measurement Method	VFD Display
Motor Volts 1	214
Motor Volts 2	-

SYSTEM/UNIT: RTU-01

Tested By: Clayton Nelson
Date: 10/14/2022

Motor Nameplate Data	
Motor Amps	6.7
Motor S.F.	1.15
Motor % PF	-
Motor % Eff.	-
Other Motor Data	-

Drive Data	
Drive Type	Belt Drive
Sheave Type	Variable
Fan Sheave Make	Fenner Drives
Fan Shv Mod# or Size (in)	AFD74
Fan Sheave Bore (in)	1
Motor Sheave Make	Power Drive
Mtr Shv Mod# or Size (in)	1VP44
Motor Sheave Bore (in)	5/8
VP Range	Fully Closed
Center Distance (in)	16.0
No of Belts	1
Belt Make	Browning
Belt Size	A48
Other Data	-

Electrical Data	
Motor Volts 3	-
Motor Amps 1	5.6
Motor Amps 2	-
Motor Amps 3	-
Operating HZ	60.00
Approx. BHP	
Corr. Nameplate Amps	6.5
Starter Data	Internal to VFD
VFD Reference	Not Applicable

SYSTEM/UNIT: RTU-01

Tested By: Clayton Nelson
Date: 10/14/2022

Motor Make Photo:

Name: Motor Make.jpg
Captured: 10/13/2022 12:53 PM
Caption:

Make (tag) Photo:

Name: Make (tag).jpg
Captured: 10/13/2022 12:51 PM
Caption:

SYSTEM/UNIT: RTU-01

Tested By: Clayton Nelson
Date: 10/14/2022

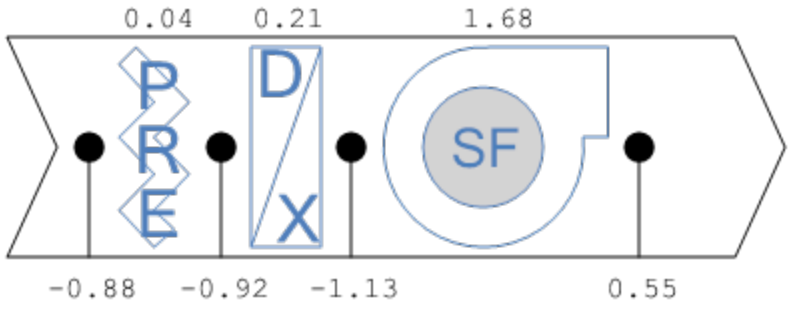
Inspection Data - RTU-01

	Verification	Response	Notes	By	Date/Time
1	IS ECONOMIZER BLANK PLATE INSTALLED BELOW THE OUTDOOR AIR FILTERS? (IF NO, REMOVE THE PIECE FROM UNDERNEATH THE COIL FILTER BANK AND INSTALL) Trane only (N/A = not applicable)	Yes		CN	10/13/22 12:54
2	Economizers are assembled and functional?	Yes		CN	10/13/22 12:54
3	DCV Max damper opening position is set to minimum?	Yes		CN	10/13/22 12:54
4	Free cooling enthalpy set point set for lowest setting (Typically "D")	Yes		CN	10/13/22 12:55
5	Is the motor operating below the motor FLA rating?	Yes		CN	10/13/22 12:55
6	Belts are Tight?	Yes		CN	10/13/22 12:55
7	If direct drive unit is the speed controller working.	NA		CN	10/13/22 12:55
8	Gas piping is installed and valves are in on position?	Yes		CN	10/13/22 12:55
9	Unit free of noticeable noise and vibration?	Yes		CN	10/13/22 12:55

SYSTEM/UNIT: RTU-01/Static Profile

Tested By: Clayton Nelson
Date: 10/14/2022

Static Pressure Profile



RTU-01 Supply Outlet Summary

System/Unit	Area Served	Type	Size / Area (in)	Design CFM	Prelim CFM	Final CFM	% Final	Instrument	Ak	Open (sq ft)	Final FPM
S-01	Office	CD	8	150	240	161	107	Capture Hood	1.000	1.000	161
S-02	Kitchen	CD	12	250	172	262	105	Capture Hood	1.000	1.000	262
S-03	Kitchen	CD	12	250	204	272	109	Capture Hood	1.000	1.000	272
S-04	Kitchen	CD	12	150	217	164	109	Capture Hood	1.000	1.000	164
S-05	Service Line	CD	8	225	134	210	93	Capture Hood	1.000	1.000	210
S-06	Service Line	CD	8	225	131	209	93	Capture Hood	1.000	1.000	209
S-07	Service Line	CD	8	225	101	204	91	Capture Hood	1.000	1.000	204
S-08	Service Line	CD	8	225	135	211	94	Capture Hood	1.000	1.000	211
S-09	Kitchen	CD	8	150	133	139	93	Capture Hood	1.000	1.000	139
S-10	Kitchen	CD	12	350	305	353	101	Capture Hood	1.000	1.000	353
S-11	ACPSP	PSP	168x6	800	808	875	109	Velgrid	6.121	6.750	143
	Totals:	-	-	**3000**	**2580**	**3060**	**102**	-	-	-	-

SYSTEM/UNIT: RTU-02

Tested By: Clayton Nelson
Date: 10/14/2022

Design Airflow (CFM)	
Design Total	3200
Design Grille Total	3200
Design Return	2200
Design Min O/A	1000

Unit Design Data	
Submittal Make	Trane
Submittal Model #	48HC-D09
Submittal Airflow	Not Provided
Sched./Sub. Volts	208
Sched./Sub. Phase	3
Sched./Sub. HP	Not Listed
Submittal BHP	Not Provided
Filter MERV Rating (Sched/Sub)	Not Listed

Design Static Pressures (in wg)	
Design Ext SP	0.8
Submittal Total SP	Not Provided
Submittal Clg Coil Δ SP	-

Filter Data	
Condition	Partially Loaded
Filter Type	Disposable
MERV Rating	-
Filter Size Set 1 (in)	20x20x2
# Filters Set 1	4
Filter Size Set 2 (in)	-
# Filters Set 2	-

Motor Nameplate Data	
Motor Make	Marathon
Motor Frame	56HZ
Motor HP	-
Motor RPM	1750
Motor Volts	230
Motor Phase	3

Final Airflow (CFM)	
Actual Total CFM	3216
Actual Grille Total CFM	3216
Actual Return Air CFM	2248
Actual Min O/A CFM	968
Fan CFM Test Method	Supply Outlet Total
OA Method/Instrument	Face Velocity/RVA
OA Ak (sq ft)	3.694
OA Damper Position	35% Open
RA Damper Position	65% Open

Unit Data	
Make (tag)	Carrier
Model # (tag)	48HCED09A3M5A6F4J0
Serial # (tag)	2122P76001
Location	Roof
Unit Discharge	Downblast
Cooling Coil Location	Unit / Drawthru
Coil Area (sq ft)	11.1
Clg Coil Vel (FPM)	290
Fan Service	Supply
Fan Type	Centrifugal (FC)
Fan Discharge	Downblast
Fan Arrangement	DWDI

Fan Design Data	
Submittal Motor RPM	Not Provided
Submittal Fan RPM	-

Fan Data	
Actual Fan RPM/Speed	721
Actual Motor RPM	1385

Electrical Data	
Measurement Method	VFD Display
Motor Volts 1	137
Motor Volts 2	-

SYSTEM/UNIT: RTU-02

Tested By: Clayton Nelson
Date: 10/14/2022

Motor Nameplate Data	
Motor Amps	9.2
Motor S.F.	1.15
Motor % PF	-
Motor % Eff.	-
Other Motor Data	-

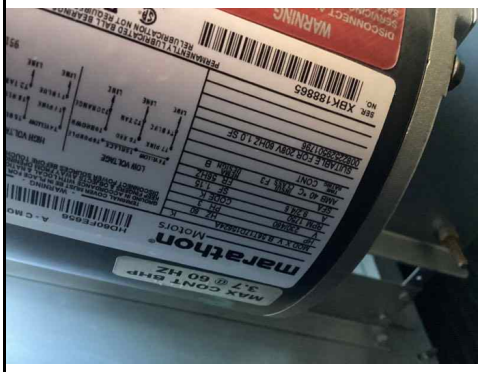
Drive Data	
Drive Type	Belt Drive
Sheave Type	Variable
Fan Sheave Make	Fenner Drives
Fan Shv Mod# or Size (in)	AFD74
Fan Sheave Bore (in)	1
Motor Sheave Make	Power Drive
Mtr Shv Mod# or Size (in)	1VM50
Motor Sheave Bore (in)	7/8
VP Range	Full Open
Center Distance (in)	17.0
No of Belts	1
Belt Make	Browning
Belt Size	AX49
Other Data	-

Electrical Data	
Motor Volts 3	-
Motor Amps 1	5.1
Motor Amps 2	-
Motor Amps 3	-
Operating HZ	47.50
Approx. BHP	
Corr. Nameplate Amps	15.4
Starter Data	Internal to VFD
VFD Reference	Not Applicable

SYSTEM/UNIT: RTU-02

Tested By: Clayton Nelson
Date: 10/14/2022

Motor Make Photo:



Name: Motor Make.jpg
Captured: 10/13/2022 12:36 PM
Caption:

Make (tag) Photo:

Name: Make (tag).jpg
Captured: 10/13/2022 12:32 PM
Caption:

SYSTEM/UNIT: RTU-02

Tested By: Clayton Nelson
Date: 10/14/2022

Inspection Data - RTU-02

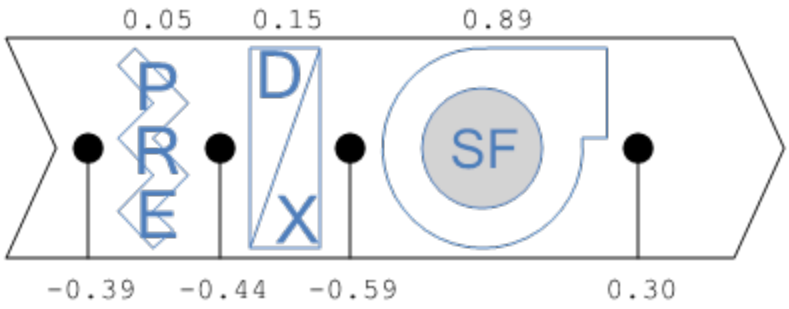
	Verification	Response	Notes	By	Date/Time
1	IS ECONOMIZER BLANK PLATE INSTALLED BELOW THE OUTDOOR AIR FILTERS? (IF NO, REMOVE THE PIECE FROM UNDERNEATH THE COIL FILTER BANK AND INSTALL) Trane only (N/A = not applicable)	Yes		CN	10/13/22 12:38
2	Economizers are assembled and functional?	Yes		CN	10/13/22 12:38
3	DCV Max damper opening position is set to minimum?	Yes		CN	10/13/22 12:38
4	Free cooling enthalpy set point set for lowest setting (Typically "D")	Yes		CN	10/13/22 12:38
5	Is the motor operating below the motor FLA rating?	Yes		CN	10/13/22 12:38
6	Belts are Tight?	Yes		CN	10/13/22 12:38
7	If direct drive unit is the speed controller working.	NA		CN	10/13/22 12:38
8	Gas piping is installed and valves are in on position?	Yes		CN	10/13/22 12:38
9	Unit free of noticeable noise and vibration?	Yes		CN	10/13/22 12:38

Log: RTU-02 VFD limited at 47.5 Hz to meet design airflow.

SYSTEM/UNIT: RTU-02/Static Profile

Tested By: Clayton Nelson
Date: 10/14/2022

Static Pressure Profile



RTU-02 Supply Outlet Summary

System/Unit	Area Served	Type	Size / Area (in)	Design CFM	Prelim CFM	Final CFM	% Final	Instrument	Ak	Open (sq ft)	Final FPM
S-01	Dining	SW	14	475	411	495	104	Capture Hood	1.000	1.000	495
S-02	Dining	SW	14	475	414	491	103	Capture Hood	1.000	1.000	491
S-03	Dining	SW	14	450	960	453	101	Capture Hood	1.000	1.000	453
S-04	Dining	SW	14	450	389	455	101	Capture Hood	1.000	1.000	455
S-05	Dining	SW	14	450	412	431	96	Capture Hood	1.000	1.000	431
S-06	Dining	SW	14	450	420	444	99	Capture Hood	1.000	1.000	444
S-07	Dining	SW	14	450	421	447	99	Capture Hood	1.000	1.000	447
	Totals:	**-**	**-**	**3200**	**3427**	**3216**	**101**	**-**	**-**	**-**	**-**

SYSTEM/UNIT: EF-01

Tested By: Clayton Nelson
Date: 10/14/2022

Design Airflow (CFM)	
Design Airflow	1600
Design Grille Airflow	Not Applicable

Unit Design Data	
Submittal Make	CAPTIVE-AIRE
Submittal Model #	DU85HFA
Submittal Airflow	Not Provided
Sched./Sub. Volts	120
Sched./Sub. Phase	1
Sched./Sub. HP	3/4
Submittal BHP	Not Provided

Design Static Pressures (in wg)	
Design External SP	1.20
Submittal Total SP	Not Provided

Motor Nameplate Data	
Motor Make (tag)	Telco Green
Motor Frame (tag)	-
Motor HP (tag)	3/4
Motor RPM (tag)	1800
Motor Volts (tag)	115
Motor Phase (tag)	1
Motor Amps (tag)	8.9
Motor S.F. (tag)	-
Mtr % PF (tag)	-
Mtr % Eff. (tag)	-
Other Motor Data	-

Drive Data	
Drive Type	Direct Drive
Sheave Type	-
Fan Sheave Make	-
Fan Shv Mod# or Size (in)	-
Fan Sheave Bore (in.)	-
Motor Sheave Make	-
Mtr Shv Mod# or Size (in)	-
Motor Sheave Bore (in.)	-
VP Range	-
Center Distance (in.)	-
No of Belts	-
Belt Make	-
Belt Size	-
Other Data	-

Final Airflow (CFM)	
Actual Airflow	1713
Actual Grille Airflow	Not Applicable
Fan CFM Test Method	See Kitchen Hood Sheet
Test Method Ak (sq ft)	-

Unit Data	
Make (tag)	CaptiveAire
Model # (tag)	DU85HFA
Serial # (tag)	5345372
Unit Location	Roof
Unit Discharge	Upblast
Fan Service	Exhaust
Fan Type	Centrifugal (BI)
Fan Discharge	Upblast
Fan Arrangement	SWSI

Fan Design Data	
Submittal Motor RPM	Not Provided
Submittal Fan RPM	-

Fan Data	
Actual Fan RPM/Speed	Single Speed
Actual Motor RPM	Not Accessible
Speed Cont. Position	88%

Electrical Data	
Measurement Method	V/A Meter
Motor Volts 1	123
Motor Volts 2	-
Motor Volts 3	-
Motor Amps 1	5.7
Motor Amps 2	-
Motor Amps 3	-
Operating HZ	60.0
Starter Data	Internal to VFD
Approx. BHP	0.51
Corr. Nameplate Amps	8.3

SYSTEM/UNIT: EF-01

Tested By: Clayton Nelson
Date: 10/14/2022

Motor Make (tag) Photo:

Name: Motor Make (tag).jpg
Captured: 10/13/2022 12:49 PM
Caption:

Make (tag) Photo:

Name: Make (tag).jpg
Captured: 10/13/2022 12:49 PM
Caption:

SYSTEM/UNIT: EF-01

Tested By: Clayton Nelson
Date: 10/14/2022

Inspection Data - EF-01

	Verification	Response	Notes	By	Date/Time
1	Fan Rotation is Correct?	Yes		CN	10/13/22 12:49
2	Belts are Tight?	NA		CN	10/13/22 12:49
3	Internal motorized damper is fully opening?	NA		CN	10/13/22 12:49
4	Motor is operating below the FLA rating?	Yes		CN	10/13/22 12:50
5	Unit free of noticeable noise and vibration?	Yes		CN	10/13/22 12:50
6	There is no major leakage around base of fan?	Yes		CN	10/13/22 12:50
7	Is the motor operating below the motor FLA rating?	Yes		CN	10/13/22 12:50

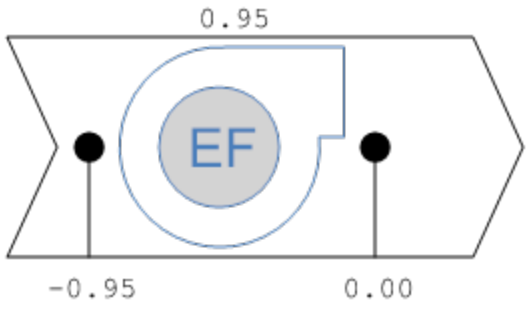
HVAC Units / Fans - EF-01

	Verification	Response	Notes	By	Date/Time
1	Grease cup is installed on hood fan?	Yes		CN	10/13/22 12:50
2	Hinge kit installed on hood fan.	Yes		CN	10/13/22 12:50
3	Lean fan back. Is grease duct installation adequate and is duct ran all the way to the base of the fan?	Yes		CN	10/13/22 12:50
4	Flex conduit is long enough so that fan can be completely tilted back?	Yes		CN	10/13/22 12:50

SYSTEM/UNIT: EF-01/Static Profile

Tested By: Clayton Nelson
Date: 10/14/2022

Static Pressure Profile



SYSTEM/UNIT: EF-02

Tested By: Clayton Nelson
Date: 10/14/2022

Design Airflow (CFM)	
Design Airflow	1600
Design Grille Airflow	Not Applicable

Unit Design Data	
Submittal Make	CAPTIVE-AIRE
Submittal Model #	DU85HFA
Submittal Airflow	Not Provided
Sched./Sub. Volts	120
Sched./Sub. Phase	1
Sched./Sub. HP	3/4
Submittal BHP	Not Provided

Design Static Pressures (in wg)	
Design External SP	1.20
Submittal Total SP	Not Provided

Motor Nameplate Data	
Motor Make (tag)	Telco Green
Motor Frame (tag)	-
Motor HP (tag)	3/4
Motor RPM (tag)	1800
Motor Volts (tag)	115
Motor Phase (tag)	1
Motor Amps (tag)	8.9
Motor S.F. (tag)	-
Mtr % PF (tag)	-
Mtr % Eff. (tag)	-
Other Motor Data	-

Drive Data	
Drive Type	Direct Drive
Sheave Type	-
Fan Sheave Make	-
Fan Shv Mod# or Size (in)	-
Fan Sheave Bore (in.)	-
Motor Sheave Make	-
Mtr Shv Mod# or Size (in)	-
Motor Sheave Bore (in.)	-
VP Range	-
Center Distance (in.)	-
No of Belts	-
Belt Make	-
Belt Size	-
Other Data	-

Final Airflow (CFM)	
Actual Airflow	1627
Actual Grille Airflow	Not Applicable
Fan CFM Test Method	See Kitchen Hood Sheet
Test Method Ak (sq ft)	-

Unit Data	
Make (tag)	CaptiveAire
Model # (tag)	DU85HFA
Serial # (tag)	5345372
Unit Location	Roof
Unit Discharge	Upblast
Fan Service	Exhaust
Fan Type	Centrifugal (BI)
Fan Discharge	Upblast
Fan Arrangement	SWSI

Fan Design Data	
Submittal Motor RPM	Not Provided
Submittal Fan RPM	-

Fan Data	
Actual Fan RPM/Speed	Single Speed
Actual Motor RPM	Not Accessible
Speed Cont. Position	88%

Electrical Data	
Measurement Method	V/A Meter
Motor Volts 1	123
Motor Volts 2	-
Motor Volts 3	-
Motor Amps 1	5.4
Motor Amps 2	-
Motor Amps 3	-
Operating HZ	60.0
Starter Data	Internal to VFD
Approx. BHP	0.49
Corr. Nameplate Amps	8.3

SYSTEM/UNIT: EF-02

Tested By: Clayton Nelson
Date: 10/14/2022

Motor Make (tag) Photo:

Name: Motor Make (tag).jpg
Captured: 10/13/2022 12:47 PM
Caption:

Make (tag) Photo:

Name: Make (tag).jpg
Captured: 10/13/2022 12:47 PM
Caption:

SYSTEM/UNIT: EF-02

Tested By: Clayton Nelson
Date: 10/14/2022

Inspection Data - EF-02

	Verification	Response	Notes	By	Date/Time
1	Fan Rotation is Correct?	Yes		CN	10/13/22 12:48
2	Belts are Tight?	NA		CN	10/13/22 12:48
3	Internal motorized damper is fully opening?	NA		CN	10/13/22 12:48
4	Motor is operating below the FLA rating?	Yes		CN	10/13/22 12:48
5	Unit free of noticeable noise and vibration?	Yes		CN	10/13/22 12:48
6	There is no major leakage around base of fan?	Yes		CN	10/13/22 12:48
7	Is the motor operating below the motor FLA rating?	Yes		CN	10/13/22 12:48

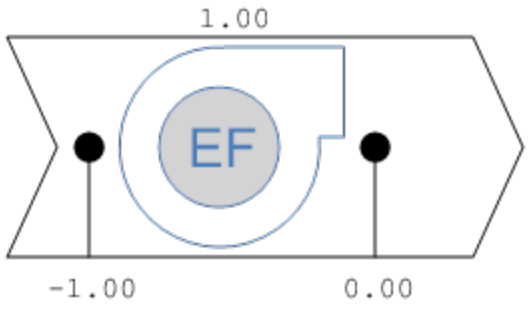
HVAC Units / Fans - EF-02

	Verification	Response	Notes	By	Date/Time
1	Grease cup is installed on hood fan?	Yes		CN	10/13/22 12:48
2	Hinge kit installed on hood fan.	Yes		CN	10/13/22 12:48
3	Lean fan back. Is grease duct installation adequate and is duct ran all the way to the base of the fan?	Yes		CN	10/13/22 12:48
4	Flex conduit is long enough so that fan can be completely tilted back?	Yes		CN	10/13/22 12:48

SYSTEM/UNIT: EF-02/Static Profile

Tested By: Clayton Nelson
Date: 10/14/2022

Static Pressure Profile



SYSTEM/UNIT: EF-02/HD-01

Tested By: Clayton Nelson
Date: 10/14/2022

Design Airflow (CFM)	
Design Exhaust CFM	3200

Final Airflow (CFM)	
Actual Exhaust CFM	3340

Test Section	
Smoke Generation Type	Smoke Emitter
Cooking Equip Heat On	Y
Hood Capture %	100
End Panels Installed (Y/N)	Y

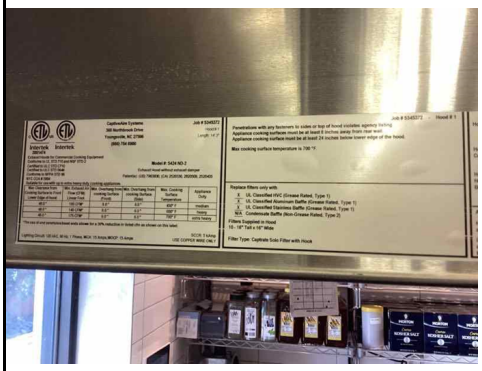
Supplemental Data	
Space Offset Temp Riser 1	15
Space Offset Temp Riser 2	15
Riser Temp F (idle) Riser 1	79.8
Riser Temp F (idle) Riser 2	108.8
Ambient Room Temp	79.1
100% override functional	No

Kitchen Hood Information	
Service	Grill, Stove, Fryer, Fryer
Manufacturer	Captive-Aire
Model Number	5424 ND-2
Serial Number	534572
Test Method	Filters

SYSTEM/UNIT: EF-02/HD-01

Tested By: Clayton Nelson
Date: 10/14/2022

Model Number Photo:



Name: Model Number.jpg
Captured: 10/13/2022 1:23 PM
Caption:

Service Photo:

Name: Service.jpg
Captured: 10/13/2022 1:23 PM
Caption:

Verification - EF-02/HD-01

	Verification	Response	Notes	By	Date/Time
1	Third Party Company	Gray West Construction.		CN	10/13/22 17:52
2	Tech Company	UTAB		CN	10/14/22 8:08

Prefunctional - EF-02/HD-01

	Verification	Response	Notes	By	Date/Time
1	Kitchen equipment installed in proper places?	Yes		CN	10/13/22 13:24
2	Can kitchen equipment be turned on for final smoke test?	Yes		CN	10/13/22 13:24

SYSTEM/UNIT: EF-02/HD-01

Tested By: Clayton Nelson
Date: 10/14/2022

Remarks

Equipment Under Hood (List All)

Grill, Stove, Fryer, Fryer

EF-02/HD-01 Exhaust Filter Summary

System/Unit	Size	Type	Ak	Reading 2	Reading 1	FPM	Instrument	CFM
Filter-01	16x16	Baffle	1.62		202	202	Velgrid	327
Filter-02	16x16	Baffle	1.62		189	189	Velgrid	306
Filter-03	16x16	Baffle	1.62		189	189	Velgrid	306
Filter-04	16x16	Baffle	1.62		196	196	Velgrid	318
Filter-05	16x16	Baffle	1.62		211	211	Velgrid	342
Filter-06	16x16	Baffle	1.62		204	204	Velgrid	330
Filter-07	16x16	Baffle	1.62		210	210	Velgrid	340
Filter-08	16x16	Baffle	1.62		217	217	Velgrid	352
Filter-09	16x16	Baffle	1.62		224	224	Velgrid	363
Filter-10	16x16	Baffle	1.62		220	220	Velgrid	356
Totals:	-	-	-	-	-	-	-	**3340**

SYSTEM/UNIT: EF-03

Tested By: Clayton Nelson
Date: 10/14/2022

Design Airflow (CFM)	
Design Airflow	150
Design Grille Airflow	150

Unit Design Data	
Submittal Make	CAPTIVE-AIRE
Submittal Model #	DR12HFA
Submittal Airflow	Not Provided
Sched./Sub. Volts	120
Sched./Sub. Phase	1
Sched./Sub. HP	0.18
Submittal BHP	Not Provided

Design Static Pressures (in wg)	
Design External SP	.60
Submittal Total SP	Not Provided

Motor Nameplate Data	
Motor Make (tag)	Telco Green
Motor Frame (tag)	-
Motor HP (tag)	1/4
Motor RPM (tag)	1800
Motor Volts (tag)	115
Motor Phase (tag)	1
Motor Amps (tag)	2.9
Motor S.F. (tag)	-
Mtr % PF (tag)	-
Mtr % Eff. (tag)	-
Other Motor Data	-

Drive Data	
Drive Type	Direct Drive
Sheave Type	-
Fan Sheave Make	-
Fan Shv Mod# or Size (in)	-
Fan Sheave Bore (in.)	-
Motor Sheave Make	-
Mtr Shv Mod# or Size (in)	-
Motor Sheave Bore (in.)	-
VP Range	-
Center Distance (in.)	-
No of Belts	-
Belt Make	-
Belt Size	-
Other Data	-

Final Airflow (CFM)	
Actual Airflow	155
Actual Grille Airflow	155
Fan CFM Test Method	Inlet Total
Test Method Ak (sq ft)	Not Applicable

Unit Data	
Make (tag)	Captive Aire
Model # (tag)	DR12HFA
Serial # (tag)	5345372
Unit Location	Roof
Unit Discharge	Upblast
Fan Service	Exhaust
Fan Type	Centrifugal (BI)
Fan Discharge	Upblast
Fan Arrangement	SWSI

Fan Design Data	
Submittal Motor RPM	Not Provided
Submittal Fan RPM	-

Fan Data	
Actual Fan RPM/Speed	Single Speed
Actual Motor RPM	991
Speed Cont. Position	54%

Electrical Data	
Measurement Method	Not Accessible
Motor Volts 1	-
Motor Volts 2	-
Motor Volts 3	-
Motor Amps 1	-
Motor Amps 2	-
Motor Amps 3	-
Operating HZ	60.0
Starter Data	Internal to VFD
Approx. BHP	
Corr. Nameplate Amps	

SYSTEM/UNIT: EF-03

Tested By: Clayton Nelson
Date: 10/14/2022

Motor Make (tag) Photo:

Name: Motor Make (tag).jpg
Captured: 10/13/2022 12:42 PM
Caption:

Make (tag) Photo:

Name: Make (tag).jpg
Captured: 10/13/2022 12:40 PM
Caption:

SYSTEM/UNIT: EF-03

Tested By: Clayton Nelson
Date: 10/14/2022

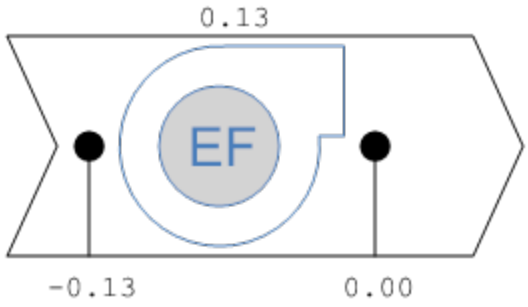
Inspection Data - EF-03

	Verification	Response	Notes	By	Date/Time
1	Fan Rotation is Correct?	Yes		CN	10/13/22 12:42
2	Belts are Tight?	NA		CN	10/13/22 12:42
3	Internal motorized damper is fully opening?	NA		CN	10/13/22 12:42
4	Motor is operating below the FLA rating?	Yes		CN	10/13/22 12:42
5	Unit free of noticeable noise and vibration?	Yes		CN	10/13/22 12:42
6	There is no major leakage around base of fan?	Yes		CN	10/13/22 12:42
7	Is the motor operating below the motor FLA rating?	Yes		CN	10/13/22 12:42
8	Back draft damper installed and can it fully open?	Yes		CN	10/13/22 12:42

SYSTEM/UNIT: EF-03/Static Profile

Tested By: Clayton Nelson
Date: 10/14/2022

Static Pressure Profile



EF-03 Exhaust Inlet Summary

System/Unit	Area Served	Type	Size / Area (in)	Design CFM	Prelim CFM	Final CFM	% Final	Instrument	Ak	Open (sq ft)	Final FPM
E-01	RESTROOM	CD	6/6	75	95	77	103	Capture Hood	1.000	1.000	77
E-02	RESTROOM	CD	6/6	75	53	78	104	Capture Hood	1.000	1.000	78
	Totals:	-	-	**150**	**148**	**155**	**103**	-	-	-	-

SYSTEM/UNIT: MAU-01

Tested By: Clayton Nelson
Date: 10/14/2022

Design Airflow (CFM)	
Design Airflow	1950
Design Grille Airflow	Not Applicable

Unit Design Data	
Submittal Make	CAPTIVE-AIRE
Submittal Model #	A1-D.250-G10
Submittal Airflow	Not Provided
Sched./Sub. Volts	208
Sched./Sub. Phase	3
Sched./Sub. HP	2
Submittal BHP	Not Provided

Design Static Pressures (in wg)	
Design External SP	0.80
Submittal Total SP	Not Provided

Motor Nameplate Data	
Motor Make (tag)	Teco
Motor Frame (tag)	145T
Motor HP (tag)	2
Motor RPM (tag)	1740
Motor Volts (tag)	230
Motor Phase (tag)	3
Motor Amps (tag)	5.4
Motor S.F. (tag)	1.15
Mtr % PF (tag)	-
Mtr % Eff. (tag)	86.5
Other Motor Data	-

Drive Data	
Drive Type	Direct Drive
Sheave Type	-
Fan Sheave Make	-
Fan Shv Mod# or Size (in)	-
Fan Sheave Bore (in.)	-
Motor Sheave Make	-
Mtr Shv Mod# or Size (in)	-
Motor Sheave Bore (in.)	-
VP Range	-
Center Distance (in.)	-
No of Belts	-
Belt Make	-
Belt Size	-
Other Data	-

Final Airflow (CFM)	
Actual Airflow	2080
Actual Grille Airflow	Not Applicable
Fan CFM Test Method	Outlet Total
Test Method Ak (sq ft)	-

Unit Data	
Make (tag)	Captive Aire
Model # (tag)	A1-D.250-15D
Serial # (tag)	5345372
Unit Location	Roof
Unit Discharge	Downblast
Fan Service	Make-Up Air
Fan Type	Centrifugal (FC)
Fan Discharge	Downblast
Fan Arrangement	DWDI

Fan Design Data	
Submittal Motor RPM	Not Provided
Submittal Fan RPM	-

Fan Data	
Actual Fan RPM/Speed	Single Speed
Actual Motor RPM	Not Accessible
Speed Cont. Position	Not Applicable

Electrical Data	
Measurement Method	V/A Meter
Motor Volts 1	212
Motor Volts 2	211
Motor Volts 3	212
Motor Amps 1	5.6
Motor Amps 2	5.5
Motor Amps 3	5.6
Operating HZ	72.1
Starter Data	Internal to VFD
Approx. BHP	1.91
Corr. Nameplate Amps	5.9

SYSTEM/UNIT: MAU-01

Tested By: Clayton Nelson
Date: 10/14/2022

Motor Make (tag) Photo:

Name: Motor Make (tag).jpg
Captured: 10/13/2022 12:45 PM
Caption:

Make (tag) Photo:

Name: Make (tag).jpg
Captured: 10/13/2022 12:45 PM
Caption:

SYSTEM/UNIT: MAU-01

Tested By: Clayton Nelson
Date: 10/14/2022

Inspection Data - MAU-01

	Verification	Response	Notes	By	Date/Time
1	Fan Rotation is Correct?	Yes		CN	10/13/22 12:45
2	Belts are Tight?	NA		CN	10/13/22 12:45
3	Internal motorized damper is fully opening?	Yes		CN	10/13/22 12:45
4	Motor is operating below the FLA rating?	Yes		CN	10/13/22 12:45
5	Unit free of noticeable noise and vibration?	Yes		CN	10/13/22 12:45
6	There is no major leakage around base of fan?	Yes		CN	10/13/22 12:46
7	Is the motor operating below the motor FLA rating?	Yes		CN	10/13/22 12:45

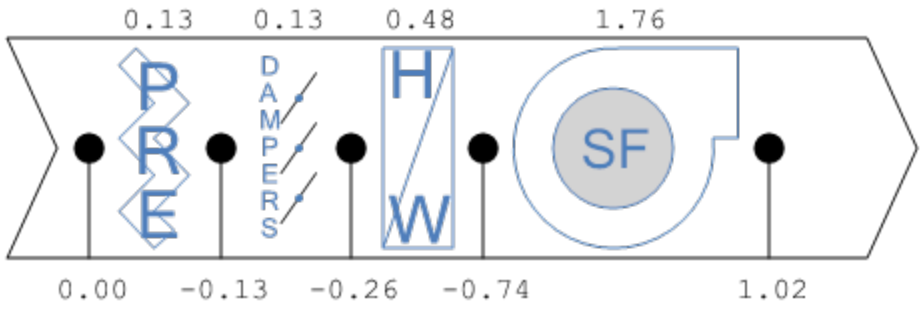
Heat Exchangers - MAU-01

	Verification	Response	Notes	By	Date/Time
1	Gas piping is installed and valves are in on position?	Yes		CN	10/13/22 12:46
2	Heater tested and is functional?	Yes		CN	10/13/22 12:46
3	Heater Operates?	Yes		CN	10/13/22 12:46
4	Flame Status?	Yes		CN	10/13/22 12:46
5	Inlet Air Temp SetPt (Design 55)	55		CN	10/14/22 8:26
6	Discharge Air Temp SetPt (Design 60)	60		CN	10/14/22 8:26
7	Air Flow Switch Sp Actual	.48		CN	10/14/22 9:41

SYSTEM/UNIT: MAU-01/Static Profile

Tested By: Clayton Nelson
Date: 10/14/2022

Static Pressure Profile



SYSTEM/UNIT: MAU-01/HD-01

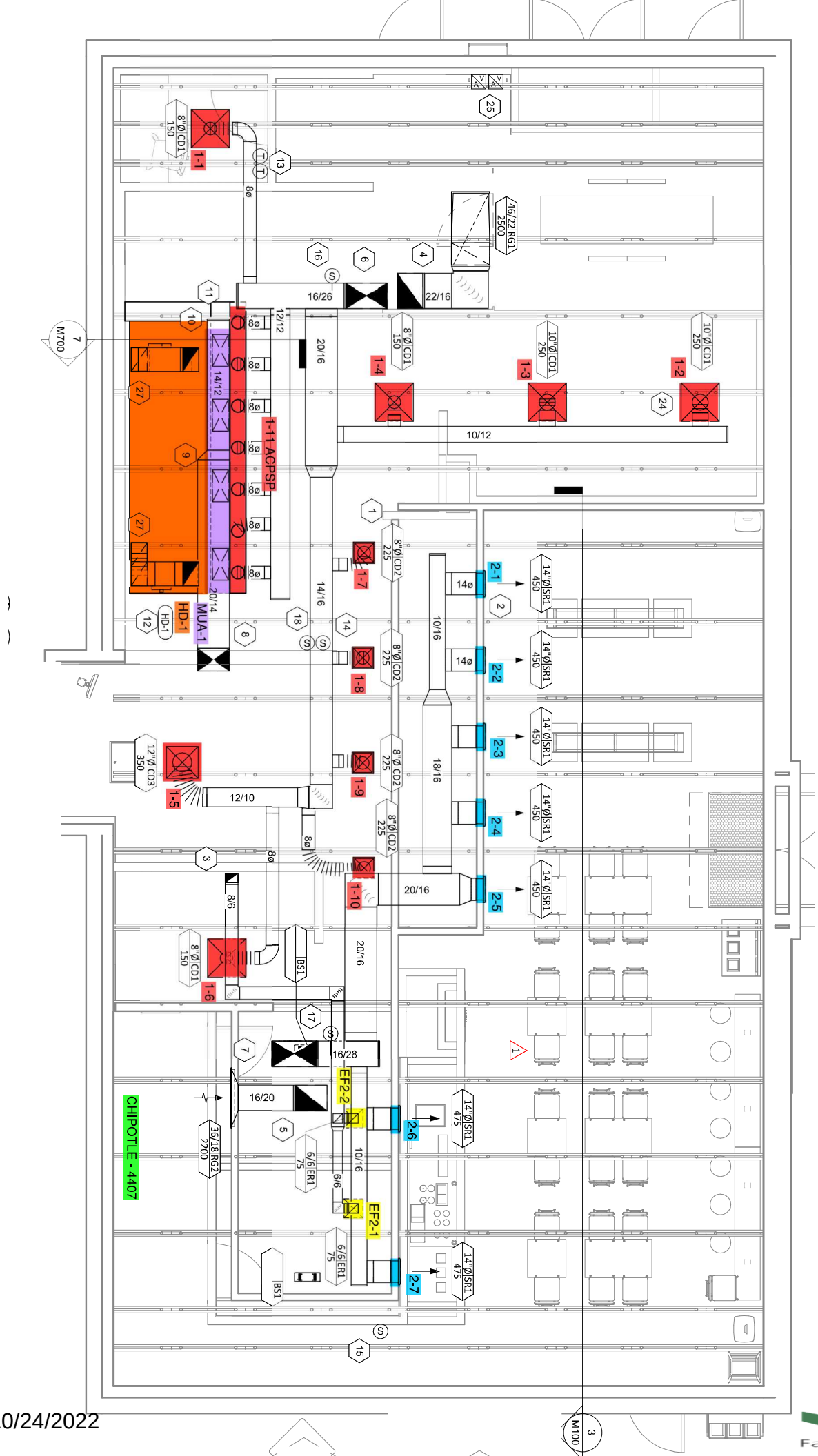
Tested By: Clayton Nelson
Date: 10/14/2022

Design Airflow (CFM)	
Des. Make-up Air	1950

Final Airflow (CFM)	
Act. Make-up Air	2080

Kitchen Hood Information	
Manufacturer	CaptiveAire
Test Method	Perforated Supply

Test Data	
PSP Length (in)	177
PSP Width (in)	12"
Correction Factor	0.83
Total MA Ak (sq ft)	12.24
Avg. MA Velocity (FPM)	170



Date: 10/24/2022