

Quality People. Building Solutions.

Comfort Systems USA (Arkansas), Inc.
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Date: 11/28/2023

Return Request: 12/5/2023

Project: MAC Building – 4th Floor

Supplier: Harrison Energy Partners

Manufacturer: Daikin

Submittal: Modular Indoor Central Station AHUs

Submittal Number: 23 73 13-01

Drawing # and Installation: Mechanical Drawings

ARCHITECT

Stocks Mann
401 W. Capitol, Suite 402
Little Rock, AR 72201
501-370-9207

ENGINEER

Insight
322 S. State Street, Suite 201
Little Rock, AR 72201
501-237-3077

GENERAL CONTRACTOR

Carson & Associates
1310 W. Daisy Bates Dr.
Little Rock, AR 72202
501-372-5816

MECHANICAL SUBCONTRACTOR

Comfort Systems USA (Arkansas), Inc.
9924 Landers Rd.
N. Little Rock, AR 72117
501-834-3320

Notes:

chowell@comfortar.com

9924 Landers Rd.
No. Little Rock, AR 72117



Submittal

Prepared For:
Insight Engineering

Date:
November 2nd, 2023

Sold To:
Comfort Systems USA

Job Name:
MAC Building 4th Floor

Harrison Energy Partners is pleased to provide the enclosed submittal for your review and approval.

Qty. Product Summary
1 Air Handling Unit (AH-4A)

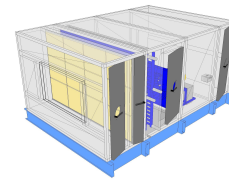
Brynn Lea, New Systems Sales Engineer
m. 501.539.0515
harrisonenergy.com

The attached information describes the equipment we propose to furnish for this project, and is submitted for your approval.

Tag	Description	Model
AH-4A	Indoor Air Handling Unit	Daikin CAH035GDGM

- Daikin Vision Air Handler
- 2" Double-wall, Foam Injected R-13 Construction
- 460/3 V/Ph
- Return Plenum (RP)
 - RP Access Door with Window
 - LED Marine Light Kit
- Flat Filter Rack
 - 2" MERV 8 Filters
 - Filter Access Door
- Hydronic Cooling Coil (CC)
 - CC Galvanized Steel Casing
 - CC Stainless Steel Drain Pan
 - CC Access Door with Window
 - CC LED Marine Light Kit w/ Switch
 - GFI Outlet
 - UVC Lights with Door Safety Switch
- Dual Direct-Drive Plenum SF
 - 460/3 V/Ph - SF
 - SF 2" Spring Isolators
 - Fan Motors Wired to External J-Box
- Discharge Plenum (DP)
 - DP Access Door with Window
 - CC LED Marine Light Kit w/ GFI Outlet

Job Information		Technical Data Sheet
Job Name	MAC Building 4th Floor	
Date	November 02 2023	
Submitted By	JS	
Software Version	13.23	
Unit Tag	AH-4A	



Unit Overview

Model Number	Supply					
	Air Volume cfm	Static Pressure		External Dimensions		
		External inWc	Total inWc	Height in	Width in	Length in
CAH035GDGM	15000	2.00	3.47	66*	100*	148

*Not including base rails, coil connectors, drain connectors and control boxes.

Unit

Model Number:	CAH035GDGM				
Approval:	ETL Listed / ETL Listed to Canadian Safety Standards (ETL Label / ETLc Label)				
Outer Panel:	24 gauge G90 Galvanized Steel (unpainted)				
Liner:	24 gauge Galvanized Steel (unless noted per section)				
Insulation:	R-13 Injected Foam				
Unit Configuration:	Inline horizontal	Drive (Handling) Location:	Right		
Base:	10" formed channel	Wall Thickness:	2 in		
Altitude:	0 ft	Parts Warranty:	Standard One Year		

Plenum Section	Component: 1	Length: 22 in	Shipping Section: 1		
Air Pressure Drop					
0.13 inWc					
Custom Openings					
Custom Opening	Location	Width	Height	Rainhood w/Screen	
1	End	50 in	30 in	None	
Door					
Location	Width	Opening	Window Type	Light	
Drive side	14 in	Outward	Round	LED marine light kit and switch only	

Panel Filter	Component: 2	Length: 12 in	Shipping Section: 1			
Type	Efficiency	Face Velocity	Face Area	Air Volume	Filter Loading	
Pleated	MERV 8	395 ft/min	38.0 ft²	15000 cfm	Side	
Air Pressure Drop			Number of Filters	Height	Width	Depth
Clean Air	Mean Air	Dirty Air	User Spec	12	20 in	24 in
0.17 inWc	0.58 inWc	1.00 inWc	N/A			
Door						
Location		Width	Opening			
Drive side		8 in	Outward			

Chilled Water Coil		Component: 3			Length: 42 in		Shipping Section: 2			
Coil Model	Total Capacity	Sensible Capacity	Number of Coils	Number of Rows	Finns per Inch	Tube Diameter	Tube Spacing (Face x Row)			
5WL1006B	612045 Btu/hr	421886 Btu/hr	2	6	10	0.625 in	1.50 in x 1.299 in			
Air Volume	Air Temperature				Coil Air Pressure Drop	Finned Height	Finned Length	Face Area	Face Velocity	
	Entering		Leaving							
15000 cfm	Dry Bulb	Wet Bulb	Dry Bulb	Wet Bulb	0.65 inWc	27 in	87 in	32.62 ft²	460 ft/min	
	80.0 °F	67.0 °F	54.3 °F	53.7 °F						
Water		Flow Rate	Pressure Drop	Velocity	Volume	Weight				
Entering	Leaving	85.80 gpm	9.10 ftHd	3.40 ft/s	26.0 gal	219.00 lb				
43.0 °F	57.3 °F									
Connection [Data Per Coil]					Min. Fin Surface Temp.	Min. Tube Wall Surface Temp.	Fouling Factor			
Type	Size	Location	Material	0.000						
Threaded	2.00 in	Drive side	Carbon steel	43.0 °F	43.0 °F					
Material					Drain Pan		Drain Side			
Fin	Tube	Header	Case							
Aluminum .0075 in	Copper .020 in	Copper	Galv. steel	Stainless steel		Drive side				

AHRI 410 Certification



Certified in accordance with the AHRI Forced-Circulation Air-Cooling and Air-Heating Coils Certification Program which is based on AHRI Standard 410 within the Range of Standard Rating Conditions listed in Table 1 of the Standard. Certified units may be found in the AHRI Directory at www.ahridirectory.org

Door

Location	Width	Opening	Window Type	Light
Drive side	22 in	Outward	Round	UV Lights

Supply Fan

Component: 4

Length: 44 in

Shipping Section: 3

Fan Performance

Air Volume*	Static Pressure			Fan Energy Index(FEI)	Total Input Power	Fan Shaft Power*	Speed		Redundancy(N-1)	Fan Circuit	
	External	Total	Cabinet				Operating	Maximum		MOP	MCA
7500 cfm	2.00 inWc	3.47 inWc	0.00 inWc	1.23	11.0 kW	6.03 BHP	1743 rpm	2403 rpm	75.3 %	30.0 A	22.1 A

Fan Data

Fan Type	Blade Type / Class	Nominal Fan Size	Quantity of Fans	Wheel Diameter	Material Type	Number of Blades	Discharge	Motor Location
Centrifugal - Plenum	Airfoil / 2	DDPL22	2	22.25 in	Aluminum	9	Axial	Behind Fan

Motor Data

Power	Electrical Supply	Speed	Efficiency	Enclosure	Frame Size	Supplier	Number of Poles	Lock Rotor Current*	Full Load Current*
7.5 HP	460/60/3 V/Hz/Phase	1750 rpm	Premium	ODP	213 T frame	Generic	4	70.56 A	9.80 A

Fan Options

Block Off Plate:	Yes	Piezometer Ring:	Provided on Drive Side Fan
Piezometer Delta P:	8.04	Shaft Grounding Kit:	Provided
Isolator Type:	Spring		

VFD/Starter/Disconnect Data

Selection Type:	External J-Box	Vendor:	Factory Standard
Voltage:	460 v	Height x Width x Depth:	6.00 in x 6.00 in x 4.00 in
Mounting:	Door Side	Enclosure:	NEMA 1

Panel

Location	Width	Opening
Removable panels	- in	Outward

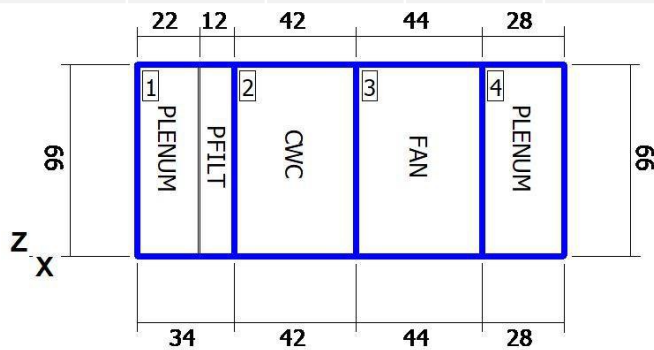
Notes

* after a unit label denotes the data for an individual fan.

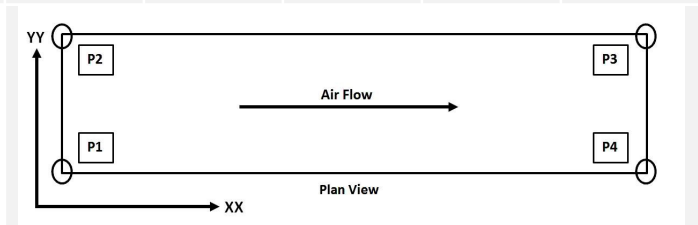
Plenum Section		Component: 5	Length: 28 in	Shipping Section: 4
Opening Location		Opening Size		Air Pressure Drop
Top		24.00" x 96.00"		0.11 inWc
Door				
Location	Width	Opening	Window Type	Light
Drive side	20 in	Outward	Round	LED marine light kit with GFI outlet

Unit Sound Power (dB)								
Type	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
Radiated:	75	77	77	68	63	57	46	51
Unit Discharge:	80	77	85	79	79	79	74	66
Unit Return:	76	79	85	79	72	70	62	54

Shipping Section Details									
Section	Length in	Weight lb	Corner Weights (lb)				Center of Gravity (in)		
			P1	P2	P3	P4	XX	YY	ZZ
1	34	854	192	192	235	235	19	50	33
2	42	1700	571	546	281	307	14	49	36
3	44	1571	451	446	334	340	19	50	30
4	28	591	148	148	148	148	14	50	28
Entire Unit	148	4716	1272	1241	1089	1120	69	49	32



Elevation View



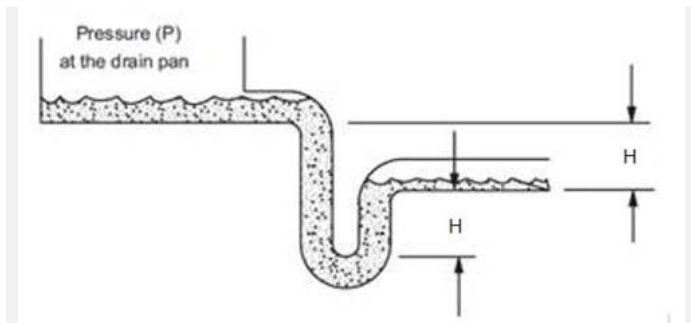
NOTE: Special components aren't included in the corner weights and center of gravity data.

NOTE: Shipping weights listed do not include weight of water (listed in coil section(s) above).

Supply Static Pressure Drop		
Component	Option	Static Pressure Drop
Plenum Section	Plenum Section	0.13 insWg
Panel Filter	Panel Filter	0.58 insWg
Chilled Water coil	Chilled Water coil	0.65 insWg
Supply Fan	Cabinet	
Plenum Section	Plenum Section	0.11 insWg
External Static	External Static	2.00 insWg
Total Supply Fan Static		3.47 insWg

Minimum Recommended Drain Pan Trap Dimensions

Shipping Section	Component	H
2	Chilled Water coil	3.22



Dimensions provided as a courtesy and are recommended minimums only. Daikin is not responsible for supplying or designing drain pan traps and is not responsible for any damage caused by incorrect trap heights. The dimensions listed above should be reviewed and approved by a licensed plumbing professional.

AHRI Certification



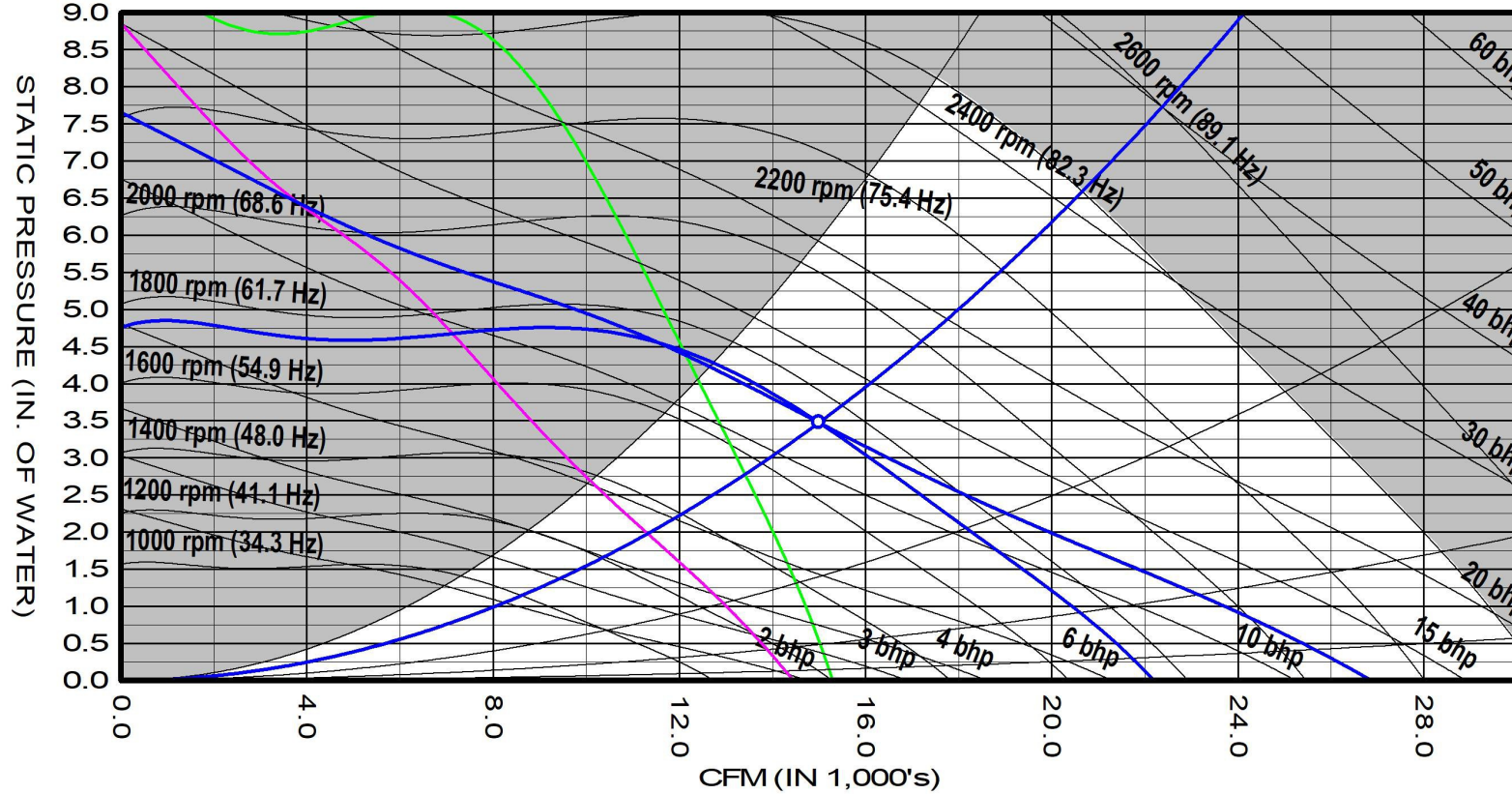
Certified by the AHRI Central Station Air-Handling Unit (AHU) Certification Program, which is based on AHRI Standard 430/431. AHRI certified units are subject to rigorous and continuous testing, have performance ratings independently measured and are third-party verified. Certified units may be found in the AHRI Directory at www.ahridirectory.org.

Notes

Standard

1. As a standalone component, unit meets or exceeds requirements of ASHRAE 90.1 - 2007. The approving authority is responsible for compliance of multi - component building systems.

Daikin AHU Fan Curve



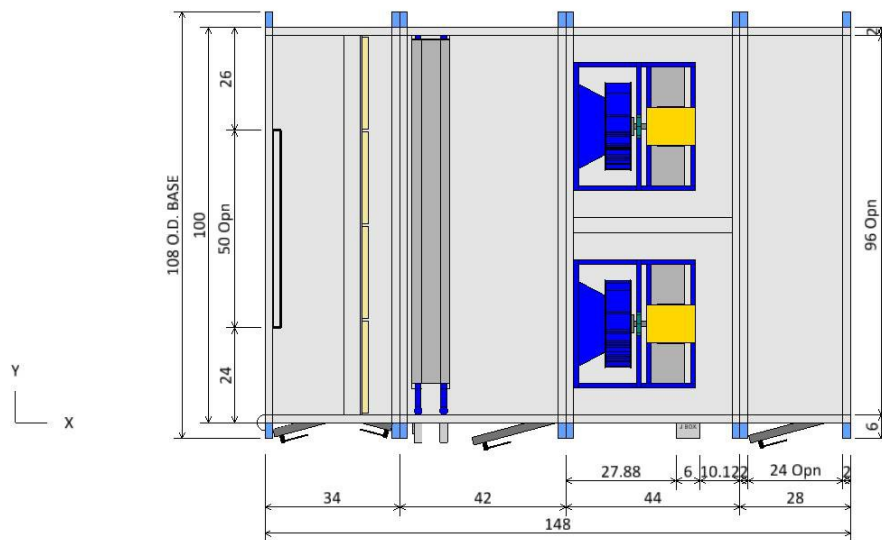
Green line = fan curve for 1 fan(s) at max speed

Red line = BHP curve for 1 fan(s) at max power of selected motor

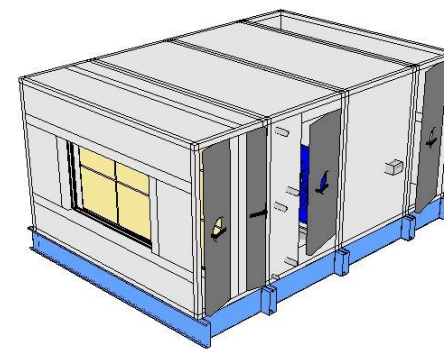
AF 22 DD PLENUM 9BL (100% Width) 1x2 Supply Fan at Standard Conditions					
Air volume	15000	cfm	Fan speed	1743	rpm
Total static	3.47	insWg	Max speed	2403	rpm
Fan Shaft Power	12.1	bhp	Efficiency	68.0	%
Approx VFD Setting	59.8	Hz	Motor Speed	1750	rpm
Fan Energy Index(FEI)	1.23		Redundancy	75.3	%
Unit tagging	AH-4A			Date	November-02-2023
Job name	MAC Building 4th Floor			Time	10:34



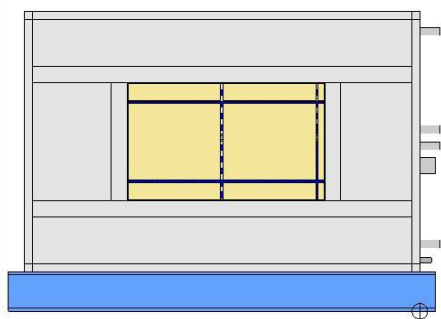
Supply fan performance is certified in accordance with the Central Station Air-Handling Unit Certification Program, which is based on AHRI Standard 430.



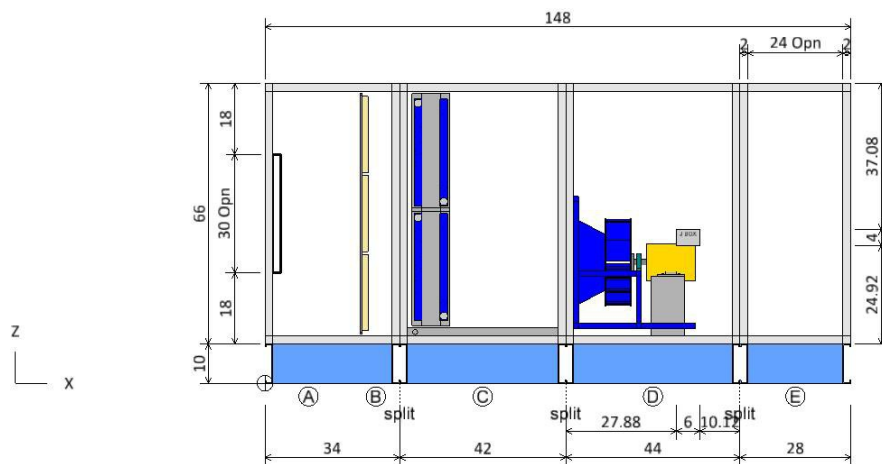
PLAN VIEW



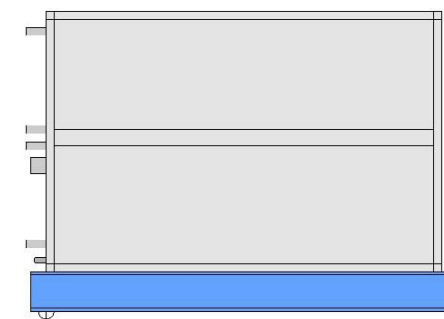
ISOMETRIC VIEW




FRONT END VIEW



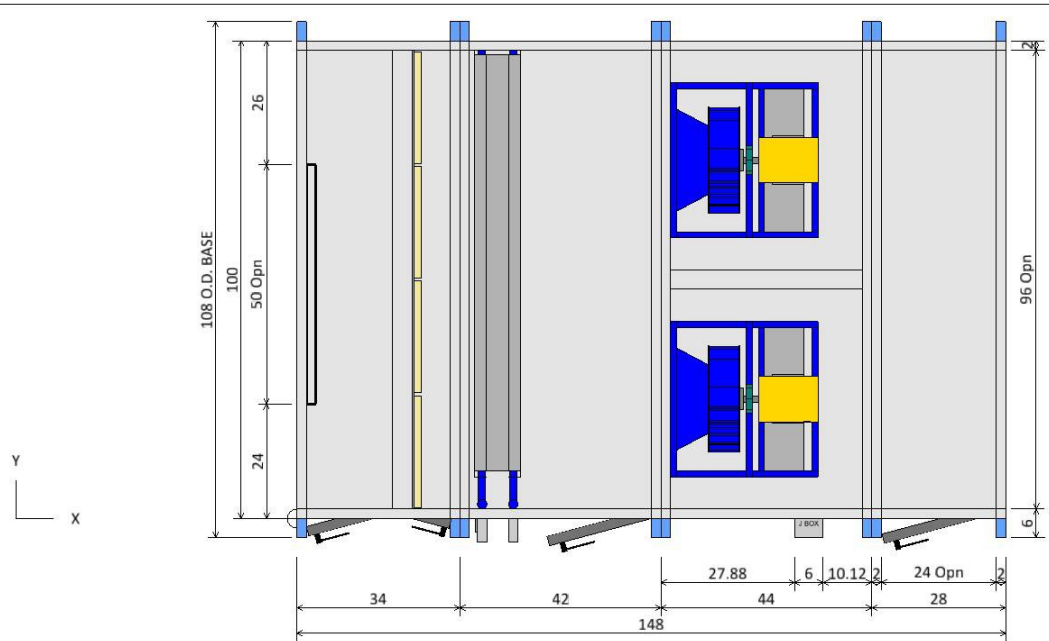
ELEVATION VIEW



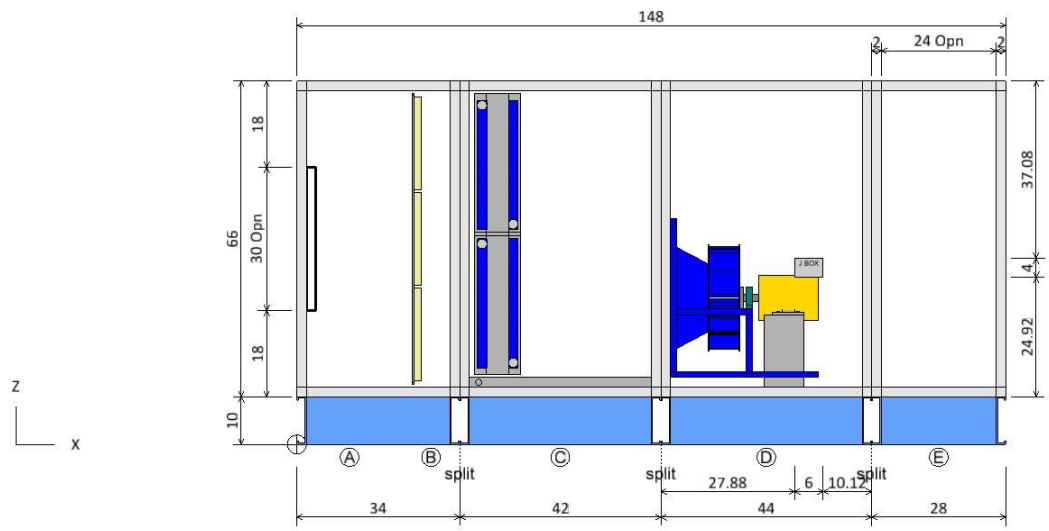
REAR END VIEW

Plan/Elevation	Unit Tag: AH-4A	Sales Office: Harrison Energy Partners			 13600 Industrial Park Blvd, Minneapolis, MN 55441 www.DaikinApplied.com Software Version: 13.25	
Product: Vision Air Handler	Project Name: MAC Building 4th Floor	Sales Engineer:				
Model: CAH035GDGM	Nov. 2, 2023	Ver/Rev:	Sheet: 1 of 1	Scale: NTS		

All opening dimensions have a 1" mounting flange along the inner edge. The actual airflow area of the opening is 2" smaller in each dimension.



PLAN VIEW



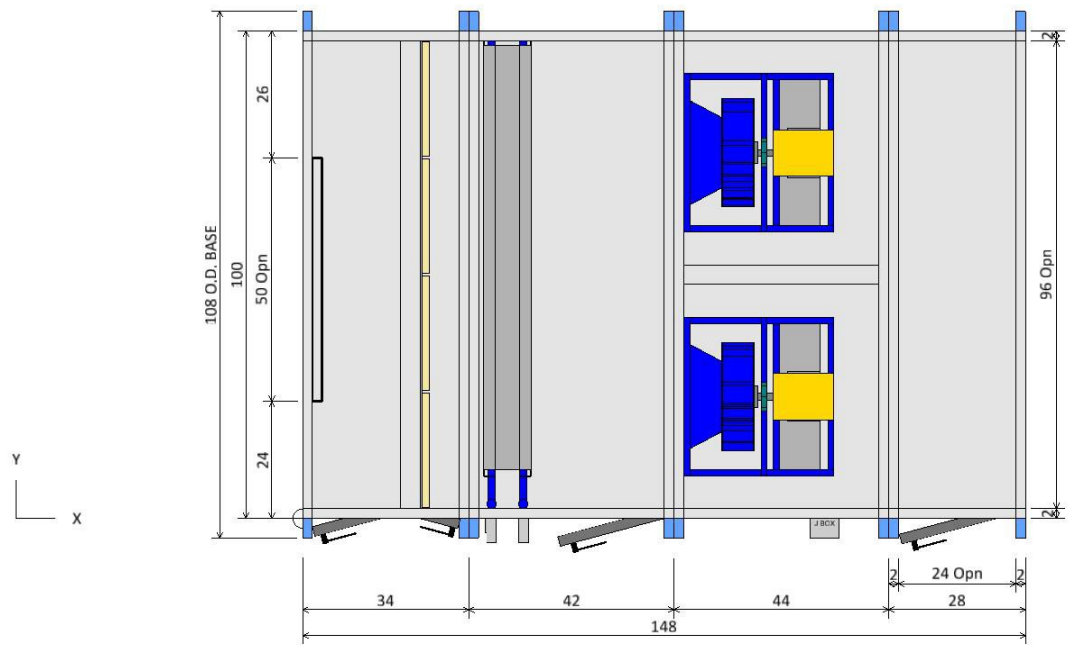
ELEVATION VIEW

Component Key	
(A)	Plenum Section Right Door (WxH): 14 ins x 62 ins
(B)	Panel Filter Right Door (WxH): 8 ins x 62 ins
(C)	Chilled Water coil Coil Model: 5WL1006B Total Capacity: 612045.0 Btu/hr Right Door (WxH): 22 ins x 52 ins
(D)	Supply Fan Fan Type: Centrifugal - Plenum Fan Size (Class): 22 (2) Air Flowrate: 7500.0 cfm T.S.P: 3.5 insWg Motor Power: 7.5 HP
(E)	Plenum Section Opening Location: Top Opening Size: 24 ins x 96 ins Right Door (WxH): 20 ins x 62 ins

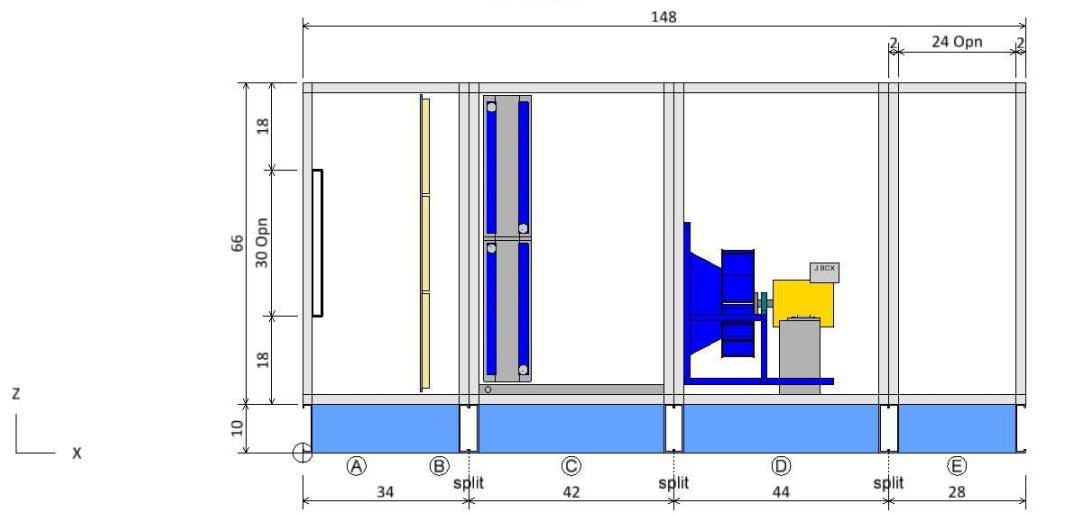
Plan/Elevation - No Ends	Unit Tag: AH-4A	Sales Office: Harrison Energy Partners	
Product: Vision Air Handler	Project Name: MAC Building 4th Floor	Sales Engineer:	
Model: CAH035GDGM	Nov. 2, 2023	Ver/Rev:	Sheet: 1 of 1
		Scale: NTS	Tolerance: +/-0.25"
		Dwg Units: in	


 13600 Industrial Park Blvd, Minneapolis, MN 55441
www.DaikinApplied.com Software Version: 13.25

All opening dimensions have a 1" mounting flange along the inner edge. The actual airflow area of the opening is 2" smaller in each dimension.




PLAN VIEW



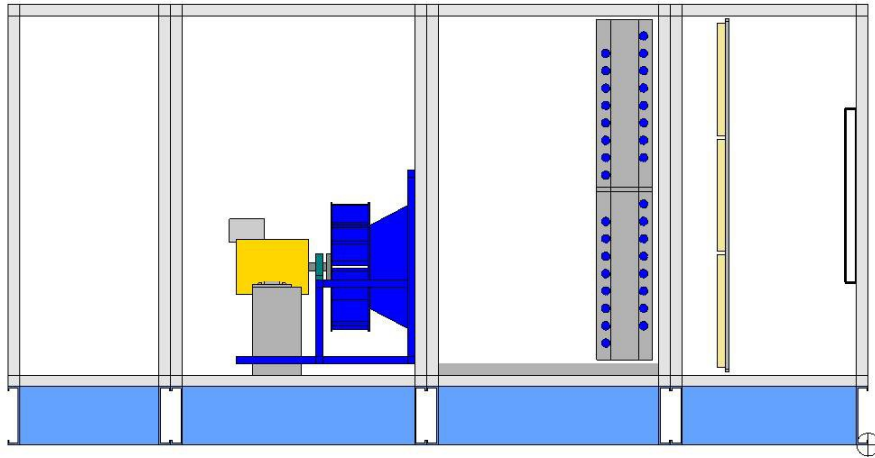
ELEVATION VIEW

Component Key					
Type	X	Y	Z	Wid	Hgt
Ⓐ Plenum Section Opening	0.00	26.00	28.00	50.00	30.00
Ⓔ Plenum Section Opening	122.00	2.00	76.00	96.00	24.00

Note: Dimensions are measured from the origin point.

Opening/Damper Connections	Unit Tag: AH-4A	Sales Office: Harrison Energy Partners			 13600 Industrial Park Blvd, Minneapolis, MN 55441 www.DaikinApplied.com Software Version: 13.25
Product: Vision Air Handler	Project Name: MAC Building 4th Floor	Sales Engineer:			
Model: CAH035GDGM	Nov. 2, 2023	Ver/Rev:	Sheet: 1 of 1	Scale: NTS Tolerance: +/-0.25" Dwg Units: in	

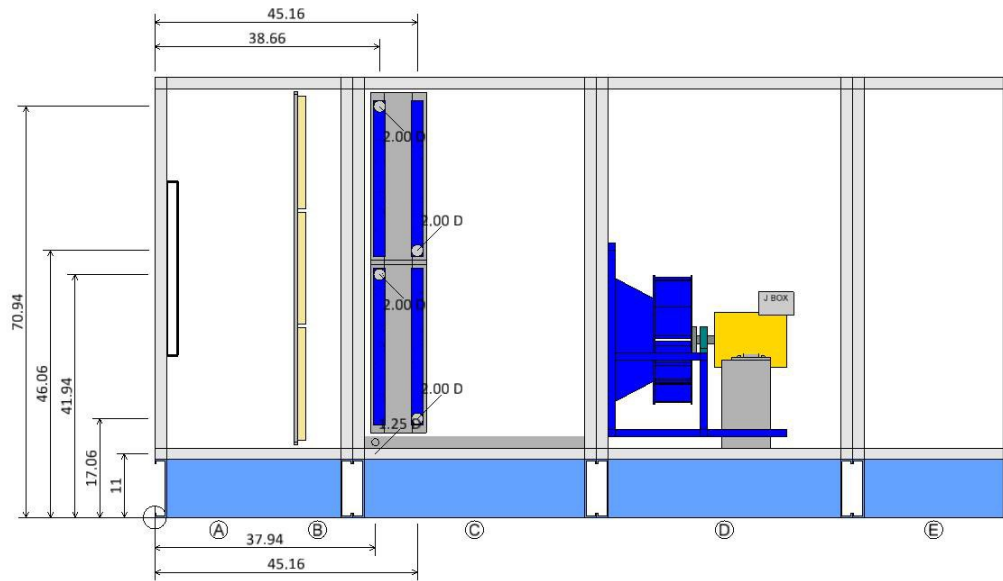
All opening dimensions have a 1" mounting flange along the inner edge. The actual airflow area of the opening is 2" smaller in each dimension.




Coil and Drain Connections				
Type	X	Y	Z	Diam
Chilled Water coil				
Condensate drain conn:	37.94	-2.90	13.00	1.25
Cold water inlet:	45.16	-5.00	17.06	2.00
Cold water outlet:	38.66	-5.00	41.94	2.00
Cold water inlet:	45.16	-5.00	46.06	2.00
Cold water outlet:	38.66	-5.00	70.94	2.00

Note: Dimensions are measured from the origin point.

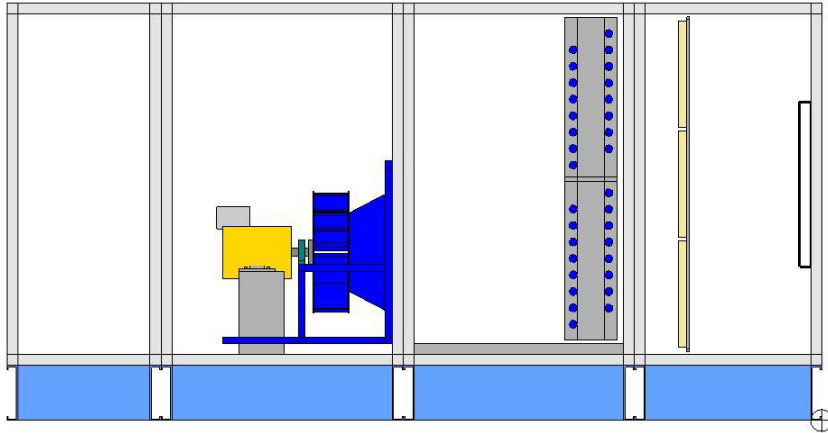
LEFT ELEVATION VIEW



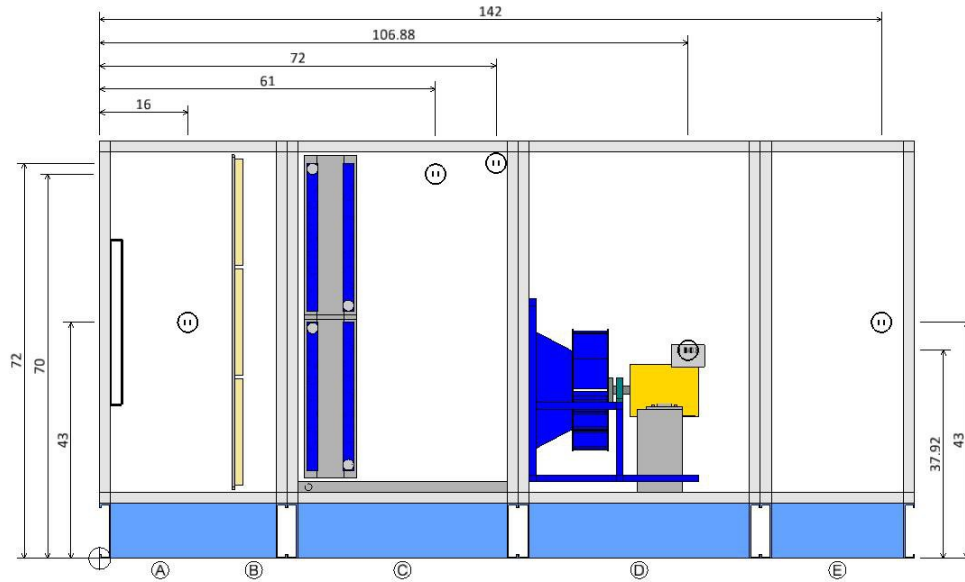
RIGHT ELEVATION VIEW

Coil and Drain Connections		Unit Tag: AH-4A		Sales Office: Harrison Energy Partners		 13600 Industrial Park Blvd, Minneapolis, MN 55441 www.DaikinApplied.com Software Version: 13.25	
Product: Vision Air Handler		Project Name: MAC Building 4th Floor		Sales Engineer:			
Model: CAH035GDGM	Nov. 2, 2023	Ver/Rev:	Sheet: 1 of 1	Scale: NTS	Tolerance: +/-0.25"	Dwg Units: in	

All opening dimensions have a 1" mounting flange along the inner edge. The actual airflow area of the opening is 2" smaller in each dimension.



LEFT ELEVATION VIEW



RIGHT ELEVATION VIEW

Component Key

Type	X	Y	Z	Volts	Phase
Ⓐ Plenum Section LED Marine Light	16.00	0.00	43.00	110	1
Ⓒ Chilled Water coil LED Marine Light	61.00	0.00	70.00	110	1
UVC Light	72.00	0.00	72.00	115	1
Ⓓ Supply Fan Fan	106.88	0.00	37.92	460	3
Ⓔ Plenum Section LED Marine Light GFI	142.00	0.00	43.00	110	1

Note: Dimensions are measured from the origin point.

Electrical Connections

Product: Vision Air Handler

Model: CAH035GDGM

Unit Tag: AH-4A

Project Name: MAC Building 4th Floor

Nov. 2, 2023

Ver/Rev:

Sheet: 1 of 1

Sales Office: Harrison Energy Partners

Sales Engineer:

Scale: NTS

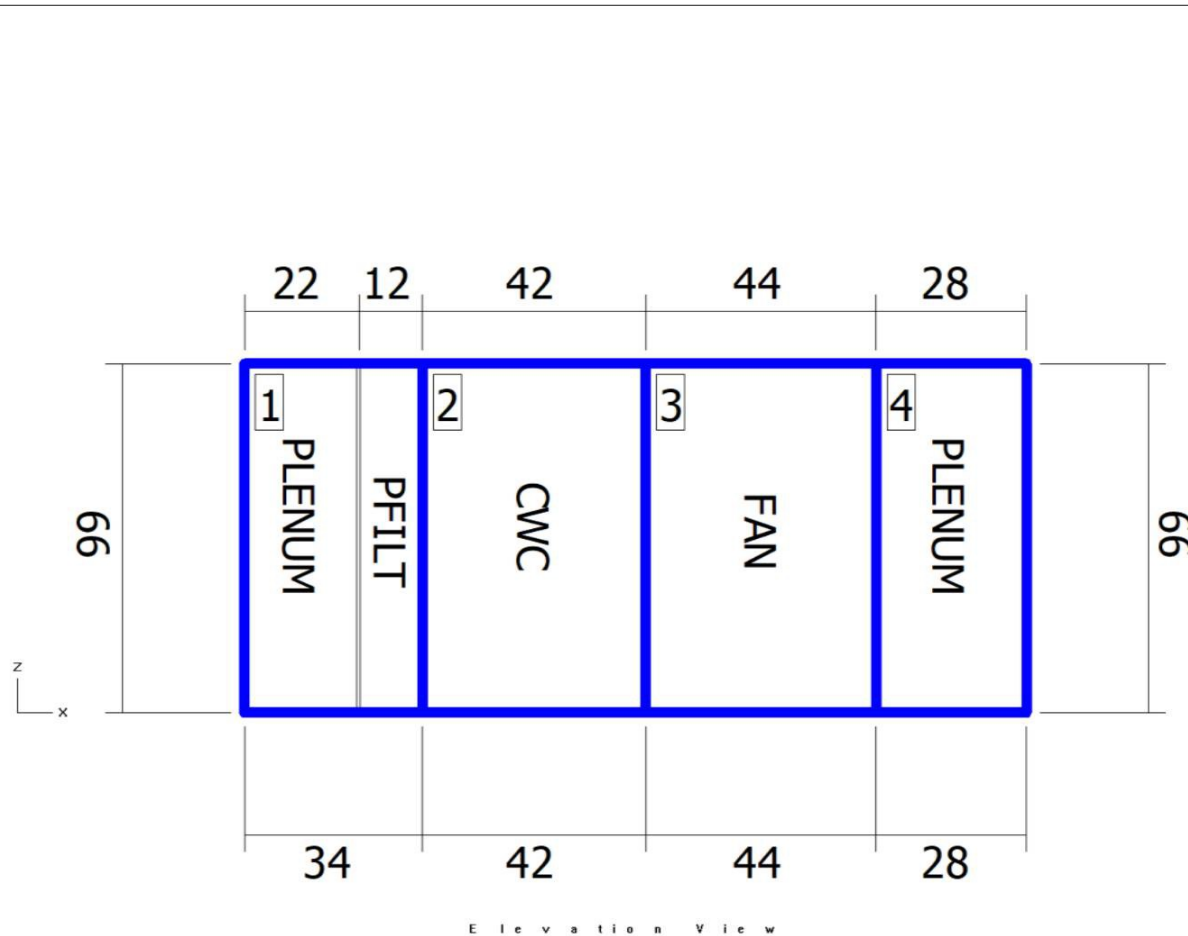
Tolerance: +/-0.25"

Dwg Units: in




13600 Industrial Park Blvd, Minneapolis, MN 55441
www.DaikinApplied.com Software Version: 13.25

All opening dimensions have a 1" mounting flange along the inner edge. The actual airflow area of the opening is 2" smaller in each dimension.

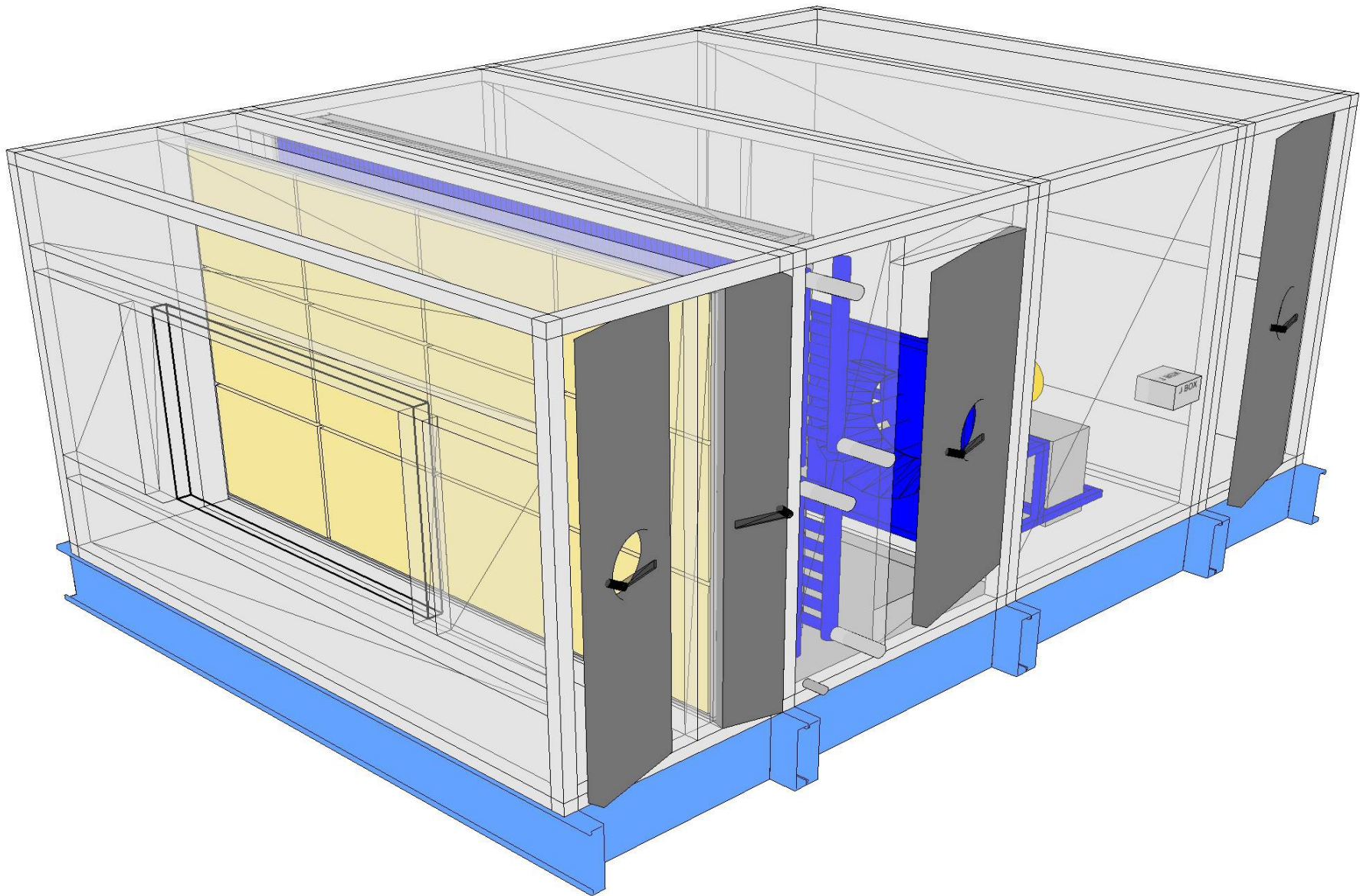



Shipping Sections				
Section	Weight (lb)	X	Y	Z
Section 1	854.07	34	100	66
Section 2	1699.67	42	100	66
Section 3	1571.28	44	100	66
Section 4	590.86	28	100	66
Total Unit	4715.89	148	100	66

Note: Base rails, curb ready base, coil connectors, drain connectors, and control boxes not included in height X, Y, Z dimensions. Shipping section may be 2" longer in air flow direction due to internal splice joint.

Shipping Sections		Unit Tag: AH-4A		Sales Office: Harrison Energy Partners			 13600 Industrial Park Blvd, Minneapolis, MN 55441 www.DaikinApplied.com Software Version: 13.25
Product: Vision Air Handler		Project Name: MAC Building 4th Floor		Sales Engineer:			
Model: CAH035GDGM	Nov. 2, 2023	Ver/Rev:	Sheet: 1 of 1	Scale: NTS	Tolerance: +/-0.25"	Dwg Units: in	

All opening dimensions have a 1" mounting flange along the inner edge. The actual airflow area of the opening is 2" smaller in each dimension.



Product Drawing	Unit Tag: AH-4A	Sales Office: Harrison Energy Partners		 13600 Industrial Park Blvd, Minneapolis, MN 55441 www.DaikinApplied.com Software Version: 13.25		
Product: Vision Air Handler	Project Name: MAC Building 4th Floor	Sales Engineer:				
Model: CAH035GDGM	Nov. 2, 2023	Ver/Rev:	Sheet: 1 of 1	Scale: NTS	Tolerance: +/-0.25"	Dwg Units: in
All opening dimensions have a 1" mounting flange along the inner edge. The actual airflow area of the opening is 2" smaller in each dimension.						

Kill the mold.

Not your budget.



Modular Ultraviolet Treatment System

SHEDDING NEW LIGHT ON PREVENTION OF SURFACE MOLD AND BACTERIA

Features

- UV-C light kills surface bacteria and mold.
- Continuously emits ultraviolet energy.
- Patent Pending design for ease of installation
- Designed to allow FULL coverage of coil, filter or surface
- UL/C-UL Classified (ABQK)
- UV lamp does not produce ozone.
- Energy efficient
- Quick and easy lamp replacement and maintenance.

Models

- 18" Modular Coil Unit
- 24" Modular Coil Unit
- 36" Modular Coil Unit

Construction

Heavy duty construction, designed to meet UL stringent guidelines for Air Conditioning Equipment air duct mounted.

Where to Install

The modular coil units can be combined in any configuration to provide full coverage of the target surface. Installation sights include coils, drain pans, filters, exhaust systems, or anywhere where mold, bacteria and pathogens can breed. Due to the modest power requirements (each unit uses less than \$.12/day), we recommend continuous operation. It is also recommended that the target surface be cleaned prior to installation of the UV equipment. The UVGI Modular Coil Units will then maintain the cleanliness of the coil and drastically reduce the need for mechanical cleaning.

Source Control

Climate for Mold Growth

- High humidity levels
- Cool temperatures
- Presence of water

Cooling coils in air conditioning systems provide an ideal environment for the growth of mold.

Filter surfaces are breeding grounds for pathogens. Install a UV system to "capture and kill" airborne pathogens and improve IAQ and worker safety.

Evidence of Need for Improved IAQ

- People spend 90% of their time indoors.
- Studies by the EPA show that indoor pollutant levels may be 2 to 5 times higher than outdoor levels.
- The EPA has identified indoor air quality as one of the five most urgent environmental risks to public health.
- Today's tighter, better insulated buildings can limit natural ventilation and trap airborne contaminants inside.

UVDI
UltraViolet Devices, Inc.

28220 Industry Drive, Valencia, California 91355
Toll Free (877)PUREUVC (787-3882 • Fax (661)257-4698
www.uvdi.com

Ultraviolet Treatment System

SPECIFICATIONS

Electrical Ratings:

Power Rating: 120 Vac, 60 Hz.

Consumption:

Model	Input Current (A)	Lamp Wattage (W)
18"	0.45	25
24"	0.35	20
36"	0.52	30

Temperature Ratings:

Temperature Range:

55°F to 135°F

Lamp Temperature Range:

30°F to 104°F (-2°C to 40°C).

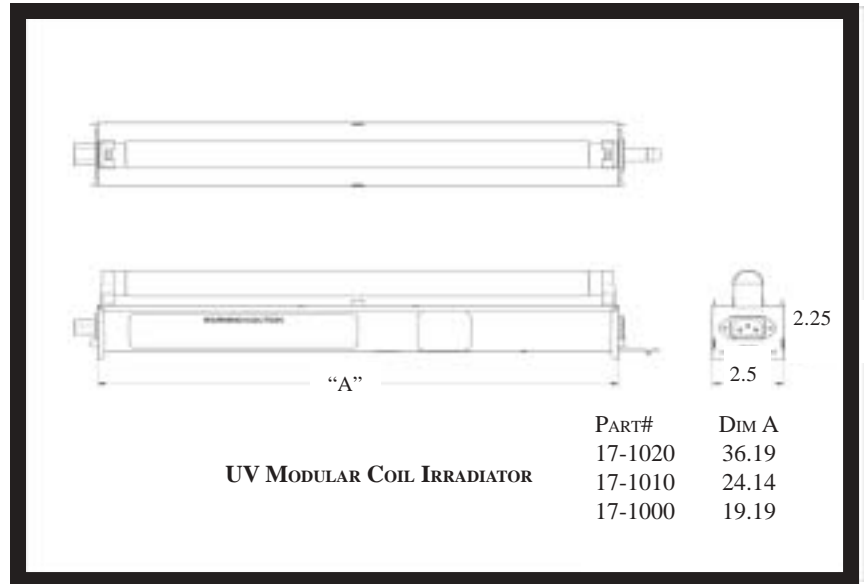
Relative Humidity:

Up to 95% rh, non-condensing.

Approvals:



Underwriters Laboratories: File no. E212213. Category Code ABQK (Accessories, Air Duct Mounted) UL Standards: UL153, UL1598 & UL1995. The health aspects associated with the use of this product and its ability to aid in disinfection of environmental air have not been investigated by UL.



Maintenance:

Lamp cleaning is recommended as routine maintenance four times a year or every three months.

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

UVGI SPECIFICATION WORKSHEET

USE THE CHART BELOW TO DETERMINE THE CORRECT COMBINATION OF UV FIXTURES FOR EACH COIL SIZE

NOMINAL COIL LENGTH (INCHES)		48	54	60	66	72	78	84	90	96	102	108	114	120	126
PART NUMBERS	UVGI MODULAR SIZES														
17-1000	18"		1		1		1		1				1		1
17-1010	24"	2		1	2		1	2		1	4		1	2	
17-1020	36"		1	1		2	1	1	2	2		3	2	2	3
ACTUAL LENGTH (INCHES) (INCLUDING CONDUIT J-BOX)		50.85	56.85	62.85	68.85	74.85	80.85	86.85	92.85	98.85	104.85	110.85	116.85	122.85	128.85
17-4001	96" MOUNTING RAIL NEEDED	1	1	1	1	1		1	1	1	1	1	1	1	1
17-4012	CONDUIT J-BOX	1	1	1	1	1	1	1	1	1	1	1	1	1	1

NOTE: COIL SIZES OVER 40" HIGH NEED TWO ROWS



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