Report By:

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

NATIONAL TAB

Comfort. Under control.

Report: LoveSac (Mason, OH) TAB REPORT
Function: Test, Adjust, & Balance
Date: 02/14/2023

PROJECT

LoveSac (Mason, OH)

5595 Deerfield Blvd

Mason, OH

Client

Champion Commercial HVAC

National TAB

Project: LoveSac (Mason, OH)

Table Of Contents

CERTIFICATION

PROJECT: LoveSac (Mason, OH)

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 Standards for Testing, Adjusting, and Balancing of Environmental Systems.* Any variances from design quantities, which exceed NEBB tolerances, are noted in the Test-Adjust-Balance Report Project Summary.

The air distribution system has been tested and balanced and final adjustments have been made in accordance with NEBB standards and the project specifications.

NEBB TAB FIRM:	National TAB
REGISTRATION NO:	3629
CERTIFIED BY:	Joe Hertenstein
DATE:	2/14/2023

The hydronic distribution system has been tested and balanced and final adjustments have been made in accordance with NEBB standards and the project specifications.

NEBB TAB FIRM:	National TAB
REGISTRATION NO:	3629
CERTIFIED BY:	Joe Hertenstein
DATE:	

Submitted and Certified by:

NEBB TAB FIRM:	National TAB
TAB PROFESSIONAL:	Joe Hertenstein
SIGNATURE:	Joe Hertenstein
REGISTRATION NO:	3629
CERTIFICATION EXP:	3/31/2023

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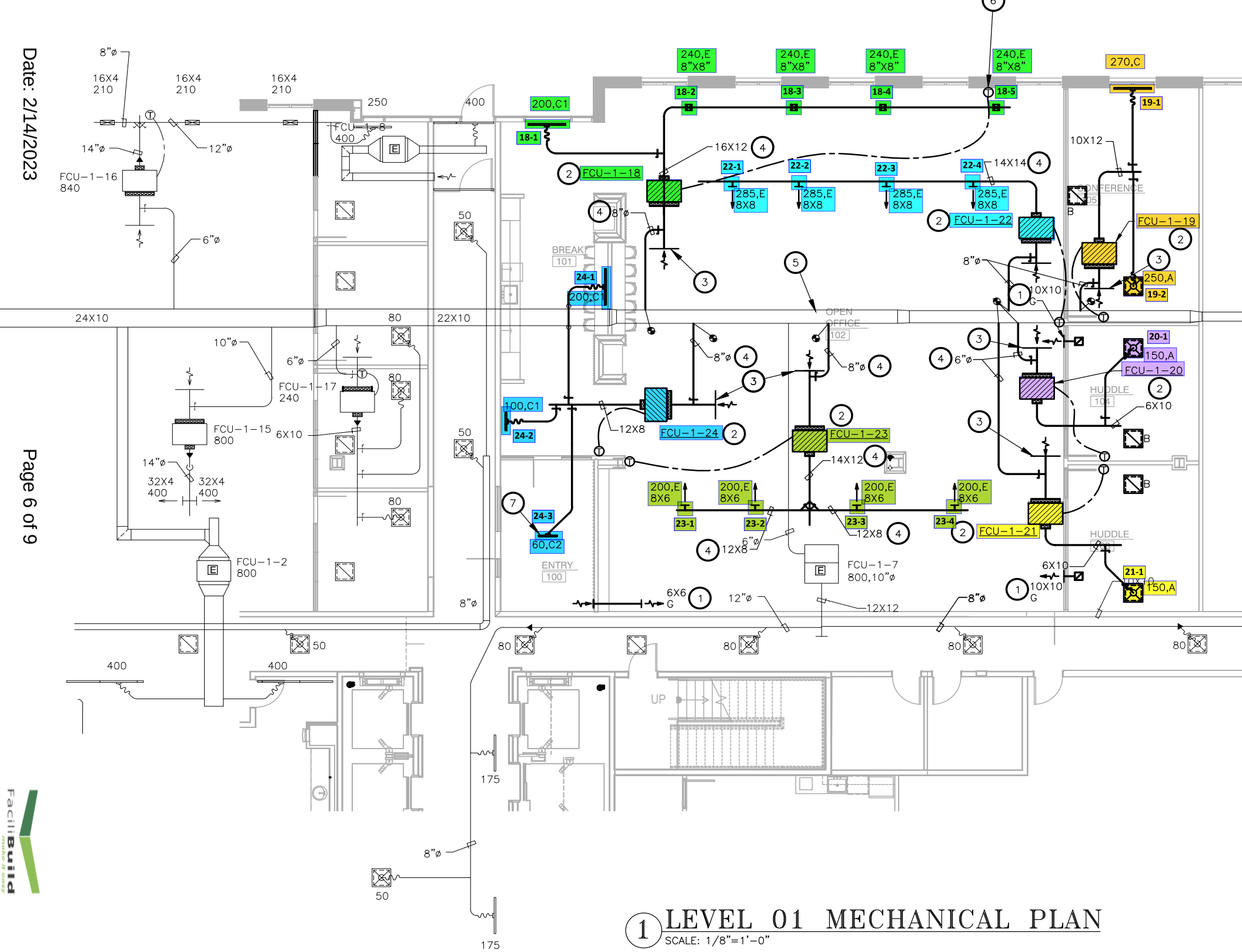
Testing, Adjusting, and Balancing Equipment

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 S/N: 1900632	4/14/2022	4/14/2023
	AIR VELOCITY INSTRUMENT	50 fpm to 3900 fpm	+/- 5 % +/- 7 fpm	EVERGREEN S-PVF-1 S/N: 1900632	4/14/2022	4/14/2023
	DIRECT HOOD READING	100 cfm to 2000 cfm	+/- 5 % +/- 7 cfm	EVERGREEN S-PVF-1 S/N: 1900632	4/14/2022	4/14/2023
TEMPERATURE	AIR METER	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - SRH77A S/N 071118034	5/13/2022	5/13/2023
	AIR PROBE	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - PD1388 7-6 S/N 5028	5/13/2022	5/13/2023
	IMMERSION METER	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - SRH77A S/N 071118034	5/13/2022	5/13/2023
	IMMERSION PROBE	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - PD1388 7-6 S/N 1075	5/13/2022	5/13/2023
	CONTACT METER	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - SRH77A S/N 071118034	5/13/2022	5/13/2023
	CONTACT PROBE	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - PD1388 7-6 S/N 4011	5/13/2022	5/13/2023
HUMIDITY	HUMIDITY PROBE	10 % RH to 90 % RH	3% of reading	Cooper ATKINS - SRH77A S/N 071118034	5/13/2022	5/13/2023
ELECTRICAL	VOLTAGE MEASUREMENT	0 VAC to 600 VAC	2 % reading +/- 5 digits	Fluke 373 True RMS, S/N: 33290686	5/12/2022	5/12/2023
	AMPERAGE MEASUREMENT	0 Amperers to 100 Amperes	2 % reading +/- 5 digits	Fluke 373 True RMS, S/N: 33290686	5/12/2022	5/12/2023
ROTATION	ROTATION MEASUREMENT	60 rpm to 5000 rpm	2 % reading 2 rpm	SHIMPO DT-207LR S/N: D1530081R	5/12/2022	5/12/2023
HYDRONIC	PRESSURE MEASUREMENT	-30 in Hg to 200 psi	±2% of reading +/- 1 psi	Alnor HM570 S/N: 72214041	4/28/2022	4/28/2023
	DIFFERENTIAL PRESSURE MEASUREMENT	0 psi - 80 psi	±2% of reading +/- 1 psi	Alnor HM570 S/N: 72214041	4/28/2022	4/28/2023

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

Date: 2/14/2023



1 LEVEL 01 MECHANICAL PLAN

SCALE: 1/8"=1'-0"

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Project: LoveSac (Mason, OH)

System/Unit: AHU/RTU

Comfort. Under control.

Asset: RTU-1 AREA:101

Unit Data		
	Design	**Actual**
MFG	TRANE	BRYANT
Serial Num	-	3322P36423
Model Num	YSJ090	580JE08N180A2
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	-
OA Filter Size 1	-	-
Num PreFilter 1	-	4
PreFilter Size 1	-	20X16

Motor Data		
	Design	**Actual**
Motor MFG	-	MARATHON
Frame	-	56HZ
Horsepower	3.1	2.9
Motor Rpm	-	1725
Phase	3	3
Rated Voltage	460	460
Rated Amperage	-	4.3
Service Factor	-	1.15

Test Data		
	Design	**Actual**
SF CFM	3000	3021
RA CFM	2485	3021
OA CFM	515	0
RL Voltage	-	480/481/480
RL Amperage	-	3.21/2.9/2.94
OA Damper Position	-	NOT YET INSTALLED
Brake Horse Power	-	2.03

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.28"
Fan Suction SP	-	-0.60"
Fan Discharge SP	-	0.54"
Total ESP	0.8	0.82"
Fan Total SP	-	1.14"

Completed By: Tyler Youells

Notes:

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Project:LoveSac (Mason, OH)

AHU/RTU

Comfort. Under control.

Diffuser Supply (GRD)

RTU-1/101

Asset							
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**CFM(1)**	**FINAL CFM**	**% to design**
1-1	100	SR-2	12X6	187	150	179	95.7
1-2	100	SR-2	12X6	170	162	181	106.5
1-3	100	SR-2	12X6	187	154	174	93.0
1-4	100	SR-2	12X6	170	155	177	104.1
1-5	100	SR-2	12X6	187	146	194	103.7
1-6	100	SR-2	12X6	182	152	188	103.3
1-7	100	SR-2	12X6	119	170	124	104.2
1-8	100	SR-2	12X6	107	162	111	103.7
1-9	100B	SD-1	6	54	64	54	100.0
1-10	100A	SD-1	6	96	79	89	92.7
1-11	100	SR-2	12X6	182	164	189	103.8
1-12	100	SR-2	12X6	170	182	170	100.0
1-13	100	SR-2	12X6	182	190	174	95.6
1-14	100	SR-2	12X6	170	180	169	99.4
1-15	101	SR-2	12X6	170	190	164	96.5
1-16	101	SR-2	12X6	187	199	188	100.5
1-17	101	SR-2	12X6	160	180	170	106.3
1-18	101	SR-2	12X6	160	179	164	102.5
1-19	101	SR-2	12X6	160	101	162	101.3

Completed By: Michael Gabbert on

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Project: LoveSac (Mason, OH)

System/Unit: FAN - Exhaust

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Asset: EF-1 AREA:102

Unit Data		
	Design	**Actual**
MFG	NA	BROAN
Model Num	NA	NOT ACCESSIBLE
Serial Num	-	22L15H
Type	CEILING	CEILING

Motor Data		
	Design	**Actual**
Motor MFG	-	BROAN
Phase	1	1
Voltage (rated)	120	120
Amperage (rated)	-	1.3
Service Factor	-	

Test Data		
	Design	**Actual**
CFM	75	81
RL Voltage	-	122.1
RL Amperage	-	1.24

Completed By: Tyler Youells

Notes: