

Report By:

**National TAB
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**Report: Valvoline (Bellevue, WI)
Function: Test, Adjust, & Balance
Date: 02/05/2024**

**PROJECT
Valvoline (Bellevue, WI)**

2171 MONROE RD

BELLEVUE, WI 54311

Client

**Air Temperature Services
5301 Voges Road
Madison , WI 53718**

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Project: Valvoline (Bellevue, WI)

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CERTIFICATION

PROJECT: Valvoline (Bellevue, WI)

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-Southeast

REGISTRATION NO: 3755

CERTIFIED BY: J. Scott Springer 23312

DATE: 2/5/2024

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-Southeast

REGISTRATION NO: 3086

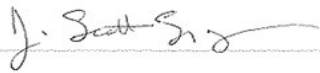
CERTIFIED BY: J. Scott Springer 23312

DATE: _____

Submitted and Certified by:

NEBB TAB FIRM: National TAB-Southeast

TAB PROFESSIONAL: J. Scott Springer

SIGNATURE: 

REGISTRATION NO: 3755 (NTAB) / 23312

CERTIFICATION EXP: 12/31/2024





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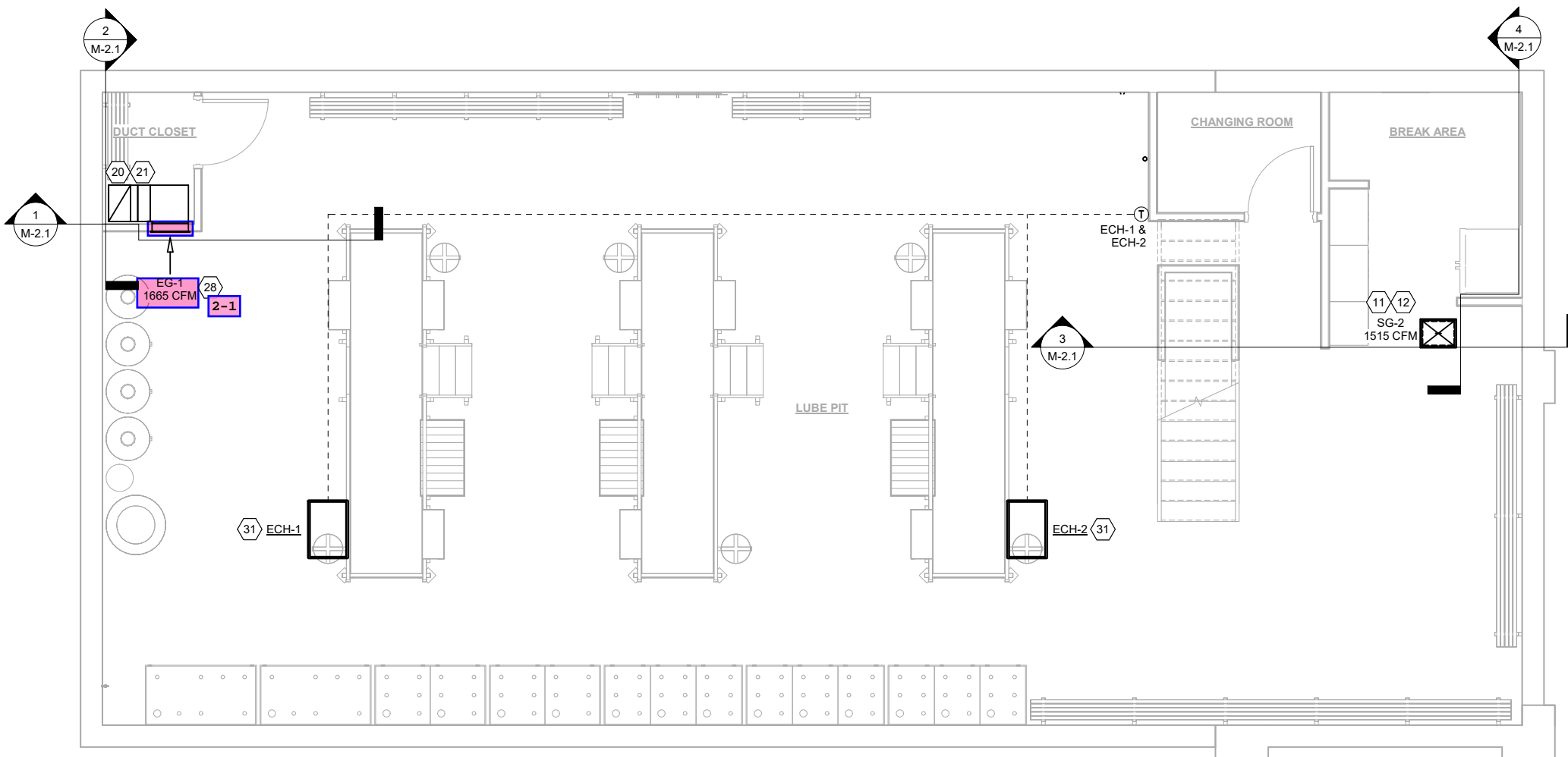
Testing, Adjusting, and Balancing Equipment



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	Shortridge ADM-860C S/N M19547	10/17/2023	10/16/2024
	AIR VELOCITY INSTRUMENT	50 fpm to 3900 fpm	+/- 5 % +/- 7 fpm	Shortridge ADM-860C S/N M19548	10/17/2023	10/16/2024
	DIRECT HOOD READING	100 cfm to 2000 cfm	+/- 3 % +/- 7 cfm	Shortridge Flow Hood	10/17/2023	10/16/2024
TEMPERATURE	AIR METER	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - SRH77A S/N 081820093	10/20/2023	10/19/2024
	AIR PROBE	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - PD1388 7-6 S/N 5028	10/20/2023	10/19/2024
	IMMERSION METER	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - SRH77A S/N 081820093	10/20/2023	10/19/2024
	IMMERSION PROBE	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - PD1388 7-6 S/N 1075	10/20/2023	10/19/2024
	CONTACT METER	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - SRH77A S/N 081820093	10/20/2023	10/19/2024
	CONTACT PROBE	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - PD1388 7-6 S/N 4011	10/20/2023	10/19/2024
HUMIDITY	HUMIDITY PROBE	10 % RH to 90 % RH	3% of reading	Cooper ATKINS - SRH77A S/N 090315046	10/20/2023	10/19/2024
ELECTRICAL	VOLTAGE MEASUREMENT	0 VAC to 600 VAC	2 % reading +/- 5 digits	Dwyer CM-1 - S/N 190800099	10/16/2023	10/15/2024
	AMPERAGE MEASUREMENT	0 Amperers to 100 Amperes	2 % reading +/- 5 digits	Dwyer CM-1 - S/N 190800099	10/16/2023	10/15/2024
ROTATION	ROTATION MEASUREMENT	60 rpm to 5000 rpm	2 % reading 2 rpm	Dwyer TAC-L - S/N S1100123	10/16/2023	10/15/2024
HYDRONIC	PRESSURE MEASUREMENT	-30 in Hg to 200 psi	±2% of reading +/- 1 psi	Dwyer 490W-6 - S/N 01L6NK	6/21/2023	6/20/2024
	DIFFERENTIAL PRESSURE MEASUREMENT	0 psi - 80 psi	±2% of reading +/- 1 psi	Dwyer 490W-6 - S/N 01L6NK	6/21/2023	6/20/2024
DALT	DUCT LEAKAGE	-10" - +10" wc	±1% of reading +/- 0.004" wc	Kanomax DALT 6900 S/N: 080439	5/2023	5/2024

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
CO ₂ = 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



2 LOWER LEVEL MECHANICAL PLAN
 M-1.1 Scale: 1/4" = 1'-0"

National TAB

Project: Valvoline (Bellevue, WI)

System/Unit: Split Sys Furnace



Asset: F1

AREA:OFFICE AREA

Unit Data		
	Design	Actual
MFG	NA	TRANE
Model Num	NA	S9X1B060U4PSBAB
Serial Num	-	23412UBWMF
Configuration	-	VERTICAL
Filter Size Size 1	-	16X20X1

Motor Data		
	Design	Actual
Motor MFG	-	NL
Horsepower	0.50	0.50
Motor Rpm	-	NL
Phase	1	1
Voltage	120	120
Amperage	-	11.8

Test Data		
	Design	Actual
SF CFM	1100	1094
Motor Speed SetPt	-	SPEED TAP 5
RL Voltage	-	121
RL Amperage	-	4.0
RA CFM	950	949
OA CFM	150	145

Performance Data		
	Design	Actual
Suction ESP	-	-0.171"
Discharge ESP	-	0.194"
Total ESP	0.50	0.365"

Completed By: Michael McDonnell on 02/02/2024

National TAB

Project: Valvoline (Bellevue, WI)

Split Sys Furnace



Diffuser Supply (GRD)

F1/OFFICE AREA

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
Furnace1-SGRD1	MECH	SG1	6	100	91	94	94.0
Furnace1-SGRD2	UTILITY	SD1	10	400	468	418	104.5
Furnace1-SGRD3	OFFICE	SD2	6	125	105	126	100.8
Furnace1-SGRD4	RR	SD2	6	75	132	74	98.7
Furnace1-SGRD5	WAITING	SD1	10	400	374	382	95.5
Total				1100	1170	1094	99.45%

Diffuser Ret/Exh (GRD)

F1/OFFICE AREA

Asset								
Asset Name	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
Furnace1-EGRD1	RG4	6	100	0.19	228	228	228	228.0
Furnace1-EGRD2	RG3	10	375	1.0	518	518	518	138.1
Furnace1-EGRD3	RG2	6	125	1.0	46	46	46	36.8
Furnace1-EGRD4	RG1	12	375	1.0	157	157	157	41.9
Total			975		949	949	949	97.33%

Completed By: Michael McDonnell on 02/02/2024

Asset	Notes	Date	Written By
Furnace1-EGRD1	[1] NO DAMPER INSTALLED	02/02/2024	Michael McDonnell
Furnace1-EGRD2	[1] NO DAMPER INSTALLED	02/02/2024	Michael McDonnell

National TAB

Project: Valvoline (Bellevue, WI)

System/Unit: FAN - Exhaust



Asset: EF1

AREA:TOILET

Unit Data		
	Design	Actual
MFG	NA	LOREN COOK
Model Num	NA	GEMINI 140
Serial Num	-	615738
Configuration	CM	CEILING

Motor Data		
	Design	Actual
Horsepower	-	FRACTIONAL
Motor Rpm	970	970
Phase	1	1
Voltage (rated)	120	120
Amperage (rated)	-	0.4
Service Factor	-	NL

Test Data		
	Design	Actual
CFM	100	91
Fan RPM	970	970
Fan Rotation	-	CORRECT
Motor RPM	-	970
System SetPt	-	HIGH SPEED (BLACK)
RL Voltage	-	121
RL Amperage	-	0.4

Completed By: Michael McDonnell on 02/02/2024

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Project: Valvoline (Bellevue, WI)

System/Unit: FAN - Exhaust



Asset: EF2

AREA:BUILDING EXHAUST

Unit Data		
	Design	Actual
MFG	NA	LOREN COOK
Model Num	NA	135SQN17DVF
Serial Num	-	NA
Configuration	-	HORIZONTAL INLINE

Motor Data		
	Design	Actual
Motor MFG	-	NA
Frame	-	NA
Horsepower	0.50	0.50
Motor Rpm	1436	NA
Phase	1	1
Voltage (rated)	120	120
Amperage (rated)	-	NA
Service Factor	-	NA

Test Data		
	Design	Actual
CFM	1665	1672
Fan RPM	1436	NA
Fan Rotation	-	NA
Motor RPM	-	NA
System SetPt	-	NA
RL Voltage	-	NA
RL Amperage	-	NA
Total ESP	0.50	NA
Fan Inlet SP	-	NA
Fan Discharge SP	-	ATM

Completed By: Michael McDonnell on 02/02/2024

Notes:
[1] INLINE FAN IS INSTALLED IN ATTIC SPACE BEHIND HARD CEILING. NOT ACCESSIBLE.

Written By: Michael McDonnell on 02/02/2024

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Project:Valvoline (Bellevue, WI)

FAN - Exhaust



Diffuser Ret/Exh (GRD)

EF2/BUILDING EXHAUST

Asset								
Asset Name	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
EF2-EGRD1	EG1	20	1665					-
Total			1665		0	0	0	0%

National TAB

Project: Valvoline (Bellevue, WI)

System/Unit: FAN - Exhaust



Asset: EF3

AREA:BUILDING EXHAUST

Unit Data		
	Design	Actual
MFG	NA	LOREN COOK
Model Num	NA	120SQN17DVF
Serial Num	-	012SK76404-00/0003501
Configuration	-	HORIZONTAL INLINE

Motor Data		
	Design	Actual
Motor MFG	-	NA
Frame	-	NA
Horsepower	0.50	0.50
Motor Rpm	1376	NA
Phase	1	1
Voltage (rated)	120	120
Amperage (rated)	-	NA
Service Factor	-	NA

Test Data		
	Design	Actual
CFM	1055	1036
Fan RPM	1376	1055
Fan Rotation	-	CORRECT
Motor RPM	-	1055
System SetPt	-	57%
RL Voltage	-	121
RL Amperage	-	NA [1]
Total ESP	0.50	NA [1]
Fan Inlet SP	-	NA [1]
Fan Discharge SP	-	NA [1]

Completed By: Michael McDonnell on 02/02/2024

Notes:

[1] INLINE FAN MOUNTED IN ATTIC SPACE ABOVE HARD CEILING. NOT EASILY ACCESSIBLE. COULD NOT READ AMPERAGE AND VOLTS SAFELY. LIGHT SWITCH DISCONNECT.

Written By: Michael McDonnell on 02/02/2024

National TAB

Project:Valvoline (Bellevue, WI)

FAN - Exhaust



Diffuser Ret/Exh (GRD)

EF3/BUILDING EXHAUST

Asset								
Asset Name	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
EF3-EGRD1	EG2	16	1055					-
Total			1055		0	0	0	0%

National TAB

Project: Valvoline (Bellevue, WI)

System/Unit: FAN - Exhaust



Asset: TF1

AREA:PIT

Unit Data		
	Design	Actual
MFG	NA	LOREN COOK
Model Num	NA	120SQN17DVF
Serial Num	-	012SK76404-00/000070
Configuration	-	VERTICAL INLINE

Motor Data		
	Design	Actual
Motor MFG	-	NA
Frame	-	NA
Horsepower	0.50	0.50
Motor Rpm	1344	1725
Phase	1	1
Voltage (rated)	120	120
Amperage (rated)	-	NL
Service Factor	-	NL

Test Data		
	Design	Actual
CFM	1515	1587
Fan RPM	1344	1727
Fan Rotation	-	CORRECT
Motor RPM	-	1727
System SetPt	-	100%
RL Voltage	-	[1]
RL Amperage	-	[1]
Total ESP	0.50	0.404"
Fan Inlet SP	-	-0.374"
Fan Discharge SP	-	0.03"

Completed By: Michael McDonnell on 02/02/2024

Notes:
[1] COULD NOT READ AMPS AND VOLTS SAFELY; LIGHTSWITCH DISCONNECT.

Written By: Michael McDonnell on 02/02/2024