

Report By:

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



**Report: Preliminary TAB Report
Function: Test, Adjust, & Balance
Date: 09/23/2024**

PROJECT

Mercantile Library Bldg (Cincinnati, OH)

414 WALNUT STREET

CINCINNATI, OH 45202

Client

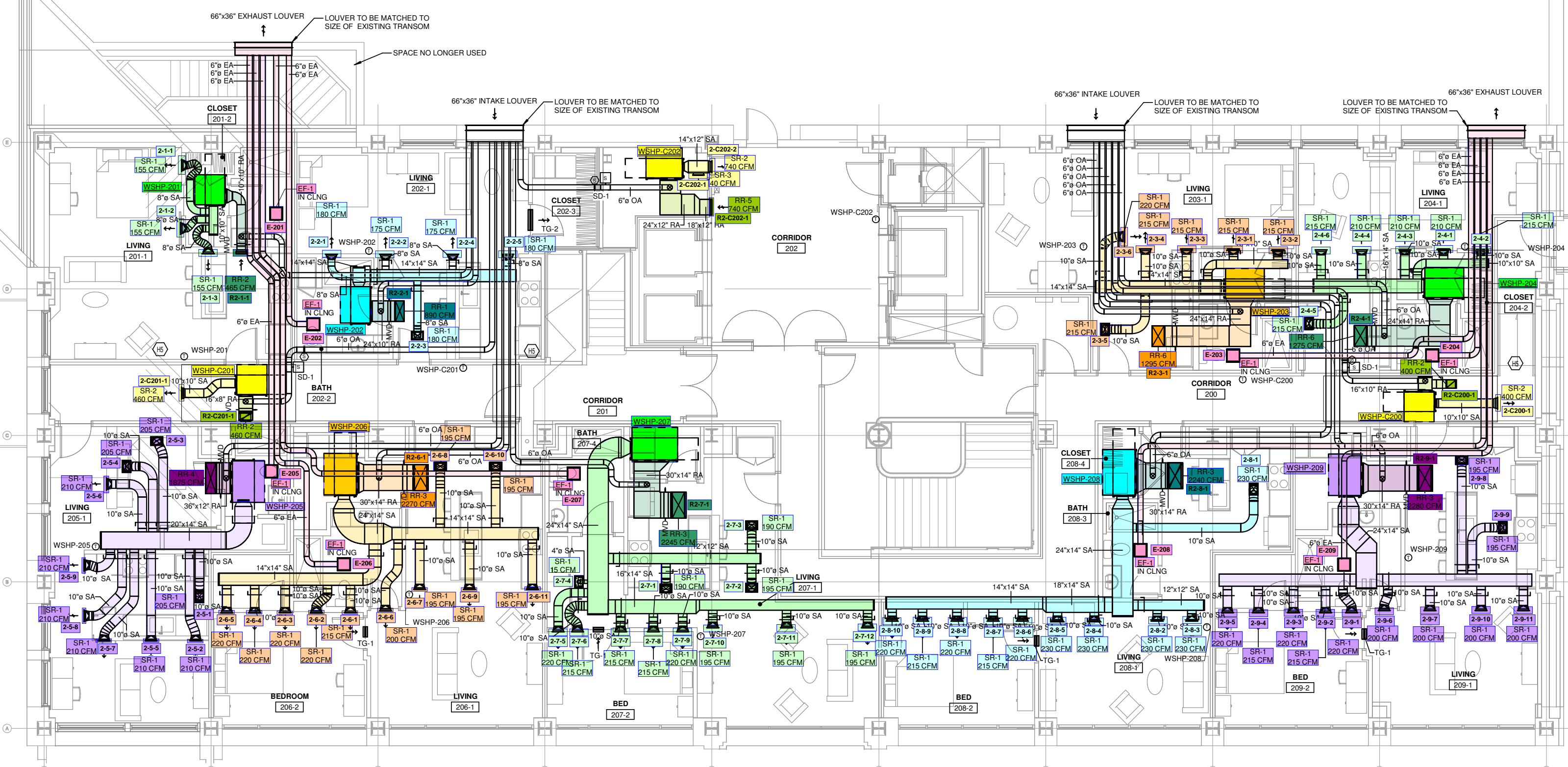
**Mechanical Services & Design (MSD)
4401 Springfield St
Dayton, OH 45431**

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Project: Mercantile Library Bldg (Cincinnati, OH)

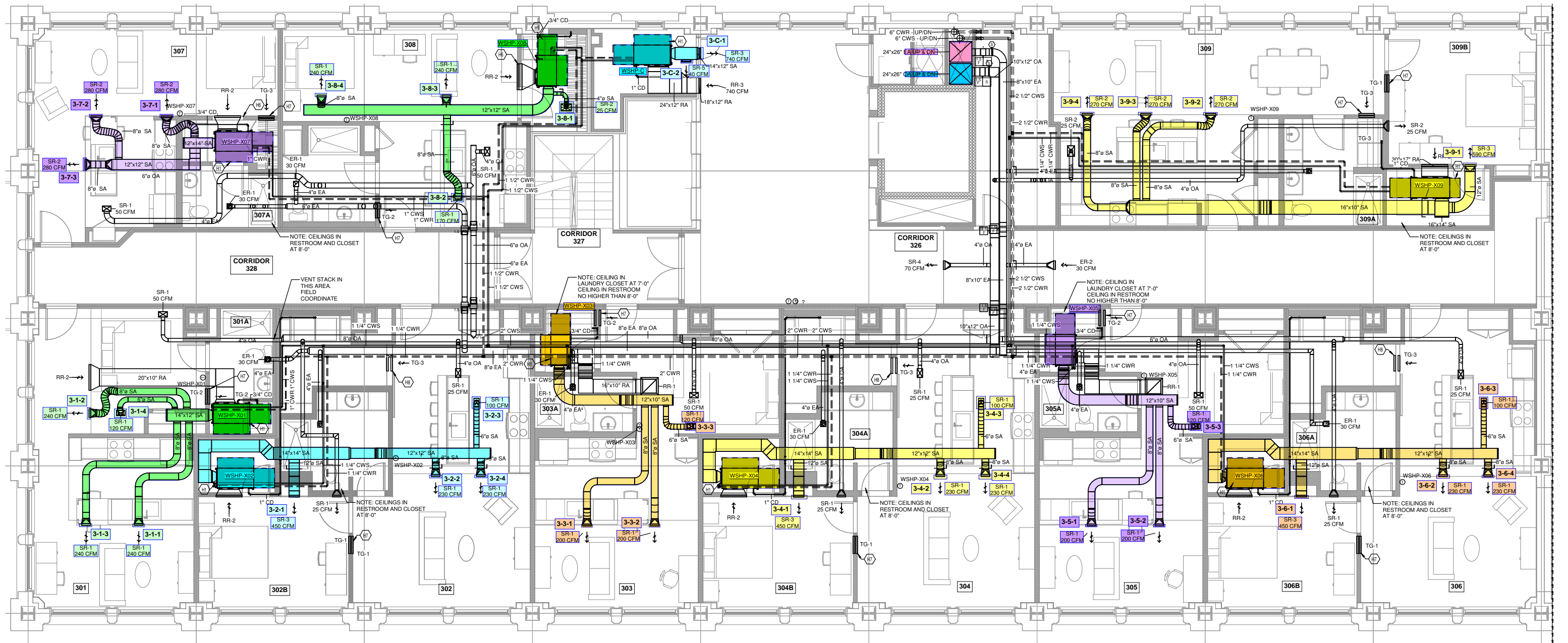
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MECHANICAL PLAN - LEVEL 2 - OVERALL
 1/4" = 1'-0"

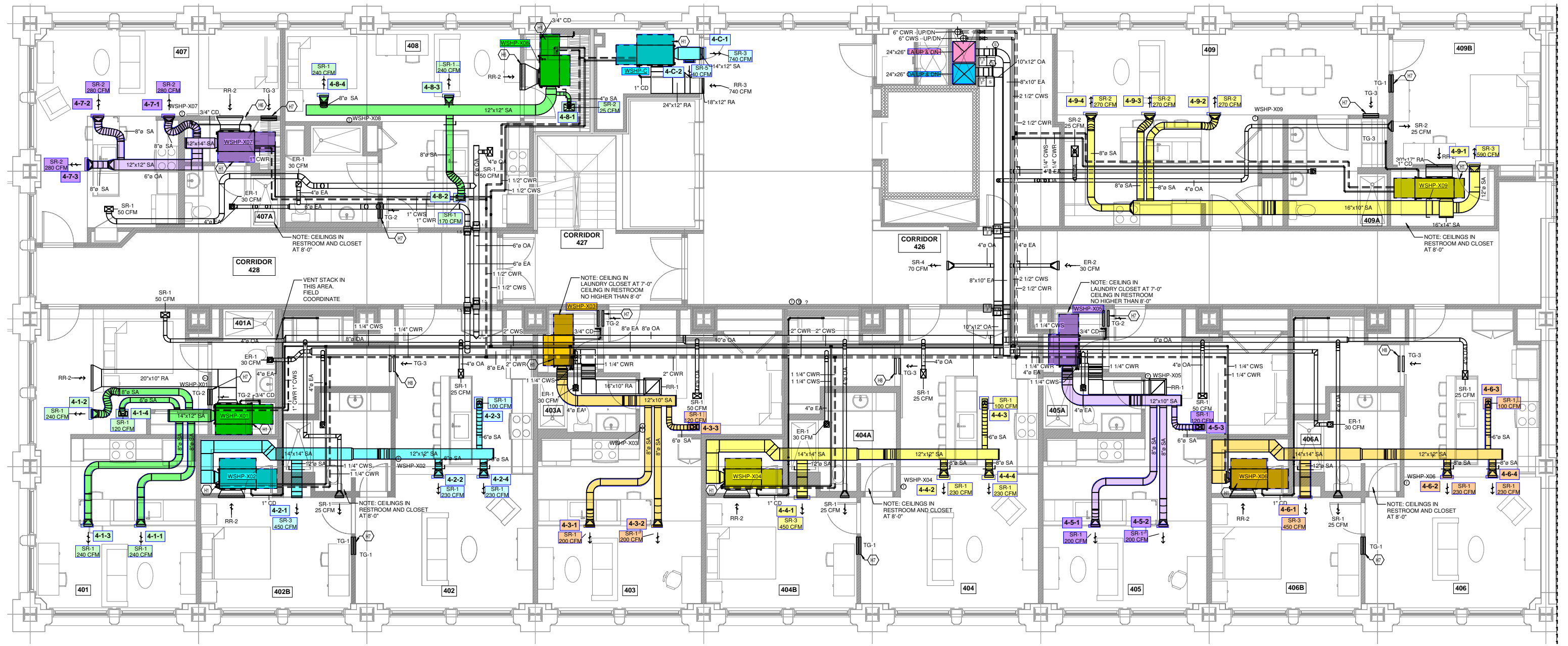


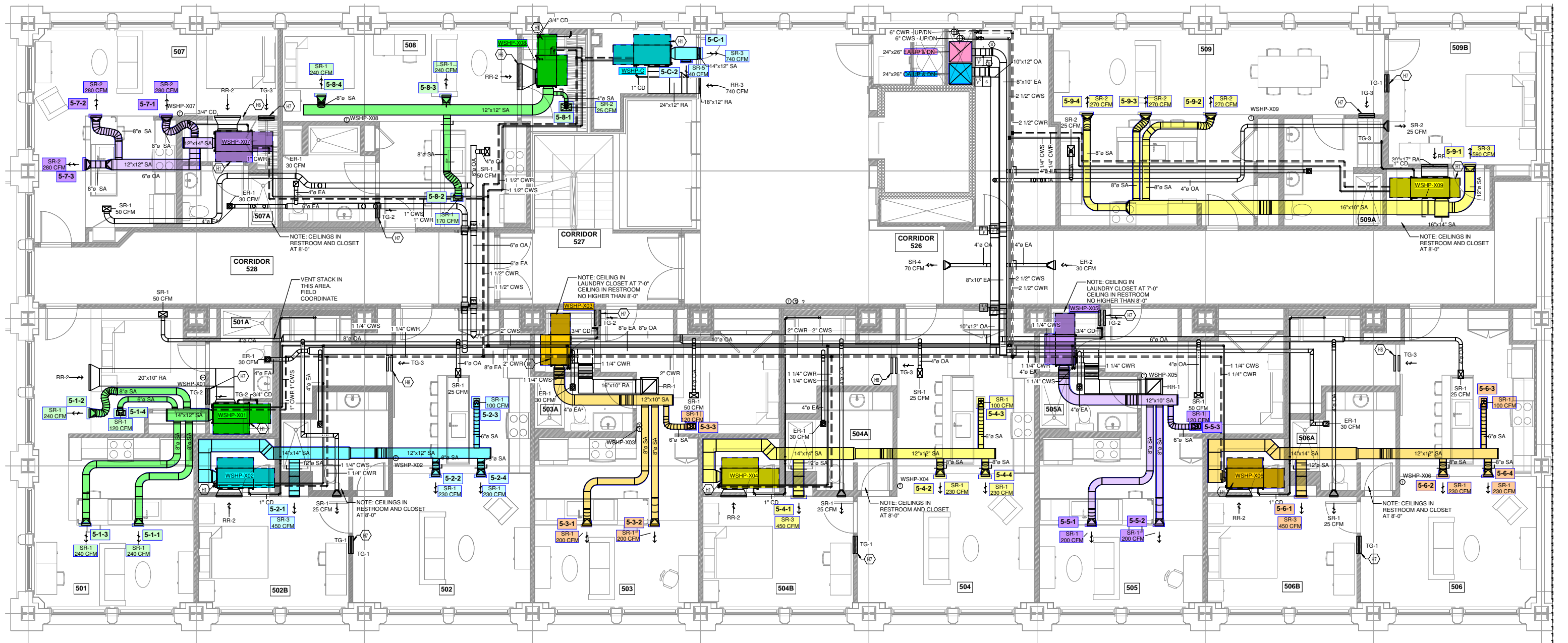


1 MECHANICAL PLAN - LEVEL 4 THROUGH 9 - OVERALL
1/4" = 1'-0"

FLOOR 3 OVERALL

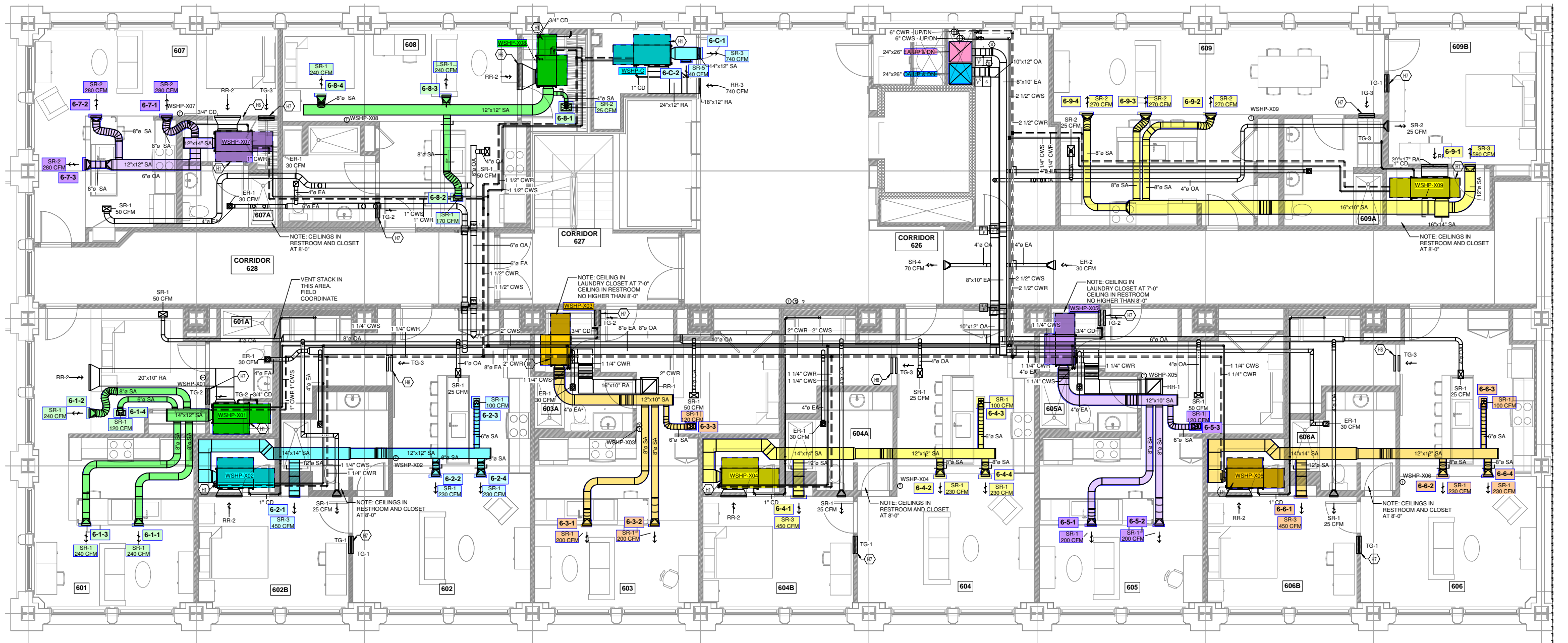
Note, the layout for the 3rd floor changed to mirror what is on floors 4-9. I just don't have an updated drawing showing the change. Please take this floor off the same as floors 4-9





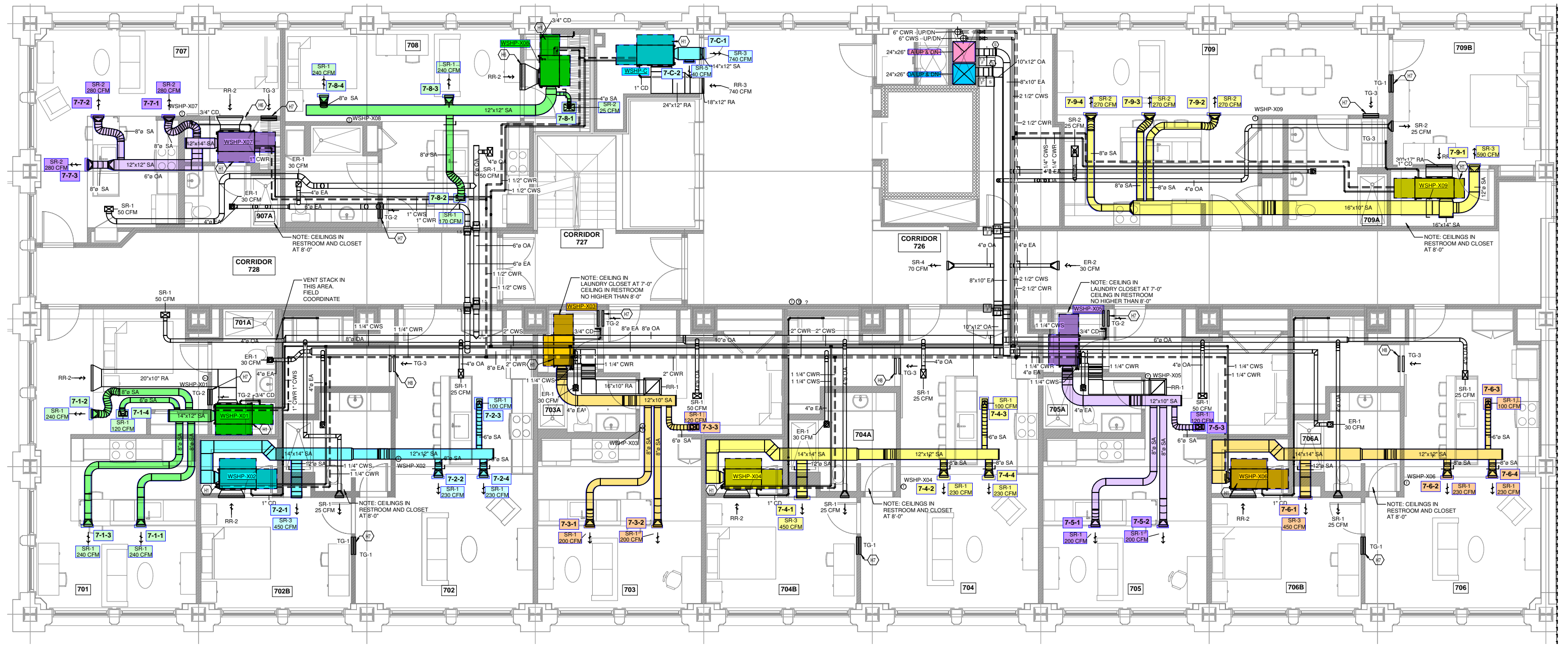
① MECHANICAL PLAN - LEVEL 4 THROUGH 9 - OVERALL
1/4" = 1'-0"

FLOOR 5 OVERALL



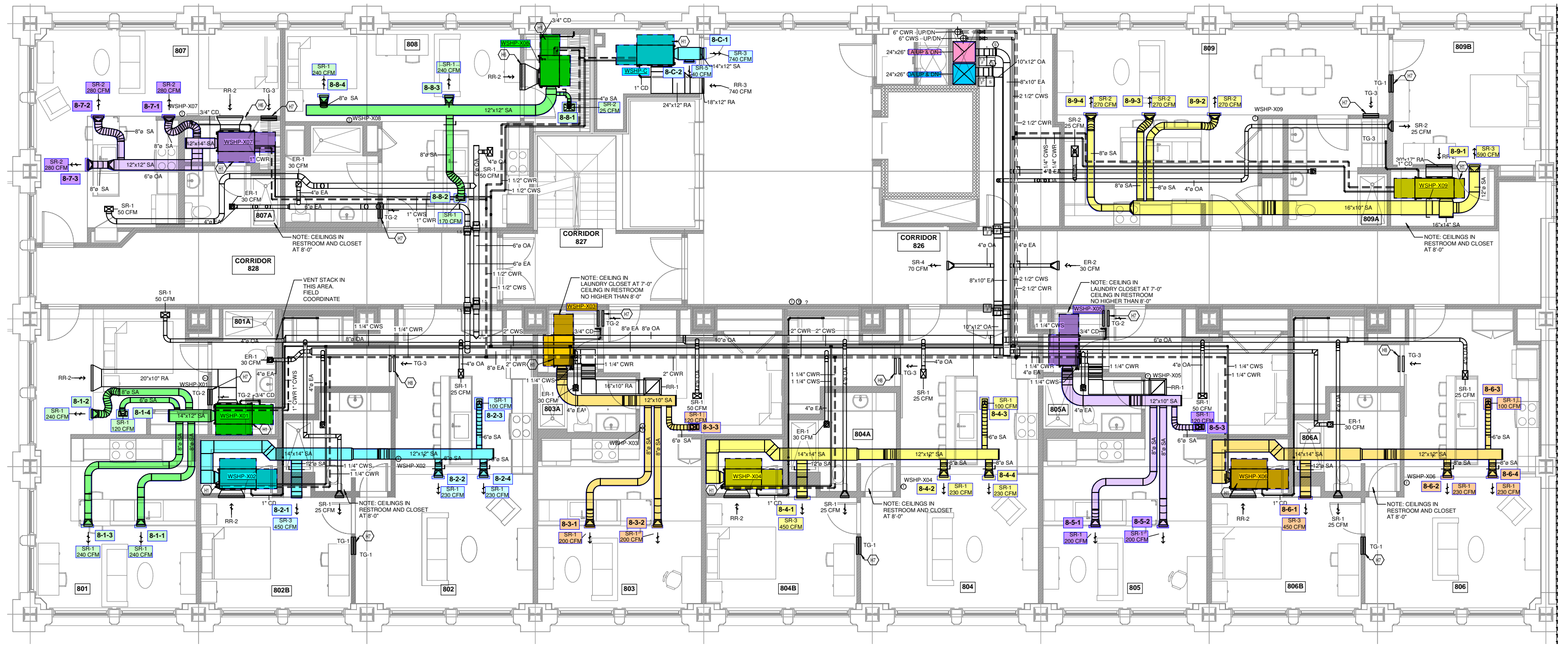
① MECHANICAL PLAN - LEVEL 4 THROUGH 9 - OVERALL
 1/4" = 1'-0"

FLOOR 6 OVERALL



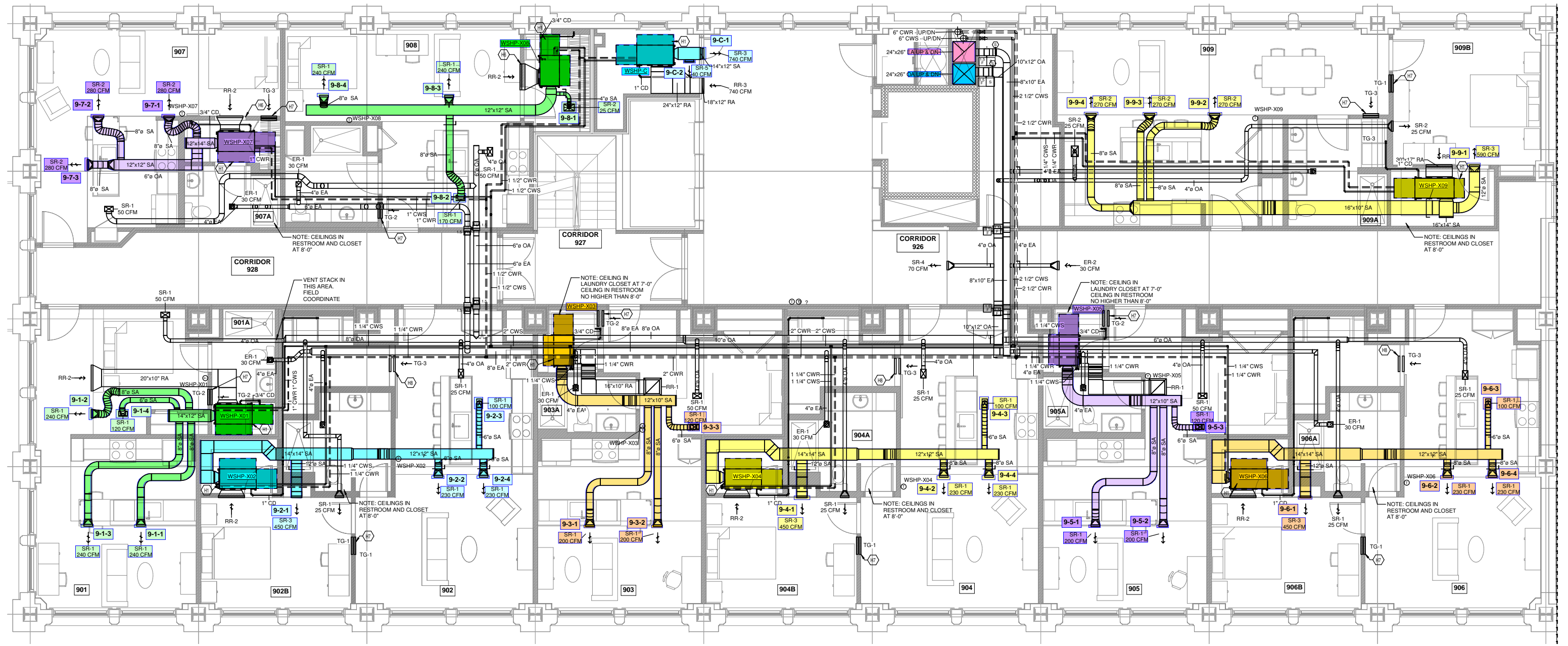
① MECHANICAL PLAN - LEVEL 4 THROUGH 9 - OVERALL
 1/4" = 1'-0"

FLOOR 7 OVERALL



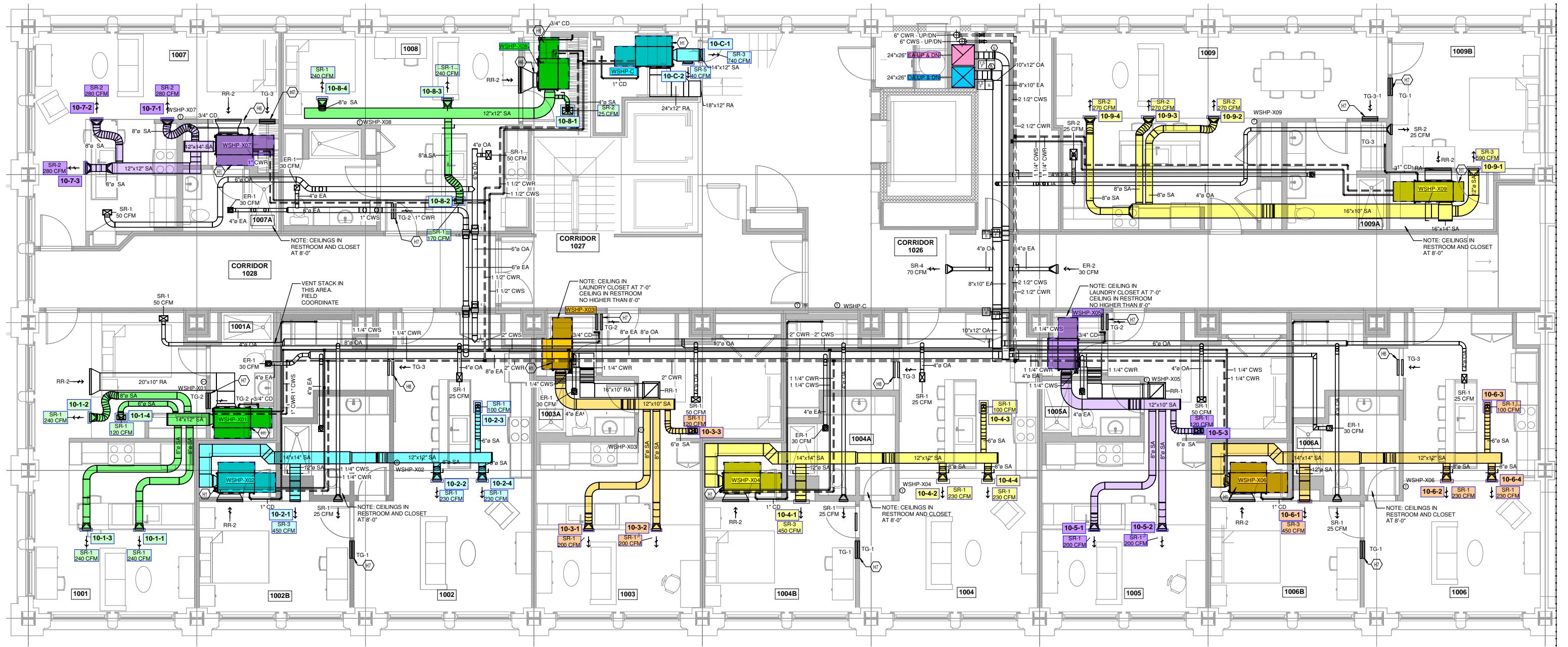
① MECHANICAL PLAN - LEVEL 4 THROUGH 9 - OVERALL
 1/4" = 1'-0"

FLOOR 8 OVERALL



① MECHANICAL PLAN - LEVEL 4 THROUGH 9 - OVERALL
 1/4" = 1'-0"

FLOOR 9 OVERALL



① MECHANICAL PLAN - LEVEL 10 - OVERALL
1/4" = 1'-0"

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-201

AREA:201-1

Unit Data		
	Design	Actual
Unit MFG	NA	NA
Model Num	NA	NA
Serial Num	-	
Type	-	
Configuration	-	
Num Filters Size 1	-	
Filter Size 1	-	

Test Data		
	Design	Actual
SA CFM	465	
SFAN RPM	-	
Motor Speed Setpt	-	
RL Voltage	-	
RL Amperage	-	
RA CFM	465	
OA CFM	-	

Motor Data		
	Design	Actual
Motor MFG	-	
Frame	-	
Horsepower	-	
Motor Rpm	-	
Phase	-	
Voltage	-	
Amperage	-	
Brake Horsepower	-	

Performance Data		
	Design	Actual
Suction ESP	-	
Discharge ESP	-	
Total ESP	-	

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-201/201-1

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
2-1-1	201-1	SR-1	8	155			-
2-1-2	201-1	SR-1	8	155			-
2-1-3	201-1	SR-1	8	155			-
Total				465	0	0	0%

Diffuser Ret/Exh (GRD)

WSHP-201/201-1

Asset								
Asset Name	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
R2-1-11	RR-2	10	465					-
Total			465		0	0	0	0%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-202

AREA:202-1

Unit Data		
	Design	Actual
Unit MFG	NA	NA
Model Num	NA	NA
Serial Num	-	
Type	-	
Configuration	-	
Num Filters Size 1	-	
Filter Size 1	-	

Motor Data		
	Design	Actual
Motor MFG	-	
Frame	-	
Horsepower	-	
Motor Rpm	-	
Phase	-	
Voltage	-	
Amperage	-	
Brake Horsepower	-	

Test Data		
	Design	Actual
SA CFM	890	
SFAN RPM	-	
Motor Speed Setpt	-	
RL Voltage	-	
RL Amperage	-	
RA CFM	890	
OA CFM	-	

Performance Data		
	Design	Actual
Suction ESP	-	
Discharge ESP	-	
Total ESP	-	

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-202/202-1

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
2-2-1	202-1	SR-1	8	180			-
2-2-2	202-1	SR-1	8	175			-
2-2-3	202-1	SR-1	8	180			-
2-2-4	202-1	SR-1	8	175			-
2-2-5	202-1	SR-1	8	180			-
Total				890	0	0	0%

Diffuser Ret/Exh (GRD)

WSHP-202/202-1

Asset								
Asset Name	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
R2-2-1	RR-1		890					-
Total			890		0	0	0	0%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-203

AREA:203-1

Unit Data		
	Design	Actual
Unit MFG	NA	NA
Model Num	NA	NA
Serial Num	-	
Type	-	
Configuration	-	
Num Filters Size 1	-	
Filter Size 1	-	

Motor Data		
	Design	Actual
Motor MFG	-	
Frame	-	
Horsepower	-	
Motor Rpm	-	
Phase	-	
Voltage	-	
Amperage	-	
Brake Horsepower	-	

Test Data		
	Design	Actual
SA CFM	1295	
SFAN RPM	-	
Motor Speed Setpt	-	
RL Voltage	-	
RL Amperage	-	
RA CFM	1295	
OA CFM	-	

Performance Data		
	Design	Actual
Suction ESP	-	
Discharge ESP	-	
Total ESP	-	

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-203/203-1

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
2-3-1	203-1	SR-1	10	215			-
2-3-2	203-1	SR-1	10	215			-
2-3-3	203-1	SR-1	10	215			-
2-3-4	203-1	SR-1	10	215			-
2-3-5	203-1	SR-1	10	215			-
2-3-6	203-1	SR-1	10	220			-
Total				1295	0	0	0%

Diffuser Ret/Exh (GRD)

WSHP-203/203-1

Asset								
Asset Name	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
R2-3-1	RR-6		1295					-
Total			1295		0	0	0	0%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-204

AREA:204-1

Unit Data		
	Design	Actual
Unit MFG	NA	NA
Model Num	NA	NA
Serial Num	-	
Type	-	
Configuration	-	
Num Filters Size 1	-	
Filter Size 1	-	

Motor Data		
	Design	Actual
Motor MFG	-	
Frame	-	
Horsepower	-	
Motor Rpm	-	
Phase	-	
Voltage	-	
Amperage	-	
Brake Horsepower	-	

Test Data		
	Design	Actual
SA CFM	1275	
SFAN RPM	-	
Motor Speed Setpt	-	
RL Voltage	-	
RL Amperage	-	
RA CFM	1275	
OA CFM	-	

Performance Data		
	Design	Actual
Suction ESP	-	
Discharge ESP	-	
Total ESP	-	

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-204/204-1

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
2-4-1	204-1	SR-1	10	210			-
2-4-2	204-1	SR-1	10	215			-
2-4-3	204-1	SR-1	10	210			-
2-4-4	204-1	SR-1	10	210			-
2-4-5	204-1	SR-1	10	215			-
2-4-6	204-1	SR-1	10	215			-
Total				1275	0	0	0%

Diffuser Ret/Exh (GRD)

WSHP-204/204-1

Asset								
Asset Name	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
R2-4-1	RR-6		1275					-
Total			1275		0	0	0	0%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-205

AREA:205-1

Unit Data		
	Design	Actual
Unit MFG	NA	NA
Model Num	NA	NA
Serial Num	-	
Type	-	
Configuration	-	
Num Filters Size 1	-	
Filter Size 1	-	

Motor Data		
	Design	Actual
Motor MFG	-	
Frame	-	
Horsepower	-	
Motor Rpm	-	
Phase	-	
Voltage	-	
Amperage	-	
Brake Horsepower	-	

Test Data		
	Design	Actual
SA CFM	1875	
SFAN RPM	-	
Motor Speed Setpt	-	
RL Voltage	-	
RL Amperage	-	
RA CFM	1875	
OA CFM	-	

Performance Data		
	Design	Actual
Suction ESP	-	
Discharge ESP	-	
Total ESP	-	

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-205/205-1

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
2-5-1	205-1	SR-1	10	205			-
2-5-2	205-1	SR-1	10	210			-
2-5-3	205-1	SR-1	10	205			-
2-5-4	205-1	SR-1	10	205			-
2-5-5	205-1	SR-1	10	210			-
2-5-6	205-1	SR-1	10	210			-
2-5-7	205-1	SR-1	10	210			-
2-5-8	205-1	SR-1	10	210			-
2-5-9	205-1	SR-1	10	210			-
Total				1875	0	0	0%

Diffuser Ret/Exh (GRD)

WSHP-205/205-1

Asset								
Asset Name	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
R2-5-1	RR-4		1875					-
Total			1875		0	0	0	0%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-206

AREA:206-1

Unit Data		
	Design	Actual
Unit MFG	NA	NA
Model Num	NA	NA
Serial Num	-	
Type	-	
Configuration	-	
Num Filters Size 1	-	
Filter Size 1	-	

Motor Data		
	Design	Actual
Motor MFG	-	
Frame	-	
Horsepower	-	
Motor Rpm	-	
Phase	-	
Voltage	-	
Amperage	-	
Brake Horsepower	-	

Test Data		
	Design	Actual
SA CFM	-	
SFAN RPM	-	
Motor Speed Setpt	-	
RL Voltage	-	
RL Amperage	-	
RA CFM	-	
OA CFM	-	

Performance Data		
	Design	Actual
Suction ESP	-	
Discharge ESP	-	
Total ESP	-	

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-206/206-1

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
2-6-1	206-2	SR-1	10	215			-
2-6-2	206-2	SR-1	10	220			-
2-6-3	206-2	SR-1	10	220			-
2-6-4	206-2	SR-1	10	220			-
2-6-5	206-2	SR-1	10	220			-
2-6-6	206-1	SR-1	10	200			-
2-6-7	206-1	SR-1	10	195			-
2-6-8	206-1	SR-1	10	195			-
2-6-9	206-1	SR-1	10	195			-
2-6-10	206-1	SR-1	10	195			-
2-6-11	206-1	SR-1	10	195			-
Total				2270	0	0	0%

Diffuser Ret/Exh (GRD)

WSHP-206/206-1

Asset								
Asset Name	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
R2-6-1	RR-3		2270					-
Total			2270		0	0	0	0%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-207

AREA:207-1

Unit Data		
	Design	Actual
Unit MFG	NA	NA
Model Num	NA	NA
Serial Num	-	
Type	-	
Configuration	-	
Num Filters Size 1	-	
Filter Size 1	-	

Motor Data		
	Design	Actual
Motor MFG	-	
Frame	-	
Horsepower	-	
Motor Rpm	-	
Phase	-	
Voltage	-	
Amperage	-	
Brake Horsepower	-	

Test Data		
	Design	Actual
SA CFM	2260	
SFAN RPM	-	
Motor Speed Setpt	-	
RL Voltage	-	
RL Amperage	-	
RA CFM	2245	
OA CFM	-	

Performance Data		
	Design	Actual
Suction ESP	-	
Discharge ESP	-	
Total ESP	-	

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-207/207-1

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
2-7-1	207-1	SR-1	10	190			-
2-7-2	207-1	SR-1	10	195			-
2-7-3	207-1	SR-1	10	190			-
2-7-4	207-1	SR-1	10	15			-
2-7-5	207-2	SR-1	10	220			-
2-7-6	207-2	SR-1	10	215			-
2-7-7	207-2	SR-1	10	215			-
2-7-8	207-2	SR-1	10	215			-
2-7-9	207-2	SR-1	10	220			-
2-7-10	207-1	SR-1	10	195			-
2-7-11	207-1	SR-1	10	195			-
2-7-13	207-1	SR-1	10	195			-
Total				2260	0	0	0%

Diffuser Ret/Exh (GRD)

WSHP-207/207-1

Asset								
Asset Name	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
R2-7-1	RR-3		2245					-
Total			2245		0	0	0	0%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-208

AREA:208-1

Unit Data		
	Design	Actual
Unit MFG	NA	NA
Model Num	NA	NA
Serial Num	-	
Type	-	
Configuration	-	
Num Filters Size 1	-	
Filter Size 1	-	

Motor Data		
	Design	Actual
Motor MFG	-	
Frame	-	
Horsepower	-	
Motor Rpm	-	
Phase	-	
Voltage	-	
Amperage	-	
Brake Horsepower	-	

Test Data		
	Design	Actual
SA CFM	2240	
SFAN RPM	-	
Motor Speed Setpt	-	
RL Voltage	-	
RL Amperage	-	
RA CFM	2240	
OA CFM	-	

Performance Data		
	Design	Actual
Suction ESP	-	
Discharge ESP	-	
Total ESP	-	

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-208/208-1

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
SGRD1	208-1	SR-1	10	230			-
SGRD2	208-1	SR-1	10	230			-
SGRD3	208-1	SR-1	10	230			-
SGRD4	208-1	SR-1	10	230			-
SGRD5	208-1	SR-1	10	230			-
SGRD6	208-2	SR-1	10	220			-
SGRD7	208-2	SR-1	10	215			-
SGRD8	208-2	SR-1	10	220			-
SGRD9	208-2	SR-1	10	215			-
SGRD10	208-2	SR-1	10	220			-
Total				2240	0	0	0%

Diffuser Ret/Exh (GRD)

WSHP-208/208-1

Asset								
Asset Name	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
EGRD1	RR-3		2240					-
Total			2240		0	0	0	0%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-209

AREA:209-1

Unit Data		
	Design	Actual
Unit MFG	NA	NA
Model Num	NA	NA
Serial Num	-	
Type	-	
Configuration	-	
Num Filters Size 1	-	
Filter Size 1	-	

Motor Data		
	Design	Actual
Motor MFG	-	
Frame	-	
Horsepower	-	
Motor Rpm	-	
Phase	-	
Voltage	-	
Amperage	-	
Brake Horsepower	-	

Test Data		
	Design	Actual
SA CFM	2280	
SFAN RPM	-	
Motor Speed Setpt	-	
RL Voltage	-	
RL Amperage	-	
RA CFM	2280	
OA CFM	-	

Performance Data		
	Design	Actual
Suction ESP	-	
Discharge ESP	-	
Total ESP	-	

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-209/209-1

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
2-9-1	209-2	SR-1	10	220			-
2-9-2	209-2	SR-1	10	215			-
2-9-3	209-2	SR-1	10	220			-
2-9-4	209-2	SR-1	10	215			-
2-9-5	209-2	SR-1	10	220			-
2-9-6	209-1	SR-1	10	200			-
2-9-7	209-1	SR-1	10	200			-
2-9-8	209-1	SR-1	10	195			-
2-9-9	209-1	SR-1	10	195			-
2-9-10	209-1	SR-1	10	200			-
2-9-11	209-1	SR-1	10	200			-
Total				2280	0	0	0%

Diffuser Ret/Exh (GRD)

WSHP-209/209-1

Asset								
Asset Name	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
R2-9-1	RR-3		2280					-
Total			2280		0	0	0	0%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-C200 1

AREA:200 CORRIDOR

Unit Data		
	Design	Actual
Unit MFG	NA	NA
Model Num	NA	NA
Serial Num	-	
Type	-	
Configuration	-	
Num Filters Size 1	-	
Filter Size 1	-	

Motor Data		
	Design	Actual
Motor MFG	-	
Frame	-	
Horsepower	-	
Motor Rpm	-	
Phase	-	
Voltage	-	
Amperage	-	
Brake Horsepower	-	

Test Data		
	Design	Actual
SA CFM	400	
SFAN RPM	-	
Motor Speed Setpt	-	
RL Voltage	-	
RL Amperage	-	
RA CFM	400	
OA CFM	-	

Performance Data		
	Design	Actual
Suction ESP	-	
Discharge ESP	-	
Total ESP	-	

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-C200 1/200 CORRIDOR

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
2-C200-1	200 CORRIDOR	SR-2	10X10	400			-
Total				400	0	0	0%

Diffuser Ret/Exh (GRD)

WSHP-C200 1/200 CORRIDOR

Asset								
Asset Name	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
R2-C200-1	RR-2		400					-
Total			400		0	0	0	0%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-C201 1

AREA:201 CORRIDOR

Unit Data		
	Design	Actual
Unit MFG	NA	NA
Model Num	NA	NA
Serial Num	-	
Type	-	
Configuration	-	
Num Filters Size 1	-	
Filter Size 1	-	

Motor Data		
	Design	Actual
Motor MFG	-	
Frame	-	
Horsepower	-	
Motor Rpm	-	
Phase	-	
Voltage	-	
Amperage	-	
Brake Horsepower	-	

Test Data		
	Design	Actual
SA CFM	-	
SFAN RPM	-	
Motor Speed Setpt	-	
RL Voltage	-	
RL Amperage	-	
RA CFM	-	
OA CFM	-	

Performance Data		
	Design	Actual
Suction ESP	-	
Discharge ESP	-	
Total ESP	-	

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-C201 1/201 CORRIDOR

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
2-C201-1	201 CORRIDOR	SR-2	10X10	460			-
Total				460	0	0	0%

Diffuser Ret/Exh (GRD)

WSHP-C201 1/201 CORRIDOR

Asset								
Asset Name	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
R2-C201-1	RR-2		460					-
Total			460		0	0	0	0%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-C202 1

AREA:202 MAINT

Unit Data		
	Design	Actual
Unit MFG	NA	NA
Model Num	NA	NA
Serial Num	-	
Type	-	
Configuration	-	
Num Filters Size 1	-	
Filter Size 1	-	

Motor Data		
	Design	Actual
Motor MFG	-	
Frame	-	
Horsepower	-	
Motor Rpm	-	
Phase	-	
Voltage	-	
Amperage	-	
Brake Horsepower	-	

Test Data		
	Design	Actual
SA CFM	780	
SFAN RPM	-	
Motor Speed Setpt	-	
RL Voltage	-	
RL Amperage	-	
RA CFM	740	
OA CFM	-	

Performance Data		
	Design	Actual
Suction ESP	-	
Discharge ESP	-	
Total ESP	-	

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-C202 1/202 MAINT

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
2-C202-1	202 MAINT	SR-3		40			-
2-C202-2	202 CORRIDOR	SR-2		740			-
Total				780	0	0	0%

Diffuser Ret/Exh (GRD)

WSHP-C202 1/202 MAINT

Asset								
Asset Name	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
R2-C202-1	RR-5		740					-
Total			740		0	0	0	0%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-C1

AREA:

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH024
Serial Num	-	
Type	WATER SOURCE	
Configuration	HORIZONTAL	
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Motor Data		
	Design	Actual
Motor MFG	-	
Frame	-	
Horsepower	0.50	
Motor Rpm	-	
Phase	1	
Voltage	208	
Amperage	-	4.10
Brake Horsepower	-	

Test Data		
	Design	Actual
SA CFM	855	
SFAN RPM	-	
Motor Speed Setpt	-	
RL Voltage	-	208
RL Amperage	-	4.10
RA CFM	-	
OA CFM	-	

Performance Data		
	Design	Actual
Suction ESP	-	
Discharge ESP	-	
Total ESP	-	0.50

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-C1/

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
3-C-1		SR-3	12X12	740			-
3-C-2		SR-5	10X6	40			-
Total				780	0	0	0%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X01

AREA:301

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH024
Serial Num	-	230300005
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Motor Data		
	Design	Actual
Motor MFG	-	NA
Frame	-	NA
Horsepower	0.50	NA
Motor Rpm	-	NA
Phase	1	1
Voltage	208	208/230
Amperage	-	4.10
Brake Horsepower	-	NA

Test Data		
	Design	Actual
SA CFM	840	810
Motor Speed Setpt	-	3
RL Voltage	-	210
RL Amperage	-	1.1
RA CFM	-	810

Performance Data		
	Design	Actual
Suction ESP	-	-0.41
Discharge ESP	-	0.11"
Total ESP	0.50	0.52"

Completed By: Cody Collett on 08/14/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X01/301

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
3-1-1	301	SR-1	8	240	252	219	91.3
3-1-2	301	SR-1	8	240	270	224	93.3
3-1-3	301	SR-1	8	240	281	254	105.8
3-1-4	301	SR-1	6	120	130	113	94.2
Total				840	933	810	96.43%

Completed By: Gabe Merk on 08/16/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X02

AREA:302

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH030
Serial Num	-	230300013
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Test Data		
	Design	Actual
SA CFM	1020	1183
SFAN RPM	-	NA
Motor Speed Setpt	-	LOW
RL Voltage	-	212
RL Amperage	-	1.41
RA CFM	-	1183
OA CFM	-	NA

Motor Data		
	Design	Actual
Motor MFG	-	NA
Frame	-	NL
Horsepower	0.50	0.50
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10
Brake Horsepower	-	NL

Performance Data		
	Design	Actual
Suction ESP	-	-0.50"
Discharge ESP	-	0.04"
Total ESP	0.50	0.54"

Unit Data - PHOTO LOG



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Completed By: Cody Collett on 08/22/2024

Notes:
Unable to reduce total to design airflow, fan is set to lowest speed setpoint.

Written By: Cody Collett on 08/22/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X02/302

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
3-2-1	302B	SR-3	12	450	690	522	116.0
3-2-2	302	SR-1	8	230	198	279	121.3
3-2-3	302	SR-1	6	100	104	123	123.0
3-2-4	302	SR-1	8	230	222	269	117.0
Total				1010	1214	1193	118.12%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X03

AREA:303

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH015
Serial Num	-	230300012
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X20

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.5
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.1

Test Data		
	Design	Actual
SA CFM	520	543
Motor Speed Setpt	-	2
RL Voltage	-	INACCESSIBLE
RL Amperage	-	1.1
RA CFM	-	543

Performance Data		
	Design	Actual
Suction ESP	-	-0.51"
Discharge ESP	-	0.11"
Total ESP	0.50"	0.62"

Completed By: Cody Collett on 08/14/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X03/303

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
3-3-1	303	SR-1	8	200	288	216	108.0
3-3-2	303	SR-1	8	200	274	214	107.0
3-3-3	303	SR-1	6	120	149	113	94.2
Total				520	711	543	104.42%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X04

AREA:304

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH030
Serial Num	-	230300036
Type	WATER SOURCE	WATER FURNACE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.50
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.1

Test Data		
	Design	Actual
SA CFM	1020	1018
Motor Speed Setpt	-	2
RL Voltage	-	210
RL Amperage	-	1.5
RA CFM	-	1018

Performance Data		
	Design	Actual
Suction ESP	-	-0.50"
Discharge ESP	-	0.04"
Total ESP	0.50"	0.54"

Completed By: Cody Collett on 08/14/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X04/304

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
3-4-1	304B	SR-3	12	450	351	466	103.6
3-4-2	304	SR-1	8	230	417	226	98.3
3-4-3	304	SR-1	6	100	432	98	98.0
3-4-4	304	SR-1	8	230	344	228	99.1
Total				1010	1544	1018	100.79%

Completed By: Cody Collett on 08/14/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X05

AREA:305

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH015
Serial Num	-	230300032
Type	WATER SOURCE	WATER FURNACE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X20

Test Data		
	Design	Actual
SA CFM	520	532
Motor Speed Setpt	-	2
RL Voltage	-	INACCESSIBLE
RL Amperage	-	INACCESSIBLE
RA CFM	-	532

Performance Data		
	Design	Actual
Suction ESP	-	-0.42"
Discharge ESP	-	0.28"
Total ESP	0.50	0.70"

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.5
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.1

Unit Data - PHOTO LOG



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Completed By: Gabe Merk on 08/16/2024

Notes:
Unit not accessible for volts and amps.

Written By: Gabe Merk on 08/16/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X05/305

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
3-5-1	305	SR-1	8	200	472	199	99.5
3-5-2	305	SR-1	8	200	417	213	106.5
3-5-3	305	SR-1	6	120	328	120	100.0
Total				520	1217	532	102.31%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X06

AREA:306

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH030
Serial Num	-	230300039
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.5
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	1010	1004
Motor Speed Setpt	-	SPEED TAP 2
RL Voltage	-	212
RL Amperage	-	1.6
RA CFM	-	1004

Performance Data		
	Design	Actual
Suction ESP	-	-0.49"
Discharge ESP	-	0.15"
Total ESP	0.50	0.64"

Completed By: Gabe Merk on 07/26/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X06/306

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
3-6-1	306B	SR-3	12	450	730	452	100.4
3-6-2	306	SR-1	8	230	204	222	96.5
3-6-3	306	SR-1	6	100	97	98	98.0
3-6-4	306	SR-1	8	230	215	232	100.9
Total				1010	1246	1004	99.41%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X07

AREA:307

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH024
Serial Num	-	230300029
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Test Data		
	Design	Actual
SA CFM	840	825
Motor Speed Setpt	-	4
RL Voltage	-	213
RL Amperage	-	1.26
RA CFM	-	825

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Frame	-	NA
Horsepower	0.50	0.50
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.1
Brake Horsepower	-	NA

Performance Data		
	Design	Actual
Suction ESP	-	0.44"
Discharge ESP	-	0.18"
Total ESP	0.50	0.61"

Completed By: Cody Collett on 08/14/2024

Notes:
Motor compartment not accessible due faulty screw turning but not unthreading.

Written By: Cody Collett on 08/14/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X07/307

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
3-7-1	307	SR-2		280	309	279	99.6
3-7-2	307	SR-2		280	318	284	101.4
3-7-3	307	SR-2		280	219	262	93.6
Total				840	846	825	98.21%

Completed By: Cody Collett on 08/14/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X08

AREA:308

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH018
Serial Num	-	230300018
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X20

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.5
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	675	665
Motor Speed Setpt	-	LOW
RL Voltage	-	210
RL Amperage	-	1.06
RA CFM	-	665

Performance Data		
	Design	Actual
Suction ESP	-	-0.63"
Discharge ESP	-	0.07"
Total ESP	0.50	0.70"

Completed By: Cody Collett on 08/16/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X08/308

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
3-8-1	308	SR-2	4	25	121	27	108.0
3-8-2	308	SR-1	8	170	304	168	98.8
3-8-3	308	SR-1	8	240	72	226	94.2
3-8-4	308	SR-1	8	240	110	244	101.7
Total				675	607	665	98.52%

Completed By: Cody Collett on 08/16/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X09

AREA:309

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH042
Serial Num	-	230300021
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	18X14 / 18X18

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	1.0
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	7.6

Test Data		
	Design	Actual
SA CFM	1400	1483
Motor Speed Setpt	-	2
RL Voltage	-	215
RL Amperage	-	2.9
RA CFM	-	1483

Performance Data		
	Design	Actual
Suction ESP	-	-0.68"
Discharge ESP	-	0.23"
Total ESP	0.50	0.91"

Completed By: Gabe Merk on 08/28/2024

Notes:
Thermostat not installed.
RESOLVED 8/28/24

Written By: Gabe Merk on 08/28/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X09/309

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
3-9-1	309B	SR-3	12	590	939	615	104.2
3-9-2	309	SR-2	8	270	213	287	106.3
3-9-3	309	SR-2	8	270	226	288	106.7
3-9-4	309	SR-2	8	270	225	293	108.5
Total				1400	1603	1483	105.93%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-C1

AREA:

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH024
Serial Num	-	
Type	WATER SOURCE	
Configuration	HORIZONTAL	
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Motor Data		
	Design	Actual
Motor MFG	-	
Frame	-	
Horsepower	0.50	
Motor Rpm	-	
Phase	1	
Voltage	208	
Amperage	-	4.10
Brake Horsepower	-	

Test Data		
	Design	Actual
SA CFM	855	
SFAN RPM	-	
Motor Speed Setpt	-	
RL Voltage	-	208
RL Amperage	-	4.10
RA CFM	-	
OA CFM	-	

Performance Data		
	Design	Actual
Suction ESP	-	
Discharge ESP	-	
Total ESP	-	0.50

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-C1/

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
4-C-1		SR-3	12X12	740			-
4-C-2		SR-5	10X6	40			-
Total				780	0	0	0%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X01

AREA:401

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH024
Serial Num	-	230300006
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.50
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	840	862
Motor Speed Setpt	-	2
RL Voltage	-	211.7
RL Amperage	-	1.65
RA CFM	-	862

Performance Data		
	Design	Actual
Suction ESP	-	-0.33"
Discharge ESP	-	INACCESSIBLE
Total ESP	0.50	-0.33"

Completed By: Jordan Best on 07/12/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X01/401

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
4-1-1	401	SR-1	8	240	106	239	99.6
4-1-2	401	SR-1	8	240	333	242	100.8
4-1-3	401	SR-1	8	240	305	248	103.3
4-1-4	401	SR-1	6	120	152	133	110.8
Total				840	896	862	102.62%

Completed By: Jordan Best on 07/12/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X02

AREA:402

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH030
Serial Num	-	230300014
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.5
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	1010	999
Motor Speed Setpt	-	3
RL Voltage	-	INACCESSIBLE
RL Amperage	-	1.7
RA CFM	-	999

Performance Data		
	Design	Actual
Suction ESP	-	-0.55"
Discharge ESP	-	0.12"
Total ESP	0.50	0.67"

Completed By: Gabe Merk on 06/27/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X02/402

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
4-2-1	402B	SR-3	12	450	464	469	104.2
4-2-2	402	SR-1	8	230	252	207	90.0
4-2-3	402	SR-1	6	100	111	104	104.0
4-2-4	402	SR-1	8	230	286	219	95.2
Total				1010	1113	999	98.91%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X03

AREA:403

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH015
Serial Num	-	230300010
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X20

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.50
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	520	559
Motor Speed Setpt	-	2
RL Voltage	-	INACCESSIBLE
RL Amperage	-	1.17
RA CFM	-	559

Performance Data		
	Design	Actual
Suction ESP	-	-0.61"
Discharge ESP	-	0.10
Total ESP	0.50	0.71"

Completed By: Jordan Best on 06/27/2024

Notes:
ELECTRICAL PANEL INACCESSIBLE, AMPS READ THROUGH COMPRESSOR COMPARTMENT

Written By: Jordan Best on 06/27/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X03/403

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
4-3-1	403	SR-1	8	200	251	219	109.5
4-3-2	403	SR-1	8	200	221	209	104.5
4-3-3	403	SR-1	6	120	123	131	109.2
Total				520	595	559	107.5%

Completed By: Jordan Best on 06/27/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X04

AREA:404

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH030
Serial Num	-	230300035
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.50
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	1010	1019
Motor Speed Setpt	-	4
RL Voltage	-	INACCESSIBLE
RL Amperage	-	2.28
RA CFM	-	1019

Performance Data		
	Design	Actual
Suction ESP	-	-0.64"
Discharge ESP	-	0.10"
Total ESP	0.50	0.74"

Completed By: Jordan Best on 06/26/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X04/404

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
4-4-1	404B	SR-3	12	450	761	461	102.4
4-4-2	404	SR-1	8	230	207	232	100.9
4-4-3	404	SR-1	6	100	110	103	103.0
4-4-4	404	SR-1	8	230	145	223	97.0
Total				1010	1223	1019	100.89%

Completed By: Jordan Best on 06/26/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X05

AREA:405

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH015
Serial Num	-	INACCESSIBLE
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X20

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.50
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	520	565
Motor Speed Setpt	-	2
RL Voltage	-	INACCESSIBLE
RL Amperage	-	INACCESSIBLE
RA CFM	-	565

Performance Data		
	Design	Actual
Suction ESP	-	-0.24"
Discharge ESP	-	INACCESSIBLE
Total ESP	0.50"	0.24"

Completed By: Jordan Best on 07/12/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X05/405

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
4-5-1	405	SR-1	8	200	261	219	109.5
4-5-2	405	SR-1	8	200	195	222	111.0
4-5-3	405	SR-1	6	120	106	124	103.3
Total				520	562	565	108.65%

Completed By: Jordan Best on 07/12/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X06

AREA:406

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH030
Serial Num	-	230300038
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.5
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	1010	1025
Motor Speed Setpt	-	4
RL Voltage	-	213
RL Amperage	-	2.3
RA CFM	-	1025

Performance Data		
	Design	Actual
Suction ESP	-	-0.57"
Discharge ESP	-	0.37"
Total ESP	0.50	0.94"

Completed By: Gabe Merk on 06/26/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X06/406

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
4-6-1	406B	SR-3	12	450	553	468	104.0
4-6-2	406	SR-1	8	230	250	227	98.7
4-6-3	406	SR-1	6	100	148	99	99.0
4-6-4	406	SR-1	8	230	88	231	100.4
Total				1010	1039	1025	101.49%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X07

AREA:403

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH024
Serial Num	-	230300028
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.50
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	840	788
Motor Speed Setpt	-	2
RL Voltage	-	INACCESSIBLE
RL Amperage	-	1.58
RA CFM	-	788

Performance Data		
	Design	Actual
Suction ESP	-	-0.42"
Discharge ESP	-	0.20"
Total ESP	0.50	0.62"

Completed By: Jordan Best on 06/26/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X07/403

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
4-3-1	403	SR-2	8	280	270	269	96.1
4-3-2	403	SR-2	8	280	267	258	92.1
4-3-3	403	SR-2	8	280	331	261	93.2
Total				840	868	788	93.81%

Completed By: Jordan Best on 06/26/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X08

AREA:408

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH018
Serial Num	-	230300016
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X20

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.50
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	675	689
Motor Speed Setpt	-	3
RL Voltage	-	210.3
RL Amperage	-	1.29
RA CFM	-	689

Performance Data		
	Design	Actual
Suction ESP	-	-0.68"
Discharge ESP	-	0.09"
Total ESP	0.50"	0.77"

Completed By: Jordan Best on 06/27/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X08/408

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
4-8-1	408	SR-2	4	25	16	27	108.0
4-8-2	408	SR-1	8	170	180	183	107.6
4-8-3	408	SR-1	8	240	226	261	108.8
4-8-4	408	SR-1	8	240	188	218	90.8
Total				675	610	689	102.07%

Completed By: Jordan Best on 06/27/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X09

AREA:409

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH042
Serial Num	-	230300020
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	18X14 / 18X18

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.50
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	1400	1412
Motor Speed Setpt	-	2
RL Voltage	-	212
RL Amperage	-	2.8
RA CFM	-	1412

Performance Data		
	Design	Actual
Suction ESP	-	-0.85"
Discharge ESP	-	0.04"
Total ESP	0.50"	0.89"

Completed By: Gabe Merk on 08/16/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X09/409

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
4-9-1	49B	SR-3	12	590	821	615	104.2
4-9-2	409	SR-2	8	270	159	243	90.0
4-9-3	409	SR-2	8	270	255	294	108.9
4-9-4	409	SR-2	8	270	316	260	96.3
Total				1400	1551	1412	100.86%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-C1

AREA:

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH024
Serial Num	-	
Type	WATER SOURCE	
Configuration	HORIZONTAL	
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Motor Data		
	Design	Actual
Motor MFG	-	
Frame	-	
Horsepower	0.50	
Motor Rpm	-	
Phase	1	
Voltage	208	
Amperage	-	4.10
Brake Horsepower	-	

Test Data		
	Design	Actual
SA CFM	855	
SFAN RPM	-	
Motor Speed Setpt	-	
RL Voltage	-	208
RL Amperage	-	4.10
RA CFM	-	
OA CFM	-	

Performance Data		
	Design	Actual
Suction ESP	-	
Discharge ESP	-	
Total ESP	0.50	

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-C1/

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
5-C-1		SR-3	12X12	740			-
5-C-2		SR-5	10X6	40			-
Total				780	0	0	0%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X01

AREA:501

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH024
Serial Num	-	230101748
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.5
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	840	872
Motor Speed Setpt	-	4
RL Voltage	-	2121
RL Amperage	-	1.4
RA CFM	-	872

Performance Data		
	Design	Actual
Suction ESP	-	-0.46"
Discharge ESP	-	INACCESSIBLE
Total ESP	0.50	INACCESSIBLE

Completed By: Gabe Merk on 06/26/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X01/501

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
5-1-1	501	SR-1	8	240	262	262	109.2
5-1-2	501	SR-1	8	240	242	242	100.8
5-1-3	501	SR-1	8	240	238	238	99.2
5-1-4	501	SR-1	6	120	130	130	108.3
Total				840	872	872	103.81%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X02

AREA:502

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH030
Serial Num	-	230101764
Type	WATER SOURCE	WATER SOURCEsource
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.50
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	1010	1056
Motor Speed Setpt	-	3
RL Voltage	-	213.2
RL Amperage	-	1.86
RA CFM	-	1056

Performance Data		
	Design	Actual
Suction ESP	-	-0.51"
Discharge ESP	-	0.23"
Total ESP	0.50	0.74"

Completed By: Jordan Best on 06/26/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X02/502

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
5-2-1	502B	SR-3	12	450	762	475	105.6
5-2-2	502	SR-1	8	230	183	254	110.4
5-2-3	502	SR-1	6	100	102	92	92.0
5-2-4	502	SR-1	8	230	202	235	102.2
Total				1010	1249	1056	104.55%

Completed By: Jordan Best on 06/26/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X03

AREA:503

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH015
Serial Num	-	230101757
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X20

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.50
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	520	565
Motor Speed Setpt	-	2
RL Voltage	-	INACCESSIBLE
RL Amperage	-	INACCESSIBLE
RA CFM	-	565

Performance Data		
	Design	Actual
Suction ESP	-	-0.36"
Discharge ESP	-	0.30"
Total ESP	0.50	0.66"

Completed By: Jordan Best on 07/12/2024

Notes:
.DIFFUSER 1 ABOVE DESIGN DESPITE DAMPER BEING FULLY CLOSED

Written By: Jordan Best on 07/12/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X03/503

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
5-3-1	503	SR-1	8	200	243	230	115.0
5-3-2	503	SR-1	8	200	291	220	110.0
5-3-3	503	SR-1	6	120	125	115	95.8
Total				520	659	565	108.65%

Completed By: Jordan Best on 07/12/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X04

AREA:504

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH030
Serial Num	-	230101790
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.5
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	1010	1192
Motor Speed Setpt	-	4
RL Voltage	-	213
RL Amperage	-	2.2
RA CFM	-	1192

Performance Data		
	Design	Actual
Suction ESP	-	-0.63"
Discharge ESP	-	0.04"
Total ESP	0.50	0.67"

Completed By: Gabe Merk on 06/26/2024

Notes:
DIFFUSER 1 DAMPER NOT HOLDING POSITION. LEFT OPEN. UNIT TOTAL LEFT HIGH IN ANTICIPATION OF DAMPER ADJUSTMENT ON DIFFUSER 1.

Written By: Gabe Merk on 06/26/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X04/504

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
5-4-1	504B	SR-3	12	450	330	762	169.3
5-4-2	504	SR-1	8	230	472	212	92.2
5-4-3	504	SR-1	6	100	72	78	78.0
5-4-4	504	SR-1	8	230	244	140	60.9
Total				1010	1118	1192	118.02%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X05

AREA:505

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH015
Serial Num	-	230101782
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X20

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.5
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	520	533
Motor Speed Setpt	-	2
RL Voltage	-	INACCESSIBLE
RL Amperage	-	INACCESSIBLE
RA CFM	-	533

Performance Data		
	Design	Actual
Suction ESP	-	INACCESSIBLE
Discharge ESP	-	0.09"
Total ESP	0.50	INACCESSIBLE

Completed By: Gabe Merk on 06/26/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X05/505

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
5-5-1	505	SR-1	8	200	293	206	103.0
5-5-2	505	SR-1	8	200	254	214	107.0
5-5-3	505	SR-1	6	120	69	113	94.2
Total				520	616	533	102.5%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X06

AREA:506

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH030
Serial Num	-	230101796
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.50
Motor Rpm	-	1050
Phase	1	1
Voltage	208	250
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	1010	973
Motor Speed Setpt	-	3
RL Voltage	-	211.2
RL Amperage	-	1.70
RA CFM	-	973

Performance Data		
	Design	Actual
Suction ESP	-	-0.57"
Discharge ESP	-	0.21"
Total ESP	0.50	0.78"

Completed By: Cody Collett on 08/16/2024

Notes:
Diffuser 4 won't stay open.

Written By: Cody Collett on 08/16/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X06/506

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
5-6-1	506B	SR-3	12	450	790	481	106.9
5-6-2	506	SR-1	8	230	128	211	91.7
5-6-3	506	SR-1	6	100	89	101	101.0
5-6-4	506	SR-1	8	230	136	180	78.3
Total				1010	1143	973	96.34%

Completed By: Cody Collett on 08/16/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X07

AREA:507

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH024
Serial Num	-	230101781
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.50
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	840	857
Motor Speed Setpt	-	2
RL Voltage	-	INACCESSIBLE
RL Amperage	-	1.04
RA CFM	-	857

Performance Data		
	Design	Actual
Suction ESP	-	-0.33"
Discharge ESP	-	0.08"
Total ESP	0.50	0.41"

Completed By: Jordan Best on 07/11/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X07/507

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
5-7-1	507	SR-2	8	280	304	304	108.6
5-7-2	507	SR-2	8	280	268	268	95.7
5-7-3	507	SR-2	8	280	285	285	101.8
Total				840	857	857	102.02%

Completed By: Jordan Best on 07/11/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X08

AREA:508

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH018
Serial Num	-	230101768
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X20

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.5
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.1

Test Data		
	Design	Actual
SA CFM	675	623
Motor Speed Setpt	-	2
RL Voltage	-	211
RL Amperage	-	1.2
RA CFM	-	623

Performance Data		
	Design	Actual
Suction ESP	-	-0.55"
Discharge ESP	-	0.08"
Total ESP	0.50	0.63"

Completed By: Gabe Merk on 08/16/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X08/508

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
5-8-1	508	SR-2	4	25	96	23	92.0
5-8-2	508	SR-1	8	170	100	154	90.6
5-8-3	508	SR-1	8	240	149	230	95.8
5-8-4	508	SR-1	8	240	208	216	90.0
Total				675	553	623	92.3%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X09

AREA:509

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH042
Serial Num	-	230101774
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	18X14 / 18X18

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.50
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	1400	1378
Motor Speed Setpt	-	4
RL Voltage	-	213.3
RL Amperage	-	2.58
RA CFM	-	1378

Performance Data		
	Design	Actual
Suction ESP	-	INACCESSIBLE
Discharge ESP	-	0.16"
Total ESP	0.50	0.16"

Completed By: Jordan Best on 06/26/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X09/509

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
5-9-1	509B	SR-3	12	590	857	594	100.7
5-9-2	509	SR-2	8	270	232	267	98.9
5-9-3	509	SR-2	8	270	272	262	97.0
5-9-4	509	SR-2	8	270	313	255	94.4
Total				1400	1674	1378	98.43%

Completed By: Jordan Best on 06/26/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-C1

AREA:

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH024
Serial Num	-	
Type	WATER SOURCE	
Configuration	HORIZONTAL	
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Motor Data		
	Design	Actual
Motor MFG	-	
Frame	-	
Horsepower	0.50	
Motor Rpm	-	
Phase	1	
Voltage	208	
Amperage	-	4.10
Brake Horsepower	-	

Test Data		
	Design	Actual
SA CFM	855	
SFAN RPM	-	
Motor Speed Setpt	-	
RL Voltage	-	208
RL Amperage	-	4.10
RA CFM	-	
OA CFM	-	

Performance Data		
	Design	Actual
Suction ESP	-	
Discharge ESP	-	
Total ESP	0.50	

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-C1/

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
6-C-1		SR-3	12X12	740			-
6-C-2		SR-5	10X6	40			-
Total				780	0	0	0%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X01

AREA:601

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH024
Serial Num	-	230101730
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.5
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	840	827
Motor Speed Setpt	-	INACCESSIBLE
RL Voltage	-	INACCESSIBLE
RL Amperage	-	INACCESSIBLE
RA CFM	-	827

Performance Data		
	Design	Actual
Suction ESP	-	-0.21"
Discharge ESP	-	0.11"
Total ESP	0.50	-0.32"

Completed By: Gabe Merk on 06/26/2024

Notes:
SUCTION SP TAKEN PRE-COIL

Written By: Gabe Merk on 06/26/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X01/601

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
6-1-1	601	SR-1	8	240	292	242	100.8
6-1-2	601	SR-1	8	240	86	232	96.7
6-1-3	601	SR-1	8	240	249	241	100.4
6-1-4	601	SR-1	6	120	183	112	93.3
Total				840	810	827	98.45%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X02

AREA:602B

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH030
Serial Num	-	230101766
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.5
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	1010	1066
Motor Speed Setpt	-	4
RL Voltage	-	212
RL Amperage	-	2.4
RA CFM	-	1066

Performance Data		
	Design	Actual
Suction ESP	-	-0.62"
Discharge ESP	-	0.04"
Total ESP	0.50	0.66"

Completed By: Jordan Best on 07/11/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X02/602B

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
6-2-1	602B	SR-3	12	450	801	473	105.1
6-2-2	602	SR-1	8	230	192	243	105.7
6-2-3	602	SR-1	6	100	107	109	109.0
6-2-4	602	SR-1	8	230	153	241	104.8
Total				1010	1253	1066	105.54%

Completed By: Jordan Best on 07/11/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X03

AREA:603

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH015
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X20

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.50
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	520	535
Motor Speed Setpt	-	2
RL Voltage	-	INACCESSIBLE
RL Amperage	-	INACCESSIBLE
RA CFM	-	535

Performance Data		
	Design	Actual
Suction ESP	-	-0.48"
Discharge ESP	-	0.32"
Total ESP	0.50	0.8"

Completed By: Jordan Best on 07/11/2024

Notes:
MOTOR AND ELECTRICAL COMPARTMENT INACCESSIBLE

Written By: Jordan Best on 07/11/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X03/603

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
6-3-1	603	SR-1	8	200	248	218	109.0
6-3-2	603	SR-1	8	200	252	204	102.0
6-3-3	603	SR-1	6	120	158	113	94.2
Total				520	658	535	102.88%

Completed By: Jordan Best on 07/11/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X04

AREA:604

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH030
Serial Num	-	230101787
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.50
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	1020	1194
Motor Speed Setpt	-	DEFAULT
RL Voltage	-	212.1
RL Amperage	-	2.49
RA CFM	-	1194

Performance Data		
	Design	Actual
Suction ESP	-	INACCESSIBLE
Discharge ESP	-	INACCESSIBLE
Total ESP	0.50	INACCESSIBLE

Completed By: Jordan Best on 06/26/2024

Notes:
BLOWER COMPARTMENT INACCESSIBLE, UNABLE TO ADJUST FAN SPEED. PROPORTIONALLY BALANCED HIGH.

Written By: Gabe Merk on 06/26/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X04/604

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
6-4-1	604B	SR-3	12	450	725	540	120.0
6-4-2	604	SR-1	8	230	194	268	116.5
6-4-3	604	SR-1	6	100	88	126	126.0
6-4-4	604	SR-1	8	230	208	260	113.0
Total				1010	1215	1194	118.22%

Completed By: Jordan Best on 06/26/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X05

AREA:605

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH015
Serial Num	-	230101784
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X20

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.5
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	520	520
Motor Speed Setpt	-	2
RL Voltage	-	INACCESSIBLE
RL Amperage	-	INACCESSIBLE
RA CFM	-	520

Performance Data		
	Design	Actual
Suction ESP	-	-0.60"
Discharge ESP	-	0.08"
Total ESP	0.50	0.68"

Completed By: Gabe Merk on 06/25/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X05/605

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
6-5-1	605	SR-1	8	200	219	206	103.0
6-5-2	605	SR-1	8	200	224	201	100.5
6-5-3	605	SR-1	6	120	145	113	94.2
Total				520	588	520	100%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X06

AREA:606

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH030
Serial Num	-	230101792
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.5
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	1010	1134
Motor Speed Setpt	-	2
RL Voltage	-	210
RL Amperage	-	1.4
RA CFM	-	1134

Performance Data		
	Design	Actual
Suction ESP	-	-0.49"
Discharge ESP	-	0.11"
Total ESP	0.50	0.60"

Completed By: Cody Collett on 08/22/2024

Notes:

.DIFFUSER 1 INLINE DAMPER INACCESSIBLE. NO FACE DAMPER. UNIT LEFT HIGH IN ANTICIPATION OF DAMPER INSTALLATION.

.RETURNED ON 07/11/24, ISSUE ABOVE STILL REMAINS

.RETURNED ON 07/31/24, ISSUE ABOVE STILL REMAINS

RETURNED 08/16/24, ISSUE ABOVE STILL REMAINS

ISSUE RESOLVED 8/22/24

Balanced proportionally at lowest speed setpoint. Unable to reduce cfm further.

Written By: Gabe Merk on 08/28/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X06/606

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
6-6-1	606B	SR-3	12	450	600	502	111.6
6-6-2	606	SR-1	8	230	262	257	111.7
6-6-3	606	SR-1	6	100	224	114	114.0
6-6-4	606	SR-1	8	230	334	261	113.5
Total				1010	1420	1134	112.28%

Completed By: Cody Collett on 08/22/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X07

AREA:607

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH024
Serial Num	-	INACCESSIBLE
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.50
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	840	833
Motor Speed Setpt	-	2
RL Voltage	-	INACCESSIBLE
RL Amperage	-	INACCESSIBLE
RA CFM	-	833

Performance Data		
	Design	Actual
Suction ESP	-	-0.37"
Discharge ESP	-	0.44"
Total ESP	0.50	0.81"

Completed By: Jordan Best on 06/26/2024

Notes:
LIMITED ACCESS TO UNIT, UNABLE TO READ VOLTS AND AMPS

Written By: Jordan Best on 06/26/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X07/607

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
6-7-1	607	SR-2	8	280	185	281	100.4
6-7-2	607	SR-2	8	280	262	266	95.0
6-7-3	607	SR-2	8	280	447	286	102.1
Total				840	894	833	99.17%

Completed By: Jordan Best on 06/26/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X08

AREA:608

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH018
Serial Num	-	230101770
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X20

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.50
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	675	676
Motor Speed Setpt	-	2
RL Voltage	-	212.6
RL Amperage	-	1.22
RA CFM	-	676

Performance Data		
	Design	Actual
Suction ESP	-	-0.60"
Discharge ESP	-	0.11"
Total ESP	0.50	0.71"

Completed By: Jordan Best on 07/11/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X08/608

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
6-8-1	608	SR-2	4	25	36	22	88.0
6-8-2	608	SR-1	8	170	184	183	107.6
6-8-3	608	SR-1	8	240	245	233	97.1
6-8-4	608	SR-1	8	240	189	238	99.2
Total				675	654	676	100.15%

Completed By: Jordan Best on 07/11/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X09

AREA:609

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH042
Serial Num	-	230101775
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	18X14 / 18X18

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	1
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	7.6

Test Data		
	Design	Actual
SA CFM	1400	1434
Motor Speed Setpt	-	3
RL Voltage	-	INACCESSIBLE
RL Amperage	-	3.4
RA CFM	-	1434

Performance Data		
	Design	Actual
Suction ESP	-	-0.68"
Discharge ESP	-	0.26"
Total ESP	0.50	0.95"

Completed By: Gabe Merk on 06/25/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X09/609

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
6-9-1	609B	SR-3	12	590	927	618	104.7
6-9-2	609	SR-2	8	270	187	260	96.3
6-9-3	609	SR-2	8	270	179	289	107.0
6-9-4	609	SR-2	8	270	271	267	98.9
Total				1400	1564	1434	102.43%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-C1

AREA:

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH024
Serial Num	-	
Type	WATER SOURCE	
Configuration	HORIZONTAL	
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Motor Data		
	Design	Actual
Motor MFG	-	
Frame	-	
Horsepower	0.50	
Motor Rpm	-	
Phase	1	
Voltage	208	
Amperage	-	4.10
Brake Horsepower	-	

Test Data		
	Design	Actual
SA CFM	855	
SFAN RPM	-	
Motor Speed Setpt	-	
RL Voltage	-	208
RL Amperage	-	4.10
RA CFM	-	
OA CFM	-	

Performance Data		
	Design	Actual
Suction ESP	-	
Discharge ESP	-	
Total ESP	0.50	

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-C1/

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
7-C-1		SR-3	12X12	740			-
7-C-2		SR-5	10X6	40			-
Total				780	0	0	0%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X01

AREA:701

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH024
Serial Num	-	230101747
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.5
Motor Rpm	-	1050
Phase	1	11
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	840	829
Motor Speed Setpt	-	4
RL Voltage	-	211
RL Amperage	-	1.5
RA CFM	-	829

Performance Data		
	Design	Actual
Suction ESP	-	INACCESSIBLE
Discharge ESP	-	INACCESSIBLE
Total ESP	0.50	INACCESSIBLE

Completed By: Gabe Merk on 06/25/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X01/701

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
7-1-1	701	SR-1	8	240	217	224	93.3
7-1-2	701	SR-1	8	240	237	240	100.0
7-1-3	701	SR-1	8	240	268	234	97.5
7-1-4	701	SR-1	6	120	112	131	109.2
Total				840	834	829	98.69%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X02

AREA:702

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH030
Serial Num	-	230101765
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.5
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	1010	1066
Motor Speed Setpt	-	4
RL Voltage	-	212
RL Amperage	-	2.4
RA CFM	-	1066

Performance Data		
	Design	Actual
Suction ESP	-	-0.63"
Discharge ESP	-	0.23"
Total ESP	0.50	0.86"

Completed By: Gabe Merk on 06/25/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X02/702

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
7-2-1	702B	SR-3	12	450	732	473	105.1
7-2-2	702	SR-1	8	230	214	240	104.3
7-2-3	702	SR-1	6	100	40	108	108.0
7-2-4	702	SR-1	8	230	233	245	106.5
Total				1010	1219	1066	105.54%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X03

AREA:703

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH015
Serial Num	-	230101759
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X20

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.5
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	520	546
Motor Speed Setpt	-	2
RL Voltage	-	211
RL Amperage	-	0.3
RA CFM	-	546

Performance Data		
	Design	Actual
Suction ESP	-	-0.57"
Discharge ESP	-	0.05"
Total ESP	0.50	0.62"

Completed By: Gabe Merk on 06/25/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X03/703

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
7-3-1	703	SR-1	8	200	210	205	102.5
7-3-2	703	SR-1	8	200	233	219	109.5
7-3-3	703	SR-1	6	120		122	101.7
Total				520	443	546	105%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X04

AREA:704

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH030
Serial Num	-	230101791
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.5
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	1010	1049
Motor Speed Setpt	-	3
RL Voltage	-	211
RL Amperage	-	1.8
RA CFM	-	1049

Performance Data		
	Design	Actual
Suction ESP	-	-0.45"
Discharge ESP	-	0.13"
Total ESP	0.50	0.58"

Completed By: Gabe Merk on 06/25/2024

Notes:
UNIT NOT GETTING INTO HIGH SPEED. USED LOW SPEED TAP SET TO 3 TO BALANCE UNIT.

Written By: Gabe Merk on 06/25/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X04/704

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
7-4-1	704B	SR-3	12	450	518	475	105.6
7-4-2	704	SR-1	8	230	140	237	103.0
7-4-3	704	SR-1	6	100	70	108	108.0
7-4-4	704	SR-1	8	230	142	229	99.6
Total				1010	870	1049	103.86%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X05

AREA:705

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH015
Serial Num	-	230101785
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X20

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.5
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	520	542
Motor Speed Setpt	-	2
RL Voltage	-	INACCESSIBLE
RL Amperage	-	INACCESSIBLE
RA CFM	-	542

Performance Data		
	Design	Actual
Suction ESP	-	-0.70"
Discharge ESP	-	0.05"
Total ESP	0.50	0.75"

Completed By: Gabe Merk on 06/25/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X05/705

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
7-5-1	703	SR-1	8	200	223	217	108.5
7-5-2	703	SR-1	8	200	222	216	108.0
7-5-3	703	SR-1	6	120	87	109	90.8
Total				520	532	542	104.23%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X06

AREA:706

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH030
Serial Num	-	230101793
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.5
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	1010	1042
Motor Speed Setpt	-	2
RL Voltage	-	212.2
RL Amperage	-	1.74
RA CFM	-	1042

Performance Data		
	Design	Actual
Suction ESP	-	-0.53"
Discharge ESP	-	0.17"
Total ESP	0.50	0.7"

Completed By: Jordan Best on 07/11/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X06/706

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
7-6-1	706B	SR-3	12	450	630	493	109.6
7-6-2	706	SR-1	8	230	186	222	96.5
7-6-3	706	SR-1	6	100	80	90	90.0
7-6-4	706	SR-1	8	230	199	237	103.0
Total				1010	1095	1042	103.17%

Completed By: Jordan Best on 07/11/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X07

AREA:707

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH024
Serial Num	-	230101780
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.5
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	840	850
Motor Speed Setpt	-	1
RL Voltage	-	NA
RL Amperage	-	1.51
RA CFM	-	850

Performance Data		
	Design	Actual
Suction ESP	-	-0.74"
Discharge ESP	-	0.21"
Total ESP	0.50	0.95"

Completed By: Gabe Merk on 07/31/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X07/707

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
7-7-1	707	SR-2	8	280	212	258	92.1
7-7-2	707	SR-2	8	280	310	294	105.0
7-7-3	707	SR-2	8	280	511	298	106.4
Total				840	1033	850	101.19%

Completed By: Jordan Best on 07/30/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X08

AREA:708

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH018
Serial Num	-	230101769
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X20

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.50
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	675	933
Motor Speed Setpt	-	2
RL Voltage	-	210.6
RL Amperage	-	1.32
RA CFM	-	933

Performance Data		
	Design	Actual
Suction ESP	-	-0.43"
Discharge ESP	-	0.50"
Total ESP	0.50	0.93"

Completed By: Jordan Best on 07/11/2024

Notes:
FAN SPEED AT LOWEST SET POINT, UNIT BALANCED PROPORTIONATELY HIGH

Written By: Jordan Best on 07/11/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X08/708

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
7-8-1	708	SR-2	4	25	27	52	208.0
7-8-2	708	SR-1	8	170	279	266	156.5
7-8-3	708	SR-1	8	240	380	335	139.6
7-8-4	708	SR-1	8	240	476	280	116.7
Total				675	1162	933	138.22%

Completed By: Jordan Best on 07/11/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X09

AREA:709

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH042
Serial Num	-	230101773
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	18X14 / 18X18

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.50
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	1400	1545
Motor Speed Setpt	-	INACCESSIBLE
RL Voltage	-	INACCESSIBLE
RL Amperage	-	3.62
RA CFM	-	1545

Performance Data		
	Design	Actual
Suction ESP	-	INACCESSIBLE
Discharge ESP	-	0.27"
Total ESP	0.50	0.27"

Completed By: Jordan Best on 07/11/2024

Notes:
MOTOR COMPARTMENT INACCESSIBLE, UNABLE TO ADJUST FAN SPEED
UNIT BALANCED PROPORTIONATELY HIGH

Written By: Jordan Best on 07/11/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X09/709

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
7-9-1	709B	SR-3	12	590	560	602	102.0
7-9-2	709	SR-2	8	270	332	319	118.1
7-9-3	709	SR-2	8	270	307	322	119.3
7-9-4	709	SR-2	8	270	391	302	111.9
Total				1400	1590	1545	110.36%

Completed By: Jordan Best on 07/11/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-C1

AREA:

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH024
Serial Num	-	
Type	WATER SOURCE	
Configuration	HORIZONTAL	
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Motor Data		
	Design	Actual
Motor MFG	-	
Frame	-	
Horsepower	0.50	
Motor Rpm	-	
Phase	1	
Voltage	208	
Amperage	-	4.10
Brake Horsepower	-	

Test Data		
	Design	Actual
SA CFM	855	
SFAN RPM	-	
Motor Speed Setpt	-	
RL Voltage	-	208
RL Amperage	-	4.10
RA CFM	-	
OA CFM	-	

Performance Data		
	Design	Actual
Suction ESP	-	
Discharge ESP	-	
Total ESP	0.50	

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-C1/

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
8-C-1		SR-3	12X12	740			-
8-C-2		SR-5	10X6	40			-
Total				780	0	0	0%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X01

AREA:801

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH024
Serial Num	-	230101749
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.5
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.1

Test Data		
	Design	Actual
SA CFM	840	818
Motor Speed Setpt	-	3
RL Voltage	-	INACCESSIBLE
RL Amperage	-	1.3
RA CFM	-	818

Performance Data		
	Design	Actual
Suction ESP	-	INACCESSIBLE
Discharge ESP	-	INACCESSIBLE
Total ESP	0.50	INACCESSIBLE

Completed By: Gabe Merk on 06/19/2024

Notes:
 NO ROOM TO ACCESS DUCT FOR PRESSURES.
 NO ROOM TO TAKE VOLTAGE READING.

Written By: Gabe Merk on 06/19/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X01/801

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
8-1-1	801	SR-1	8	240	171	238	99.2
8-1-2	801	SR-1	8	240	137	220	91.7
8-1-3	801	SR-1	8	240	219	252	105.0
8-1-4	801	SR-1	6	120	86	108	90.0
Total				840	613	818	97.38%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X02

AREA:802B

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH030
Serial Num	-	230101762
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.5
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.1

Test Data		
	Design	Actual
SA CFM	1010	1050
Motor Speed Setpt	-	4
RL Voltage	-	211
RL Amperage	-	2.3
RA CFM	-	1050

Performance Data		
	Design	Actual
Suction ESP	-	-0.67
Discharge ESP	-	0.11"
Total ESP	0.50	0.78"

Completed By: Gabe Merk on 06/19/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X02/802B

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
8-2-1	802B	SR-3	12	450	672	474	105.3
8-2-2	802	SR-1	8	230	176	229	99.6
8-2-3	802	SR-1	6	100	110	108	108.0
8-2-4	802	SR-1	8	230	178	239	103.9
Total				1010	1136	1050	103.96%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X03

AREA:803

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH015
Serial Num	-	230101758
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X20

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.5
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	520	551
Motor Speed Setpt	-	2
RL Voltage	-	212
RL Amperage	-	4.5
RA CFM	-	551

Performance Data		
	Design	Actual
Suction ESP	-	-0.67"
Discharge ESP	-	0.07"
Total ESP	0.50	0.74"

Completed By: Gabe Merk on 06/19/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X03/803

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
8-3-1	803	SR-1	8	200	197	216	108.0
8-3-2	803	SR-1	8	200	223	218	109.0
8-3-3	803	SR-1	6	120	88	117	97.5
Total				520	508	551	105.96%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X04

AREA:804

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH030
Serial Num	-	230101789
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.5
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	1020	1028
Motor Speed Setpt	-	3
RL Voltage	-	211
RL Amperage	-	1.6
RA CFM	-	1028

Performance Data		
	Design	Actual
Suction ESP	-	-0.53"
Discharge ESP	-	0.02"
Total ESP	0.50	0.73"

Completed By: Jordan Best on 07/11/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X04/804

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
8-4-1	804B	SR-3	12	450	747	498	110.7
8-4-2	804	SR-1	8	230	180	219	95.2
8-4-3	804	SR-1	6	100	75	93	93.0
8-4-4	804	SR-1	8	230	200	218	94.8
Total				1010	1202	1028	101.78%

Completed By: Jordan Best on 07/11/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X05

AREA:805

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH015
Serial Num	-	230101786
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X20

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.5
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	520	505
Motor Speed Setpt	-	2
RL Voltage	-	INACCESSIBLE
RL Amperage	-	INACCESSIBLE
RA CFM	-	505

Performance Data		
	Design	Actual
Suction ESP	-	-0.57"
Discharge ESP	-	0.13"
Total ESP	0.50	0.70"

Completed By: Gabe Merk on 06/19/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X05/805

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
8-5-1	805	SR-1	8	200	391	191	95.5
8-5-2	805	SR-1	8	200	522	194	97.0
8-5-3	805	SR-1	6	120	243	120	100.0
Total				520	1156	505	97.12%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X06

AREA:806

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH030
Serial Num	-	230101795
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.50
Motor Rpm	-	1850
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	1020	977
Motor Speed Setpt	-	2
RL Voltage	-	214
RL Amperage	-	1.9
RA CFM	-	977

Performance Data		
	Design	Actual
Suction ESP	-	-0.51"
Discharge ESP	-	0.14"
Total ESP	0.50	0.65"

Completed By: Gabe Merk on 06/18/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X06/806

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
8-6-1	806B	SR-3	12	450	694	463	102.9
8-6-2	806	SR-1	8	230	441	209	90.9
8-6-3	806	SR-1	6	100	32	97	97.0
8-6-4	806	SR-1	8	230	362	208	90.4
Total				1010	1529	977	96.73%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X07

AREA:807

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH024
Serial Num	-	230101779
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.5
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	840	985
Motor Speed Setpt	-	1
RL Voltage	-	211
RL Amperage	-	1.0
RA CFM	-	985

Performance Data		
	Design	Actual
Suction ESP	-	-0.51"
Discharge ESP	-	0.19"
Total ESP	0.50	0.70"

Completed By: Jordan Best on 07/10/2024

Notes:
MOTOR IN LOWEST SPEED. UNIT BALANCED PROPORTIONALLY HIGH.

Written By: Gabe Merk on 06/19/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X07/807

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
8-7-1	807	SR-2	8	280	304	330	117.9
8-7-2	807	SR-2	8	280	338	340	121.4
8-7-3	807	SR-2	8	280	416	315	112.5
Total				840	1058	985	117.26%

Completed By: Jordan Best on 07/10/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X08

AREA:808

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH018
Serial Num	-	230101771
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X20

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.50
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	675	682
Motor Speed Setpt	-	2
RL Voltage	-	210
RL Amperage	-	1.1
RA CFM	-	682

Performance Data		
	Design	Actual
Suction ESP	-	-0.53"
Discharge ESP	-	0.11"
Total ESP	0.50	0.64"

Completed By: Gabe Merk on 06/24/2024

Notes:
FRESH FILTER USED FOR TAB. OLD FILTER REPLACED.

Written By: Gabe Merk on 06/24/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X08/808

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
8-8-1	SR-2	SR-2	12	25	73	23	92.0
8-8-2	SR-1	SR-1	8	170	132	185	108.8
8-8-3	SR-1	SR-1	8	240	225	242	100.8
8-8-4	SR-1	SR-1	8	240	166	232	96.7
Total				675	596	682	101.04%

Completed By: Gabe Merk on 06/24/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X09

AREA:809

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH042
Serial Num	-	230101772
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	18X14 / 18X18

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	1.0
Phase	1	1
Voltage	208	208
Amperage	-	7.6

Test Data		
	Design	Actual
SA CFM	1400	2597
Motor Speed Setpt	-	INACCESSIBLE
RL Voltage	-	212.3
RL Amperage	-	3.25
RA CFM	-	1597

Performance Data		
	Design	Actual
Suction ESP	-	NA
Discharge ESP	-	0.07"
Total ESP	0.50	0.07"

Completed By: Jordan Best on 07/10/2024

Notes:
MOTOR INACCESSIBLE, UNABLE TO SLOW FAN SPEED, UNIT BALANCED PROPORTIONATELY HIGH

Written By: Jordan Best on 07/10/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X09/809

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
8-9-1	809B	SR-3	12	590	775	790	133.9
8-9-2	809	SR-2	8	270	309	278	103.0
8-9-3	809	SR-2	8	270	361	259	95.9
8-9-4	809	SR-2	8	270	340	270	100.0
Total				1400	1785	1597	114.07%

Completed By: Jordan Best on 07/10/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-C1

AREA:

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH024
Serial Num	-	
Type	WATER SOURCE	
Configuration	HORIZONTAL	
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Motor Data		
	Design	Actual
Motor MFG	-	
Frame	-	
Horsepower	0.50	
Motor Rpm	-	
Phase	1	
Voltage	208	
Amperage	-	4.10
Brake Horsepower	-	

Test Data		
	Design	Actual
SA CFM	855	
SFAN RPM	-	
Motor Speed Setpt	-	
RL Voltage	-	208
RL Amperage	-	4.10
RA CFM	-	
OA CFM	-	

Performance Data		
	Design	Actual
Suction ESP	-	
Discharge ESP	-	
Total ESP	0.50	

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-C1/

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
9-C-1		SR-3	12X12	740			-
9-C-2		SR-5	10X6	40			-
Total				780	0	0	0%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X01

AREA:901

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH024
Serial Num	-	230101751
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.50
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	840	852
Motor Speed Setpt	-	INACCESSIBLE
RL Voltage	-	212
RL Amperage	-	1.3
RA CFM	-	852

Performance Data		
	Design	Actual
Suction ESP	-	INACCESSIBLE
Discharge ESP	-	INACCESSIBLE
Total ESP	0.50	INACCESSIBLE

Completed By: Gabe Merk on 06/24/2024

Notes:
UNABLE TO ACCESS FAN SECTION. DUCTWORK INACCESSIBLE UNABLE TO ACQUIRE PERFORMANCE DATA.

Written By: Gabe Merk on 06/24/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X01/901

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
9-1-1	901	SR-1	8	240	39	249	103.8
9-1-2	901	SR-1	8	240	247	256	106.7
9-1-3	901	SR-1	8	240	228	219	91.3
9-1-4	901	SR-1	6	120	129	128	106.7
Total				840	643	852	101.43%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X02

AREA:903

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH030
Serial Num	-	230101763
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.5
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	1020	973
Motor Speed Setpt	-	1
RL Voltage	-	212
RL Amperage	-	1.5
RA CFM	-	973

Performance Data		
	Design	Actual
Suction ESP	-	-0.55"
Discharge ESP	-	0.02"
Total ESP	0.50	0.57"

Completed By: Jordan Best on 07/11/2024

Notes:

- . DAMPER FOR DIFFUSER 1 INACCESSIBLE. UNABLE TO BALANCE AIRFLOW TO OTHER DIFFUSERS.
- . 07/30/24 DAMPER STILL INACCESSIBLE, NO FACE DAMPER INSTALLED

Written By: Jordan Best on 07/30/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X02/903

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
9-2-1	902B	SR-3	12	450	753	637	141.6
9-2-2	902	SR-1	8	230	127	129	56.1
9-2-3	902	SR-1	6	100	89	71	71.0
9-2-4	902	SR-1	8	230	161	136	59.1
Total				1010	1130	973	96.34%

Completed By: Jordan Best on 07/11/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X03

AREA:303

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH015
Serial Num	-	230101760
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X20

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.50
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	520	535
Motor Speed Setpt	-	2
RL Voltage	-	211.5
RL Amperage	-	1.31
RA CFM	-	535

Performance Data		
	Design	Actual
Suction ESP	-	-0.63"
Discharge ESP	-	0.17"
Total ESP	0.50	0.8"

Completed By: Jordan Best on 06/27/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X03/303

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
9-3-1	903	SR-1	8	200	210	205	102.5
9-3-2	903	SR-1	8	200	266	221	110.5
9-3-3	903	SR-1	6	120	148	109	90.8
Total				520	624	535	102.88%

Completed By: Jordan Best on 06/27/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X04

AREA:904

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH030
Serial Num	-	230101783
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.50
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	1020	1121
Motor Speed Setpt	-	1
RL Voltage	-	213
RL Amperage	-	1.74
RA CFM	-	1121

Performance Data		
	Design	Actual
Suction ESP	-	-0.45"
Discharge ESP	-	0.29"
Total ESP	0.50	0.74"

Completed By: Jordan Best on 06/24/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X04/904

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
9-4-1	904B	SR-3	12	450	525	525	116.7
9-4-2	904	SR-1	8	230	234	234	101.7
9-4-3	904	SR-1	6	100	114	114	114.0
9-4-4	904	SR-1	8	230	248	248	107.8
Total				1010	1121	1121	110.99%

Completed By: Jordan Best on 06/24/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X05

AREA:905

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH015
Serial Num	-	INACCESSIBLE
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X20

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.50
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	520	655
Motor Speed Setpt	-	INACCESSIBLE
RL Voltage	-	INACCESSIBLE
RL Amperage	-	INACCESSIBLE
RA CFM	-	655

Performance Data		
	Design	Actual
Suction ESP	-	INACCESSIBLE
Discharge ESP	-	INACCESSIBLE
Total ESP	0.50	INACCESSIBLE

Completed By: Jordan Best on 06/24/2024

Notes:
Unit balanced as is, unable to access blower or electrical panels.

Written By: Jordan Best on 06/24/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X05/905

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
9-5-1	905	SR-1	8	200	245	258	129.0
9-5-2	905	SR-1	8	200	308	266	133.0
9-5-3	905	SR-1	6	120	108	131	109.2
Total				520	661	655	125.96%

Completed By: Jordan Best on 06/24/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X06

AREA:906

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH030
Serial Num	-	230101794
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.50
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	1010	982
Motor Speed Setpt	-	2
RL Voltage	-	212.1
RL Amperage	-	1.60
RA CFM	-	982

Performance Data		
	Design	Actual
Suction ESP	-	-0.56"
Discharge ESP	-	0.07"
Total ESP	0.50	0.63"

Completed By: Jordan Best on 07/10/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X06/906

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
9-6-1	906B	SR-3	12	450	597	447	99.3
9-6-2	906	SR-1	8	230	206	224	97.4
9-6-3	906	SR-1	6	100	137	94	94.0
9-6-4	906	SR-1	8	230	227	217	94.3
Total				1010	1167	982	97.23%

Completed By: Jordan Best on 06/27/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X07

AREA:907

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH024
Serial Num	-	230101777
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.50
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	840	802
Motor Speed Setpt	-	2
RL Voltage	-	INACCESSIBLE
RL Amperage	-	1.3
RA CFM	-	802

Performance Data		
	Design	Actual
Suction ESP	-	-0.26"
Discharge ESP	-	0.55"
Total ESP	0.50	0.81"

Completed By: Jordan Best on 06/27/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X07/907

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
9-7-1	907	SR-2	8	280	408	268	95.7
9-7-2	907	SR-2	8	280	430	272	97.1
9-7-3	907	SR-2	8	280	62	262	93.6
Total				840	900	802	95.48%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X08

AREA:908

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH018
Serial Num	-	230101767
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X20

Test Data		
	Design	Actual
SA CFM	675	627
Motor Speed Setpt	-	1
RL Voltage	-	211.8
RL Amperage	-	1.23
RA CFM	-	627

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Frame	-	NA
Horsepower	0.50	1
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Performance Data		
	Design	Actual
Suction ESP	-	-0.52"
Discharge ESP	-	0.1"
Total ESP	0.50	0.62"

Completed By: Jordan Best on 07/10/2024

Notes:

. DIFFUSER 1 ABOVE DESIGN, DAMPER FULLY CLOSED, THIS CAUSES DIFFUSERS 3 & 4 TO FALL BELOW DESIGN

Written By: Jordan Best on 09/18/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X08/908

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
9-8-1	908	SR-2	4	25	80	80	320.0
9-8-2	908	SR-1	8	170	166	166	97.6
9-8-3	908	SR-1	8	240	184	184	76.7
9-8-4	908	SR-1	8	240	197	197	82.1
Total				675	627	627	92.89%

Completed By: Jordan Best on 07/10/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X09

AREA:909

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH042
Serial Num	-	230101776
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	18X14 / 18X18

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	1
Motor Rpm	-	1050
Phase	1	1
Voltage	208	208
Amperage	-	7.6

Test Data		
	Design	Actual
SA CFM	1400	1404
Motor Speed Setpt	-	3
RL Voltage	-	212
RL Amperage	-	3.2
RA CFM	-	1404

Performance Data		
	Design	Actual
Suction ESP	-	-0.85"
Discharge ESP	-	0.04"
Total ESP	0.50	0.89"

Completed By: Jordan Best on 07/10/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X09/909

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
9-9-1	909B	SR-3	SR-3	590	813	596	101.0
9-9-2	909	SR-2	SR-2	270	234	279	103.3
9-9-3	909	SR-2	SR-2	270	257	267	98.9
9-9-4	909	SR-2	SR-2	270	287	262	97.0
Total				1400	1591	1404	100.29%

Completed By: Jordan Best on 07/10/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-C1

AREA:

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH024
Serial Num	-	
Type	WATER SOURCE	
Configuration	HORIZONTAL	
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Motor Data		
	Design	Actual
Motor MFG	-	
Frame	-	
Horsepower	0.50	
Motor Rpm	-	
Phase	1	
Voltage	208	
Amperage	-	4.10
Brake Horsepower	-	

Test Data		
	Design	Actual
SA CFM	855	
SFAN RPM	-	
Motor Speed Setpt	-	
RL Voltage	-	208
RL Amperage	-	4.10
RA CFM	-	
OA CFM	-	

Performance Data		
	Design	Actual
Suction ESP	-	
Discharge ESP	-	
Total ESP	-	0.50

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-C1/

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
10-C-1		SR-3	12X12	740			-
10-C-2		SR-5	10X6	40			-
Total				780	0	0	0%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X01

AREA:301

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH024
Serial Num	-	NA
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.50
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	840	909
Motor Speed Setpt	-	1
RL Voltage	-	NA
RL Amperage	-	NA
RA CFM	-	909

Performance Data		
	Design	Actual
Suction ESP	-	-0.75"
Discharge ESP	-	NA
Total ESP	-	0.75"

Completed By: Jordan Best on 09/06/2024

Notes:

. MOTOR COMPARTMENT AND CONTROL PANEL INACCESSIBLE, UNABLE TO READ VOLTAGE/ AMPS

Written By: Jordan Best on 09/18/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X01/301

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
10-1-1	301	SR-1	8	240	310	257	107.1
10-1-2	301	SR-1	8	240	353	265	110.4
10-1-3	301	SR-1	8	240	183	259	107.9
10-1-4	301	SR-1	6	120	264	128	106.7
Total				840	1110	909	108.21%

Completed By: Jordan Best on 09/06/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X02

AREA:1002

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH030
Serial Num	-	230300015
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.50
Phase	1	1
Voltage	208	208
Amperage	-	4.1

Test Data		
	Design	Actual
SA CFM	1010	1051
Motor Speed Setpt	-	1
RL Voltage	-	210.4
RL Amperage	-	2.14
RA CFM	-	1051

Performance Data		
	Design	Actual
Suction ESP	-	-0.96"
Discharge ESP	-	0.11"
Total ESP	-	1.07"

Completed By: Jordan Best on 09/06/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X02/1002

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
10-2-1	1002B	SR-3	12	450	630	438	97.3
10-2-2	1002	SR-1	8	230	198	253	110.0
10-2-3	1002	SR-1	6	100	199	109	109.0
10-2-4	1002	SR-1	8	230	170	251	109.1
Total				1010	1197	1051	104.06%

Completed By: Jordan Best on 09/06/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X03

AREA:1003

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH015
Serial Num	-	230300011
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X20

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.50
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	520	533
Motor Speed Setpt	-	1
RL Voltage	-	211.8
RL Amperage	-	1.21
RA CFM	-	533

Performance Data		
	Design	Actual
Suction ESP	-	-0.49"
Discharge ESP	-	0.26"
Total ESP	-	0.75"

Completed By: Jordan Best on 09/06/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X03/1003

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
10-3-1	1003	SR-1	8	200	154	216	108.0
10-3-2	1003	SR-1	8	200	517	187	93.5
10-3-3	1003	SR-1	6	120	182	130	108.3
Total				520	853	533	102.5%

Completed By: Jordan Best on 09/06/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X04

AREA:1004

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH030
Serial Num	-	230300034
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.50
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	1010	976
Motor Speed Setpt	-	3
RL Voltage	-	212.9
RL Amperage	-	1.75
RA CFM	-	976

Performance Data		
	Design	Actual
Suction ESP	-	-0.96"
Discharge ESP	-	0.04"
Total ESP	-	1"

Completed By: Jordan Best on 09/05/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X04/1004

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
10-4-1	1004B	SR-3	12	450	410	418	92.9
10-4-2	1004	SR-1	8	230	216	223	97.0
10-4-3	1004	SR-1	6	100	158	107	107.0
10-4-4	1004	SR-1	8	230	178	228	99.1
Total				1010	962	976	96.63%

Completed By: Jordan Best on 09/05/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X05

AREA:1005

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH015
Serial Num	-	230300033
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X20

Test Data		
	Design	Actual
SA CFM	520	565
Motor Speed Setpt	-	3
RA CFM	-	565

Performance Data		
	Design	Actual
Suction ESP	-	-0.55"
Total ESP	-	0.50

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.5
Phase	1	1
Voltage	208	208
Amperage	-	4.1

Completed By: Jordan Best on 09/05/2024

Notes:

- . MOTOR INACCESSIBLE, UNABLE TO ADJUST FAN SPEED
- . UNABLE TO ATTAIN DISCHARGE PRESSURE
- . UNABLE TO ATTAIN VOLTAGE AND AMPS

Written By: Jordan Best on 09/05/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X05/1005

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
10-5-1	1005	SR-1	8	200	193	214	107.0
10-5-2	1005	SR-1	8	200	196	217	108.5
10-5-3	1005	SR-1	6	120	168	134	111.7
Total				520	557	565	108.65%

Completed By: Jordan Best on 09/05/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X06

AREA:1006

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH030
Serial Num	-	
Type	WATER SOURCE	
Configuration	HORIZONTAL	
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Motor Data		
	Design	Actual
Motor MFG	-	
Frame	-	
Horsepower	0.50	
Motor Rpm	-	
Phase	1	
Voltage	208	
Amperage	-	4.10
Brake Horsepower	-	

Test Data		
	Design	Actual
SA CFM	1020	
SFAN RPM	-	
Motor Speed Setpt	-	
RL Voltage	-	208
RL Amperage	-	4.10
RA CFM	-	
OA CFM	-	

Performance Data		
	Design	Actual
Suction ESP	-	
Discharge ESP	-	
Total ESP	-	0.50

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X06/1006

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
10-6-1	1006B	SR-3	12	450			-
10-6-2	1006	SR-1	8	230			-
10-6-3	1006	SR-1	6	100			-
10-6-4	1006	SR-1	8	230			-
Total				1010	0	0	0%

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X07

AREA:1007

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH024
Serial Num	-	230300030
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X25

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.50
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	840	789
Motor Speed Setpt	-	1
RL Voltage	-	NA
RL Amperage	-	1.68
RA CFM	-	789

Performance Data		
	Design	Actual
Suction ESP	-	-0.71"
Discharge ESP	-	0.19"
Total ESP	-	0.9"

Completed By: Jordan Best on 09/06/2024

Notes:

. CONTROL PANEL INACCESSIBLE, UNABLE TO READ VOLTAGE

Written By: Jordan Best on 09/06/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X07/1007

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
10-7-1	1007	SR-2	8	280	188	254	90.7
10-7-2	1007	SR-2	8	280	310	273	97.5
10-7-3	1007	SR-2	8	280	524	262	93.6
Total				840	1022	789	93.93%

Completed By: Jordan Best on 09/06/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X08

AREA:1008

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH018
Serial Num	-	230300017
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	16X20

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	0.50
Phase	1	1
Voltage	208	208
Amperage	-	4.10

Test Data		
	Design	Actual
SA CFM	675	679
Motor Speed Setpt	-	1
RL Voltage	-	211.6
RL Amperage	-	1.15
RA CFM	-	679

Performance Data		
	Design	Actual
Suction ESP	-	-0.57"
Discharge ESP	-	NA
Total ESP	-	0.57"

Completed By: Jordan Best on 09/06/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X08/1008

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
10-8-1	1008	SR-2	4	25	38	27	108.0
10-8-2	1008	SR-1	8	170	78	167	98.2
10-8-3	1008	SR-1	8	240	324	228	95.0
10-8-4	1008	SR-1	8	240	373	257	107.1
Total				675	813	679	100.59%

Completed By: Jordan Best on 09/06/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-X09

AREA:1009

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH042
Serial Num	-	230300019
Type	WATER SOURCE	WATER SOURCE
Configuration	HORIZONTAL	HORIZONTAL
Num Filters Size 1	-	1
Filter Size 1	-	18X14 / 18X18

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	0.50	1
Phase	1	1
Voltage	208	208
Amperage	-	7.6

Test Data		
	Design	Actual
SA CFM	1460	1824
Motor Speed Setpt	-	3
RL Voltage	-	NA
RL Amperage	-	3.17
RA CFM	-	1824

Performance Data		
	Design	Actual
Suction ESP	-	-0.83"
Discharge ESP	-	0.02"
Total ESP	-	0.85"

Completed By: Jordan Best on 09/05/2024

Notes:

- . CONTROL PANEL INACCESSIBLE, UNABLE TO READ VOLTAGE
- . MOTOR INACCESSIBLE, UNABLE TO ADJUST FAN SPEED, UNIT BALANCED PROPORINATELY HIGH

Written By: Jordan Best on 09/05/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

Heat Pump



Diffuser Supply (GRD)

WSHP-X09/1009

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
10-9-1	1009B	SR-3	12	590	910	675	114.4
10-9-2	1009	SR-2	8	270	324	375	138.9
10-9-3	1009	SR-2	8	270	352	392	145.2
10-9-4	1009	SR-2	8	270	272	382	141.5
Total				1400	1858	1824	130.29%

Completed By: Jordan Best on 09/05/2024

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Heat Pump



Asset: WSHP-14

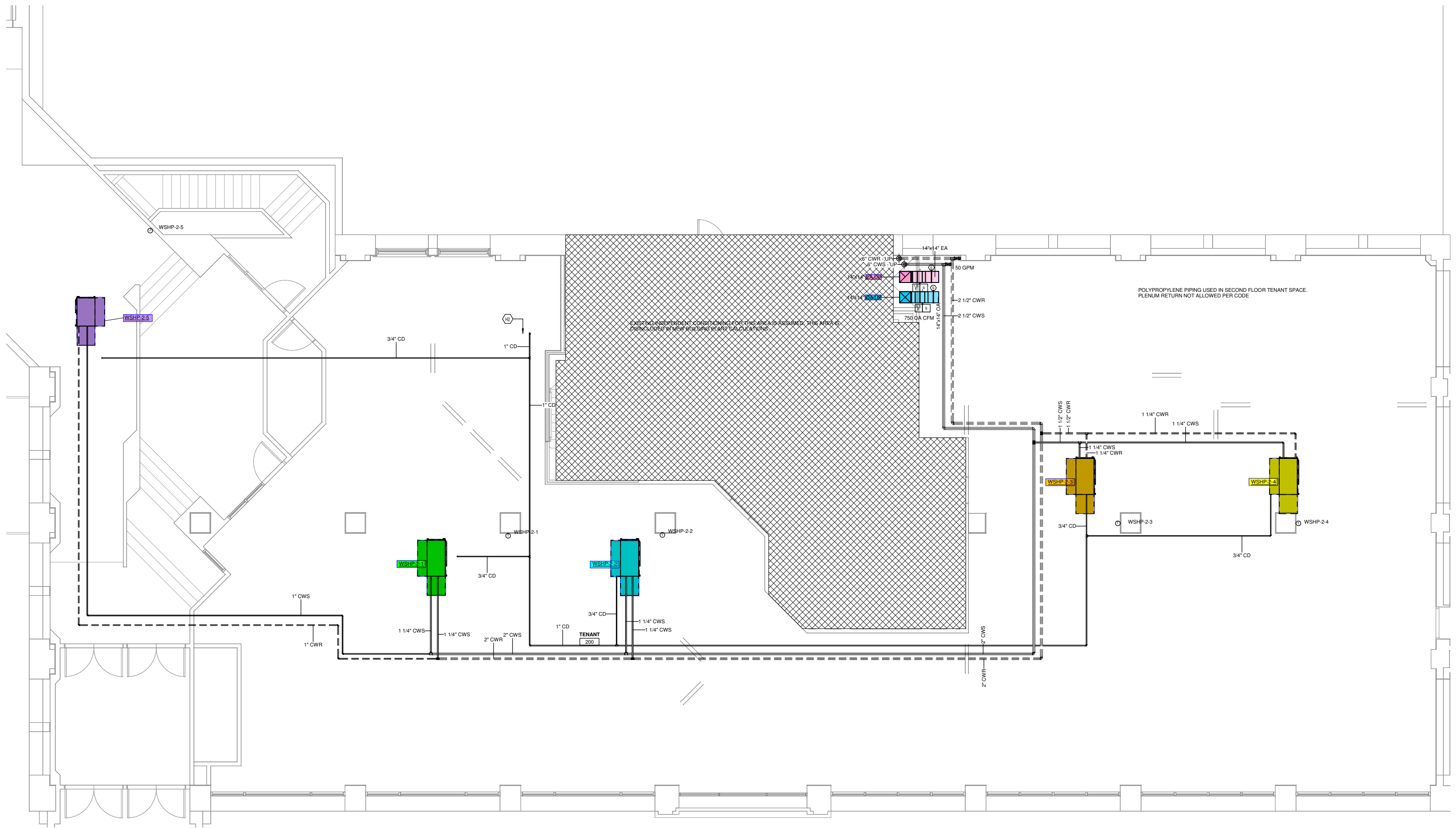
AREA:1009A

Unit Data		
	Design	Actual
Unit MFG	NA	WATER FURNACE
Model Num	NA	UBH048
Serial Num	-	
Type	WATER SOURCE	
Configuration	HORIZONTAL	
Num Filters Size 1	-	1 / 1
Filter Size 1	-	18X14 / 18X18

Motor Data		
	Design	Actual
Motor MFG	-	
Frame	-	
Horsepower	1.0	
Motor Rpm	-	
Phase	3	
Voltage	208	
Amperage	-	7.6
Brake Horsepower	-	

Test Data		
	Design	Actual
SA CFM	1635	
SFAN RPM	-	
Motor Speed Setpt	-	
RL Voltage	-	208
RL Amperage	-	7.6
RA CFM	-	
OA CFM	-	

Performance Data		
	Design	Actual
Suction ESP	-	
Discharge ESP	-	
Total ESP	0.50	

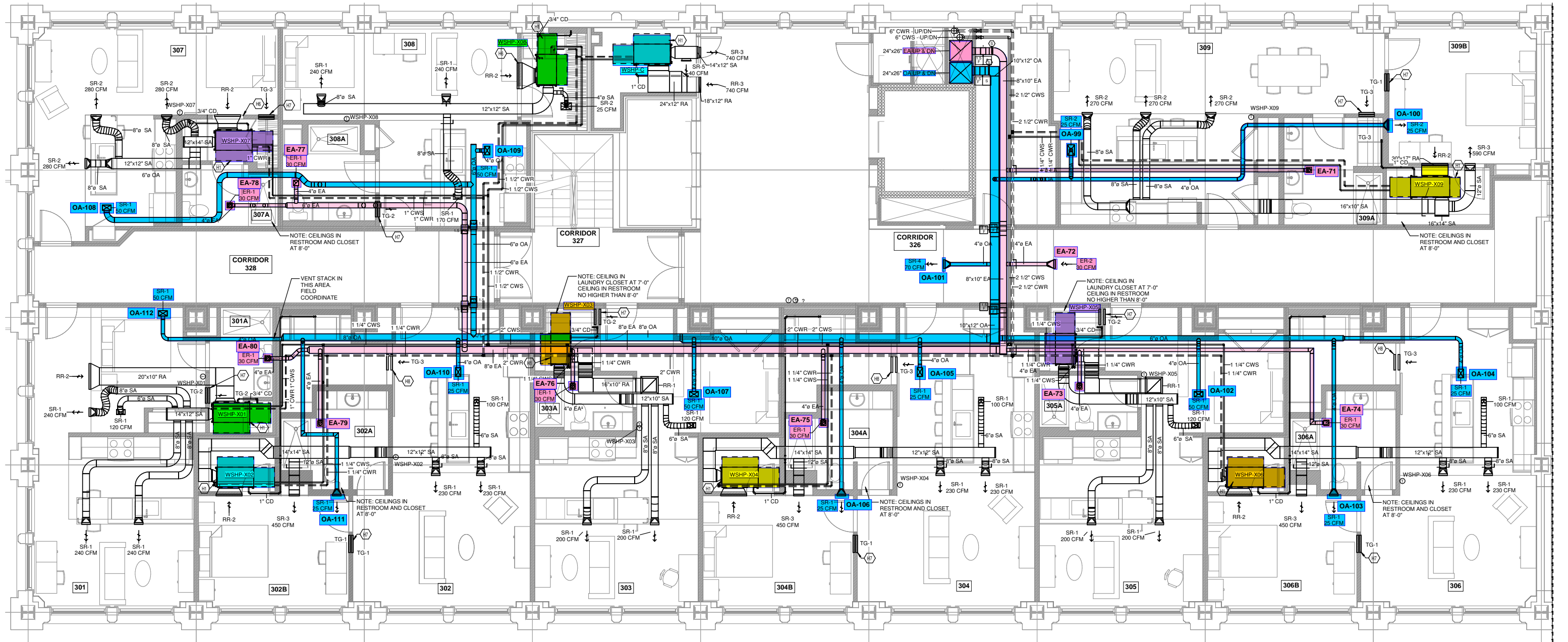


POLYPROPYLENE PIPING USED IN SECOND FLOOR TENANT SPACE.
PLENUM RETURN NOT ALLOWED PER CODE

EXISTING INDEPENDENT CONDITIONING FOR THIS AREA IS ASSUMED. THE AREAS DISCLOSED IN NEW BUILDING PLANT CALCULATIONS.

MECHANICAL PLAN - LEVEL 2 - OVERALL
1/4" = 1'-0"

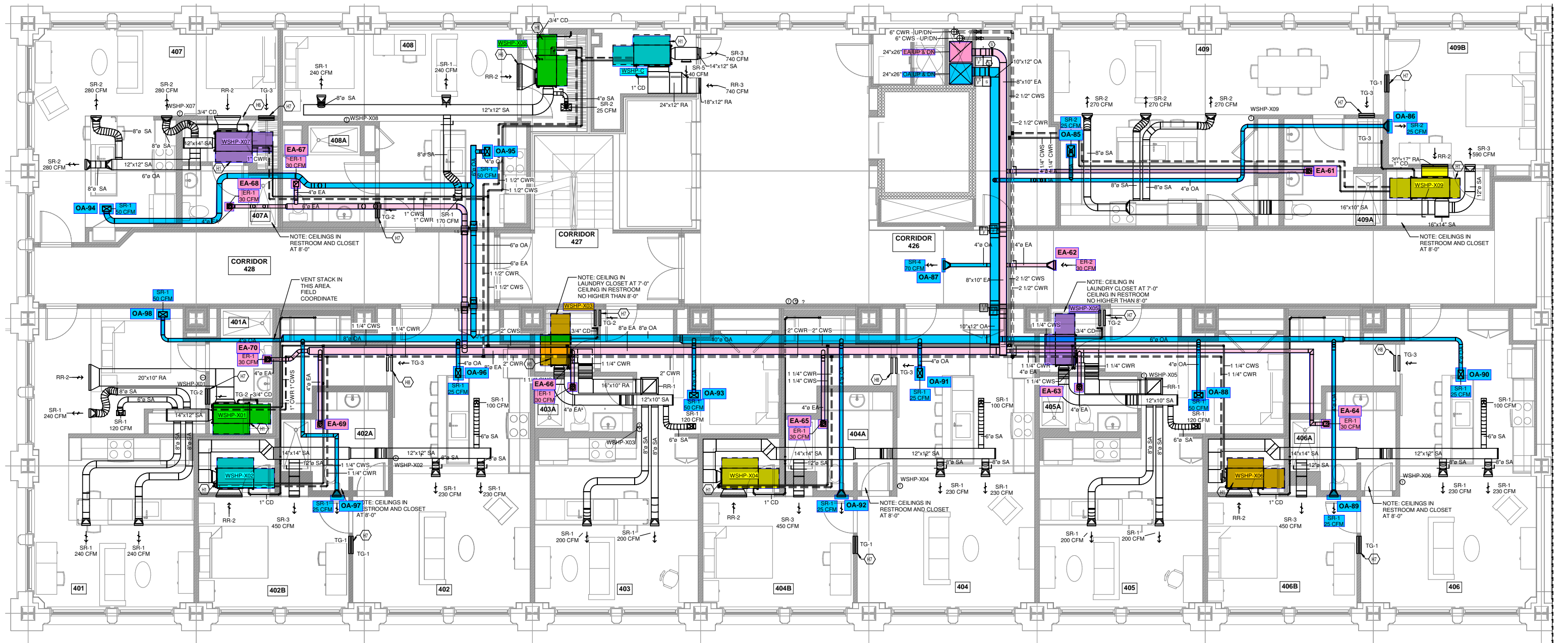




1 MECHANICAL PLAN - LEVEL 4 THROUGH 9 - OVERALL
1/4" = 1'-0"

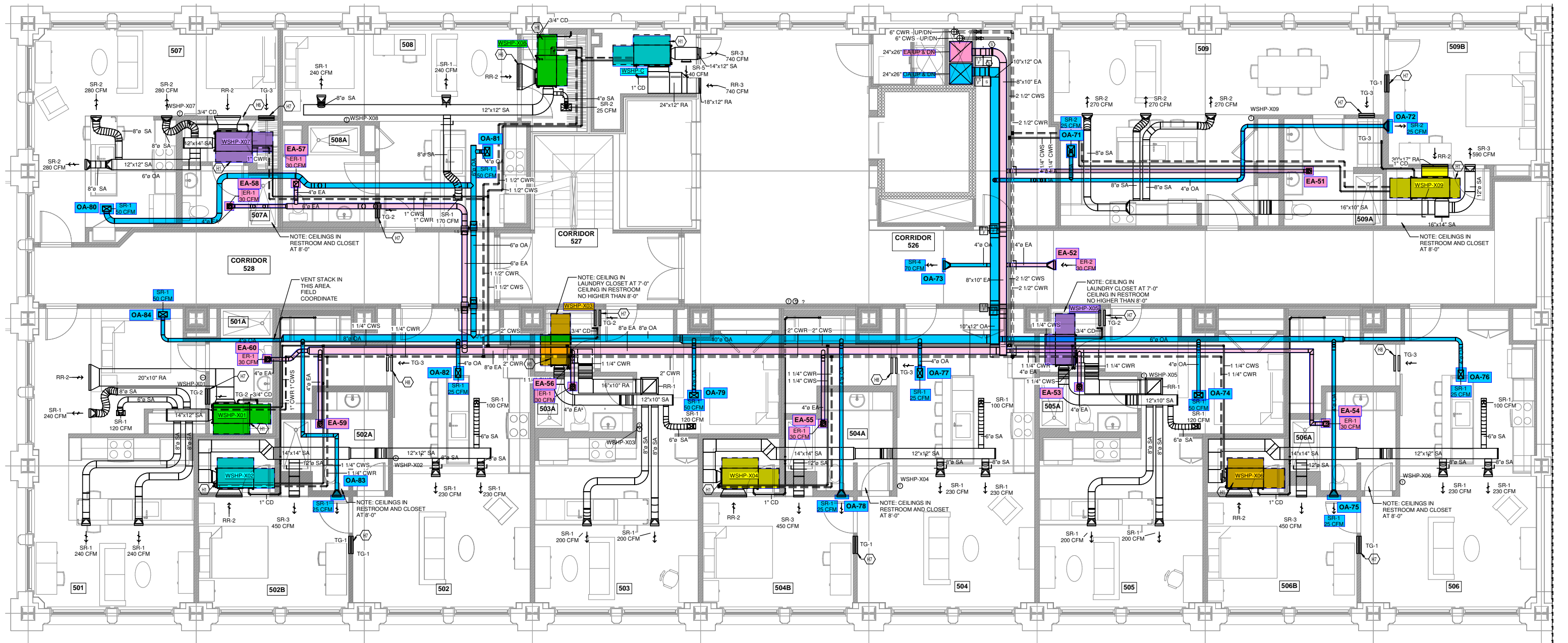
FLOOR 3 OVERALL

Note, the layout for the 3rd floor changed to mirror what is on floors 4-9. I just don't have an updated drawing showing the change. Please take this floor off the same as floors 4-9



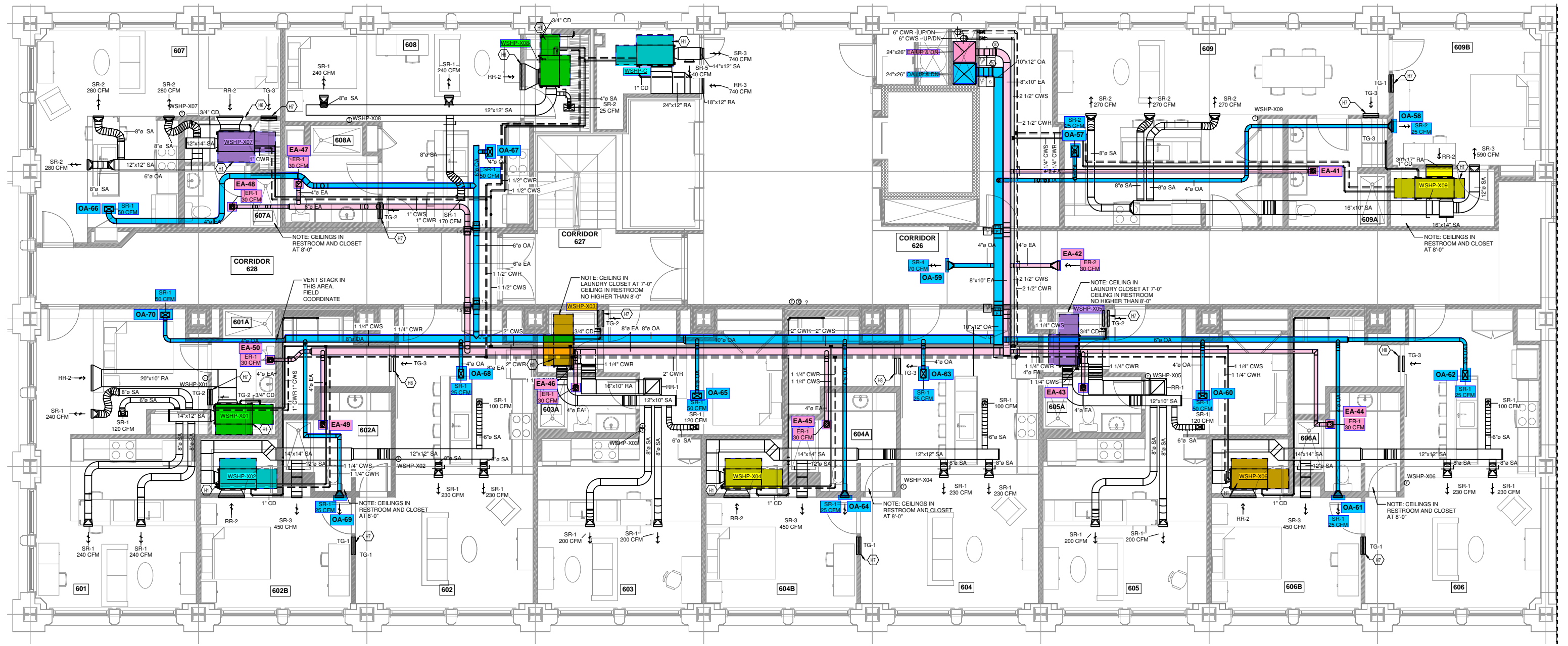
① MECHANICAL PLAN - LEVEL 4 THROUGH 9 - OVERALL
 1/4" = 1'-0"

FLOOR 4 OVERALL



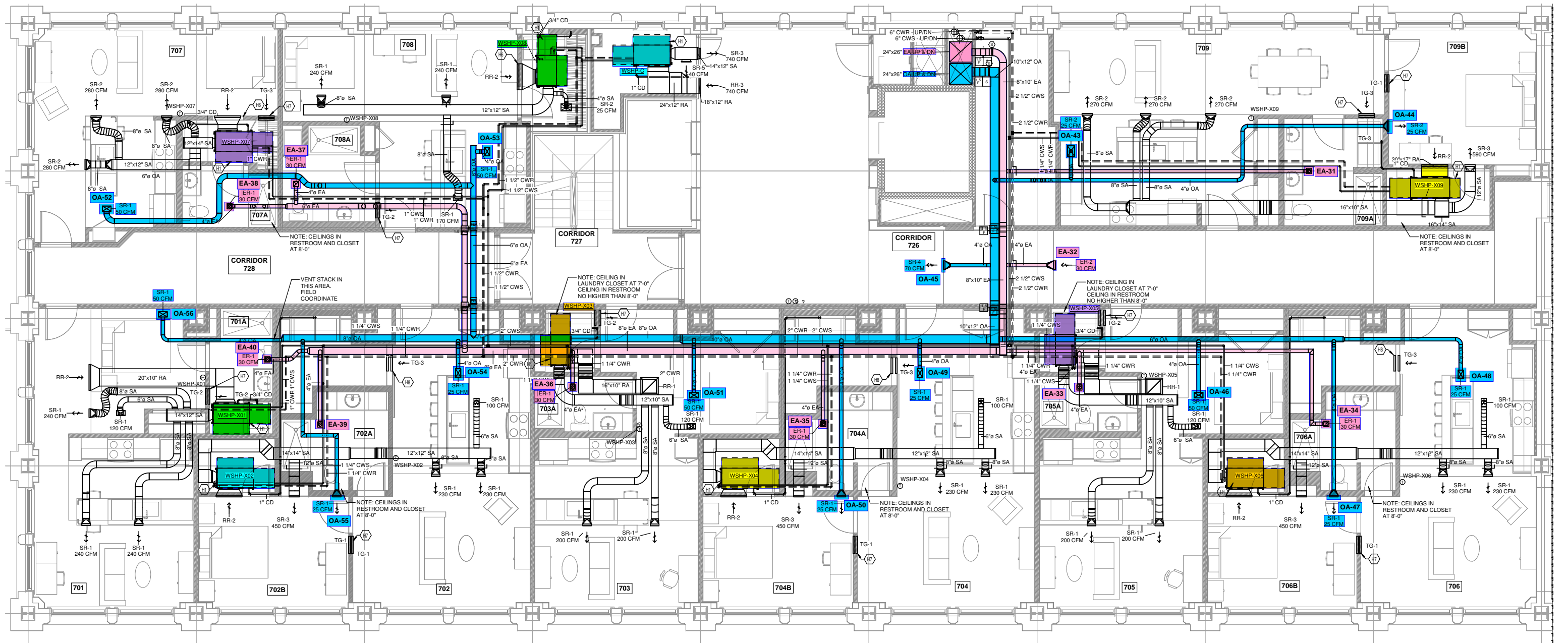
① MECHANICAL PLAN - LEVEL 4 THROUGH 9 - OVERALL
 1/4" = 1'-0"

FLOOR 5 OVERALL



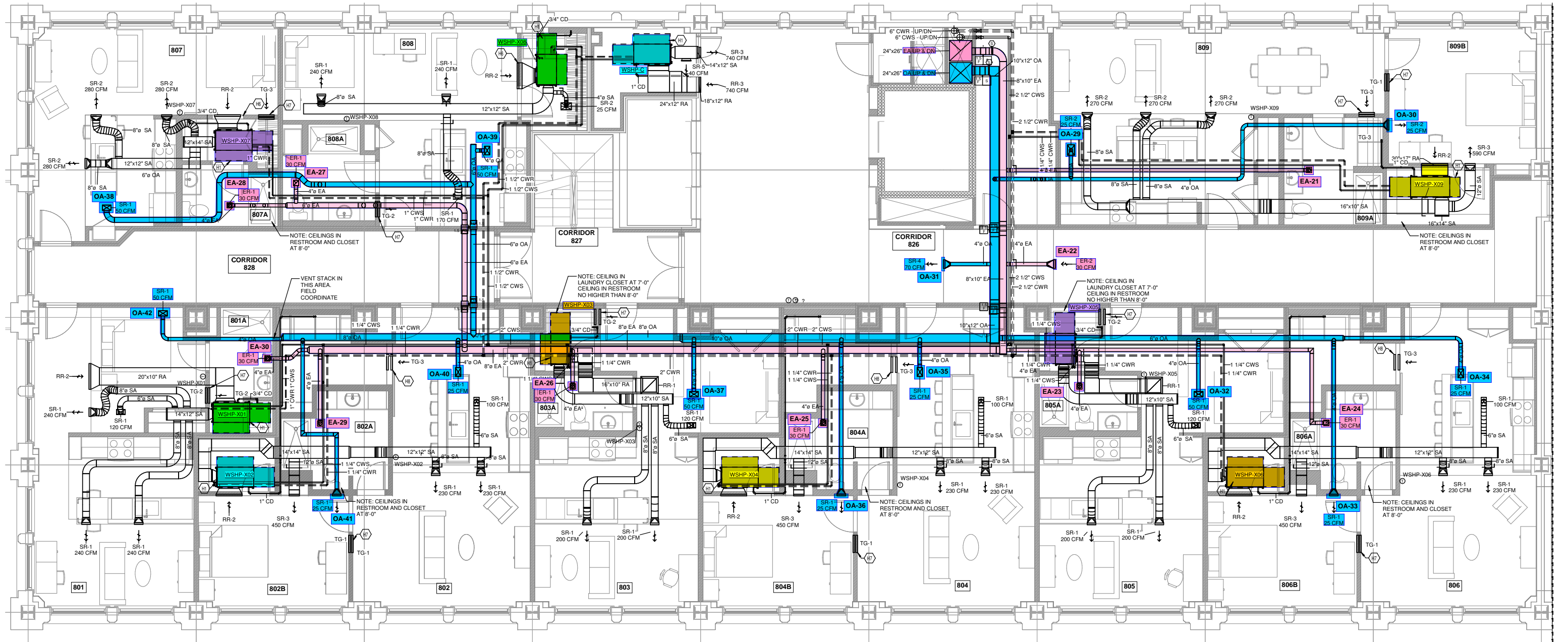
① MECHANICAL PLAN - LEVEL 4 THROUGH 9 - OVERALL
 1/4" = 1'-0"

FLOOR 6 OVERALL



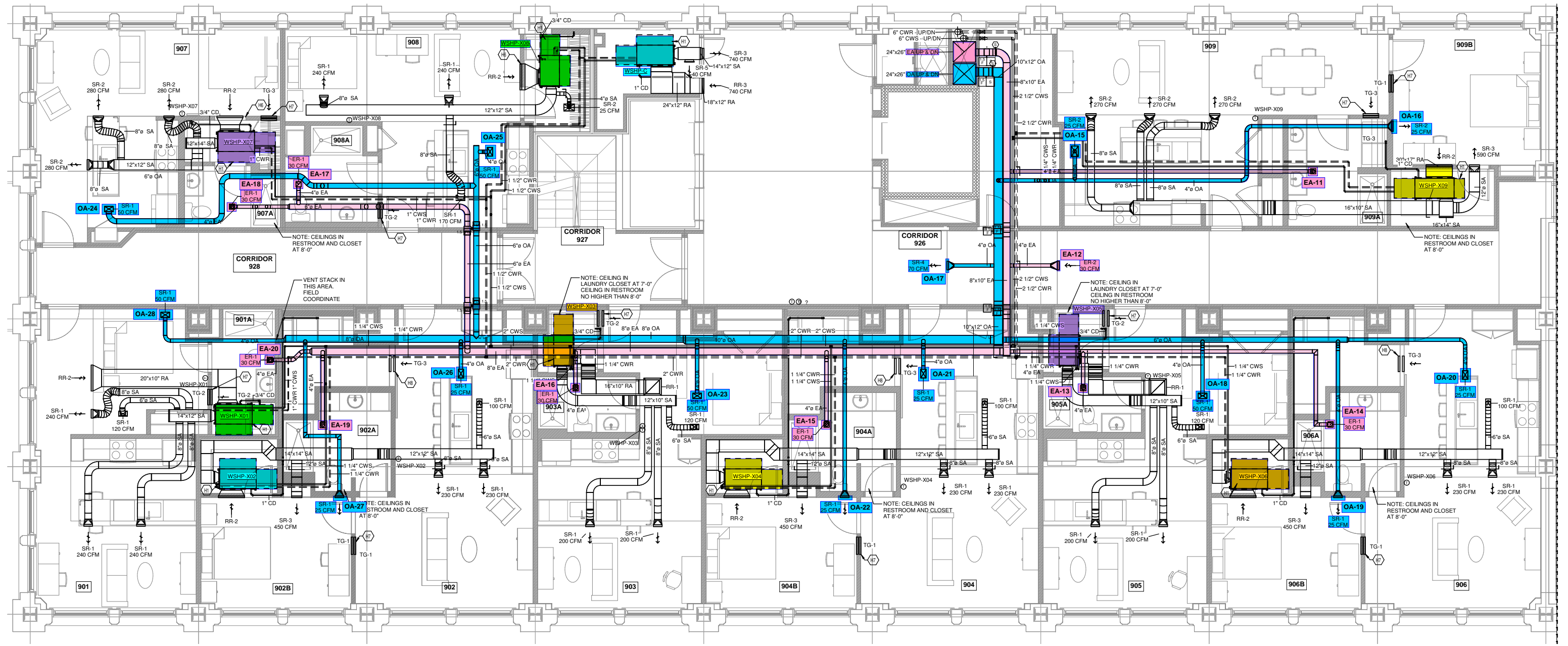
① MECHANICAL PLAN - LEVEL 4 THROUGH 9 - OVERALL
 1/4" = 1'-0"

FLOOR 7 OVERALL



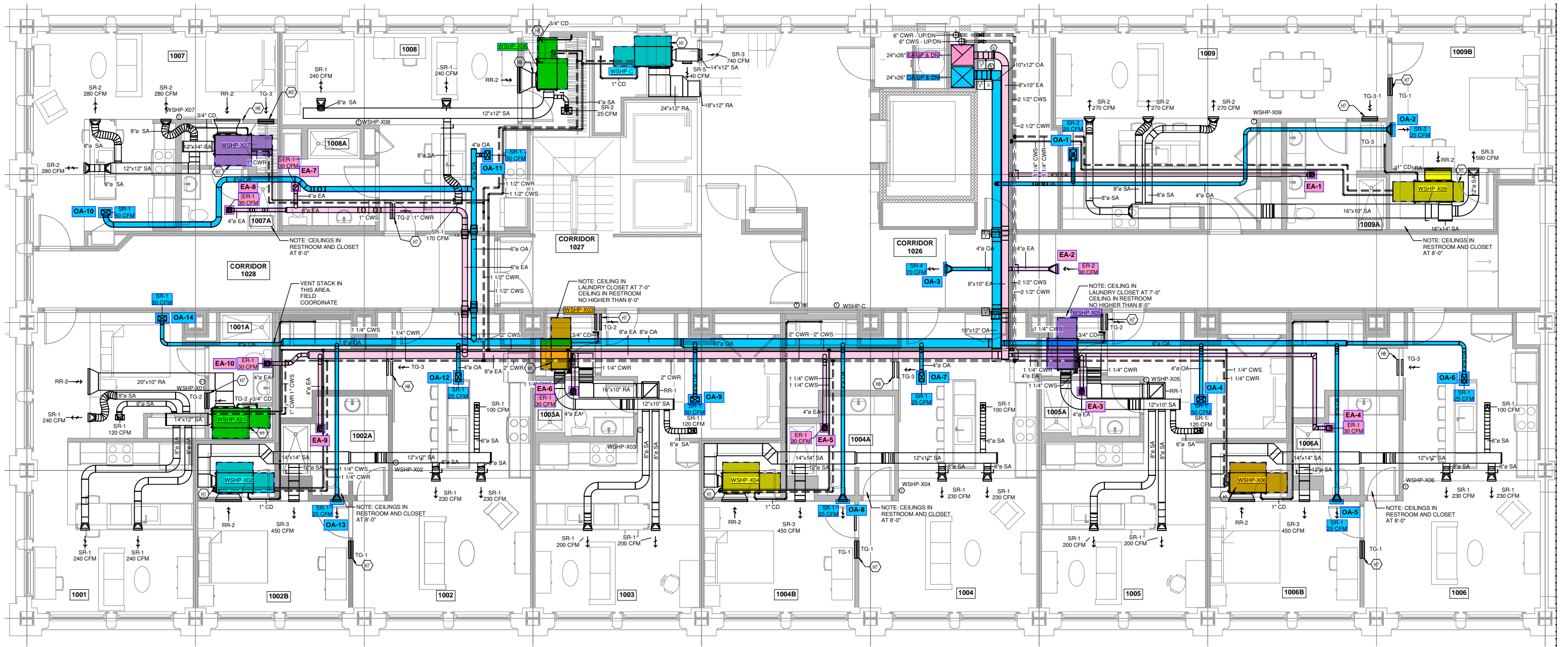
① MECHANICAL PLAN - LEVEL 4 THROUGH 9 - OVERALL
 1/4" = 1'-0"

FLOOR 8 OVERALL

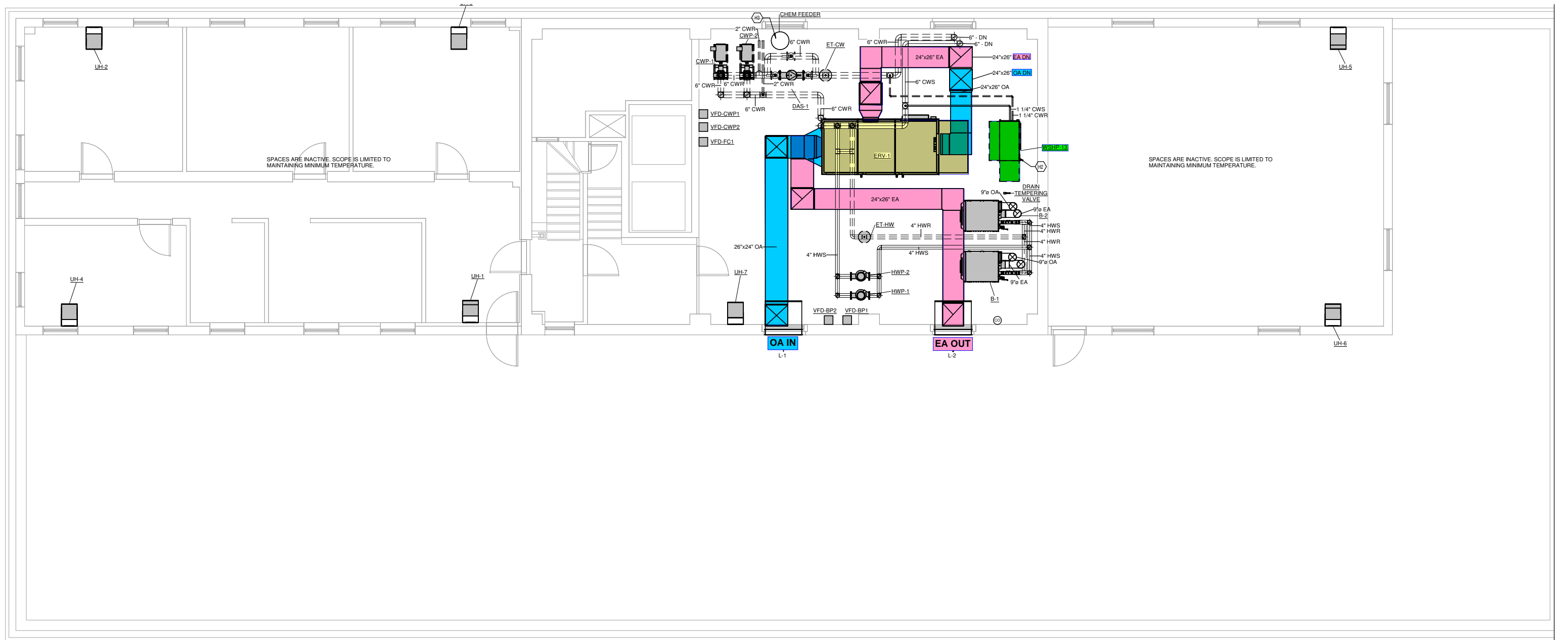


① MECHANICAL PLAN - LEVEL 4 THROUGH 9 - OVERALL
 1/4" = 1'-0"

FLOOR 9 OVERALL



① MECHANICAL PLAN - LEVEL 10 - OVERALL
1/4" = 1'-0"



① MECHANICAL PLAN - LEVEL 13 - OVERALL
1/4" = 1'-0"

National TAB

Project: Mercantile Library Bldg (Cincinnati, OH)

System/Unit: Energy Recovery Unit



Asset: ERV-1

AREA:ROOF (BLDG OA&EA)

Unit Data		
	Design	Actual
MFG	ADDISON	ADDISON
Model Num	PROW 240 C0	PROW240
Serial Num	-	230301501001
Service	-	WSHPs
Num Exh-Filters 1	-	3
Exh-Filter Size 1	-	18X25X2
Num OA-Filters 1	-	3
OA-Supply Size 1	-	18X25X2
Num OA-Filters 2	-	9
OA-Filter Size 2	-	16X16X2

Exhaust Fan Test Data		
	Design	Actual
Exh-ERU CFM	2430	2333
Exh-ERU RPM	1920	1868
RL Voltage	-	213/212/212
RL Amperage	-	5.88/5.99/5.87
Brake Horse Power	-	5.91

OA Fan Test Data		
	Design	Actual
OA-ERU CFM	4160	4070
OA-ERU RPM	1980	NA
RL Voltage	-	234.8/235.1/234.9
RL Amperage	-	15/14.9/15.4

Exhaust Fan Motor Data		
	Design	Actual
Motor MFG	-	BALDOR
Frame	-	145T
Horsepower	2.0	2
Motor Rpm	1920	1760
Phase	3	3
Voltage (rated)	208	208
Amperage (rated)	-	6.2
Service Factor	-	1

OA Fan Motor Data		
	Design	Actual
Motor MFG	-	BALDOR
Frame	-	-
Horsepower	7.5	7.5
Motor Rpm	1980	-
Phase	3	3
Voltage (rated)	208	208
Amperage (rated)	-	20.5
Service Factor	-	1.15
Brake Horse Power	-	5.78

Notes:
 9 16X16X4 filters for supply
 OA-8 not getting flow. Verified no ductwork obstructions. added flow to OA-7 to keep room total.
 SUP Fan Set Pt: 66hz
 EXH Fan Set Pt: 70hz
 Supply Fan Suction: -0.236"
 Supply Fan Discharge: 0.86"
 Supply Filter and Coil Drop: 0.37"
 ERU & Supply Filter Pressure Drop: 1.62"
 Exhaust Fan Suction: -1.29"
 Exhaust Fan Discharge: 0.34"
 ERU & Filter Drop: 0.78"

Written By: Jordan Best on 09/04/2024

National TAB
Project: Mercantile Library Bldg (Cincinnati, OH)
Energy Recovery Unit



Diffuser Supply (GRD)

ERV-1/ROOF (BLDG OA&EA)

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
OA-1	1009	SR-2	4	25	0.566	75		25	100.0
OA-2	1009B	SR-2	4	25	0.566	53		27	108.0
OA-3	1026	SR-4	4	70	0.337	79		77	110.0
OA-4	1005	SR-1	4	50	0.337	56		42	84.0
OA-5	1006B	SR-1	4	25	0.337	32		24	96.0
OA-6	1006	SR-1	4	25	0.337	40		23	92.0
OA-7	1004	SR-1	4	25	0.337	67		54	216.0
OA-8	1004B	SR-1	4	25	0.337			0	0.0
OA-9	1003	SR-1	4	50	0.337	59		43	86.0
OA-10	1007	SR-1	4	50	0.337	72		53	106.0
OA-11	1008	SR-1	4	50	0.337	61		42	84.0
OA-12	1002	SR-1	4	25	0.337	35		26	104.0
OA-13	1002B	SR-1	4	25	0.337	63		23	92.0
OA-14	1001	SR-1	4	50	0.337	59		47	94.0
OA-15	909	SR-2	4	25	0.566			27	108.0
OA-16	909B	SR-2	4	25	0.566			20	80.0
OA-17	926	SR-4	4	70	0.337	131		71	101.4
OA-18	905	SR-1	4	50	0.337	48		48	96.0
OA-19	906B	SR-1	4	25	0.337	35		27	108.0
OA-20	906	SR-1	4	25	0.337	47		23	92.0
OA-21	904	SR-1	4	25	0.337	61		23	92.0
OA-22	904B	SR-1	4	25	0.337	33		25	100.0
OA-23	903	SR-1	4	50	0.337	51		51	102.0
OA-24	907	SR-1	4	50	0.337	55		45	90.0
OA-25	908	SR-1	4	50	0.337	35		35	70.0
OA-26	902	SR-1	4	25	0.337	29		27	108.0
OA-27	902B	SR-1	4	25	0.337	34		27	108.0
OA-28	901	SR-1	4	50	0.337	69		47	94.0
OA-29	809	SR-2	4	25	0.566	59		32	128.0
OA-30	809B	SR-2	4	25	0.566	62		27	108.0
OA-31	826	SR-4	4	70	0.337	64		64	91.4
OA-32	805	SR-1	4	50	0.337	47		47	94.0
OA-33	806B	SR-1	4	25	0.337	38		23	92.0
OA-34	806	SR-1	4	25	0.337	54		24	96.0
OA-35	804	SR-1	4	25	0.337			26	104.0
OA-36	804B	SR-1	4	25	0.337	41		25	100.0
OA-37	803	SR-1	4	50	0.337	54		46	92.0
OA-38	807	SR-1	4	50	0.337	51		51	102.0
OA-39	808	SR-1	4	50	0.337	37		37	74.0
OA-40	802	SR-1	4	25	0.337	44		24	96.0
OA-41	802B	SR-1	4	25	0.337	48		24	96.0
OA-42	801	SR-1	4	50	0.337	50		50	100.0
OA-43	709	SR-2	4	25	0.566	34		27	108.0
OA-44	709B	SR-2	4	25	0.566	83		24	96.0
OA-45	726	SR-4	4	70	0.337	93		71	101.4
OA-46	705	SR-1	4	50	0.337	50		50	100.0
OA-47	706B	SR-1	4	25	0.337			24	96.0
OA-48	706	SR-1	4	25	0.337			26	104.0
OA-49	704	SR-1	4	25	0.337	55		23	92.0
OA-50	704B	SR-1	4	25	0.337	42		26	104.0
OA-51	703	SR-1	4	50	0.337	45		45	90.0
OA-52	707	SR-1	4	50	0.337	52		52	104.0
OA-53	708	SR-1	4	50	0.337	45		45	90.0
OA-54	702	SR-1	4	25	0.337	48		26	104.0
OA-55	702B	SR-1	4	25	0.337	45		27	108.0
OA-56	701	SR-1	4	50	0.337	37		52	104.0
OA-57	609	SR-2	4	25	0.566	91		26	104.0
OA-58	609B	SR-2	4	25	0.566	84		27	108.0
OA-59	626	SR-4	4	70	0.337	25		75	107.1
OA-60	605	SR-1	4	50	0.337	47		47	94.0
OA-61	606B	SR-1	4	25	0.337	43		27	108.0
OA-62	606	SR-1	4	25	0.337	65		27	108.0
OA-63	604	SR-1	4	25	0.337	54		23	92.0
OA-64	604B	SR-1	4	25	0.337	37		24	96.0
OA-65	603	SR-1	4	50	0.337	38		38	76.0
OA-66	607	SR-1	4	50	0.337	47		47	94.0

OA-67	608	SR-1	4	50	0.337	38		46	92.0
OA-68	602	SR-1	4	25	0.337	46		25	100.0
OA-69	602B	SR-1	4	25	0.337	45		27	108.0
OA-70	601	SR-1	4	50	0.337	41		51	102.0
OA-71	509	SR-2	4	25	0.566			23	92.0
OA-72	509B	SR-2	4	25	0.566	81		23	92.0
OA-73	526	SR-4	4	70	0.337	72		72	102.9
OA-74	505	SR-1	4	50	0.337			52	104.0
OA-75	506B	SR-1	4	25	0.337	52		27	108.0
OA-76	506	SR-1	4	25		50		24	96.0
OA-77	504	SR-1	4	25	0.337	47		23	92.0
OA-78	504B	SR-1	4	25	0.337	56		27	108.0
OA-79	503	SR-1	4	50	0.337	50		50	100.0
OA-80	507	SR-1	4	50	0.337	50		50	100.0
OA-81	508	SR-1	4	50	0.337	48		48	96.0
OA-82	502	SR-1	4	25	0.337	34		25	100.0
OA-83	502B	SR-1	4	25	0.337	37		26	104.0
OA-84	501	SR-1	4	50	0.337	74		49	98.0
OA-85	409	SR-2	4	25	0.566	80		27	108.0
OA-86	409B	SR-2	4	25	0.566	61		25	100.0
OA-87	426	SR-4	4	70	0.337			71	101.4
OA-88	405	SR-1	4	50	0.337	12		46	92.0
OA-89	406B	SR-1	4	25	0.337	27		27	108.0
OA-90	406	SR-1	4	25	0.337	34		25	100.0
OA-91	404	SR-1	4	25	0.337	26		26	104.0
OA-92	404B	SR-1	4	25	0.337	43		25	100.0
OA-93	403	SR-1	4	50	0.337	37		39	78.0
OA-94	407	SR-1	4	50	0.337	53		53	106.0
OA-95	408	SR-1	4	50	0.337	35		35	70.0
OA-96	402	SR-1	4	25	0.337	25		25	100.0
OA-97	402B	SR-1	4	25	0.337	40		27	108.0
OA-98	401	SR-1	4	50	0.337	48		48	96.0
OA-99	309	SR-2	4	25	0.566			27	108.0
OA-100	309B	SR-2	4	25	0.566			26	104.0
OA-101	326	SR-4	4	70	0.337			74	105.7
OA-102	305	SR-1	4	50	0.337	51		51	102.0
OA-103	306B	SR-1	4	25	0.337	43		27	108.0
OA-104	306	SR-1	4	25	0.337			23	92.0
OA-105	304	SR-1	4	25	0.337	39		23	92.0
OA-106	304B	SR-1	4	25	0.337	53		27	108.0
OA-107	303	SR-1	4	50	0.337	50		50	100.0
OA-108	307	SR-1	4	50	0.337	47		47	94.0
OA-109	308	SR-1	4	50	0.337	46		46	92.0
OA-110	302	SR-1	4	25	0.337	41		23	92.0
OA-111	302B	SR-1	4	25	0.337	47		26	104.0
OA-112	301	SR-1	4	50	0.337	52		52	104.0
Total				4160		4999	0	4070	97.84%

Diffuser Ret/Exh (GRD)

ERV-1/ROOF (BLDG OA&EA)

Asset								
Asset Name	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
EA-1	ER-1	4	30	0.19	22	27	27	90.0
EA-2	ER-2	4	30	0.20	39	31	31	103.3
EA-3	ER-1	4	30	0.19	18	22	28	93.3
EA-4	ER-1	4	30	0.19	0	0	27	90.0
EA-5	ER-1	4	30	0.19	19	23	28	93.3
EA-6	ER-1	4	30	0.19	17	20	31	103.3
EA-7	ER-1	4	30	0.19	18	20	32	106.7
EA-8	ER-1	4	30	0.19	18	20	28	93.3
EA-9	ER-1	4	30	0.19	19	21	27	90.0
EA-10	ER-1	4	30	0.19	16	20	27	90.0
EA-11	ER-1	4	30	0.19	26	30	30	100.0
EA-12	ER-2	4	30	0.20	27	30	30	100.0
EA-13	ER-1	4	30	0.19	22	25	27	90.0
EA-14	ER-1	4	30	0.19	15	20	28	93.3
EA-15	ER-1	4	30	0.19	26	28	28	93.3
EA-15	ER-1	4	30	0.19	25	29	29	96.7
EA-16	ER-1	4	30	0.19	15	18	31	103.3
EA-17	ER-1	4	30	0.19	19	20	27	90.0
EA-18	ER-1	4	30	0.19	25	28	28	93.3
EA-19	ER-1	4	30	0.19	24	27	27	90.0
EA-20	ER-1	4	30	0.19	15	17	31	103.3
EA-21	ER-1	4	30	0.19	26	28	28	93.3
EA-22	ER-2	4	30	0.20	26	29	29	96.7
EA-23	ER-1	4	30	0.19	27	29	29	96.7
EA-24	ER-1	4	30	0.19	16	18	33	110.0
EA-25	ER-1	4	30	0.19	25	28	28	93.3
EA-26	ER-1	4	30	0.19	26	30	30	100.0
EA-27	ER-1	4	30	0.19	21	23	28	93.3
EA-28	ER-1	4	30	0.19	18	20	32	106.7
EA-29	ER-1	4	30	0.19	22	24	28	93.3
EA-30	ER-1	4	30	0.19	17	21	31	103.3
EA-31	ER-1	4	30	0.19	24	27	27	90.0
EA-32	ER-2	4	30	0.20	27	31	31	103.3
EA-33	ER-1	4	30	0.19	18	22	28	93.3
EA-34	ER-1	4	30	0.19	24	26	27	90.0
EA-35	ER-1	4	30	0.19	25	29	29	96.7
EA-36	ER-1	4	30	0.19	19	24	24	80.0
EA-37	ER-1	4	30	0.19	17	21	33	110.0
EA-38	ER-1	4	30	0.19	15	18	28	93.3
EA-39	ER-1	4	30	0.19	17	20	27	90.0
EA-40	ER-1	4	30	0.19	26	29	29	96.7
EA-41	ER-1	4	30	0.19	26	31	31	103.3
EA-42	ER-2	4	30	0.20	24	30	30	100.0
EA-43	ER-1	4	30	0.19	17	20	33	110.0
EA-44	ER-1	4	30	0.19	16	20	27	90.0
EA-45	ER-1	4	30	0.19	27	30	30	100.0
EA-46	ER-1	4	30	0.19	22	25	28	93.3
EA-47	ER-1	4	30	0.19	17	20	29	96.7
EA-48	ER-1	4	30	0.19	16	20	27	90.0
EA-49	ER-1	4	30	0.19	18	21	31	103.3
EA-50	ER-1	4	30	0.19	22	26	28	93.3
EA-51	ER-1	4	30	0.19	25	27	27	90.0
EA-52	ER-2	4	30	0.20	27	34	34	113.3
EA-53	ER-1	4	30	0.19	19	23	29	96.7
EA-54	ER-1	4	30	0.19	17	20	31	103.3
EA-55	ER-1	4	30	0.19	24	29	29	96.7
EA-56	ER-1	4	30	0.19	16	21	27	90.0
EA-57	ER-1	4	30	0.19	14	19	28	93.3
EA-58	ER-1	4	30	0.19	12	17	31	103.3
EA-59	ER-1	4	30	0.19	17	20	27	90.0
EA-60	ER-1	4	30	0.19	16	21	28	93.3
EA-61	ER-1	4	30	0.19	23	29	29	96.7
EA-62	ER-1	4	30	0.19	36	36	31	103.3
EA-63	ER-1	4	30	0.19	18	21	30	100.0
EA-64	ER-1	4	30	0.19	17	22	27	90.0
EA-65	ER-1	4	30	0.19	24	28	28	93.3

EA-66	ER-1	4	30	0.19	23	28	28	93.3
EA-67	ER-1	4	30	0.19	18	21	28	93.3
EA-68	ER-1	4	30	0.19	17	20	30	100.0
EA-69	ER-1	4	30	0.19	22	25	28	93.3
EA-70	ER-1	4	30	0.19	17	22	27	90.0
EA-71	ER-1	4	30	0.19	26	29	29	96.7
EA-72	ER-2	4	30	0.20	38	38	31	103.3
EA-73	ER-1	4	30	0.19	16	20	20	66.7
EA-74	ER-1	4	30	0.19	15	19	28	93.3
EA-75	ER-1	4	30	0.19	23	29	29	96.7
EA-76	ER-1	4	30	0.19	21	25	27	90.0
EA-77	ER-1	4	30	0.19	14	17	31	103.3
EA-78	ER-1	4	30	0.19	0	0	28	93.3
EA-79	ER-1	4	30	0.19	15	19	31	103.3
EA-80	ER-1	4	30	0.19	22	26	27	90.0
Total			2430		1658	1921	2333	96.01%