Report By:

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

Report: Hotworx (Belmont, CA) TAB REPORT

Function: Test, Adjust, & Balance

Date: 02/19/2024

PROJECT

Hotworx (Belmont, CA)

410 El Camino Real

Belmont, CA 94002

Client

Martinico & Sons, Inc.

1776 S. 7th St.

San Jose, CA 95112

National TAB

Project: Hotworx (Belmont, CA)

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CERTIFICATION

PROJECT: Hotworx (Belmont, CA)

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.

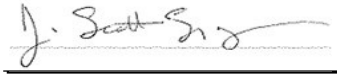
The air distribution system has been tested and balanced and final adjustments have been made in accordance with NEBB standards and the project specifications.

NEBB TAB FIRM:	National TAB-Southeast
REGISTRATION NO:	3755
CERTIFIED BY:	J. Scott Springer 23312
DATE:	2/19/2024

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:	

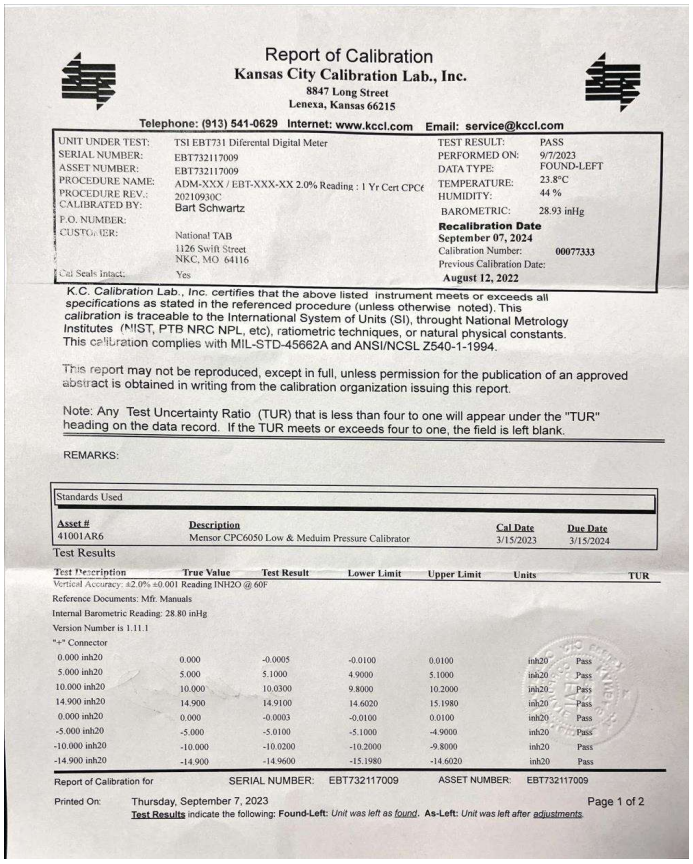
Submitted and Certified by:

NEBB TAB FIRM:	National TAB-Southeast
TAB PROFESSIONAL:	J. Scott Springer
SIGNATURE:	
REGISTRATION NO:	3755 (NTAB) / 23312
CERTIFICATION EXP:	12/31/2024

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	TSI EBT731 EBT732117009	9/7/2023	9/7/2024
	AIR VELOCITY INSTRUMENT	50 fpm to 3900 fpm	+/- 5 % +/- 7 fpm	TSI EBT731 EBT732117009	9/7/2023	9/7/2024
	DIRECT HOOD READING	100 cfm to 2000 cfm	+/- 5 % +/- 7 cfm	TSI EBT731 EBT732117009	9/7/2023	9/7/2024
TEMPERATURE	AIR METER	-20 F to 240 F	+/- .5 % 2 F	Cooper SRH77A S/N 100516003	9/29/2023	9/29/2024
	AIR PROBE	-20 F to 240 F	+/- .5 % 2 F	Cooper SRH77A S/N 100516003	9/29/2023	9/29/2024
	IMMERSION METER	-20 F to 240 F	+/- .5 % 2 F	Cooper SRH77A S/N 100516003	9/29/2023	9/29/2024
	IMMERSION PROBE	-20 F to 240 F	+/- .5 % 2 F	Cooper SRH77A S/N 100516003	9/29/2023	9/29/2024
	CONTACT METER	-20 F to 240 F	+/- .5 % 2 F	Cooper SRH77A S/N 100516003	9/29/2023	9/29/2024
	CONTACT PROBE	-20 F to 240 F	+/- .5 % 2 F	Cooper SRH77A S/N 100516003	9/29/2023	9/29/2024
HUMIDITY	HUMIDITY PROBE	10 % RH to 90 % RH	3% of reading	Cooper SRH77A S/N 100516003	9/29/2023	9/29/2024
ELECTRICAL	VOLTAGE MEASUREMENT	0 VAC to 600 VAC	2 % reading +/- 5 digits	Klein Tools CL800 S/N 1220C-C1	9/29/2023	9/29/2024
	AMPERAGE MEASUREMENT	0 Amperers to 100 Amperes	2 % reading +/- 5 digits	Klein Tools CL800 S/N 1220C-C1	9/29/2023	9/29/2024
ROTATION	ROTATION MEASUREMENT	60 rpm to 5000 rpm	2 % reading 2 rpm	Shimpo DT 207Lp S/N D1690029R	9/29/2023	9/29/2024



Report of Calibration
Kansas City Calibration Lab., Inc.
8847 Long Street
Lenexa, Kansas 66215
Telephone: (913) 541-0629 Internet: www.kccl.com Email: service@kccl.com

UNIT UNDER TEST:	TSI EBT731 Diferental Digital Meter	TEST RESULT:	PASS
SERIAL NUMBER:	EBT732117009	PERFORMED ON:	9/7/2023
ASSET NUMBER:	EBT732117009	DATA TYPE:	FOUND-LEFT
PROCEDURE NAME:	ADM-XXX / EBT-XXX-XX 2.0% Reading : 1 Yr Cert CPC(	TEMPERATURE:	23.8°C
PROCEDURE REV.:	20210930C	HUMIDITY:	44 %
CALIBRATED BY:	Bart Schwartz	BAROMETRIC:	28.93 inHg
P.O. NUMBER:		**Recalibration Date**	
CUSTOMER:	National TAB 1126 Swift Street NKC, MO 64116	**September 07, 2024**	
		Calibration Number:	00077333
Cal Seals Intact:	Yes	Previous Calibration Date:	**August 12, 2022**

K.C. Calibration Lab., Inc. certifies that the above listed instrument meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). This calibration is traceable to the International System of Units (SI), throught National Metrology Institutes (NIST, PTB NRC NPL, etc), ratiometric techniques, or natural physical constants. This calibration complies with MIL-STD-45662A and ANSI/NCSL Z540-1-1994.

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Note: Any Test Uncertainty Ratio (TUR) that is less than four to one will appear under the "TUR" heading on the data record. If the TUR meets or exceeds four to one, the field is left blank.

REMARKS:

Standards Used

Asset #	Description	Cal Date	Due Date
41001AR6	Mensor CPC6050 Low & Meduim Pressure Calibrator	3/15/2023	3/15/2024

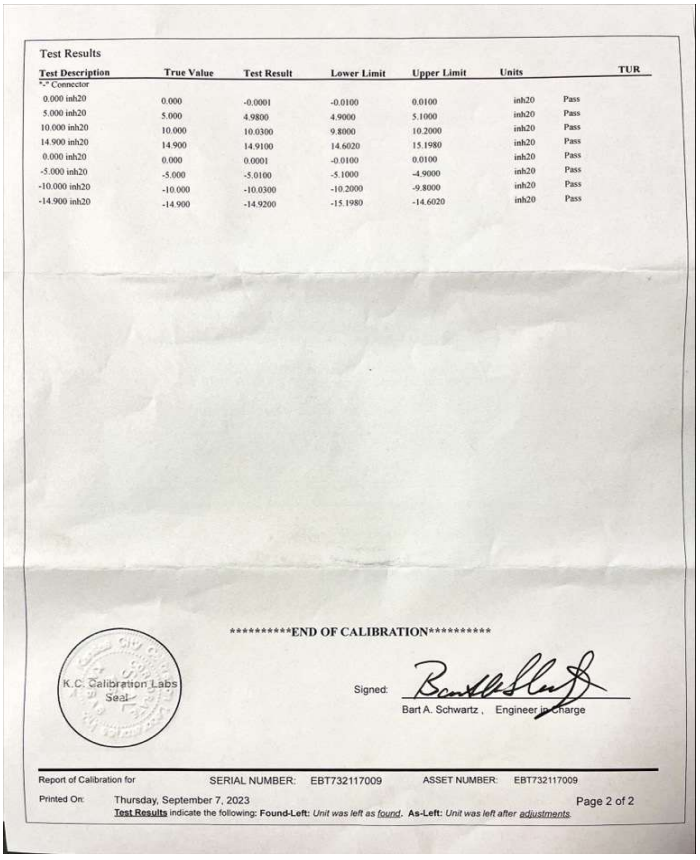
Test Results

Test Description	True Value	Test Result	Lower Limit	Upper Limit	Units	TUR
Vertical Accuracy: ±2.0% ±0.001 Reading INH2O @ 60F						
Reference Documents: Mfr. Manuals						
Internal Barometric Reading: 28.80 inHg						
Version Number is 1.11.1						
"+" Connector						
0.000 inh20	0.000	-0.0005	-0.0100	0.0100	inh20	Pass
5.000 inh20	5.000	5.1000	4.9000	5.1000	inh20	Pass
10.000 inh20	10.000	10.0300	9.8000	10.2000	inh20	Pass
14.900 inh20	14.900	14.9100	14.6020	15.1980	inh20	Pass
0.000 inh20	0.000	-0.0003	-0.0100	0.0100	inh20	Pass
-5.000 inh20	-5.000	-5.0100	-5.1000	-4.9000	inh20	Pass
-10.000 inh20	-10.000	-10.0200	-10.2000	-9.8000	inh20	Pass
-14.900 inh20	-14.900	-14.9600	-15.1980	-14.6020	inh20	Pass

Report of Calibration for SERIAL NUMBER: EBT732117009 ASSET NUMBER: EBT732117009

Printed On: Thursday, September 7, 2023 Page 1 of 2

Test Results indicate the following: **Found-Left:** *Unit was left as found*. **As-Left:** *Unit was left after adjustments*.



Test Results

Test Description	True Value	Test Result	Lower Limit	Upper Limit	Units	TUR
"+" Connector						
0.000 inh20	0.000	-0.0001	-0.0100	0.0100	inh20	Pass
5.000 inh20	5.000	4.9800	4.9000	5.1000	inh20	Pass
10.000 inh20	10.000	10.0300	9.8000	10.2000	inh20	Pass
14.900 inh20	14.900	14.9100	14.6020	15.1980	inh20	Pass
0.000 inh20	0.000	0.0001	-0.0100	0.0100	inh20	Pass
-5.000 inh20	-5.000	-5.0100	-5.1000	-4.9000	inh20	Pass
-10.000 inh20	-10.000	-10.0300	-10.2000	-9.8000	inh20	Pass
-14.900 inh20	-14.900	-14.9200	-15.1980	-14.6020	inh20	Pass

**********END OF CALIBRATION**********

K.C. Calibration Labs Seal

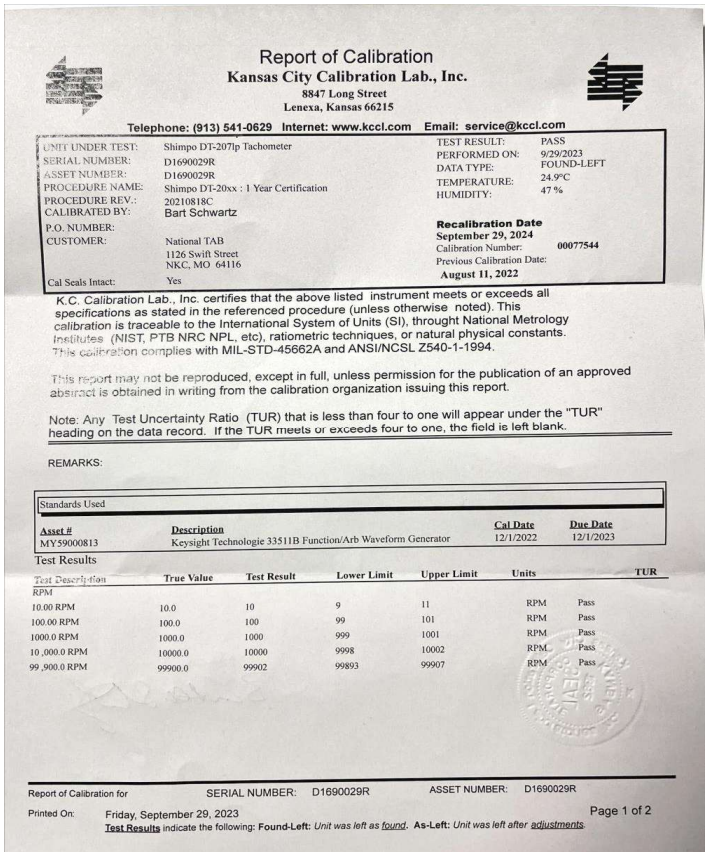
Signed:

Bart A. Schwartz , Engineer in Charge

Report of Calibration for SERIAL NUMBER: EBT732117009 ASSET NUMBER: EBT732117009

Printed On: Thursday, September 7, 2023 Page 2 of 2

Test Results indicate the following: **Found-Left:** *Unit was left as found*. **As-Left:** *Unit was left after adjustments*.



Report of Calibration
Kansas City Calibration Lab., Inc.
8847 Long Street
Lenexa, Kansas 66215
Telephone: (913) 541-0629 Internet: www.kccl.com Email: service@kccl.com

UNIT UNDER TEST:	Shimpo DT-207lp Tachometer	TEST RESULT:	PASS
SERIAL NUMBER:	D1690029R	PERFORMED ON:	9/29/2023
ASSET NUMBER:	D1690029R	DATA TYPE:	FOUND-LEFT
PROCEDURE NAME:	Shimpo DT-20xx : 1 Year Certification	TEMPERATURE:	24.9°C
PROCEDURE REV.:	20210818C	HUMIDITY:	47 %
CALIBRATED BY:	Bart Schwartz		
P.O. NUMBER:		**Recalibration Date**	
CUSTOMER:	National TAB 1126 Swift Street NKC, MO 64116	**September 29, 2024**	
		Calibration Number:	00077544
Cal Seals Intact:	Yes	Previous Calibration Date:	**August 11, 2022**

K.C. Calibration Lab., Inc. certifies that the above listed instrument meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). This calibration is traceable to the International System of Units (SI), throught National Metrology Institutes (NIST, PTB NRC NPL, etc), ratiometric techniques, or natural physical constants. This calibration complies with MIL-STD-45662A and ANSI/NCSL Z540-1-1994.

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Note: Any Test Uncertainty Ratio (TUR) that is less than four to one will appear under the "TUR" heading on the data record. If the TUR meets or exceeds four to one, the field is left blank.

REMARKS:

Standards Used

Asset #	Description	Cal Date	Due Date
MY59000813	Keysight Technologie 33511B Function/Arb Waveform Generator	12/1/2022	12/1/2023

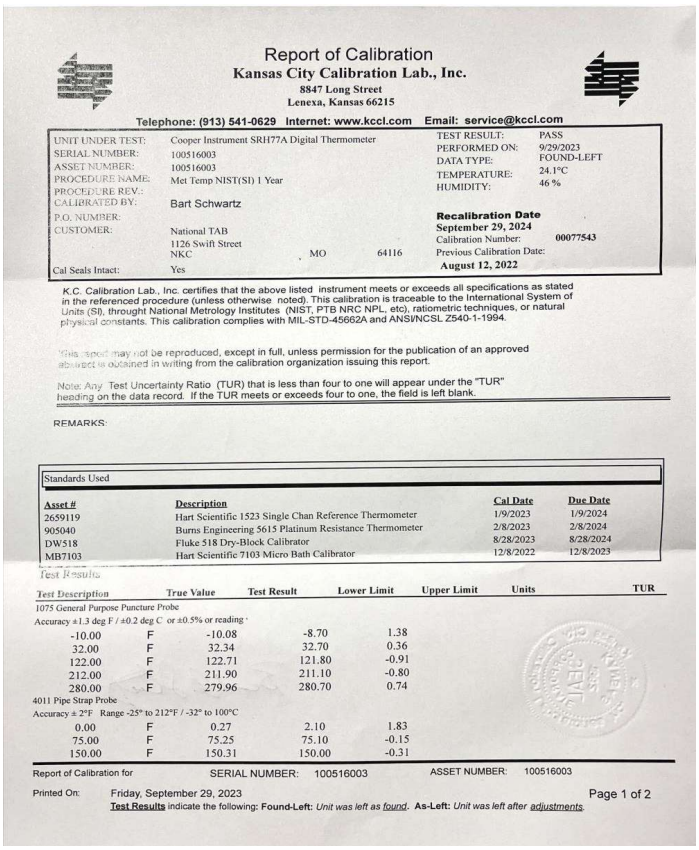
Test Results

Test Description	True Value	Test Result	Lower Limit	Upper Limit	Units	TUR
RPM						
10.00 RPM	10.0	10	9	11	RPM	Pass
100.00 RPM	100.0	100	99	101	RPM	Pass
1000.0 RPM	1000.0	1000	999	1001	RPM	Pass
10 ,000.0 RPM	10000.0	10000	9998	10002	RPM	Pass
99 ,900.0 RPM	99900.0	99902	99893	99907	RPM	Pass

Report of Calibration for SERIAL NUMBER: D1690029R ASSET NUMBER: D1690029R

Printed On: Friday, September 29, 2023 Page 1 of 2

Test Results indicate the following: **Found-Left:** *Unit was left as found*. **As-Left:** *Unit was left after adjustments*.



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Kansas City Calibration Lab., Inc.
8847 Long Street
Lenexa, Kansas 66215
Telephone: (913) 541-0629 Internet: www.kccl.com Email: service@kccl.com

UNIT UNDER TEST:	Cooper Instrument SRH77A Digital Thermometer	TEST RESULT:	PASS
SERIAL NUMBER:	100516003	PERFORMED ON:	9/29/2023
ASSET NUMBER:	100516003	DATA TYPE:	FOUND-LEFT
PROCEDURE NAME:	Met Temp NIST(SI) 1 Year	TEMPERATURE:	24.1°C
PROCEDURE REV.:		HUMIDITY:	46 %
CALIBRATED BY:	Bart Schwartz		
P.O. NUMBER:		**Recalibration Date**	
CUSTOMER:	National TAB 1126 Swift Street NKC, MO 64116	**September 29, 2024**	
		Calibration Number:	00077543
Cal Seals Intact:	Yes	Previous Calibration Date:	**August 12, 2022**

K.C. Calibration Lab., Inc. certifies that the above listed instrument meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). This calibration is traceable to the International System of Units (SI), throught National Metrology Institutes (NIST, PTB NRC NPL, etc), ratiometric techniques, or natural physical constants. This calibration complies with MIL-STD-45662A and ANSI/NCSL Z540-1-1994.

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REMARKS:

Standards Used

Asset #	Description	Cal Date	Due Date
2659119	Hart Scientific 1523 Single Chan Reference Thermometer	1/9/2023	1/9/2024
905040	Burns Engineering 5615 Platinum Resistance Thermometer	2/8/2023	2/8/2024
DW518	Fluke 518 Dry-Block Calibrator	8/28/2023	8/28/2024
MB7103	Hart Scientific 7103 Micro Bath Calibrator	12/8/2022	12/8/2023

Test Results

Test Description	True Value	Test Result	Lower Limit	Upper Limit	Units	TUR
1075 General Purpose Puncture Probe						
Accuracy ±1.3 deg F / ±0.2 deg C or ±0.5% or reading						
-10.00	F	-10.08	-8.70	1.38		
32.00	F	32.34	32.70	0.36		
122.00	F	122.71	121.80	-0.91		
212.00	F	211.90	211.10	-0.80		
280.00	F	279.96	280.70	0.74		
4011 Pipe Strap Probe						
Accuracy ± 2°F Range -25° to 212°F / -32° to 100°C						
0.00	F	0.27	2.10	1.83		
75.00	F	75.25	75.10	-0.15		
150.00	F	150.31	150.00	-0.31		

Report of Calibration for SERIAL NUMBER: 100516003 ASSET NUMBER: 100516003

Printed On: Friday, September 29, 2023 Page 1 of 2

Test Results indicate the following: **Found-Left:** *Unit was left as found*. **As-Left:** *Unit was left after adjustments*.

Test Results

Test Description	True Value	Test Result	Lower Limit	Upper Limit	Units	TUR
5028 Slim Humidity Probe						
Accuracy ±2% from 20 to 80%RH, ±3% below 20 and a						
10.0 %RH @ 23.0°C	%RH	10.0	16	6.0		
25.0 %RH @23.0°C	%RH	25.0	30	5.0		
50.0 %RH @ 23.0°C	%RH	50.0	53	3.0		
75.0 %RH @ 23.0°C	%RH	75.0	77	2.0		
23.0°C @ 10.0 %RH	C	23.0	23.2	0.2		
23.0°C @ 25.0 %RH	C	23.0	23.2	0.2		
23.0°C @ 50.0 %RH	C	23.0	23.2	0.2		
23.0°C @ 75.0 %RH	C	23.0	23.1	0.1		

**********END OF CALIBRATION**********

K.C. Calibration Labs Seal

Signed: Bart A. Schwartz , Engineer in Charge

Report of Calibration for SERIAL NUMBER: 100516003 ASSET NUMBER: 100516003

Printed On: Friday, September 29, 2023 Page 2 of 2

Test Results indicate the following: **Found-Left:** *Unit was left as found.* **As-Left:** *Unit was left after adjustments.*

Report of Calibration

Kansas City Calibration Lab., Inc.
8847 Long Street
Lenexa, Kansas 66215

Telephone: (913) 541-0629 Internet: www.kccl.com Email: service@kccl.com

UNIT UNDER TEST:	Klein Tools CL800 True RMS Digital Clampmeter	TEST RESULT:	PASS
SERIAL NUMBER:	1220C-C1	PERFORMED ON:	9/29/2023
ASSET NUMBER:	1220C-C1	DATA TYPE:	FOUND-LEFT
PROCEDURE NAME:	Klein Tools CL800 : (1 year) CAL VER / 5520	TEMPERATURE:	24.9°C
PROCEDURE REV.:	20230928	HUMIDITY:	46 %
CALIBRATED BY:	Bart Schwartz		
P.O. NUMBER:		**Recalibration Date**	
CUSTOMER:	National TAB 1126 Swift Street NKC, MO 64116	**September 29, 2024**	
		Calibration Number:	00077542
		Previous Calibration Date:	
Cal Seals Intact:	Unknown		

K.C. Calibration Lab., Inc. certifies that the above listed instrument meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). This calibration is traceable to the International System of Units (SI), throught National Metrology Institutes (NIST, PTB NRC NPL, etc), ratiometric techniques, or natural physical constants. This calibration complies with MIL-STD-45662A and ANSI/NCSL Z540-1-1994.

Note: Any Test Uncertainty Ratio (TUR) that is less than four to one will appear under the "TUR" heading on the data record. If the TUR meets or exceeds four to one, the field is left blank.

REMARKS:

Standards Used

Asset #	Description	Cal Date	Due Date
3277903	Fluke 5522A Multi-Product Calibrator	11/30/2022	11/30/2023

Test Results

Test Description	True Value	Test Result	Lower Limit	Upper Limit	Units	TUR
Root Difference Square guardbanding method used						
AC VOLTS TESTS						
6 V Range						
5.900 V @ 60 Hz	5.9000	5.897	5.807	5.994	V	Pass
60 V Range						
59.00 V @ 60 Hz	59.000	58.97	58.24	59.76	V	Pass
600 V Range						
590.0 V @ 60 Hz	590.00	589.7	582.4	597.6	V	Pass
1000 V Range						
990.0 V @ 60 Hz	990.00	991.0	970.1	1009.9	V	Pass
DC VOLTS TESTS						
600 mV Range						
600.0 mV	600.00	599.8	593.2	606.8	m V	Pass

Report of Calibration for SERIAL NUMBER: 1220C-C1 ASSET NUMBER: 1220C-C1

Printed On: Friday, September 29, 2023 Page 1 of 3

Test Results indicate the following: **Found-Left:** *Unit was left as found.* **As-Left:** *Unit was left after adjustments.*

Test Results

Test Description	True Value	Test Result	Lower Limit	Upper Limit	Units	TUR
-600.0 mV	-600.00	-599.9	-606.8	-593.2	m V	Pass
6 V Range						
6.000 V	6.0000	5.997	5.937	6.063	V	Pass
-6.000 V	-6.0000	-5.995	-6.063	-5.937	V	Pass
60 V Range						
60.00 V	60.000	59.96	59.37	60.63	V	Pass
600 V Range						
600.0 V	600.00	599.6	593.7	606.3	V	Pass
1000 V Range						
1000 V	1000.0	1001	985	1015	V	Pass
-1000 V	-1000.0	-1001	-1015	-985	V	Pass
CONTINUITY TESTS						
Audible Indicator ON @ 10 ohms						Pass
Audible Indicator OFF @ 51 ohms						Pass
RESISTANCE TESTS						
600 Ohm Range						
600.0 Ohm	600.00	601.2	590.5	609.5	Ω	Pass
6 kOhm Range						
6.000 kOhm	6.0000	6.000	5.905	6.095	k Ω	Pass
60 kOhm Range						
60.00 kOhm	60.000	59.99	59.05	60.95	k Ω	Pass
600 kOhm Range						
600.0 kOhm	600.00	599.9	590.5	609.5	k Ω	Pass
6 MOhm Range						
6.000 MOhm	6.0000	5.993	5.905	6.095	M Ω	Pass
60 MOhm Range						
60.00 MOhm	60.000	59.47	58.70	61.30	M Ω	Pass
DIODE CHECK TESTS						
Diode Voltage						Pass
FREQUENCY TESTS						
9.000 Hz @ 8 V	9.0000	8.999	8.905	9.095	Hz	Pass
90.00 Hz @ 8 V	90.000	90.00	89.05	90.95	Hz	Pass
900.0 Hz @ 8 V	900.00	900.0	890.5	909.5	Hz	Pass
9.000 kHz @ 8 V	9.0000	9.000	8.905	9.095	k Hz	Pass
90.00 kHz @ 8 V	90.000	90.00	89.05	90.95	k Hz	Pass
100.0 kHz @ 8 V	100.00	100.0	98.5	101.5	k Hz	Pass
DUTY CYCLE						
50.0 % @ 1 kHz	50.00	50.3	49.3	50.8	%	Pass
CAPACITANCE TESTS						
60 nF Range						
59.00 nF	59.000	59.96	55.70	62.30	n F	Pass
600 nF Range						
590.0 nF	590.00	597.1	571.8	608.2	n F	Pass
6 uF Range						
5.900 µF	5.9000	5.854	5.718	6.082	µ F	Pass
60 uF Range						
59.00 µF	59.000	58.87	57.18	60.82	µ F	Pass

Report of Calibration for SERIAL NUMBER: 1220C-C1 ASSET NUMBER: 1220C-C1

Printed On: Friday, September 29, 2023 Page 2 of 3

Test Results indicate the following: **Found-Left:** *Unit was left as found.* **As-Left:** *Unit was left after adjustments.*

Test Results

Test Description	True Value	Test Result	Lower Limit	Upper Limit	Units	TUR
600 uF Range						
590.0 µF	590.00	590.6	560.0	620.0	µ F	Pass
6000 uF Range						
5900 µF	5900.0	5957	5600	6200	µ F	Pass
TEMPATURE F TESTS						
-14 °F	-14.0	-10	-23	-5	°F	Pass
100 °F	100.0	102	94	106	°F	Pass
500 °F	500.0	502	490	510	°F	Pass
900 °F	900.0	902	873	927	°F	Pass
TEMPATURE C TESTS						
-25 °C	-25.0	-23	-31	-20	°C	Pass
100 °C	100.0	102	96	104	°C	Pass
350 °C	350.0	351	344	357	°C	Pass
500 °C	500.0	501	485	515	°C	Pass
AC CURRENT TESTS						
60 A Range						
50.00 A @ 60 Hz	50.000	49.60	48.92	51.08	A	Pass
50.00 A @ 400 Hz	50.000	50.00	48.92	51.08	A	Pass
400 A Range						
500.0 A @ 60 Hz	500.00	494.2	489.5	510.5	A	Pass
500.0 A @ 100 Hz	500.00	494.4	489.5	510.5	A	Pass
60 A Range						
50.00 A	50.000	49.20	48.92	51.08	A	Pass
600 A Range						
300.0 A	300.00	296.5	293.5	306.5	A	Pass
590.0 A	590.00	582.7	577.7	602.3	A	Pass

**********END OF CALIBRATION**********

K.C. Calibration Labs Seal

Signed: Bart A. Schwartz , Engineer in Charge

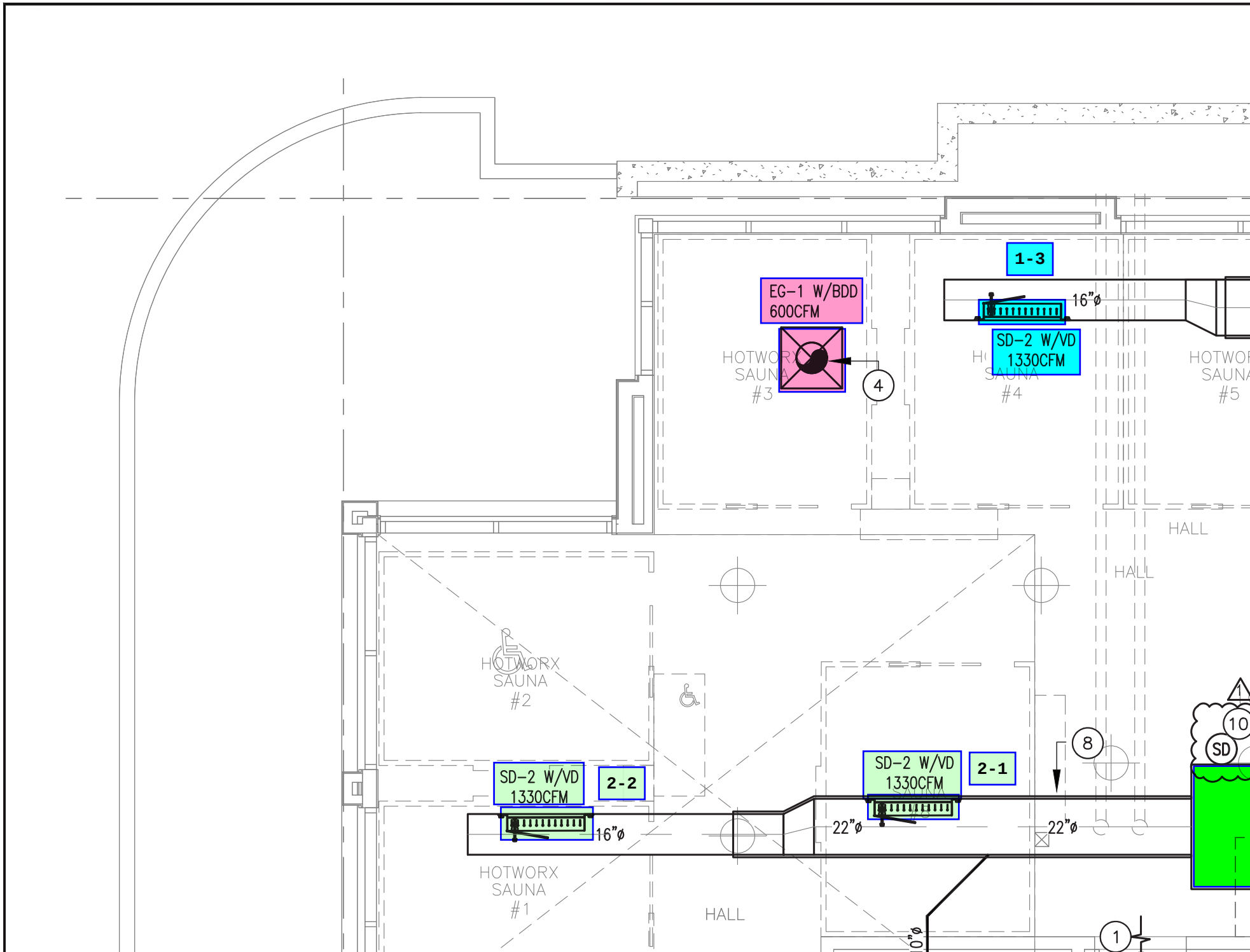
Report of Calibration for SERIAL NUMBER: 1220C-C1 ASSET NUMBER: 1220C-C1

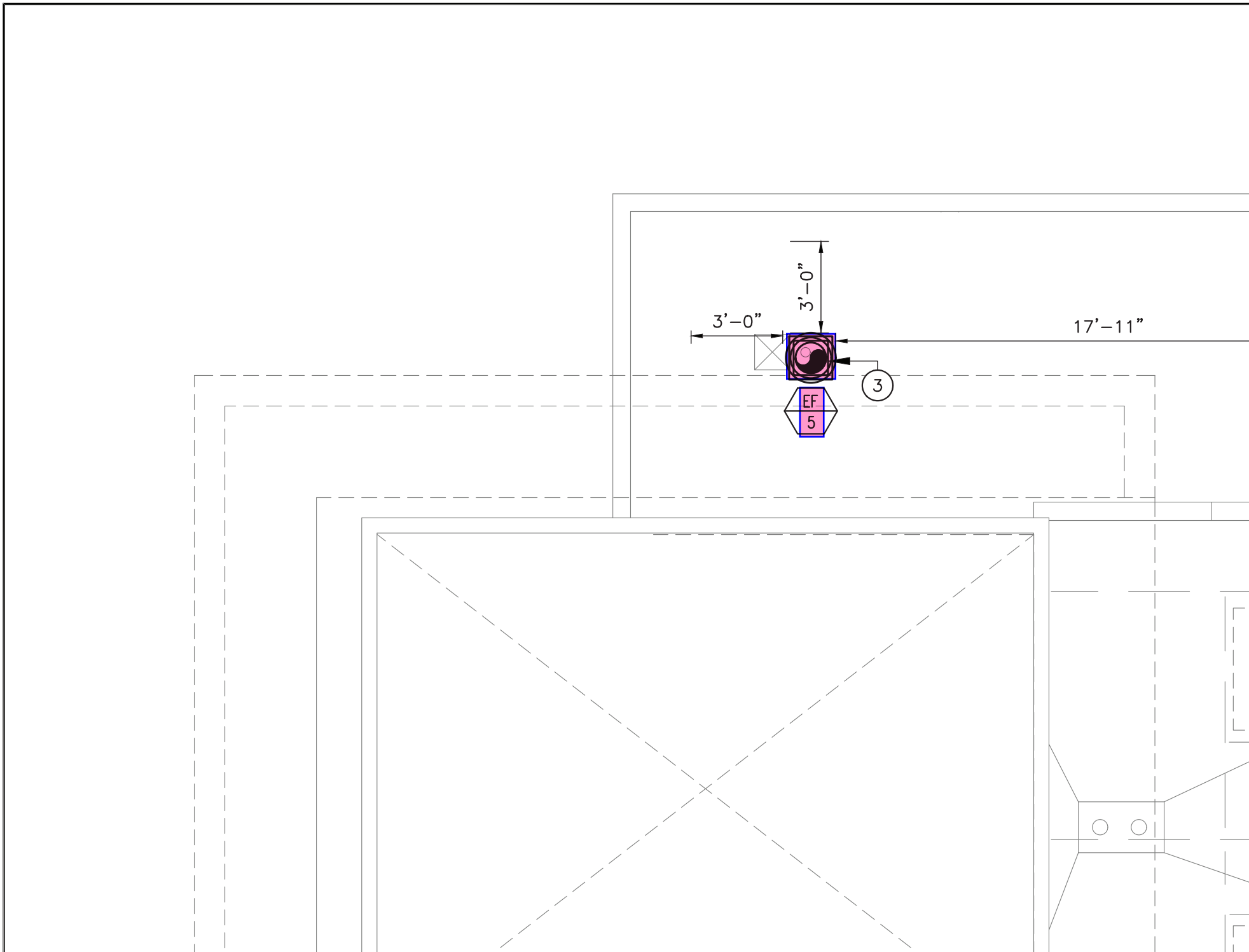
Printed On: Friday, September 29, 2023 Page 3 of 3

Test Results indicate the following: **Found-Left:** *Unit was left as found.* **As-Left:** *Unit was left after adjustments.*

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


EG-1 W/BDD
600CFM
4
1-3
16"ø
SD-2 W/VD
1330CFM
HOTWORX
SAUNA
#3
HOTWORX
SAUNA
#4
HOTWORX
SAUNA
#5
HALL
HALL
HOTWORX
SAUNA
#2
SD-2 W/VD
1330CFM
2-2
16"ø
SD-2 W/VD
1330CFM
2-1
8
22"ø
22"ø
10
SD
HOTWORX
SAUNA
#1
HALL
1


3'–0"
3'–0"
17'–11"
3
EF
5

National TAB

Project: Hotworx (Belmont, CA)

System/Unit: Fan Coil

Asset: FC1 AREA:EXERCISE SPACE

Unit Data		
	Design	**Actual**
MFG	NA	BRYANT
Model Num	NA	524FP07H000A2UAAAA
Serial Num	-	4023U18244
Configuration	HORIZONTAL	HORIZONTAL

Motor Data		
	Design	**Actual**
Horsepower	-	2.4
Phase	3	3
Voltage (rated)	208	208
Amperage (rated)	-	6.4

Test Data		
	Design	**Actual**
SFAN CFM	2870	3070
Motor Speed SetPt	-	A
RL Voltage	-	214/214/215
RL Amperage	-	1.25/1.25/1.26
RA CFM	2370	2559
OA CFM	500	511

Performance Data		
	Design	**Actual**
Suction ESP	-	-0.15"
Discharge ESP	-	0.28"
Total ESP	0.1	0.43"

Completed By: Zack Eismin on 02/16/2024

National TAB

Project:Hotworx (Belmont, CA)

Fan Coil

Diffuser Supply (GRD)

FC1/EXERCISE SPACE

Asset							
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**CFM(1)**	**FINAL CFM**	**% to design**
FC1-SGRD1	EXERCISE	SD1	18X6	210	439	221	105.2
FC1-SGRD2	SAUNA #5	SD2	38X14	1330	2927	1411	106.1
FC1-SGRD3	SAUNA #4	SD2	38X14	1330	3271	1438	108.1
Total				2870	6637	3070	106.97%

National TAB

Project: Hotworx (Belmont, CA)

System/Unit: Fan Coil

Asset: FC2 AREA:EXERCISE SPACE

Unit Data		
	Design	**Actual**
MFG	NA	BRYANT
Model Num	NA	524FP07H000A2UAAAA
Serial Num	-	4023U18245
Configuration	HORIZONTAL	HORIZONTAL

Motor Data		
	Design	**Actual**
Horsepower	-	2.4
Phase	3	3
Voltage (rated)	208	208
Amperage (rated)	-	6.4

Test Data		
	Design	**Actual**
SFAN CFM	3000	3159
Motor Speed SetPt	-	A
RL Voltage	-	214/215/214
RL Amperage	-	1.3/1.4/1.3
RA CFM	2440	2586
OA CFM	560	573

Performance Data		
	Design	**Actual**
Suction ESP	-	-0.14"
Discharge ESP	-	0.31"
Total ESP	0.1	0.45"

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National TAB

Project:Hotworx (Belmont, CA)

Fan Coil

Diffuser Supply (GRD)

FC2/EXERCISE SPACE

Asset							
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**CFM(1)**	**FINAL CFM**	**% to design**
FC2-SGRD1	HALL	SD2	38X14	1330	3116	1438	108.1
FC2-SGRD2	SAUNA #1	SD2	38X14	1330	3008	1388	104.4
FC2-SGRD3	UTILITY	CD1	6	60	130	61	101.7
FC2-SGRD4	LOBBY	CD1	8	140	350	135	96.4
FC2-SGRD5	LOBBY	CD1	8	140	340	137	97.9
Total				3000	6944	3159	105.3%

National TAB

Project: Hotworx (Belmont, CA)

System/Unit: FAN - Exhaust

Asset: EF1 AREA:ELEC RM

Unit Data		
	Design	**Actual**
MFG	NA	PANASONIC
Model Num	NA	FV-1115VK2
Serial Num	-	31106M
Type	CEILING	CEILING

Test Data		
	Design	**Actual**
CFM	112	107
RL Voltage	-	NA
RL Amperage	-	NA
Total ESP	0.25	0.19"

Motor Data		
	Design	**Actual**
Motor MFG	-	NL
Frame	-	NL
Horsepower	-	NL
Motor Rpm	-	NL
Phase	1	1
Voltage (rated)	120	120
Amperage (rated)	-	0.33
Service Factor	-	NL

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National TAB

Project: Hotworx (Belmont, CA)

System/Unit: FAN - Exhaust

Asset: EF2 AREA:RESTROOM

Unit Data		
	Design	**Actual**
MFG	NA	PANASONIC
Model Num	NA	FV-0511VF1
Serial Num	-	31121
Type	CEILING	CEILING

Test Data		
	Design	**Actual**
CFM	80	86
RL Voltage	-	NA
RL Amperage	-	NA
Total ESP	0.25	NA

Motor Data		
	Design	**Actual**
Motor MFG	-	NL
Frame	-	NL
Horsepower	-	NL
Motor Rpm	-	NL
Phase	1	1
Voltage (rated)	120	120
Amperage (rated)	-	0.29
Service Factor	-	NL

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National TAB

Project: Hotworx (Belmont, CA)

System/Unit: FAN - Exhaust

Asset: EF3 AREA:RESTROOM

Unit Data		
	Design	**Actual**
MFG	NA	PANASONIC
Model Num	NA	FV-0411VF1
Serial Num	-	31121
Type	CEILING	CEILING

Test Data		
	Design	**Actual**
CFM	80	83
RL Voltage	-	NA
RL Amperage	-	NA
Total ESP	0.25	NA

Motor Data		
	Design	**Actual**
Motor MFG	-	NL
Frame	-	NL
Horsepower	-	NL
Motor Rpm	-	NL
Phase	1	1
Voltage (rated)	120	120
Amperage (rated)	-	0.29
Service Factor	-	NL

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National TAB

Project: Hotworx (Belmont, CA)

System/Unit: FAN - Exhaust

Asset: EF4 AREA:UTILITY RM

Unit Data		
	Design	**Actual**
MFG	NA	PANASONIC
Model Num	NA	FV-1115VK2
Serial Num	-	31121
Type	CEILING	CEILING

Test Data		
	Design	**Actual**
CFM	112	110
RL Voltage	-	NA
RL Amperage	-	NA
Total ESP	0.25	0.18"

Motor Data		
	Design	**Actual**
Motor MFG	-	NL
Frame	-	NL
Horsepower	-	NL
Motor Rpm	-	NL
Phase	1	1
Voltage (rated)	120	120
Amperage (rated)	-	0.33
Service Factor	-	NL

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National TAB

Project: Hotworx (Belmont, CA)

System/Unit: FAN - Exhaust

Asset: EF5 AREA:EXERCISE SPACE

Unit Data		
	Design	**Actual**
MFG	NA	GREENHECK
Model Num	NA	CUBE-100-4-1-19-X
Serial Num	-	23644621
Type	CRE	UPBLAST

Test Data		
	Design	**Actual**
CFM	600	572
RL Voltage	-	NA
RL Amperage	-	NA
Total ESP	0.50	0.57"

Motor Data		
	Design	**Actual**
Motor MFG	-	WEG
Frame	-	56
Horsepower	-	0.25
Motor Rpm	-	1765
Phase	3	3
Voltage (rated)	208	208
Amperage (rated)	-	1.07
Service Factor	-	1.35

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National TAB

Project:Hotworx (Belmont, CA)

FAN - Exhaust

Diffuser Ret/Exh (GRD)

EF5/EXERCISE SPACE

Asset								
Asset Name	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
EF5-EGRD1	EG1	18X10	600	1	521	572	572	95.3
Total			600		521	572	572	95.33%

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National TAB

Project: Hotworx (Belmont, CA)

System/Unit: FAN - Exhaust

Asset: EF6 AREA:SAUNA #3

Unit Data		
	Design	**Actual**
MFG	NA	GREENHECK
Model Num	NA	CUE-070-6-1-17-X
Serial Num	-	23644629
Type	CRE	UPBLAST

Test Data		
	Design	**Actual**
CFM	150	142
RL Voltage	-	NA
RL Amperage	-	NA
Total ESP	0.25	0.22"

Motor Data		
	Design	**Actual**
Motor MFG	-	GREENHECK
Frame	-	NL
Horsepower	-	1/30
Motor Rpm	-	1550
Phase	1	1
Voltage (rated)	115	115
Amperage (rated)	-	1.1
Service Factor	-	NL

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National TAB

Project:Hotworx (Belmont, CA)

FAN - Exhaust

Diffuser Ret/Exh (GRD)

EF6/SAUNA #3

Asset								
Asset Name	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
EF6-EGRD1	EG2	10X6	150	0.37	142	142	142	94.7
Total			150		142	142	142	94.67%