Report By:

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

Report: Certified TAB Report

Function: Test, Adjust, & Balance

Date: 06/30/2025

Completed By: National TAB

PROJECT

Toppers Pizza (Manhattan, KS)

1321 Anderson Avenue

Manhattan, KS 66502

Client

Watson Mechanical

15311 West 109 St

Lenexa, KS 66219

National TAB

Project: Toppers Pizza (Manhattan, KS)

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CERTIFICATION

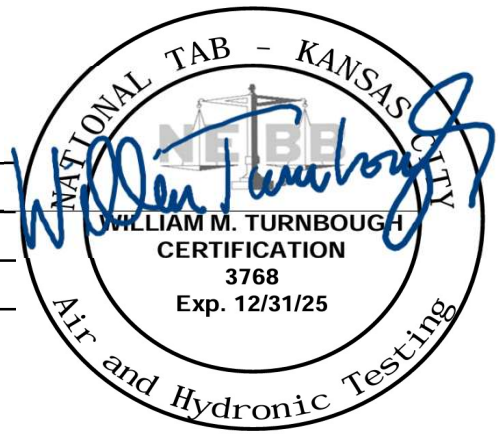
PROJECT: Toppers Pizza (Manhattan, KS)

The data presented in this report is a record of system measurements and final adjustments that have been obtained in accordance with the current edition of the NEBB Procedural Standard for Testing, Adjusting and Balancing of Environmental Systems. The measurements shown, and the information given, in this report are certified to be accurate and complete, at the time and date information was gathered. Any variances from design quantities, which exceed NEBB tolerances, are noted in the TAB report project summary.

NEBB TAB FIRM: National TAB - Kansas City
REGISTRATION NO: 3768
CERTIFIED BY: Will Turnbough
DATE: 6/30/2025

Submitted and Certified by:

NEBB TAB FIRM: National TAB - Kansas City
TAB PROFESSIONAL: Will Turnbough
REGISTRATION NO: CP-24289
CERTIFICATION EXP: 12/31/2025



Issue List

- RTU-1 diffusers 4 and 5
- RTU-2 OA

Toppers Pizza (Manhattan, KS)

Project Issue Information

Issue Name :	RTU-1 diffusers 4 and 5		
Description :	RTU-1 diffusers 1-4 and 1-5 are below design (84% and 77%). Unit total is low within design at max speed but is at the low side of tolerance (91%). Unable to push air to these diffusers without being a detriment to overall unit performance. Not anticipated to be an issue. Confirmed approach with mechanical contractor on site.		
Created By :	National TAB	**Assigned To :**	National TAB - Will Turnbough
Status :	Open		
Priority :	InfoOnly	**Asset Tag :**	
Originated Date :	06/30/2025 - Cody Collett - National TAB		

Toppers Pizza (Manhattan, KS)

Project Issue Information

Issue Name :	RTU-2 OA		
Description :	Unit does not have an OA intake and OA could not be balanced for this unit.		
Created By :	National TAB	**Assigned To :**	National TAB - Will Turnbough
Status :	Open		
Priority :	Medium	**Asset Tag :**	RTU-2
Originated Date :	06/25/2025 - Cody Collett - National TAB		

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	2000	1815	1700	1507	300	308	15.0%	16.9%						
RTU-2	DINNING	1200	1241	1000	1241	200	0	16.6%	0.0%						
MUA-1	KITCHEN									1400	1474				
KEF-1												1800	1822		
EF-2														75	79
TOTALS		3200	3056	2700	2748	500	308			1400	1474	1800	1822	75	79

NET BUILDING AIRFLOW CALCULATION

TOTALS	DESIGN	ACTUAL
TOTAL OA	1900	1782
TOTAL EXHAUST	1875	1901
NET AIRFLOW	25	-119

DOOR TESTED	BUILDING PRESSURE MEASUREMENTS (IN. H20)
FRONT	0.003
SIDE	N/A
REAR	0.001
AVERAGE	**0.002**

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:

RTU-2 does not have an OA intake. Building is not a stand alone building and its pressure is affected by adjacent buildings.

National TAB

Project: Toppers Pizza (Manhattan, KS)

System/Unit: AHU/RTU

Asset: RTU-1 AREA:Kitchen

Unit Data		
	Design	**Actual**
MFG	NA	LENNOX
Serial Num	-	5624E06830
Model Num	NA	ZGB060S4
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	1
OA Filter Size 1	-	16x27.5
Num PreFilter 1	-	2
PreFilter Size 1	-	20x20x2
Num Final Filter 1	-	2
Final Filter Size 1	-	16x20x2

Motor Data		
	Design	**Actual**
Motor MFG	-	NL
Frame	-	NL
Horsepower	1.0	1
Motor Rpm	-	NL
Phase	3	1
Rated Voltage	208	NL
Rated Amperage	-	8.4
Service Factor	-	NL

Drive Data	
	Actual
Motor Sheave SetPt	DD

Test Data		
	Design	**Actual**
SF CFM	2000	1815
RA CFM	1700	1507
OA CFM	300	308
RL Voltage	208	204
RL Amperage	-	8.65
OA Damper Position	-	10%
Brake Horse Power	-	1.029

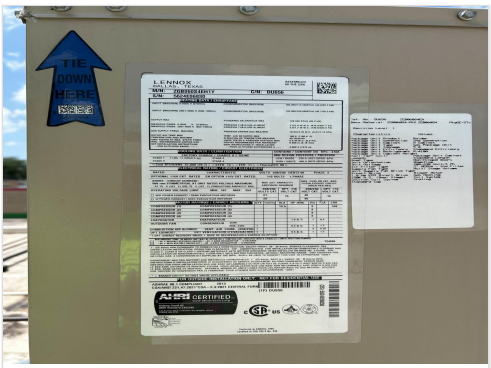
Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.62"
Fan Suction SP	-	-0.80"
Fan Discharge SP	-	0.78"
Total ESP	0.80	1.40"
Fan Total SP	-	1.58"
Cooling Coil P.D.	-	0.18"

Completed By: Cody Collett on 06/26/2025

Notes:
Speed setpoint- Speed tap 5

Written By: Cody Collett on 06/30/2025

Unit Data - PHOTO LOG



06/25/2025

06/25/2025

06/25/2025

National TAB

Project:Toppers Pizza (Manhattan, KS)

AHU/RTU

Diffuser Supply (GRD)

RTU-1/Kitchen

Asset							
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**CFM(1)**	**FINAL CFM**	**% to design**
SGRD1		S1	10	300	244	283	94.3
SGRD2		S1	10	300	269	293	97.7
SGRD3		S1	6	50	91	49	98.0
SGRD4		S2	10	375	266	318	84.8
SGRD5		S2	10	375	221	290	77.3
SGRD6		S2	10	300	243	309	103.0
SGRD7		S2	10	300	240	273	91.0
Total				2000	1574	1815	90.75%

Diffuser Ret/Exh (GRD)

RTU-1/Kitchen

Asset								
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**FINAL CFM**	**% to design**
EGRD1	BACK HOUSE	R1	22X22	600	1	404	489	81.5
EGRD2	KITCHEN	R1	22X22	1350	1	862	1018	75.4
Total				1950		1266	1507	77.28%

Completed By: Cody Collett on 06/26/2025

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Project: Toppers Pizza (Manhattan, KS)

System/Unit: AHU/RTU

Asset: RTU-2 AREA:

Unit Data		
	Design	**Actual**
MFG	NA	YORK
Serial Num	-	N1A0548451
Model Num	NA	ZJ036N08
Configuration	VERTICAL	VERTICAL
Num PreFilter 1	-	1
PreFilter Size 1	-	14x25x2
Num Final Filter 1	-	1
Final Filter Size 1	-	20x25x2

Motor Data		
	Design	**Actual**
Motor MFG	-	GENTEQ
Frame	-	NL
Horsepower	1.0	0.75
Motor Rpm	-	1050
Phase	3	1
Rated Voltage	208	208-230
Rated Amperage	-	6.0
Service Factor	-	NL

Drive Data	
	Actual
Motor Sheave SetPt	DD

Test Data		
	Design	**Actual**
SF CFM	1200	1241
RA CFM	1000	1241
OA CFM	200	0
RL Voltage	208	204
RL Amperage	-	4.3
Brake Horse Power	-	0.537

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.21"
Fan Suction SP	-	-0.50"
Fan Discharge SP	-	0.48"
Total ESP	0.80	0.69"
Fan Total SP	-	0.98"
Cooling Coil P.D.	-	0.29"

Completed By: Cody Collett on 06/26/2025

Notes:
NO OA INTAKE PRESENT

Speed setpoint-Speedtap 4

Written By: Cody Collett on 06/30/2025

Unit Data - PHOTO LOG

06/25/2025

06/25/2025

06/25/2025

Motor Data - PHOTO LOG

06/25/2025

National TAB

Project:Toppers Pizza (Manhattan, KS)

AHU/RTU

Diffuser Supply (GRD)

RTU-2/

Asset							
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**CFM(1)**	**FINAL CFM**	**% to design**
SGRD1	Kitchen	S1	10	400	330	436	109.0
SGRD2	Dining	S2	10	400	344	385	96.3
SGRD3	Dining	S1	10	400	402	420	105.0
Total				1200	1076	1241	103.42%

Diffuser Ret/Exh (GRD)

RTU-2/

Asset								
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**FINAL CFM**	**% to design**
EGRD1	Dining	R1	22X22	1200	1	1076	1241	103.4
Total				1200		1076	1241	103.42%

Completed By: Cody Collett on 06/26/2025

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Project: Toppers Pizza (Manhattan, KS)

System/Unit: FAN - Exhaust

Asset: EF2 AREA:Staff Restroom

Unit Data		
	Design	**Actual**
MFG	NA	COOK
Model Num	NA	GEMINI 120 SONEBUSTER
Serial Num	-	NL
Type	CEILING	CEILING

Test Data		
	Design	**Actual**
CFM	75	79
System SetPt	-	Highest (DIAL)
RL Voltage	115	117
RL Amperage	-	0.25

Motor Data		
	Design	**Actual**
Motor MFG	-	QUEACE
Frame	-	NL
Horsepower	0.01	0.20
Motor Rpm	773	1550
Phase	1	1
Voltage (rated)	115	115
Amperage (rated)	-	0.25
Service Factor	-	NL

Completed By: Cody Collett on 06/26/2025

Unit Data - PHOTO LOG

06/25/2025

Motor Data - PHOTO LOG

06/26/2025

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Project: Toppers Pizza (Manhattan, KS)

System/Unit: FAN - Exhaust

Asset: EF-1 AREA:Hood 1

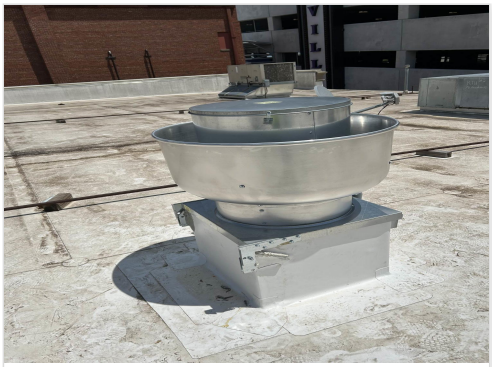
Unit Data		
	Design	**Actual**
MFG	NA	ECON-AIR
Model Num	NA	EADU85H
Serial Num	-	7261353
Type	CRE UPBLAST	CRE UPBLAST

Motor Data		
	Design	**Actual**
Motor MFG	-	Telco Green
Frame	-	NL
Horsepower	1.00	1.00
Motor Rpm	1474	1800
Phase	1	2
Voltage (rated)	115	115
Amperage (rated)	-	11.6
Service Factor	-	NL

Test Data		
	Design	**Actual**
CFM	1800	1822
System SetPt	-	77%
RL Voltage	115	117
RL Amperage	11.6	8.5
Suction ESP	-	-1.80”
Discharge ESP	-	ATM
Total ESP	1.250	1.80”
Brake Horse Power	-	0.732

Completed By: Cody Collett on 06/26/2025

Unit Data - PHOTO LOG



06/25/2025

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06/25/2025

Motor Data - PHOTO LOG

06/25/2025

National TAB

Project: Toppers Pizza (Manhattan, KS)

System/Unit: FAN - Supply

Asset: MAU-1 AREA:Hood 1

Unit Data		
	Design	**Actual**
MFG	NA	ECON-AIR
Model Num	NA	EA1-D.500-15D
Serial Num	-	7261353
Type	GAS FIRED	GAS FIRED
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	**Actual**
Motor MFG	-	Telco green
Frame	-	NL
Horsepower	1.00	1.00
Motor Rpm	-	1800
Phase	1	1
Voltage (rated)	115	115
Amperage (rated)	-	11.6
Service Factor	-	NL

Gas Heat		
	Design	**Actual**
Heater Operates (y/n)	-	Yes
Flame Status (pass/fail)	-	Pass
Inlet Air Temp SetPt	-	55
Discharge Air Temp SetPt	-	65
Air Flow Switch SP Actual	-	0.31"

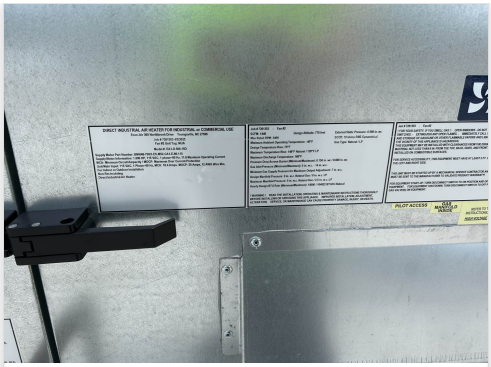
Test Data		
	Design	**Actual**
CFM	1440	1474
SF RPM	1655	1296
Motor RPM	-	1296
SF System SetPt	-	72%
RL Voltage	115	118
RL Amperage	-	5.4
Total ESP	-	0.50
Fan Discharge SP	-	NA

General	
	Actual
Fan Rotation Correct	YES

Completed By: Cody Collett on 06/26/2025

Unit Data - PHOTO LOG

06/25/2025



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Motor Data - PHOTO LOG

06/25/2025

National TAB

Project: Toppers Pizza (Manhattan, KS)

System/Unit: Kitchen Hood Type I

Asset: HD1 AREA:Kitchen

Unit Data		
	Design	**Actual**
MFG	NA	ECON-AIR
Model Num	NA	7824 EX-2-PSP-F
Job / Serial Num	-	7261353
Type	TYPE I CANOPY	TYPE I CANOPY
Hood length	108	108
Hood Width	78	78
Supply Plenum Type	-	PSP
Supply Plenum Width	14	14
Supply Plenum Length	108	108

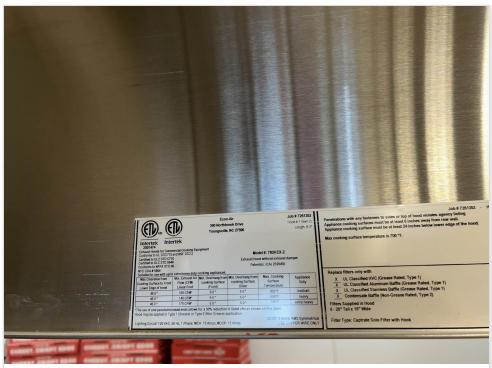
Test Data Exhaust		
	Design	**Actual**
Filter Type	CAPTRATE SOLO	CAPTRATE SOLO
Filter Size 1	20X16	20x16
Filter Qty 1	6	6
Filter AK factor size 1	2.08	2.08
Filter Total AK Area	12.48	12.48
Filter1 FPM	-	154
Filter2 FPM	-	144
Filter3 FPM	-	148
Filter4 FPM	-	148
Filter5 FPM	-	149
Filter6 FPM	-	136
Filter Ave FPM(corr)	-	146
CFM	1800	1822

Cooking Equipment	
	Actual
Item 1	Conveyor Oven

Test Data Supply		
	Design	**Actual**
Total Area	10.50	10.50
Kv factor (Vel)	0.90	0.90
Num of Readings	-	6
Reading1 FPM	-	195
Reading2 FPM	-	169
Reading3 FPM	-	107
Reading4 FPM	-	136
Reading5 FPM	-	162
Reading6 FPM	-	168
Ave FPM(corr)	-	156
CFM	1440	1474

Completed By: Cody Collett on 06/26/2025

Unit Data - PHOTO LOG



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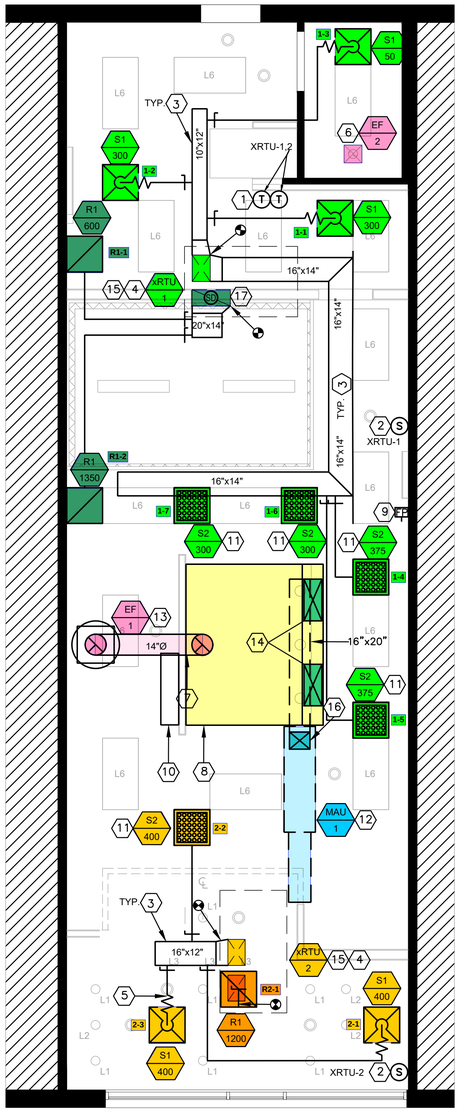

1 MECHANICAL PLAN
SCALE: 1/4" = 1'-0"

MECHANICAL KEYED NOTES

1. PROVIDE 7-DAY PROGRAMMABLE THERMOSTAT AND RELATED WIRING TO REMAIN. MOUNT 48" A.F.F. PROVIDE LOCKABLE COVER. VERIFY EXACT LOCATION IN FIELD, PROVIDE NEW IF REQUIRED.
2. PROVIDE WALL MOUNTED REMOTE ZONE TEMPERATURE SENSOR AT 48" AFF, AND WIRED BACK TO RESPECTIVE THERMOSTAT. COORDINATE PLACEMENT WITH WALL DECOR AND EQUIPMENT. FIELD VERIFY WITH THE OWNER'S REPRESENTATIVE FOR THE FINAL LOCATION PRIOR TO INSTALLATION.
3. PROVIDE GALVANIZED STEEL DUCTWORK, SIZES AS NOTED ON DRAWINGS. DUCTWORK SIZES ARE SHEET METAL SIZES. DUCTWORK TO BE INSULATED WITH A MINIMUM OF R-6 INSULATION.
4. EXISTING ROOFTOP UNITS (XRTU-1,2) AND DUCT DROPS TO REMAIN, VERIFY EXACT LOCATION IN FIELD, CONDENSATE DRAIN TO REMAIN.
5. MAXIMUM FIVE (5) FEET OF FLEXIBLE DUCT. FLEX DUCT SHALL NOT BE USED IN LIEU OF RIGID ELBOWS OR FITTINGS.
6. PROVIDE CEILING MOUNTED EXHAUST FAN (EF-2). PROVIDE 6"Ø EXHAUST DUCT, EXTEND 8"Ø EXHAUST UP THRU ROOF TO ROOF CAP. MAINTAIN 10'-0" DISTANCE FROM OUTSIDE AIR INTAKES.
7. 14"Ø EXHAUST RISER UP FROM KITCHEN HOOD COLLAR. EXTEND DUCT TO ROOFTOP EXHAUST FAN (EF-1). EXHAUST DUCT AND FIRE BARRIER DUCT WRAP PROVIDED BY OWNER AND INSTALLED BY MECHANICAL CONTRACTOR.
8. PROVIDE EXHAUST HOOD (KITCHEN HOOD) TO BE INSTALLED BY MECHANICAL CONTRACTOR. SEE DRAWING SHEETS M400-M407 AND MECHANICAL EQUIPMENT SCHEDULE FOR ADDITIONAL INFORMATION.
9. ANSUL SYSTEM PULL STATION, VERIFY EXACT LOCATION IN FIELD WITH LOCAL CODE OFFICIAL PRIOR TO INSTALLATION.
10. PRE-PIPED FIRE SUPPRESSION SYSTEM SUPPLIED WITH HOOD AND PROVIDED BY OWNER. SEE SHEETS M400-M406 FOR DETAILS. MECHANICAL CONTRACTOR SHALL INSTALL OWNER PROVIDED FIRE SUPPRESSION GAS VALVE AND MAKE ALL ELECTRICAL CONNECTIONS. FIRE SYSTEM HOOKUP IS PROVIDED BY CAPTIVE AIRE.
11. KITCHEN SUPPLY AIR DIFFUSERS (S2) SHALL BE ADJUSTED AS REQUIRED FOR PROPER AIR FLOW AROUND THE HOOD. AVOID AIRFLOW INTO THE HOOD.
12. PROVIDE ROOFTOP MAKE-UP AIR UNIT (MAU-1). COORDINATE IN FIELD. SEE SHEETS M400-M406 FOR MORE INFORMATION.
13. PROVIDE ROOFTOP EXHAUST FAN (EF-1). MAINTAIN MINIMUM 10'-0" CLEARANCE FROM ALL FRESH AIR INTAKES. COORDINATE IN FIELD. SEE SHEETS M400-M406 FOR MORE INFORMATION.
14. 28"x12" SUPPLY DUCT RISER UP FROM 28"x12" DUCT COLLAR (TYPICAL OF 2). EXTEND DUCT UP TO MAIN SUPPLY DUCT.
15. CONTRACTOR TO VERIFY ORIENTATION OF EXISTING ROOFTOP UNITS AND LOCATION OF SUPPLY AND RETURN DROPS. NOTIFY TENANT'S ENGINEER WITH ANY QUESTIONS PRIOR TO BIDDING. NO EXTRAS OR CHANGE ORDERS SHALL BE GIVEN FOR CONTRACTOR'S FAILURE TO VERIFY SITE CONDITIONS PRIOR TO BIDDING.
16. OPEN UP THROUGH ROOF TO MAU-1 ON ROOF. SEE EQUIPMENT SCHEDULE AND FAN/HOOD DETAILS FOR ADDITIONAL INFORMATION. VERIFY EXACT LOCATION WITH LANDLORD.
17. EXISTING 120V RETURN DUCT MOUNTED SMOKE DETECTOR TO REMAIN. SMOKE DETECTOR SHALL BE INTERLOCKED TO DE-ENERGIZE UNIT UPON DETECTION OF SMOKE. PROVIDE NEW IF NOT EXISTING. POWER WIRING BY ELECTRICAL CONTRACTOR, COORDINATE WITH ELECTRICAL DRAWINGS/ CONTRACTOR.

CASE Engineering Inc.
796 Merus Court
St. Louis, MO 63026
T 636.349.1600
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CERTIFICATE OF AUTHORITY NO. C-4550

BE CREATIVE STUDIO
9034 S. GAMBLE HILL RD
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1.23.2025

professional of record seal

Toppers
1321 ANDERSON AVENUE
MANHATTAN, KS 66502

REVISIONS

MARK	DATE	DESCRIPTION

ISSUE DATE: 1.3.2025
Review Set

DRAWN BY: SA
CHECKED BY: JV

MECHANICAL PLAN

M100

Abbreviation List

A = Area (ft^2)	S.F. = Service Factor
AHU = Air Handling Unit	SF = Supply Fan
A_k = Effective Area	SP = Static Pressure
BHP = Brake Horsepower (IP) HP	SR = Supply Register
Btu = British Thermal Unit	T = Temperature
Btu/h = Btuh = BTUH = BTU/Hour	T_{ma} = Mixed Air Temperature
CL = Center Distance (used in belt formula)	T_{oa} = Outside Air Temperature
CD = Ceiling Diffuser	T_{ra} = Return Air Temperature
CF = Correction Factor	H = Head (in wc, ft wc, psi)
CFM = Volumetric Flow: Cubic Feet Per Minute	h = Enthalpy
CO2 = Carbon Dioxide	HP = Horsepower
CO = Carbon Monoxide	hr = Hour
C_v = Flow Constant	K_v = Flow constant (SI)
d = Diameter (in.) IP	kW = Kilowatt = 1000 Watts
Δ = Difference or Change (Final - Initial)	LAT = Leaving Air Temperature
DB = Dry Bulb	lb = Pounds
EA = Exhaust Air	LWT = Leaving Water Temperature
EAT = Entering Air Temperature	ma = Mixed Air
EF = Exhaust Fan	MIN = Minimum
Eff = Efficiency	MAX = Maximum
EG = Exhaust Grille	N/A = Not Applicable
ESP = External Static Pressure	NA = No Access
EWT = Entering Water Temperature	NL = Not Listed
°F = Degrees Fahrenheit, °F	NPSHA = Net Positive Suction Head Available
FPB = Fan Powered Box	NS = Not Specified
FLA = Full Load Amps	OA = Outside Air
fpm = Feet per Minute (fpm)	OAT = Outside Air Temperature
ft = Foot	PD = Sheave Pitch Diameter
gal = Gallons	P.D. = Pressure Drop
GPM = Gallons Per Minute (GPM)	PF = Power Factor
h = Enthalpy (BTU/lb dry air)	SG = Supply Grille
P = Pressure	SR = Supply Register
ppm = parts per million	TP = Total Pressure
psi = Pounds Per Square Inch	T_{ra} = Return Air Temperature
psid = PSI Differential	TS = Tip Speed (fpm) IP, (m/s) SI
r = Radius (in)	TSP = Total Static Pressure
$\%_{ra}$ = % of Return Air	V = Velocity
RA = Return Air	VAV = Variable Air Volume
RAT = Return Air Temperature	VD = Volume Damper
RF = Return Fan	VFD = Variable Frequency Drive
RG = Return Grille	W = Watt
RH = Relative Humidity	WB = Wet Bulb
RPM = Revolutions Per Minute	wg = wc = water gauge = water column
RTU = Roof Top Unit	WHP = Water Horsepower (IP)
SA = Supply Air	ω = Humidity Ratio

National TAB

Testing, Adjusting, and Balancing Equipment

Function		Range	Minimum Accuracy	Instrument Information	Calibration Date	Date Due
AIR	AIR PRESSURE	0 in wg to 10 in wg	2% +/- 0.001 in wg	Evergreen S-PVF-1 24D-00281	3/14/2025	3/14/2026
	AIR VELOCITY INSTRUMENT	50 fpm to 3900 fpm	+/- 5 % +/- 7 fpm	Evergreen S-PVF-1 24D-00281	3/14/2025	3/14/2026
	DIRECT HOOD READING	100 cfm to 2000 cfm	+/- 5 % +/- 7 cfm	Evergreen S-PVF-1 24D-00281	3/14/2025	3/14/2026
TEMPERATURE	AIR METER	-20 F to 240 F	+/- .5 % 2 F	Cooper SRH77A S/N 100516003	9/18/2024	9/18/2025
	AIR PROBE	-20 F to 240 F	+/- .5 % 2 F	Cooper SRH77A S/N 100516003	9/18/2024	9/18/2025
	IMMERSION METER	-20 F to 240 F	+/- .5 % 2 F	Cooper SRH77A S/N 100516003	9/18/2024	9/18/2025
	IMMERSION PROBE	-20 F to 240 F	+/- .5 % 2 F	Cooper SRH77A S/N 100516003	9/18/2024	9/18/2025
	CONTACT METER	-20 F to 240 F	+/- .5 % 2 F	Cooper SRH77A S/N 100516003	9/18/2024	9/18/2025
	CONTACT PROBE	-20 F to 240 F	+/- .5 % 2 F	Cooper SRH77A S/N 100516003	9/18/2024	9/18/2025
HUMIDITY	HUMIDITY PROBE	10 % RH to 90 % RH	3% of reading	Cooper SRH77A S/N 100516003	9/18/2024	9/18/2025
ELECTRICAL	VOLTAGE MEASUREMENT	0 VAC to 600 VAC	2 % reading +/- 5 digits	Klein Tools CL800 S/N 1220C-C1	9/18/2024	9/18/2025
	AMPERAGE MEASUREMENT	0 Amperers to 100 Amperes	2 % reading +/- 5 digits	Klein Tools CL800 S/N 1220C-C1	9/18/2024	9/18/2025
ROTATION	ROTATION MEASUREMENT	60 rpm to 5000 rpm	2 % reading 2 rpm	Shimpo DT 207Lp S/N D1690029R	9/18/2024	9/18/2025
HYDRONIC	PRESSURE MEASUREMENT	-30 in Hg to 200 psi	±2% of reading +/- 1 psi	Hydronic Manometer - Dwyer 490W-6-HKIT S/N: 359515093207912	10/17/2024	10/17/2025
	DIFFERENTIAL PRESSURE MEASUREMENT	0 psi - 80 psi	±2% of reading +/- 1 psi	Hydronic Manometer - Dwyer 490W-6-HKIT S/N: 359515093207912	10/17/2024	10/17/2025

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Summary

RTU's 1 and 2 were measured with a flow hood. Both RTU's are direct drive and the speed taps for both units were adjusted to get airflow within tolerance. All diffusers were balanced to design except for diffusers 4 and 5 on RTU-1. RTU-1 is set to maximum speed and airflow could not be pushed to these diffusers without being a detriment to overall unit performance.

RTU-1 outside air was successfully balanced however RTU-2 does not have an OA intake installed and could not be balanced.

The hood exhaust fan was measured by reading the velocity at each filter and multiplying by a manufacturer's K factor. The airflow for this fan was balanced to design.

The MUA was measured by reading the discharge velocity at the PSP and multiplying by a correction factor. The airflow was balanced to design.

EF2 is the staff restroom exhaust fan and was measured at design with a flow hood.

The net airflow in the restaurant is -119 CFM. The building was designed +25 CFM but was balanced negative because the outside air intake on RTU-2 was not installed. The building pressure is very slightly positive though (+0.002" wc) due to interference from adjacent tenants. The discrepancy is not anticipated to be an issue.