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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

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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

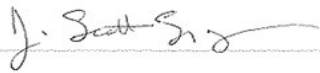
CERTIFIED BY: J. Scott Springer 23312

DATE: _____

Submitted and Certified by:

NEBB TAB FIRM: National TAB-Southeast

TAB PROFESSIONAL: J. Scott Springer

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REGISTRATION NO: 3755 (NTAB) / 23312

CERTIFICATION EXP: 12/31/2024





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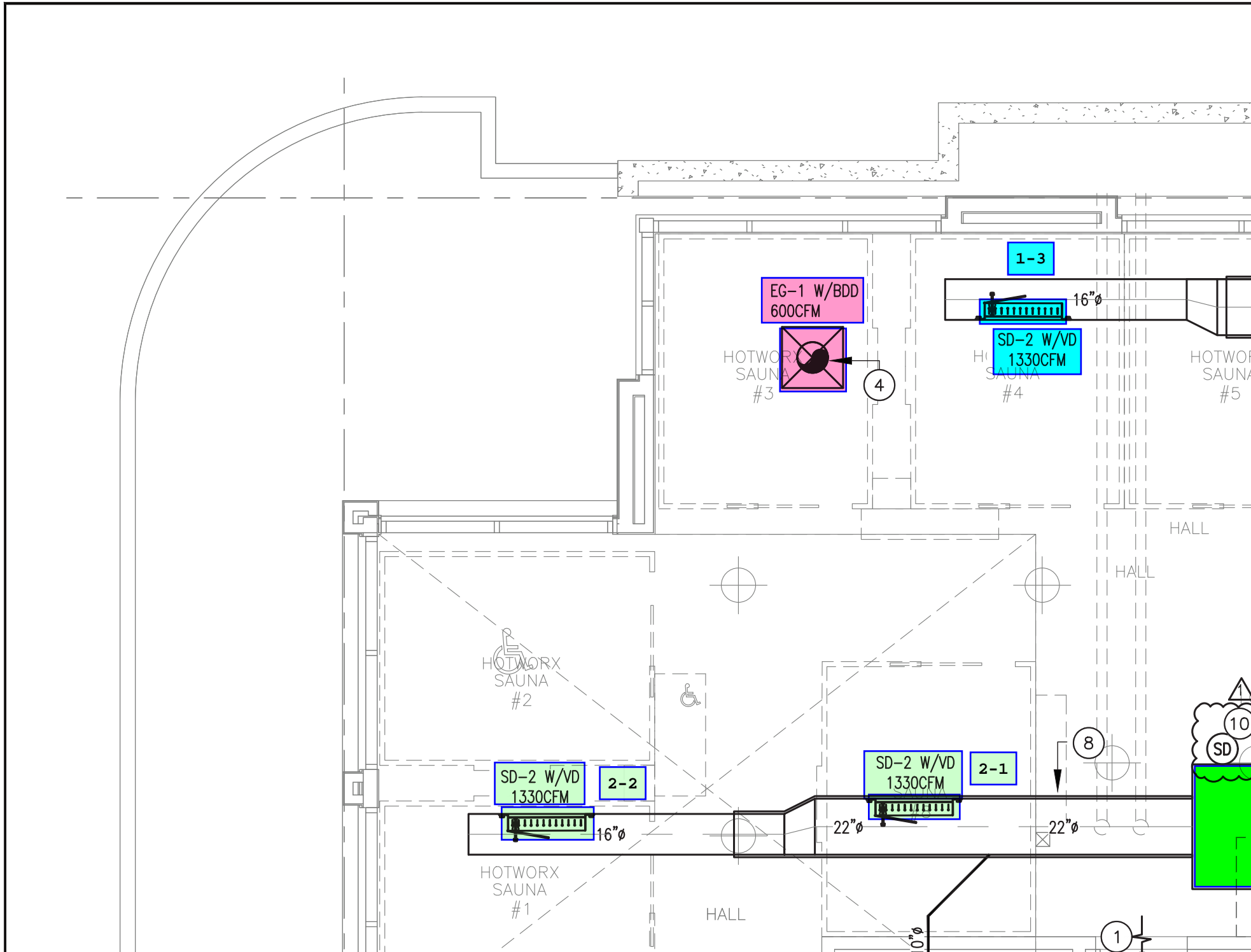
Testing, Adjusting, and Balancing Equipment

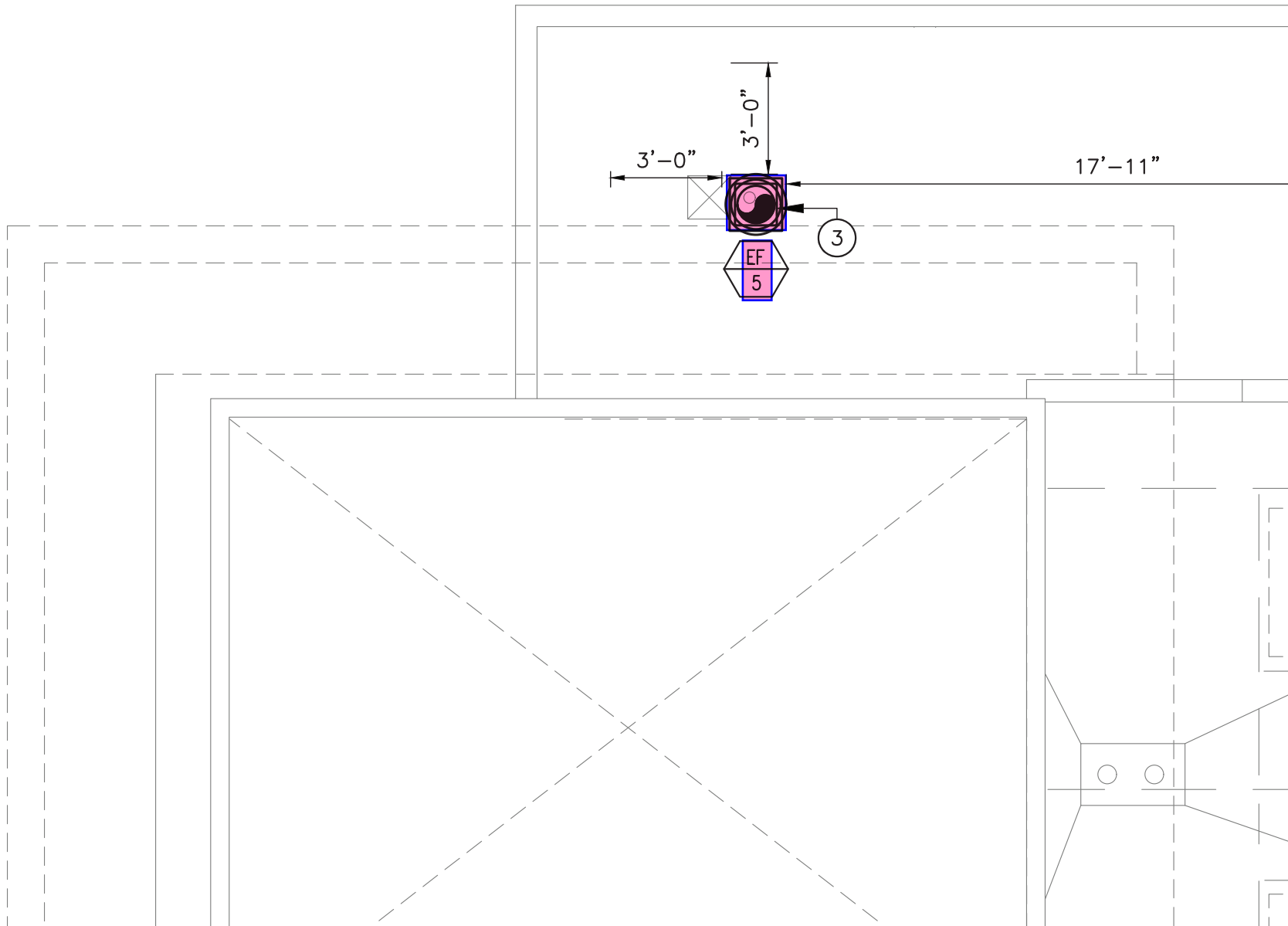


Function		Range	Minimum Accuracy	Instrument Information	Calibration Date	Date Due
AIR	AIR PRESSURE	0 in wg to 10 in wg	2% +/- 0.001 in wg	TSI EBT731 EBT732117009	9/7/2023	9/7/2024
	AIR VELOCITY INSTRUMENT	50 fpm to 3900 fpm	+/- 5 % +/- 7 fpm	TSI EBT731 EBT732117009	9/7/2023	9/7/2024
	DIRECT HOOD READING	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

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





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"

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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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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%

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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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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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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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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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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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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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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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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%