Report By:

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

Report: TAB REPORT

Function: Test, Adjust, & Balance

Date: 07/15/2024

PROJECT

Sharonville Convention Ctr (Cincinnati, OH)

11355 Chester Rd

Cincinnati, OH 45246

Client

Driekast

11290 Sebring Dr

Cincinnati, OH 45240

National TAB

Project: Sharonville Convention Ctr (Cincinnati, OH)

Table Of Contents

CERTIFICATION

PROJECT: Sharonville Convention Ctr (Cincinnati, 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:	7/15/2024

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
REGISTRATION NO:	3629
CERTIFIED BY:	Joe Hertenstein
DATE:	7/15/2024

Submitted and Certified by:

NEBB TAB FIRM:	National TAB
TAB PROFESSIONAL:	Joe Hertenstein
SIGNATURE:	
REGISTRATION NO:	3629
CERTIFICATION EXP:	12/31/2024

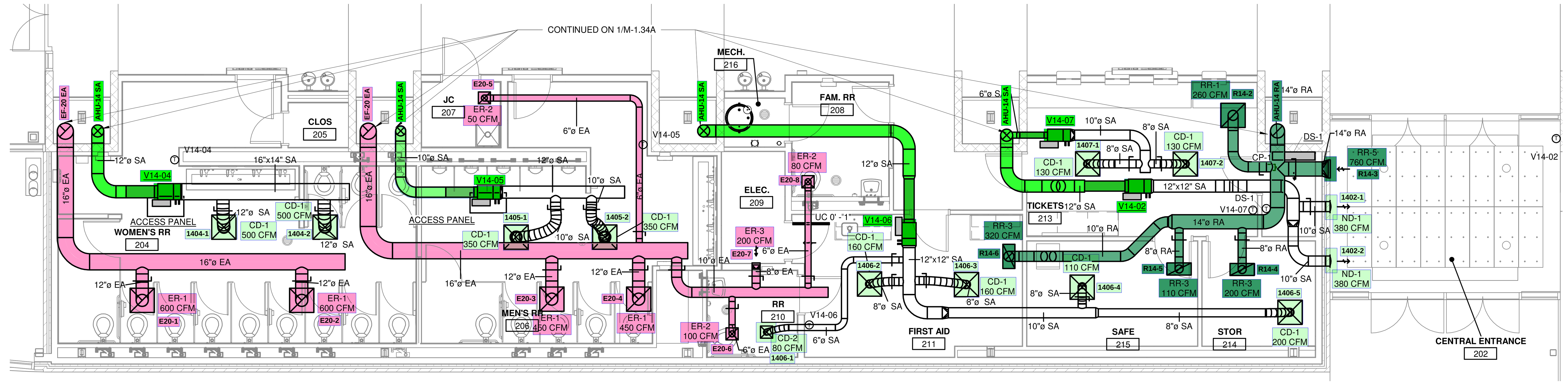
National TAB

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	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	6/3/2024	6/3/2025
	DIFFERENTIAL PRESSURE MEASUREMENT	0 psi - 80 psi	±2% of reading +/- 1 psi	Dwyer 490W-6 - S/N 01L6NK	6/3/2024	6/3/2025
DALT	DUCT LEAKAGE	-10"- +10" wc	±1% of reading +/- 0.004" wc	Kanomax DALT 6900 S/N: 080439	3/2024	3/1/2025

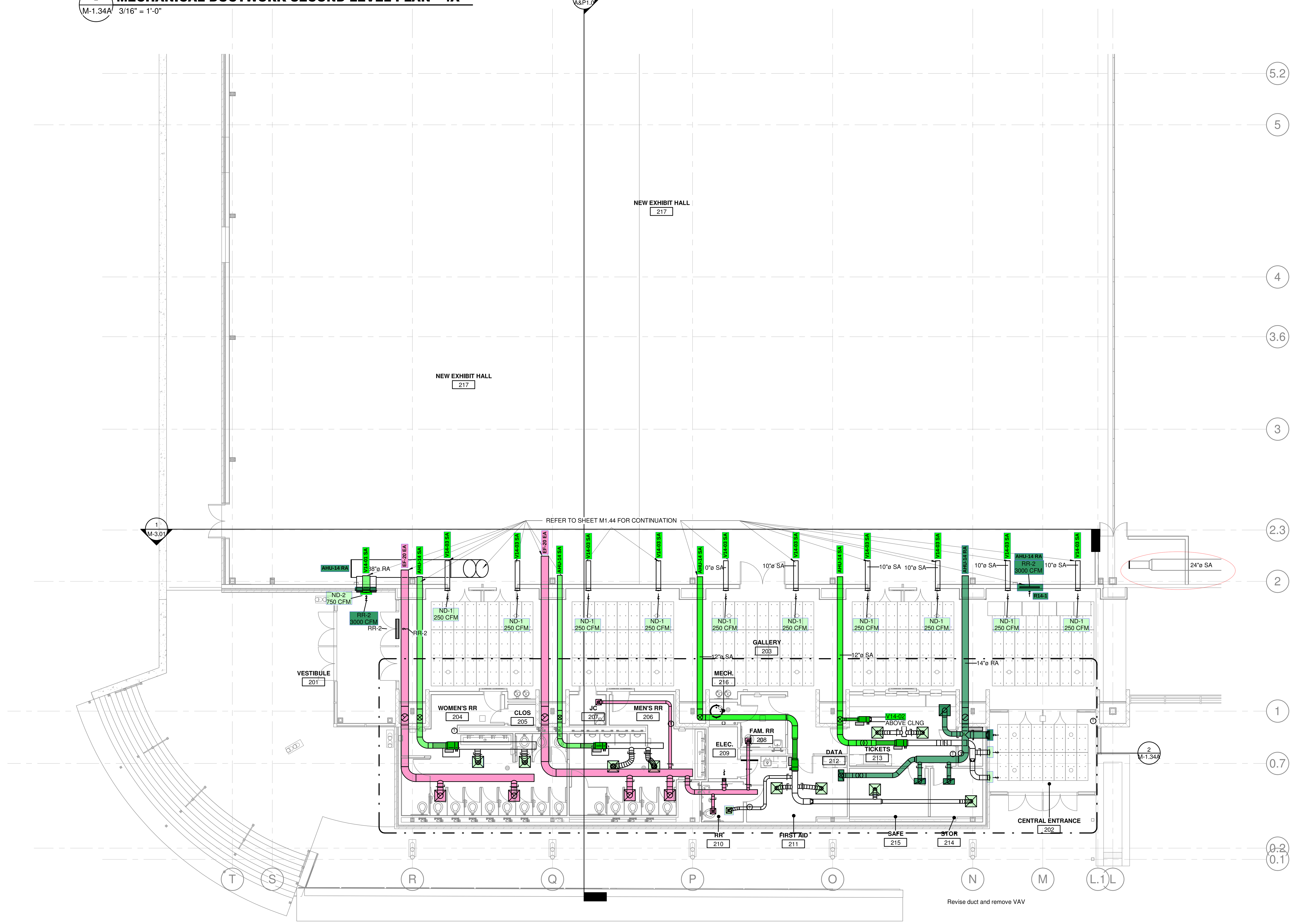
Abbreviation List

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



2 MECHANICAL DUCTWORK SECOND LEVEL PLAN - 4A

M-1.34A 3/16" = 1'-0"



1 MECHANICAL DUCTWORK SECOND LEVEL PLAN - 4A

M-1.34A 1/8" = 1'-0"

KEYPLAN

KRIS T. SCHNITGEN E-77432 STATE OF OHIO REGISTERED PROFESSIONAL ENGINEER 09/15/2021

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DATE: 09/15/2021
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CHECKED BY: KTS
APPROVED BY:
F.B. NO.: PG

SHARONVILLE CONVENTION CENTER EXPANSION
CITY OF SHARONVILLE
11355 CHESTER RD, CINCINNATI OH 45246

MECHANICAL DUCTWORK SECOND LEVEL PLAN - 4A

SCALE: AS NOTED
HORZ:
VERT:
CONTRACT NO: 180634
SHEET M-1.34A
KLH JOB #: 21108.00

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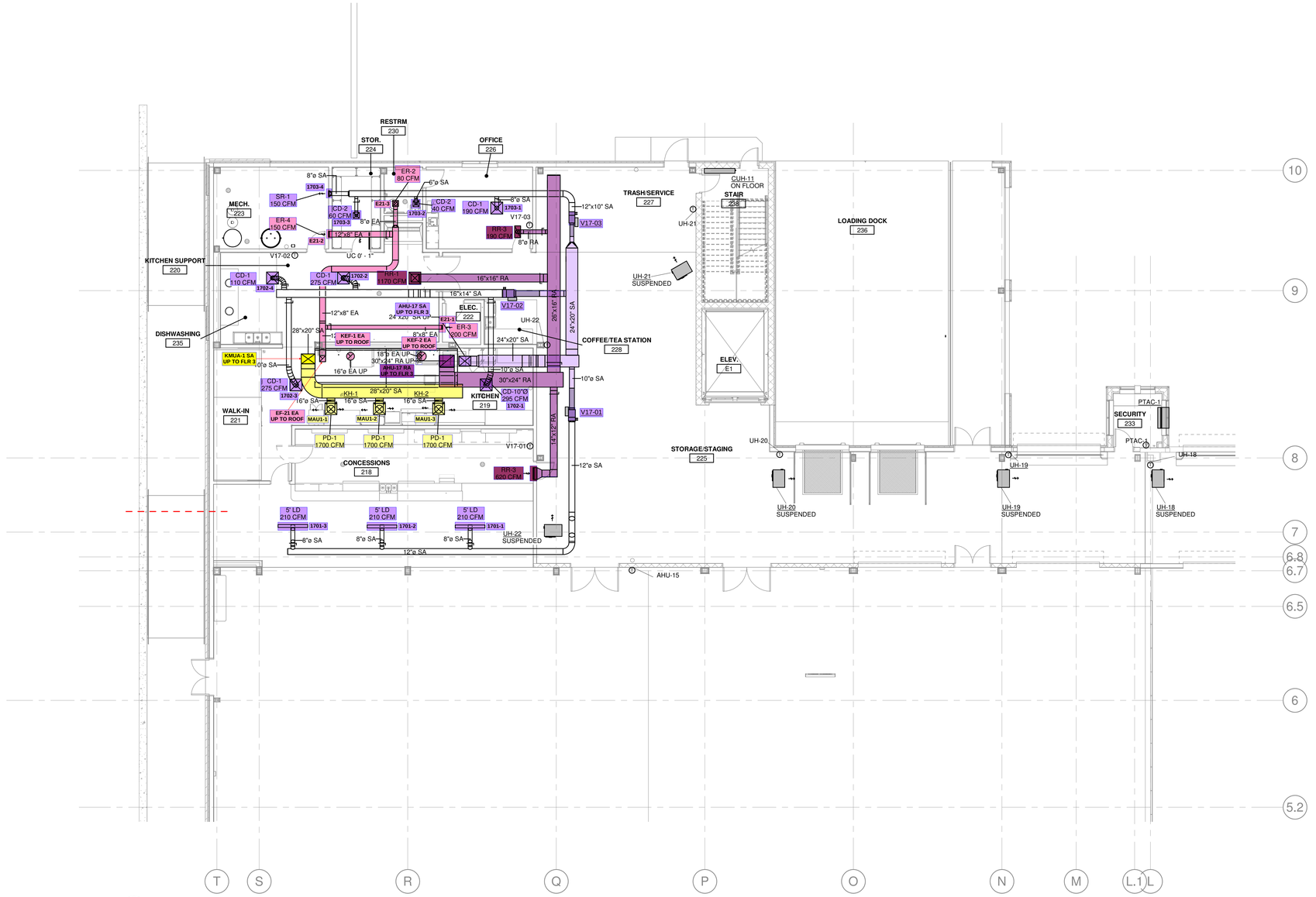
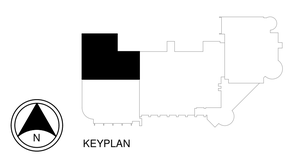


1 M-1.34B **MECHANICAL DUCTWORK SECOND LEVEL PLAN - 4B**
1/8" = 1'-0"



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CITY OF SHARONVILLE
11355 CHESTER RD, CINCINNATI OH 45246
MECHANICAL DUCTWORK SECOND LEVEL PLAN - 4B

SCALE: AS NOTED
HORZ:
VERT:
CONTRACT NO: 180634
SHEET M-1.34B
KLH JOB #: 211106.00

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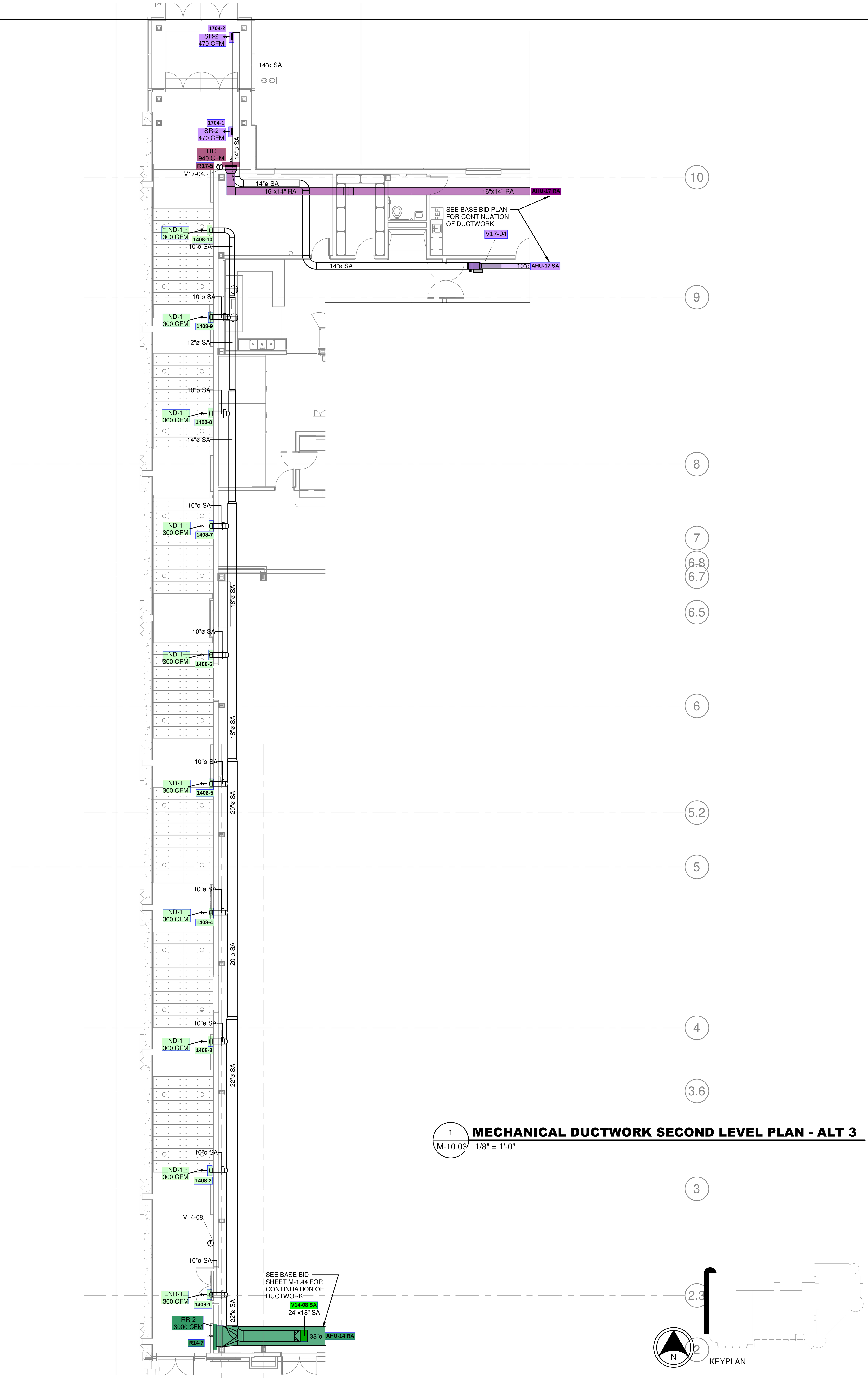

1 M-10.03 **MECHANICAL DUCTWORK SECOND LEVEL PLAN - ALT 3**

1/8" = 1'-0"

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CITY OF SHARONVILLE
11355 CHESTER RD, CINCINNATI OH 45246

MECHANICAL DUCTWORK PLAN - ALTERNATE 3

SCALE: AS NOTED
HORZ:
VERT:
CONTRACT NO: 180634
SHEET M-10.03
KLH JOB #: 21108.00

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1 M-1.44 **MECHANICAL DUCTWORK THIRD LEVEL PLAN - 4**
1/8" = 1'-0"

KEYPLAN

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SHARONVILLE CONVENTION CENTER EXPANSION
CITY OF SHARONVILLE
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MECHANICAL DUCTWORK THIRD LEVEL PLAN - 4

SCALE: AS NOTED
HORZ:
VERT:
CONTRACT NO: 180634
SHEET M-1.44

KLH JOB #: 21108.00


1
M-1.

1
M-1.54B

MECHANICAL DUCTWO

1/8" = 1'-0"

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National TAB

Project: Sharonville Convention Ctr (Cincinnati, OH)

System/Unit: AHU-DUAL FAN

Asset: AHU-14 AREA:GALLERY 203

UNIT DATA - SUPPLY		
	Design	**Actual**
Manufacturer	NA	DAIKIN
Model Number	NA	OAC027GBAM
Serial Number	-	FBOU220600019
No. Pre-Filters / Size (1)	2 / 24X24X2	2 / 24x24x2
No. Pre-Filters / Size (2)	4 / 24X20X2	4 / 24x20x2
No. Final Filters / Size (1)	2 / 24X24X12	2 / 24x24x12
No. Final Filters / Size (2)	4 / 24X20X12	4 / 24x20x12

MOTOR DATA - SUPPLY	
	Actual
Horsepower / RPM	3@6.0 / 2344
Rated Volts / Phase	480 / 3
Rated Amperage / SF	3@ 6.27

TEST DATA - SUPPLY		
	Design	**Actual**
Total CFM	11880	12097
OA CFM	3000	2893
VFD Speed	-	80%
RL Voltage	480	488/487/481
RL Amperage	18.7	10.9/10.8/10.7
Motor B.H.P.	-	9.99

PERFORMANCE DATA - SUPPLY		
	Design	**Actual**
Static Pressure Stpt	-	1.8"
Suction S.P.	-	-1.41
Discharge S.P.	-	2.25
Total S.P.	5.40	3.66
Chilled Water Coil P.D.	-	0.3
Pre Heat Coil P.D.	-	0.1
Final Filters P.D.	-	0.35
Air Blender P.D.	-	0.26
Total ESP	2.50	2.44

MOTOR DATA - EXHAUST/RETURN	
	Actual
Horsepower / RPM	2@ 6.71 / 1312
Rated Volts / Phase	480 / 3
Rated Amperage / SF	2@ 7.04 /

Completed By: Nick Payne on 02/22/2024

Notes:
OA flow station Kfactor 0.667

Written By: Nick Payne on 03/12/2024

VAV - Single Duct

AHU-14/GALLERY 203

Asset											
Asset Name	MFG	Model Num	Type	Inlet Size	Design Max CFM	Max CFM	Design Min CFM	Min CFM	Design Heat CFM	Heat CFM	Ak (max)
V14-01	TITUS	DESV	REHEAT	16	3000	2924	1500	1538	2819	2914	1.823
V14-02	TITUS	DESV	REHEAT	10	760	792	370	388	601	630	2.826
V14-03	TITUS	DESV	REHEAT	16	2500	2449	1250	1213	1250	1277	2.158
V14-04	TITUS	DESV	REHEAT	10	1000	1020	500	510	500	509	1.813
V14-05	TITUS	DESV	REHEAT	9	700	708	350	353	368	370	1.863
V14-06	TITUS	DESV	REHEAT	10	710	706	350	347	700	709	1.785
V14-07	TITUS	DESV	REHEAT	6	260	259	120	121	120	119	2.233
V14-08	TITUS	DESV	REHEAT	16	3000	2820	1500	1515	3000	2985	1.942

Diffuser Supply (GRD)

V14-01/217 HALL

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
1401-1	201	ND-2	16	750	880	734	97.9
1401-2	201	ND-2	16	750	756	747	99.6
1401-3	201	ND-2	16	750	625	728	97.1
1401-4	201	ND-2	16	750	489	715	95.3
Total				3000	2750	2924	97.47%

V14-02/203

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
1402-1	202	ND-1	10	380	312	390	102.6
1402-2	202	ND-1	10	380	296	402	105.8
Total				760	608	792	104.21%

V14-04/206

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
1404-1	204	CD-1	12	500	526	510	102.0
1404-2	204	CD-1	12	500	520	510	102.0
Total				1000	1046	1020	102%

V14-05/206

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
1405-1	206	CD-1	10	350	417	352	100.6
1405-2	206	CD-1	10	350	350	356	101.7
Total				700	767	708	101.14%

V14-06/214

Asset							
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**CFM(1)**	**FINAL CFM**	**% to design**
1406-1	210	CD-2	6	80	59	72	90.0
1406-2	211	CD-1	8	160	195	161	100.6
1406-3	215	CD-1	8	160	138	155	96.9
1406-4	211	CD-1	8	110	170	112	101.8
1406-5	214	CD-1	8	200	186	206	103.0
Total				710	748	706	99.44%

V14-07/213

Asset							
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**CFM(1)**	**FINAL CFM**	**% to design**
1407-1	213	CD-1	8	130	159	134	103.1
1407-2	213	CD-1	8	130	137	125	96.2
Total				260	296	259	99.62%

V14-08/211

Asset							
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**CFM(1)**	**FINAL CFM**	**% to design**
1408-1	217 HALL	ND-1	10	375	478	360	96.0
1408-2	217 HALL	ND-1	10	375	462	349	93.1
1408-3	217 HALL	ND-1	10	375	310	342	91.2
1408-4	217 HALL	ND-1	10	375	280	353	94.1
1408-5	217 HALL	ND-1	10	375	276	351	93.6
1408-6	217 HALL	ND-1	10	375	305	345	92.0
1408-7	217 HALL	ND-1	10	375	310	352	93.9
1408-8	217 HALL	ND-1	10	375	226	368	98.1
Total				3000	2647	2820	94%

V14-03/203

Asset							
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**CFM(1)**	**FINAL CFM**	**% to design**
SGRD1	203	ND-1	10	250	197	237	94.8
SGRD3	203	ND-1	10	250	205	248	99.2
SGRD4	203	ND-1	10	250	236	255	102.0
SGRD4	203	ND-1	10	250	198	262	104.8
SGRD5	203	ND-1	10	250	209	229	91.6
SGRD5	203	ND-1	10	250	210	234	93.6
SGRD5	203	ND-1	10	250	212	239	95.6
SGRD8	203	ND-1	10	250	27	246	98.4
SGRD9	203	ND-1	10	250	216	244	97.6
SGRD10	203	ND-1	10	250	200	255	102.0
Total				2500	1910	2449	97.96%

Asset	Notes	Date	Written By
V14-08	2 Diffusers not installed, airflow distributed to remaining 8 diffusers.	01/16/2024	Nick Payne

National TAB

Project: Sharonville Convention Ctr (Cincinnati, OH)

System/Unit: AHU-DUAL FAN

Asset: AHU-15 AREA:217

UNIT DATA - SUPPLY		
	Design	**Actual**
Manufacturer	NA	DAIKIN
Model Number	NA	OAC092GVAM
Serial Number	-	FBOU220600010
No. Pre-Filters / Size (1)	12 / 24X24X2	12 / 24X24X2
No. Pre-Filters / Size (2)	3 / 20X24X2	3 / 20X24X2
No. Final Filters / Size (1)	12 / 24X24X12	12 / 24X24X12
No. Final Filters / Size (2)	3 / 20X24X12	3 / 20X24X12

MOTOR DATA - SUPPLY	
	Actual
Motor MFG / Frame	
Horsepower / RPM	5@ 6.97 / 2361
Rated Volts / Phase	480 / 3
Rated Amperage / SF	5@ 7.32 /

TEST DATA - SUPPLY		
	Design	**Actual**
Total CFM	15000	15462
OA CFM	10000	10673
VFD Speed	-	83%
RL Voltage	480	485/489/489
RL Amperage	36.5	7.4/7.6/7.7
Motor B.H.P.	21	4.7

PERFORMANCE DATA - SUPPLY		
	Design	**Actual**
Suction S.P.	-	-1.14"
Discharge S.P.	-	1.20"
Total S.P.	4.81	2.34"
Reheat Coil P.D.	-	0.09"
Chilled Water Coil P.D.	-	0.21"
Final Filters P.D.	-	0.44"
Total ESP	1.50	1.40"

MOTOR DATA - EXHAUST/RETURN	
	Actual
Horsepower / RPM	3@ 6.71 / 1561
Rated Volts / Phase	480 / 3
Rated Amperage / SF	3@ 7.04

TEST DATA - EXHAUST/RETURN		
	Design	**Actual**
Total CFM	19000	18655
VFD Speed	-	58%
RL Voltage	480	488/485/486
RL Amperage	21.1	4.3/4.1/4.2
Motor B.H.P.	12.9	3.6

PERFORMANCE DATA - EXHAUST/RETURN		
	Design	**Actual**
Suction S.P.	-	-1.12
Discharge S.P.	-	0.36
Total S.P.	2.94	1.48

Completed By: Nick Payne on 02/22/2024

Notes:
OA flow station Kfactor 0.931

Written By: Nick Payne on 03/12/2024

National TAB

Project:Sharonville Convention Ctr (Cincinnati, OH)

AHU-DUAL FAN

Diffuser Supply (GRD)

AHU-15/217

Asset							
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**CFM(1)**	**FINAL CFM**	**% to design**
15-1	217	RD-1	18	1250	1488	1297	103.8
15-2	217	RD-1	18	1250	1555	1212	97.0
15-3	217	RD-1	18	1250	1414	1258	100.6
15-4	217	RD-1	18	1250	1625	1262	101.0
15-5	217	RD-1	18	1250	1337	1303	104.2
15-6	217	RD-1	18	1250	1233	1348	107.8
15-7	217	RD-1	18	1250	1559	1302	104.2
15-8	217	RD-1	18	1250	1216	1269	101.5
15-9	217	RD-1	18	1250	1402	1217	97.4
15-10	217	RD-1	18	1250	1495	1288	103.0
15-11	217	RD-1	18	1250	1386	1345	107.6
15-12	217	RD-1	18	1250	1277	1362	109.0
Total				15000	16987	15463	103.09%

National TAB

Project: Sharonville Convention Ctr (Cincinnati, OH)

System/Unit: AHU-DUAL FAN

Asset: AHU-16 AREA:217

UNIT DATA - SUPPLY		
	Design	**Actual**
Manufacturer	NA	DAIKIN
Model Number	NA	OAC095GVAM
Serial Number	-	FBOU220600011
No. Pre-Filters / Size (1)	12 / 24X24X2	12 / 24X24X2
No. Pre-Filters / Size (2)	3 / 20X24X2	3 / 20X24X2
No. Final Filters / Size (1)	12 / 24X24X12	12 / 24X24X12
No. Final Filters / Size (2)	3 / 20X24X12	3 / 20X24X12

MOTOR DATA - SUPPLY	
	Actual
Horsepower / RPM	6@ 6.p97 / 2332
Rated Volts / Phase	480 / 3
Rated Amperage / SF	6@ 7.32 /

TEST DATA - SUPPLY		
	Design	**Actual**
Total CFM	15000	15407
OA CFM	12000	12566
VFD Speed	-	83%
RL Voltage	480	485/488/489
RL Amperage	36.5	8.8/8.7/8.8
Motor B.H.P.	25	6

PERFORMANCE DATA - SUPPLY		
	Design	**Actual**
Suction S.P.	-	-1.16"
Discharge S.P.	-	1.66"
Total S.P.	4.83	2.82"
Reheat Coil P.D.	-	0.09"
Chilled Water Coil P.D.	-	0.21"
Final Filters P.D.	-	0.44"
Total ESP	1.50	1.94"

MOTOR DATA - EXHAUST/RETURN	
	Actual
Horsepower / RPM	3@ 6.71
Rated Volts / Phase	480 / 3
Rated Amperage / SF	3@ 7.04

TEST DATA - EXHAUST/RETURN		
	Design	**Actual**
Total CFM	22000	20910
VFD Speed	-	60%
RL Voltage	480	489/489/485
RL Amperage	21.5	4.6/4.4/4.4
Motor B.H.P.	15.5	3

PERFORMANCE DATA - EXHAUST/RETURN		
	Design	**Actual**
Suction S.P.	-	0.96
Discharge S.P.	-	0.27
Total S.P.	3.19	1.23

Completed By: Nick Payne on 02/22/2024

Notes:
OA flow station Kfactor 1.129

Written By: Nick Payne on 03/12/2024

Diffuser Supply (GRD)

AHU-16/217

Asset							
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**CFM(1)**	**FINAL CFM**	**% to design**
16-1	217	RD-1	18	1250	1717	1201	96.1
16-2	217	RD-1	18	1250	1566	1297	103.8
16-3	217	RD-1	18	1250	1482	1356	108.5
16-4	217	RD-1	18	1250	1395	1294	103.5
16-5	217	RD-1	18	1250	996	1277	102.2
16-6	217	RD-1	18	1250	1550	1242	99.4
16-7	217	RD-1	18	1250	1411	1285	102.8
16-8	217	RD-1	18	1250	1274	1319	105.5
16-9	217	RD-1	18	1250	874	1211	96.9
16-10	217	RD-1	18	1250	1196	1300	104.0
16-11	217	RD-1	18	1250	1502	1346	107.7
16-12	217	RD-1	18	1250	1477	1279	102.3
Total				15000	16440	15407	102.71%

National TAB

Project: Sharonville Convention Ctr (Cincinnati, OH)

System/Unit: AHU-DUAL FAN

Asset: AHU-17 AREA:217 HALL ANTE

UNIT DATA - SUPPLY		
	Design	**Actual**
Manufacturer	NA	DAIKIN
Model Number	NA	OAC033GVAM
Serial Number	-	FBOU220600012
No. Pre-Filters / Size (1)	2 / 24X24X2	5/20"x24"x2"
No. Final Filters / Size (1)	2 / 24X24X12	2 / 24xx24x12
No. Final Filters / Size (2)	2 / 24X20X12	2 / 24x20x12

MOTOR DATA - SUPPLY	
	Actual
Horsepower / RPM	3@ 4.96 / 3056
Rated Volts / Phase	480 / 3
Rated Amperage / SF	5.08

TEST DATA - SUPPLY		
	Design	**Actual**
Total CFM	5980	5891
OA CFM	3000	3072
VFD Speed	-	63%
RL Voltage	480	488/487/485
RL Amperage	15.2	5/4/5
Motor B.H.P.	3@ 3.23	5.1

PERFORMANCE DATA - SUPPLY		
	Design	**Actual**
Static Pressure Stpt	-	0.82
Suction S.P.	-	-1.1
Discharge S.P.	-	0.99
Total S.P.	5.24	2.09
Chilled Water Coil P.D.	-	0.22
Pre Heat Coil P.D.	-	0.1
Final Filters P.D.	-	0.26
Total ESP	2.00	1.26

PERFORMANCE DATA - EXHAUST/RETURN		
	Design	**Actual**
Suction S.P.	-	-0.57
Discharge S.P.	-	0.11
Total S.P.	3.31	0.68

Completed By: Nick Payne on 02/22/2024

Notes:
OA flow station Kfactor 1.373

Written By: Nick Payne on 03/12/2024

VAV - Single Duct

AHU-17/217 HALL ANTE

Asset											
Asset Name	MFG	Model Num	Type	Inlet Size	Design Max CFM	Max CFM	Design Min CFM	Min CFM	Design Heat CFM	Heat CFM	Ak (max)
V17-01	TITUS	DESV	REHEAT	9	800	818	280	294	280	277	2.009
V17-02	TITUS	DESV	REHEAT	12	955	962	540	544	540	541	1.734
V17-03	TITUS	DESV	REHEAT	7	440	475	215	214	430	432	1.892
V17-04	TITUS	DESV	REHEAT	10	940	956	460	464	920	921	1.828
V17-05	TITUS	DESV	REHEAT	14	1770	1763	715	714	1372	1363	1.808
V17-06	TITUS	DESV	REHEAT	14	1620	1718	780	785	1443	1457	1.970

Diffuser Supply (GRD)

V17-01/218

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
1701-1	218	5' LD	8	200	192	205	102.5
1701-2	218	5' LD	8	200	175	209	104.5
1701-3	218	RD2	8	200	188	199	99.5
V17-01-4	218	RD2	8	200	166	205	102.5
Total				800	721	818	102.25%

V17-02/220

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
1702-1	219	CD-1	10	295	216	288	97.6
1702-2	220	CD-1	10	275	281	293	106.5
1702-3	219	CD-1	10	275	331	282	102.5
1702-4	235	CD-1	10	110	212	99	90.0
Total				955	1040	962	100.73%

V17-03/226

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
1703-1	226	CD-1	8	190	175	206	108.4
1703-2	230	CD-2	6	40	67	44	110.0
1703-3	224	CD-2	6	60	86	62	103.3
1703-4	223	SR-1	8	150	60	163	108.7
Total				440	388	475	107.95%

V17-04/218

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
1704-1	217 HALL	SR-2	14	470	516	516	109.8
1704-2	217 HALL VEST	SR-2	14	470	449	449	95.5
Total				940	965	965	102.66%

V17-05/301

Asset							
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**CFM(1)**	**FINAL CFM**	**% to design**
1705-1	301	SR-1	12X8	295	297	297	100.7
1705-2	301	SR-1	12X8	295	273	273	92.5
1705-3	301	SR-1	12X8	295	286	286	96.9
1705-4	301	SR-1	12X8	295	301	301	102.0
1705-5	301	SR-1	12X8	295	289	289	98.0
1705-6	301	SR-1	12X8	295	317	317	107.5
Total				1770	1763	1763	99.6%

V17-06/301

Asset							
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**CFM(1)**	**FINAL CFM**	**% to design**
SGRD1	301	SR	12X8	270	292	292	108.1
SGRD2	301	SR	12X8	270	298	298	110.4
SGRD3	301	SR	12X8	270	260	260	96.3
SGRD4	301	SR	12X8	270	295	295	109.3
SGRD5	301	SR	12X8	270	290	290	107.4
SGRD6	301	SR	12X8	270	283	283	104.8
Total				1620	1718	1718	106.05%

Asset	Notes	Date	Written By
V17-01	Drawing change took away one linear diffuser (210cfm) and added 2 rounds (200cfm each) for a new box total of 800cfm.	02/22/2024	Nick Payne

National TAB

Project: Sharonville Convention Ctr (Cincinnati, OH)

System/Unit: FAN - Exhaust

Asset: EF-20 AREA:208

Unit Data		
	Design	**Actual**
MFG	NA	COOK
Model Num	NA	150 ACE
Serial Num	-	108SK14157-00/0000701
Type	CRE DNBLAST	DOWNBLAST

Test Data		
	Design	**Actual**
CFM	2530	2534
RL Voltage	-	117
RL Amperage	-	10.7
Total ESP	0.5	0.86”

Motor Data		
	Design	**Actual**
Motor MFG	-	US MOTORS
Frame	-	48Y
Horsepower	0.75	1
Motor Rpm	-	1800
Phase	1	1
Voltage (rated)	120	115
Amperage (rated)	-	11.6

Completed By: Gabe Merk on 02/22/2024

National TAB

Project:Sharonville Convention Ctr (Cincinnati, OH)

FAN - Exhaust

Diffuser Ret/Exh (GRD)

EF-20/208

Asset								
Asset Name	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
E20-1	ER-1	12	600		669	605	616	102.7
E20-2	ER-1	12	600		37	572	637	106.2
E20-3	ER-1	12	450		224	465	425	94.4
E20-4	ER-1	12	450		563	501	437	97.1
E20-5	ER-3	8	50		41	41	50	100.0
E20-6	ER-2	6	100		265	80	110	110.0
E20-7	ER-2	6	200		90	130	180	90.0
E20-8	ER-2	6	80		130	70	79	98.8
Total			2530		2019	2464	2534	100.16%

National TAB

Project: Sharonville Convention Ctr (Cincinnati, OH)

System/Unit: FAN - Exhaust

Asset: EF-21 AREA:RR 224

Unit Data		
	Design	**Actual**
MFG	NA	COOK
Model Num	NA	101 ACE 101/017DEC
Serial Num	-	108SK14157-00/0002301
Type	-	DOWNBLAST

Motor Data		
	Design	**Actual**
Motor MFG	-	COOK
Horsepower	0.25	0.25
Motor Rpm	-	1725
Phase	1	1
Voltage (rated)	120	120
Amperage (rated)	-	3.4

Test Data		
	Design	**Actual**
CFM	430	
RL Voltage	-	
RL Amperage	-	
Total ESP	0.5	

National TAB

Project:Sharonville Convention Ctr (Cincinnati, OH)

FAN - Exhaust

Diffuser Ret/Exh (GRD)

EF-21/RR 224

Asset								
Asset Name	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
E21-1	ER-3	8X8	200					-
E21-2	ER-4	12X8	150					-
E21-3	ER-2	8	80					-
Total			430		0	0	0	0%

National TAB

Project: Sharonville Convention Ctr (Cincinnati, OH)

System/Unit: Chiller

Asset: CHIL-3 AREA:MECH RM

Unit Data		
	Design	**Actual**
MFG	NA	Provides
Model Num	NA	6131235
Serial Num	-	335886251
Type	ROTARY SCREW	ROTARY

Test Data-Evaporator		
	Design	**Actual**
GPM	-	427.4
LWT (F)	-	42.00
CHW Delta P	-	

Test Data-Condenser		
	Design	**Actual**
CW GPM	-	

Completed By: Nick Payne on 06/05/2024

Notes:
6/5 unit locked out on "low oil alarm".

Written By: Nick Payne on 06/05/2024

National TAB

Project: Sharonville Convention Ctr (Cincinnati, OH)

System/Unit: Pump

Asset: CTP-4 AREA:MECH RM

Unit Data		
	Design	**Actual**
MFG	NA	BELL & GOSSETT
Model Num	NA	e-1510 / 4BD
Serial Num	-	C334698-01G22
Service	-	CHW
Type	-	Primary
Configuration	-	Centrifugal
Pump RPM	-	1800
GPM/HD	750-50	825-50
Impeller Diameter	8.75	8.75

Motor Data		
	Design	**Actual**
Motor MFG	-	Nidec
Frame	-	254
Horsepower	15.0	15.0
Motor Rpm	-	1770
Phase	-	3
Voltage	-	480
Amperage	-	19.0
Service Factor	-	1.15
Efficiency	-	93.0
Power Factor	-	81.4

Test Data		
	Design	**Actual**
Pump Off Pres	-	-2.1 ft
Pump Dead Head Pres	-	-
Act Impeller Dia (IN)	-	-
Valve Open GPM (FT)	-	809.8
Valve Open Diff (FT)	-	51.9 ft
Final Suction Pres (FT)	-	-2.5 ft
Final Discharge Pres (FT)	-	49.4 ft
Total Head Pres (FT)	50.0	51.9 ft
Final GPM	825.0	809.8
Pump Rotation	-	Correct
Motor RPM	-	1770
Pump RPM	-	1800
Motor Frequency	-	60
System SetPt	-	100% open
RL Voltage	-	477/474/470
RL Amperage	-	16/17/17
Brake Horse Power	-	13.7

Completed By: Nick Payne on 06/05/2024

National TAB

Project: Sharonville Convention Ctr (Cincinnati, OH)

System/Unit: Pump

Asset: CWP-3 AREA:MECH RM

Unit Data		
	Design	**Actual**
MFG	NA	BELL & GOSSETT
Model Num	NA	e-1510 / 5GB
Serial Num	-	C334699-01J22
Service	-	CHW
Type	-	Secondary
Configuration	-	Centrifugal
Pump RPM	-	1800
GPM/HD	912-120	912-120
Impeller Diameter	11.625	11.625

Motor Data		
	Design	**Actual**
Motor MFG	-	Baldor
Frame	-	326
Horsepower	50.0	50
Motor Rpm	-	1770
Phase	-	3
Voltage	-	480
Amperage	-	57
Service Factor	-	1.15
Efficiency	-	94.5
Power Factor	-	87

Test Data		
	Design	**Actual**
Pump Off Pres	-	-
Pump Dead Head Pres	-	-
Act Impeller Dia (IN)	-	-
Valve Open GPM (FT)	-	871
Valve Open Diff (FT)	-	132 ft
Final Suction Pres (FT)	-	52.5 ft
Final Discharge Pres (FT)	-	180.3 ft
Total Head Pres (FT)	120.0	127.8 ft
Final GPM	912.0	883.7
Pump Rotation	-	Correct
Motor RPM	-	1770
Pump RPM	-	-
Motor Frequency	-	60hz
System SetPt	-	12 psi
RL Voltage	-	455 vfd
RL Amperage	-	38.7 vfd
Brake Horse Power	-	33.4

Completed By: Nick Payne on 06/05/2024

National TAB

Project:Sharonville Convention Ctr (Cincinnati, OH)

Circuit Setter

CHW CS/

Asset							
Asset Name	**Size**	**Type**	**Design GPM**	**Setting**	**Delta P**	**Final GPM**	**% to Design**
AHU-14	3	MANUAL	85.90				-
AHU-15	3	MANUAL	131.20				-
AHU-16	3	MANUAL	131.20				-
AHU-17	3	MANUAL	37.00				-
Total			385.3			0	0%

HW CS/

Asset							
Asset Name	**Size**	**Type**	**Design GPM**	**Setting**	**Delta P**	**Final GPM**	**% to Design**
AHU-14	1.25	MANUAL	16.60	9	1.05 ft	16.13	97.0
AHU-15	2.5	MANUAL	66.50	6	1.2 ft	65.8	98.9
AHU-16	2.5	MANUAL	66.50	6	1.3 ft	66.2	99.5
AHU-17	1.25	MANUAL	12.10	8	1.0 ft	12.01	99.2
CUH-11	0.5	MANUAL	2.7	5	1.55 ft	2.64	96.3
UH-18	0.5	MANUAL	3.3	6	1.48 ft	3.08	93.9
UH-19	0.5	MANUAL	3.3	6	1.52 ft	3.19	97.0
UH-20	0.5	MANUAL	3.3	6	1.58 ft	3.42	103.0
UH-21	0.5	MANUAL	3.3	6	1.51 ft	3.13	93.9
UH-22	0.5	MANUAL	3.3	6	1.56 ft	3.35	103.0
V14-01	1.25	MANUAL	6.2	4	1.2 ft	6.38	103.2
V14-02	0.5	MANUAL	1	3	1.05 ft	1.06	110.0
V14-03	0.5	MANUAL	4.1	7	1.85 ft	3.95	97.6
V14-04	0.5	MANUAL	1.8	4	1.34 ft	1.79	100.0
V14-05	0.5	MANUAL	1.5	4	1.01 ft	1.52	100.0
V14-06	0.5	MANUAL	1.1	3	1.08 ft	1.1	100.0
V14-07	0.5	MANUAL	0.3	2	0.33 ft	0.31	100.0
V14-08	1.25	MANUAL	12.2	7	1.1 ft	12.5	102.5
V17-01	0.5	MANUAL	0.8	3	0.65 ft	0.84	100.0
V17-02	0.5	MANUAL	1.3	4	1.2 ft	1.33	100.0
V17-03	0.5	MANUAL	0.8	3	0.71 ft	0.87	112.5
V17-04	1”	MANUAL	4.8	5	0.9 ft	4.72	97.9
V17-05	1”	MANUAL	1.7	2	0.7 ft	1.75	105.9
V17-06	0.75	MANUAL	1.8	4	0.8 ft	1.85	105.6
Total			220.3			218.92	99.37%

Completed By: Nick Payne on 01/17/2024