



Kohrs Lonnemann Heil Engineers, Inc.

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Product Data

Project Name:	Sharonville Convention Center Expansion	Submittal Code:	237713.00-PD-00	REV: 00
Document Set:	Bid/Construction			
KLH Project #:	21108.00-Bid	Received Date:	02/15/2022	
Section Name:	Modular Outdoor Central Station Air-Handling Units			
Section Number:	237713.00			
Submitted By:	CT Consultants, Inc.			
Authored By:	Driekast Piping Corp			
Client Name:	CT Consultants, Inc.			

SUBMITTAL REVIEW

X **Exceptions Noted**

By: Daniel R. Sharp **Date:** 03/17/2022

ENGINEER'S REVIEW IS FOR GENERAL CONFORMANCE WITH THE CONTRACT DOCUMENTS. COMMENTS DO NOT RELIEVE THE CONTRACTOR FROM COMPLIANCE WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR REMAINS RESPONSIBLE FOR ACCURACY OF QUANTITIES, DIMENSIONS, DETAILS AND COORDINATION WITH OTHER TRADES.

General

- 1.1 All AHU outer panels shall be 18 gauge G60 galvanized steel.

End of Submittal Review

Note: Additional submittals are not required where "Exceptions Noted" is indicated. It will be assumed however that all necessary corrections will be executed. Provide as-built record copies within OM Manuals at project close-out (not before) for all affected submittals.

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DRIEKAST PIPING CORP

11290 SEBRING DRIVE CINCINNATI, OHIO 45240
PH. (513) 674-9110 FAX (513) 674-9113



SUBMITTAL

Project Name: Sharonville Convention Center Expansion		
Project Address: 11355 Chester Road	City, State: Cincinnati	Zip Code: 41016

General Contractor: Megan Construction			
Project Manager: Wes Dorger		Prepared By: Wes Dorger	
HVAC <input type="checkbox"/>	Plumbing <input type="checkbox"/>	Submittal #:	Date: 2/3/2022
Specification #: 23-7713		Description: Air Handling Units	

Reviewed

Reviewed as Noted

Revise & Resubmit

Sharonville Convention Center Expansion
City of Sharonville
11355 Chester Rd, Cincinnati, OH 45246

Air Handling Unit Submittal
Specification Section:
237713
Unit Tag(s):
AHU-14 thru 17

Prepared for:
KLH Engineers
1538 Alexandria Pike, Suite 11
Ft. Thomas, KY 41075

Sold To:
Driekast Piping Corporation
11290 Sebring Drive
Cincinnati, OH 45240

2/2/2022

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General Notes:

Unit Construction:

18 gauge galvanized steel exterior wall
Baked on enamel paint for all exterior surfaces
2" thick wall with polyurethane foam insulation
24 gauge solid galvanized steel interior wall
18 gauge galvanized steel floor liner
2" thick floor with polyurethane foam insulation
22 gauge solid galvanized steel underliner
Standing seam roof
Bolted plate galvanized steel base rail with integral lifting lugs
Base rail provided with secondary drain pan system
Baked on powder coated paint for all base rail surfaces
Bolted galvanized steel base with integral lifting lugs
Double wall access doors
Pipe vestibule- **Field Installed**
14" sloped roofcurb- **Field Installed**

Electrical

Supply fan array single point power panel w/ disconnect
Return fan array single point power panel w/ disconnect
Each accessible section LED lights
Single point power junction box for lights

Return air intake section

Safety grate for all bottom air connections
2" MERV 8 efficiency side loaded pleated filters return air
Galvanized steel filter racks
Series Dwyer model Magnehelic gauge 2000

Return / Exhaust fan section

Fan array w/ direct drive plenum fans, SWSI, class II
Aluminum airfoil fan wheel
Aluminum gravity backdraft dampers
ECM premium efficiency motor
Airflow monitoring station w/ transducer- (1) per fan section

OA air intake section (AHU-15 thru 17)

Extruded aluminum airfoil blade outdoor air damper
Intake hoods- **Field Installed**
Outdoor airflow monitoring station
2" MERV 8 efficiency side loaded pleated filters return air
Galvanized steel filter racks
Series Dwyer model Magnehelic gauge 2000

Enthalpic Core Plate Heat Exchanger Array (AHU-15 thru 17)

Aluminum plates
Hydrophilic heat transfer membrane
Extruded aluminum airfoil blade bypass damper

Economizer section (AHU-14)

Extruded aluminum airfoil blade thermal break outdoor/exhaust air damper
Extruded aluminum airfoil blade return air damper
Outdoor airflow monitoring station - **Field Installed**
Intake and exhaust hoods- **Field Installed**

Blender (AHU-14)

Welded aluminum mixing plates

Pre-Filter section

12" MERV 11 efficiency side loaded cartridge filters

Galvanized steel filter racks

Series Dwyer model Magnehelic gauge 2000

Heating coil section

Heating coil c/w 0.025" copper tubes and 0.0075" aluminum fins.

Galvanized steel drain pan c/w drain connection

Galvanized steel coil casings

Cooling coil section

Water cooling coil c/w 0.025" copper tubes and 0.0075" aluminum fins

Stainless steel drain pan c/w drain connection

Stainless steel coil casings, coil rack and blank off section

Supply fan section

Fan array w/ direct drive plenum fans, SWSI, class II

Aluminum airfoil fan wheel

Aluminum gravity backdraft dampers

ECM premium efficiency motor

Airflow monitoring station w/ transducer- (1) per fan section

Discharge air intake plenum section

Safety grate for all bottom supply air connections

Miscellaneous

Two sets of filters

One year parts unit warranty

Factory start-up and owner training

Notes/Clarifications

GFI's are not included

Coil piping trim is not included

Unit DDC controller and control end devices are NOT included.

Labor warranty is not included

Job Information		Technical Data Sheet
Job Name	Sharonville Convention Center Expansion	
Date	January 12 2022	
Software Version	12.64	
Unit Tag	AHU-14	

Unit Overview

Model Number	Supply						Return/Exhaust					
	Air Volume cfm	Static Pressure		External Dimensions			Air Volume cfm	Static Pressure		External Dimensions		
		External inWc	Total inWc	Height in	Width in	Length in		External inWc	Total inWc	Height in	Width in	Length in
OAC027GBAM	12000	2.50	5.40	66*	80*	420**	10000	1.50	2.19	66*	80*	426**

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

**The supply and return lengths display total unit length (not including hoods).

Unit

Model Number:	OAC027GBAM		
Outer Panel:	Painted 18 gauge G60 Galvanized Steel		
Liner:	24 gauge Galvanized Steel (unless noted per section)		
Insulation:	R-13 Injected Foam		
Unit Configuration:	Inline horizontal	Drive (Handling) Location:	Right
Base:	Curb ready	Wall Thickness:	2 in
Roof Curb Kit:	16 in	Tread Plate Floor Liner:	Tread plate installed (unless noted per section)
Altitude:	0 ft	Parts Warranty:	Standard One Year

Exhaust Air Stream

Plenum Section	Component: 1	Length: 30 in	Shipping Section: 1
Opening Location	Opening Size	Safety Grating	Air Pressure Drop
Bottom	26.00" x 72.00"	Yes	0.04 inWc
Door			
Location	Width	Opening	Window Type
Drive side	26 in	Outward	Round
Light			
LED marine light kit and switch only			
Special Options			
Sound Baffle			
(As casing details)			

Access Section	Component: 2	Length: 24 in	Shipping Section: 1
Pressure Drop			
0.00 inWc			
Panel			
Location	Width	Opening	
Removable panels	- in	Outward	

Return Fan Array	Component: 3	Length: 22 in	Shipping Section: 1
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Performance

Airflow (total)	10,000 CFM
Airflow (each)	5,000 CFM
Total Static Pressure	2.19"
Input HP (each)	2.84 HP
Max HP (each)	6.71 HP
Equiv BHP (each)	2.58 BHP
Operating RPM	1,312 RPM
Max RPM	1,750 RPM
System Efficiency	61%
Redundancy	88%

Electrical

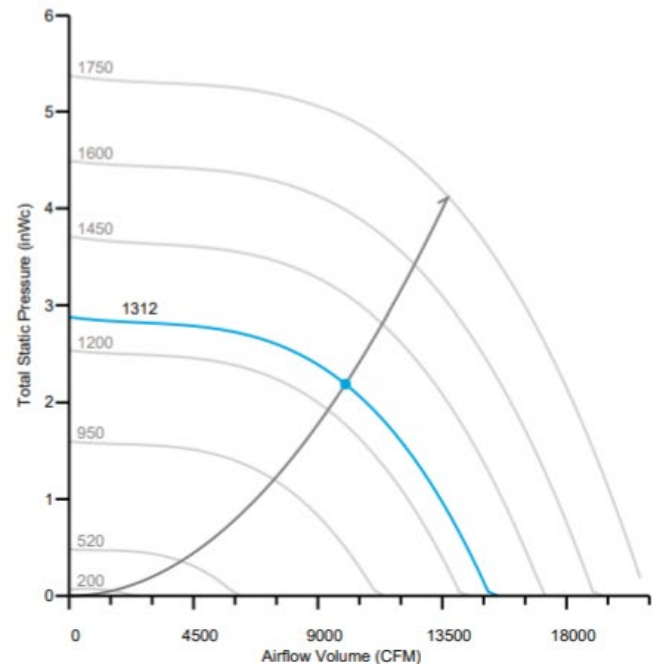
Electrical Supply	3~ 440-480V 60Hz
Single Fan FLA	7.04 A
System MCA	16.04 A
System MOCP	20.00 A
QCB1 MCA	15.84 A
QCB2 MCA	-
SCC Rating	100 KAIC; Fused

Controls

Type	Basic
Rating	Outdoor

Physical

Bulkhead Width	76.000"
Bulkhead Height	62.000"
Quantity of Fans	2
Fan Model	FA1700081
Wheel Diameter	22.0"
Single Fan Weight	141 lbs
System Weight	539 lbs
Blade Material	HP Composite
Handing	Left
Backflow Device	Dampers
Control Panel Width	15.0"
Control Panel Height	23.8"
Control Panel Depth	10.1"



Panel		
Location	Width	Opening
Removable panels	- in	Outward

Array Sound Power (dB)

Type	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
Radiated:	61	70	61	60	51	43	29	31
Unit Discharge:	71	80	75	75	73	68	65	61
Unit Return:	67	78	72	68	64	63	60	55

Access Section		Component: 4	Length: 30 in	Shipping Section: 2	
Door					
Location	Width	Opening	Window Type	Light	
Drive side	26 in	Outward	Round	LED marine light kit and switch only	
Special Options					
Tread Plate Floor Liner (As casing details)			Sound Baffle (As casing details)		
Special Text					

Economizer		Component: 5	Length: 50 in	Shipping Section: 2						
Portion	Damper			Blade Action	Rated CFM	Air Pressure Drop	Quantity	Hoods		
	Size (length x width)		Location						Type	Actuation
	Overall	Opening								
Outside Air	46 in x 56 in	40 in x 44 in	Left	Greenheck Aluminium	NA	Parallel	12000 cfm	0.07 inWc	1	Fitted - Factory installed
Return Air	40 in x 56 in	34 in x 44 in	Internal	Greenheck Aluminium	NA	Parallel	10000 cfm	0.07 inWc	1	N/A
Exhaust Air	28 in x 56 in	22 in x 44 in	Right	Greenheck Aluminium	NA	Parallel	10000 cfm	0.17 inWc	1	Fitted - Factory installed
Special Options										
Sound Baffle (As casing details)										

Supply Air Stream

Access Section		Component: 1	Length: 28 in	Shipping Section: 2	
Air Pressure Drop					
0.00 inWc					
Door					
Location	Width	Opening	Window Type	Light	
Drive side	20 in	Outward	Round	LED marine light kit and switch only	

Blender		Component: 2	Length: 50 in	Shipping Section: 3	
Model	Quantity	Total Face Area	Face Velocity	Air Pressure Drop	
Kees Inc.	1	11.5 ft²	1043 ft/min	0.26 inWc	
Door					
Location	Width	Opening	Window Type		
Drive side	30 in	Outward	Round		
Special Options					
Tread Plate Floor Liner (As casing details)			Sound Baffle (As casing details)		
Special Text					
LED light					

Combination Filter			Component: 3				Length: 22 in			Shipping Section: 3		
Access			Face Velocity				Face Area			Air Volume		
Side			407 ft/min				29.5 ft ²			12000 cfm		
Portion	Type	Efficiency	Air Pressure Drop				Number of Filters	Height	Width	Depth		
			Clean Air	Mean Air	Dirty Air	User Spec						
Pre-Filter	Pleated	MERV 8	0.17 inWc	0.59 inWc	1.00 inWc	N/A	2	24 in	24 in	2 in		
							4	24 in	20 in	2 in		
							3	12 in	24 in	2 in		
Filter	Varicel SH cartridge	MERV 11	0.29 inWc	0.89 inWc	1.50 inWc	N/A	2	24 in	24 in	12 in		
							4	24 in	20 in	12 in		
							2	24 in	12 in	12 in		
							3	12 in	24 in	12 in		

Door		
Location	Width	Opening
Drive side	18 in	Outward

Special Options		
Tread Plate Floor Liner	Sound Baffle	Filter Gauge
(As casing details)	(As casing details)	Magnehelic 0-5"

Special Text		
Extra filters 1 set(s)		

Future Hot Water Coil		Component: 4			Length: 16 in		Shipping Section: 4	
Number of Coils				Number of Rows				
2				1				
Coil Air Pressure Drop	Finned Height	Finned Width	Face Area	Face Velocity				
0.00 inWc	27 in	64 in	24.00 ft ²	500 ft/min				
Connection Location				Connection Material				
Drive side				Carbon steel				
Coil Model		Drain Pan		Drain Pan Side				
Future Coil (Not Supplied)		None		-				

Hot Water Coil		Component: 5			Length: 36 in		Shipping Section: 4		
Coil Model	Total Capacity	Number of Coils		Number of Rows	Fins per Inch	Tube Diameter	Tube Spacing (Face x Row)		
5WB0801B	261874 Btu/hr	2		1	8	0.625 in	3.00 in x 1.299 in		
Air Volume	Air Temperature				Coil Air Pressure Drop	Finned Height	Finned Length	Face Area	Face Velocity
	Entering		Leaving						
	Dry Bulb	Wet Bulb	Dry Bulb	Wet Bulb					
12000 cfm	51.0 °F		71.0 °F		0.09 inWc	27 in	64 in	24.00 ft²	500 ft/min
Water		Flow Rate		Pressure Drop	Velocity	Volume	Weight	Piping Vestibule	
Entering	Leaving	16.60 gpm		0.70 ftHd	2.10 ft/s	4.0 gal	37.00 lb	30 in	
190.0 °F	158.5 °F								
Connection [Data Per Coil]					Min. Fin Surface Temp.	Min. Tube Wall Surface Temp.	Fouling Factor		
Type	Size	Location	Material				0.000		
Threaded	1.50 in	Drive side	Carbon steel		158.5 °F	158.5 °F			
Material									
Fin		Tube			Header		Case		
Aluminum .0095 in		Copper .025 in			Copper		Galv. steel		
Door									
Location		Width			Opening		Light		
Drive side		24 in			Outward		LED marine light kit and switch only		

Chilled Water Coil		Component: 6			Length: 44 in		Shipping Section: 4		
Coil Model	Total Capacity	Sensible Capacity	Number of Coils	Number of Rows	Fins per Inch	Tube Diameter	Tube Spacing (Face x Row)		
5WL1106A	610103 Btu/hr	371079 Btu/hr	2	6	11	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						
	Dry Bulb	Wet Bulb	Dry Bulb	Wet Bulb					
12000 cfm	80.0 °F		68.0 °F		0.40 inWc	27 in	67 in	25.12 ft²	478 ft/min
Water		Flow Rate		Pressure Drop	Velocity	Volume	Weight	Piping Vestibule	
Entering	Leaving	85.90 gpm		18.40 ftHd	3.60 ft/s	21.0 gal	175.00 lb	30 in	
42.0 °F	56.2 °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		42.0 °F	42.0 °F			
Material									
Fin		Tube	Header	Case		Drain Pan	Drain Side	Turbospiral	
Aluminum .0095 in		Copper .025 in	Copper	Stainless steel		Stainless steel	Opp drive side	Yes	
AHRI 410 Certification									
Coil is NOT certified by AHRI									
Door									
Location		Width			Opening		Light		
Drive side		24 in			Outward		LED marine light kit and switch only		
Special Options									
Sound Baffle									
(As casing details)									

Supply Fan Array	Component: 7	Length: 38 in	Shipping Section: 5
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Performance

Airflow (total)	12,000 CFM
Airflow (each)	4,000 CFM
Total Static Pressure	5.40"
Input HP (each)	5.78 HP
Max HP (each)	6.00 HP
Equiv BHP (each)	5.26 BHP
Operating RPM	2,344 RPM
Max RPM	2,365 RPM
System Efficiency	59%
Redundancy	69%

Physical

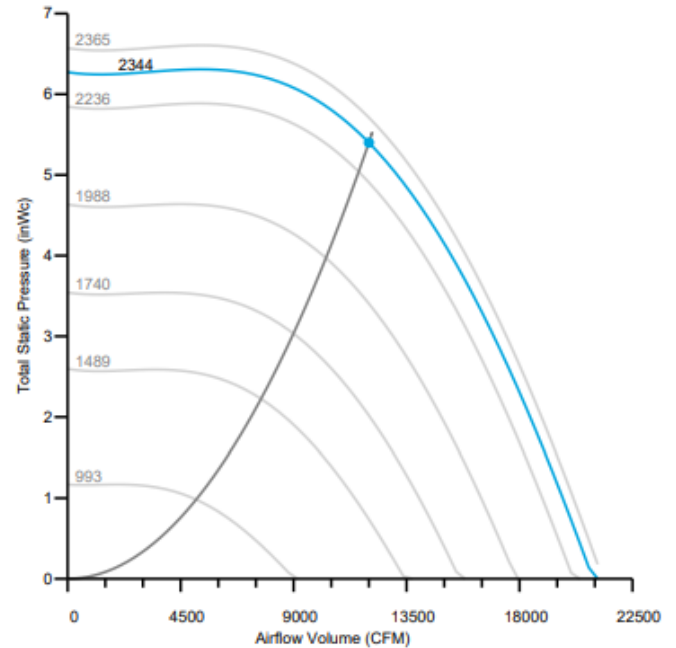
Bulkhead Width	76.000"
Bulkhead Height	62.000"
Quantity of Fans	3
Fan Model	FA1700091
Wheel Diameter	17.7"
Single Fan Weight	95 lbs
System Weight	549 lbs
Blade Material	Aluminum
Handing	Left
Backflow Device	Dampers
Control Panel Width	15.0"
Control Panel Height	23.8"
Control Panel Depth	10.1"

Electrical

Electrical Supply	3~ 440-480V 60Hz
Single Fan FLA	6.27 A
System MCA	20.58 A
System MOCP	25.00 A
QCB1 MCA	20.38 A
QCB2 MCA	-
SCC Rating	100 KAIC; Fused

Controls

Type	Basic
Rating	Outdoor



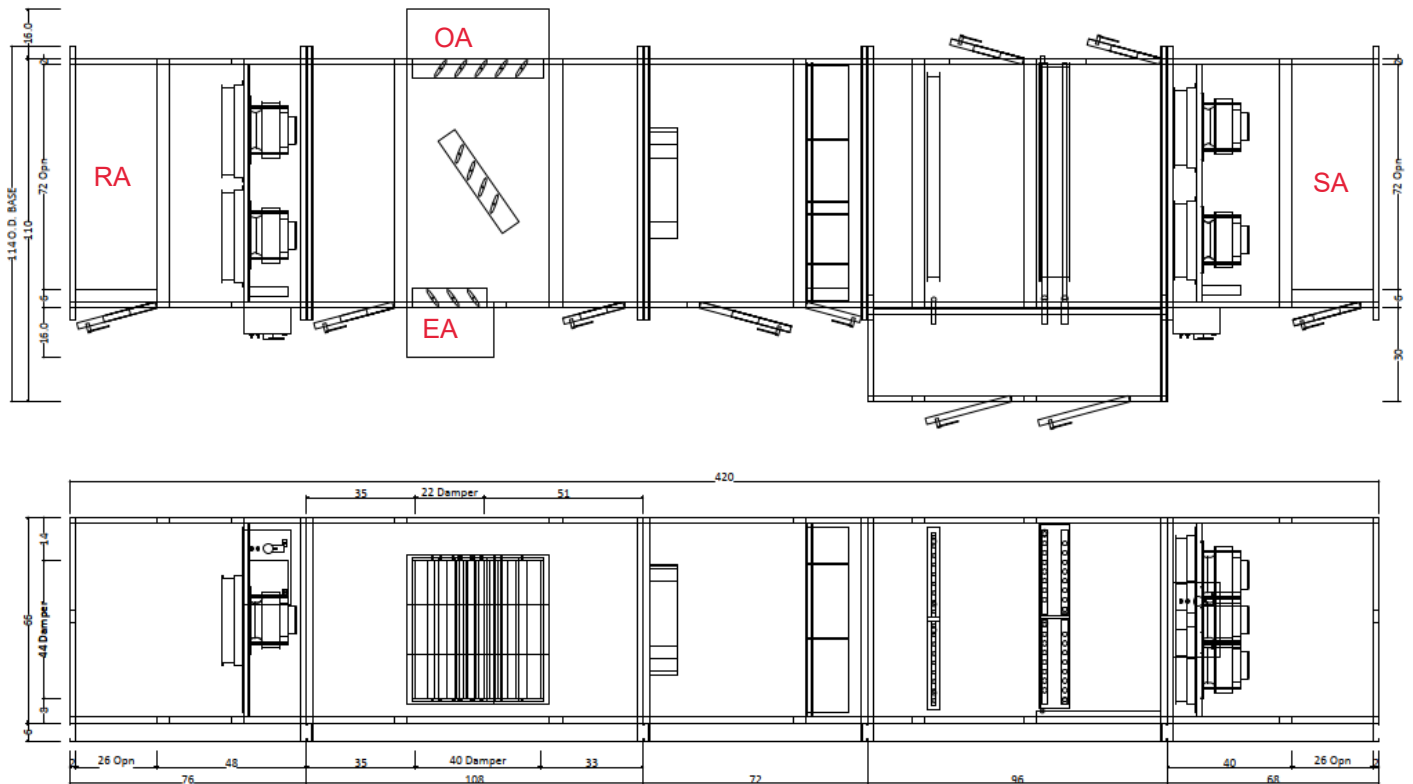
Panel		
Location	Width	Opening
Removable panels	- in	Outward

Array Sound Power (dB)								
Type	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
Radiated:	78	76	80	75	66	60	44	44
Unit Discharge:	88	86	94	90	88	85	80	74
Unit Return:	82	78	86	81	80	77	74	69

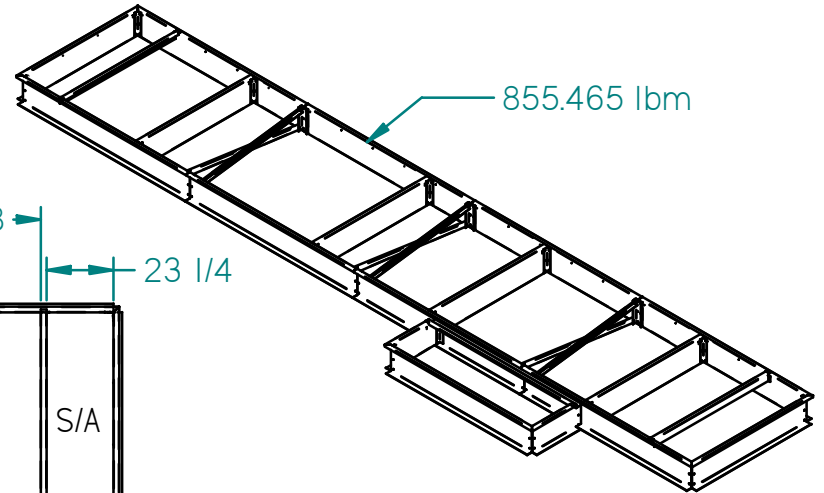
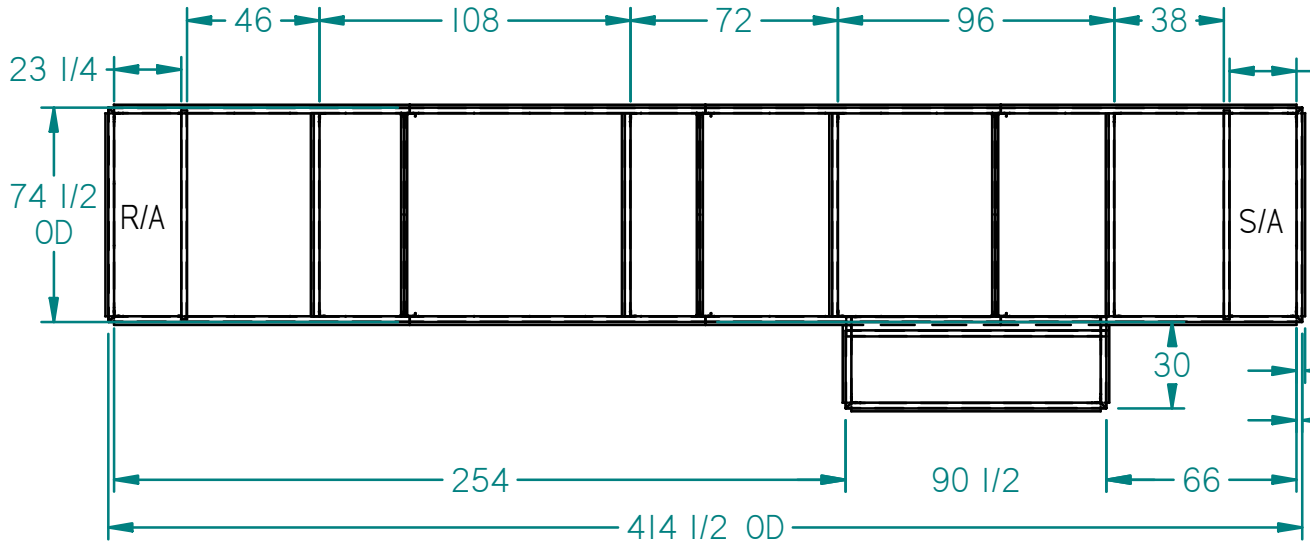
Plenum Section		Component: 8	Length: 30 in	Shipping Section: 5	
Opening Location		Opening Size		Safety Grating	
Bottom		26.00" x 72.00"		Yes	
Air Pressure Drop					
0.11 inWc					
Door					
Location		Width		Opening	
Drive side		22 in		Outward	
				Window Type	
				Round	
				Light	
				LED marine light kit and switch only	
Special Options					
Sound Baffle					
(As casing details)					

Shipping Section Details			
Section	Length in	Weight lb	
1	76	2222	
2	108	1807	
3	72	1398	
4	96	3414	
5	68	1946	
Entire Unit	420	10787	
Roof Curb	420	1078	

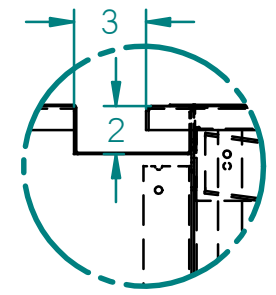
Layout Drawing



APPROX. WEIGHT
950 LBS

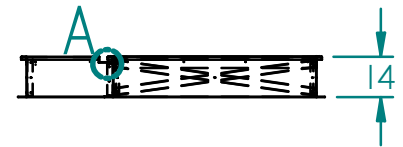


3 TYP. BOTTOM FLANGE
2 TYP. TOP FLANGE



DETAIL A

SLOPE TBD

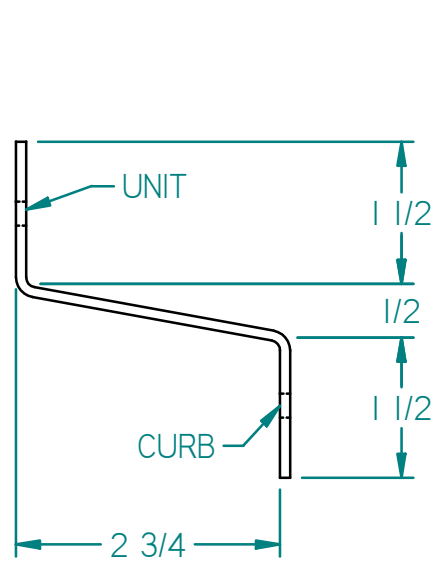


NOTES:

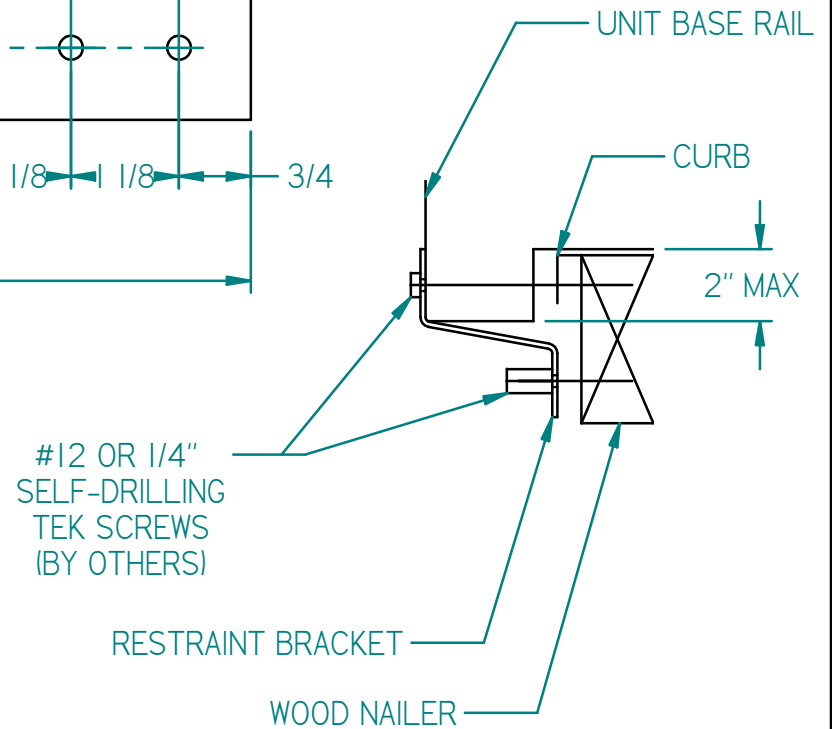
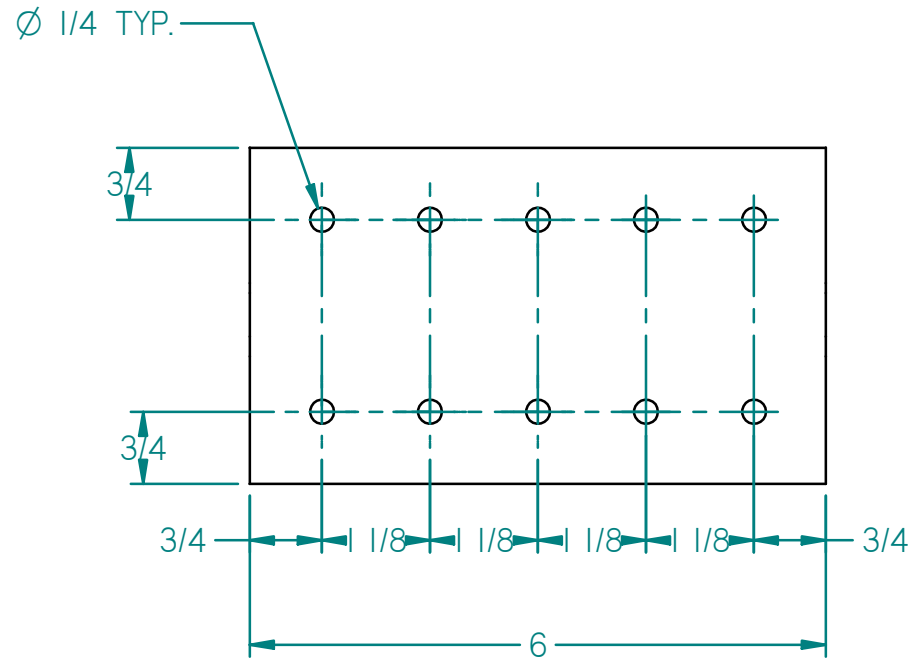
1. CURB SHIPPED IN PIECES FOR FIELD ASSEMBLY
2. CURB MUST BE INSTALLED SQUARE AND LEVEL
3. MATERIAL IS GALVANIZED 12ga STEEL
4. FACTORY INSTALLED P.T. 2x4 WOOD NAILER
5. SUPPLIED WITH 1-1/2x1/4" CLOSED CELL NEOPRENE GASKET
6. INSULATED W/ 1" DUCT LINER
7. ATTACHMENT BRACKETS INCLUDED. NO CALCS

QUANTITY: 1 DIMENSIONS: INCHES DRAWN BY SGRR

CURB TECHNOLOGIES™	
PROJECT: Sharonville Convention Center Expansion (211025-TG15)	
UNIT TAG: AHU-14	
MODEL: D_OAH	
Rev. 00	1/25/22



TAG: "A"



NOTES:

1. MATERIAL IS 12ga GALVNAIZED STEEL
2. ATTACHED TO UNIT & CURB W/ #12 OR 1/4" SELF-DRILLING SCREWS
3. PLACE BRACKETS ON 24" CENTERS UNLESS OTHERWISE SPECIFIED

	<p>CURB TECHNOLOGIES™</p>	
<p>QUANTITY: DIMENSIONS: INCHES</p>	<p>PROJECT: UNIT TAG:</p>	
<p>DRAWN BY JAS</p>	<p>MODEL: RESTRAINT BRACKET</p>	<p>Rev. 00 ??/??/??</p>

Job Information		Technical Data Sheet
Job Name	Sharonville Convention Center Expansion	
Date	January 05 2022	
Software Version	12.64	
Unit Tag	AHU-15	

Unit Overview									
Model	Overall Unit Dimensions			Supply			Return/Exhaust		
	External Dimensions			Air Volume cfm	Static Pressure		Air Volume cfm	Static Pressure	
OAC092GVAM	Height in	Width in	Length in		External inWc	Total inWc		External inWc	Total inWc
		118*	134*	386			21000		

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

Unit			
Model Number:	OAC092GVAM		
Outer Panel:	Painted 24 gauge G60 Galvanized Steel		
Liner:	24 gauge Galvanized Steel (unless noted per section)		
Insulation:	R-13 Injected Foam		
Unit Configuration:	Inline horizontal	Drive (Handling) Location:	Right
Base:	Curb ready	Wall Thickness:	2 in
Roof Curb Kit:	0 in	Altitude:	0 ft
Parts Warranty:	Standard One Year		

Unit Opening Locations							
Openings							
Opening	Location	Width	Height				
Return Air	Bottom	52 in	46 in				
Supply Air	Bottom	66 in	46 in				
Openings with Dampers							
Opening	Damper Type	Location	Size (Width x Height)		Material	Blade Action	Rainhood w/Screen
			Overall	Opening			
Outside Air	VCD43	End	40 in x 84 in	37 in x 81 in	Alum	Parallel	Provided - Field Installed
Exhaust Air	VCD43	Drive Side	40 in x 84 in	37 in x 81 in	Alum	Parallel	Provided - Field Installed

Supply Air Stream

Panel Filter							
Type	Efficiency		Face Velocity	Face Area	Air Volume	Filter Loading	
Pleated	MERV 8		436 ft/min	55.0 ft²	24000 cfm	Side	
Air Pressure Drop				Number of Filters	Height	Width	Depth
Clean Air	Mean Air	Dirty Air	User Spec	12	24 in	24 in	2 in
0.19 inWc	0.60 inWc	1.00 inWc	N/A		3	20 in	24 in
Door							
Location			Width		Opening		
Non-drive side			8 in		Outward		
Special Options							
Sound Baffle				Filter Gauge			
(As casing details)				Magnehelic 0-2"			
Special Text							
Extra filters 1 set(s)							

Enthalpy Plate Energy Recovery

	Summer		Winter	
	Outdoor (OA)	Return (RA)	Outdoor (OA)	Return (RA)
Airflow CFM	10000	8000	10000	8000
Dry Bulb Temp °F	93	72	0	70
Wet Bulb Temp °F	74	62	-2	53
Enthalpy (H) BTU/lb	37.42	27.76	0.3	21.93
Molsture Ratio (MR) grains/lb	95.65	66.91	1.86	32.65
Energy (Q) Btuh	858470	509504	6851	402442
	Exhaust (EA)	Supply (SA)	Exhaust (EA)	Supply (SA)
Airflow CFM	8000	10000	8000	10000
Dry Bulb Temp °F	86.7	81.3	21.7	38.9
Wet Bulb Temp °F	69.7	68.5	21.7	31.6
Enthalpy (H) BTU/lb	33.67	32.69	7.71	11.61
Molsture Ratio (MR) grains/lb	81.69	83.82	16.26	14.53
Energy (Q) Btuh	617996	749978	141497	266257

* Warning - Condensation may occur

	Summer	Winter
Supply pressure drop (PD) In.wg	0.59	0.59
Exhaust pressure drop (PD) In.wg	0.79	0.79
Sensible effectiveness %:	69.5	69.5
Latent effectiveness %:	51.4	51.4
Total effectiveness %:	61.2	65.3
Energy Recover Ratio %:	49	52.3
Supply air face velocity SFPM	394.36	394.36
Exhaust air face velocity SFPM	315.49	315.49
Molsture removed lb/h	77.53	83.04
Total energy saved Btuh	216984	518813
Energy balance %:	55.6	55.6
Water balance %:	41.2	41.2

Combination Filter										
Access			Face Velocity				Face Area		Air Volume	
Side			437 ft/min				55.0 ft²		24000 cfm	
Portion	Type	Efficiency	Air Pressure Drop				Number of Filters	Height	Width	Depth
			Clean Air	Mean Air	Dirty Air	User Spec				
Pre-Filter	None	MERV 8	0.01 inWc	0.01 inWc	0.01 inWc	N/A	12	24 in	24 in	2 in
							3	20 in	24 in	2 in
Filter	Varicel SH cartridge	MERV 13	0.46 inWc	0.98 inWc	1.50 inWc	N/A	12	24 in	24 in	12 in
							3	20 in	24 in	12 in
Door										
Location				Width				Opening		
Drive side				18 in				Outward		
Special Options										
Sound Baffle						Filter Gauge				
(As casing details)						Magnehelic 0-2"				

Chilled Water Coil										
Coil Model	Total Capacity	Sensible Capacity	Number of Coils	Number of Rows	Fins per Inch	Tube Diameter	Tube Spacing (Face x Row)			
5WL1106A	928634 Btu/hr	651723 Btu/hr	2	6	11	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							
	Dry Bulb	Wet Bulb	Dry Bulb	Wet Bulb						
24000 cfm	76.6 °F	64.5 °F	51.8 °F	51.2 °F	0.40 inWc	54 in	65 in	48.75 ft²	492 ft/min	
Water		Flow Rate	Pressure Drop	Velocity	Volume	Weight				
Entering	Leaving									
42.0 °F	56.2 °F	131.20 gpm	12.30 ftHd	2.70 ft/s	41.0 gal	342.00 lb				
Connection [Data Per Coil]				Min. Fin Surface Temp.	Min. Tube Wall Surface Temp.	Fouling Factor				
Type	Size	Location	Material							
Threaded	2.50 in	Drive side	Carbon steel	42.0 °F	42.0 °F	0.000				
Material				Drain Pan	Drain Side	Turbospiral				
Fin	Tube	Header	Case							
Aluminum .0075 in	Copper .025 in	Copper	Stainless steel	Stainless steel	Drive side	Yes				

Hot Water Coil							
Coil Model	Total Capacity	Number of Coils	Number of Rows	Fins per Inch	Tube Diameter	Tube Spacing (Face x Row)	
5WQ1301B	1039299 Btu/hr	3	1	13	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					
	Dry Bulb	Dry Bulb					
24000 cfm	52.0 °F	91.6 °F	0.13 inWc	36 in	62 in	46.50 ft ²	516 ft/min
Water		Flow Rate	Pressure Drop	Velocity	Volume	Weight	
Entering	Leaving	66.50 gpm	7.50 ftHd	4.10 ft/s	11.0 gal	96.00 lb	
190.0 °F	158.7 °F						
Connection [Data Per Coil]				Min. Fin Surface Temp.	Min. Tube Wall Surface Temp.	Fouling Factor	
Type	Size	Location	Material				
Threaded	1.50 in	Drive side	Carbon steel	158.7 °F	158.7 °F	0.000	
Material							
Fin		Tube		Header		Case	
Aluminum .0075 in		Copper .025 in		Copper		Galv. steel	

Supply Fan Array

Performance

Airflow (total)	21,000 CFM
Airflow (each)	4,200 CFM
Total Static Pressure	4.81"
Input HP (each)	5.30 HP
Max HP (each)	6.97 HP
Equiv BHP (each)	4.82 BHP
Operating RPM	2,361 RPM
Max RPM	2,570 RPM
System Efficiency	60.2%
Redundancy	101%

Physical

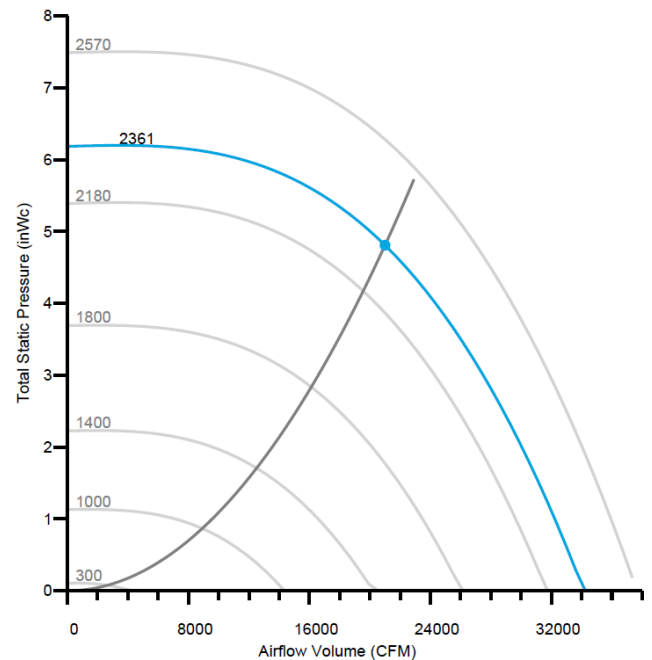
Bulkhead Width	70.000"
Bulkhead Height	114.000"
Quantity of Fans	5
Fan Model	FA1700078
Wheel Diameter	17.7"
Single Fan Weight	93 lbs
System Weight	920 lbs
Blade Material	HP Composite
Handing	Left
Backflow Device	Dampers
Control Panel Width	15.0"
Control Panel Height	23.8"
Control Panel Depth	10.1"

Electrical

Electrical Supply	3~ 440-480V 60Hz
Single Fan FLA	7.32 A
System MCA	38.63 A
System MOCP	45.00 A
QCB1 MCA	38.43 A
QCB2 MCA	-
SCC Rating	100 KAIC; Fused

Controls

Type	Basic
Rating	Outdoor



Array Sound Power (dB)

Type	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
Radiated:	72	70	76	71	65	62	46	47
Unit Discharge:	82	80	90	86	87	87	82	77
Unit Return:	78	76	86	80	77	74	70	69

Exhaust Air Stream

Panel Filter							
Type	Efficiency		Face Velocity	Face Area	Air Volume	Filter Loading	
Pleated	MERV 8		362 ft/min	60.7 ft ²	22000 cfm	Side	
Air Pressure Drop				Number of Filters	Height	Width	Depth
Clean Air	Mean Air	Dirty Air	User Spec				
0.15 inWc	0.57 inWc	1.00 inWc	N/A	16	24 in	24 in	2 in
Door							
Location			Width		Opening		
Drive side			28 in		Outward		
Special Options							
Sound Baffle				Filter Gauge			
(As casing details)				Magnehelic 0-2"			
Special Text							
Extra filters 1 set(s)							

Enthalpy Plate Energy Recovery

(See Supply Air Stream)

Exhaust Fan Array

Performance

Airflow (total)	19,000 CFM
Airflow (each)	6,333 CFM
Total Static Pressure	2.94"
Input HP (each)	4.65 HP
Max HP (each)	6.71 HP
Equiv BHP (each)	4.23 BHP
Operating RPM	1,561 RPM
Max RPM	1,750 RPM
System Efficiency	63.2%
Redundancy	85%

Physical

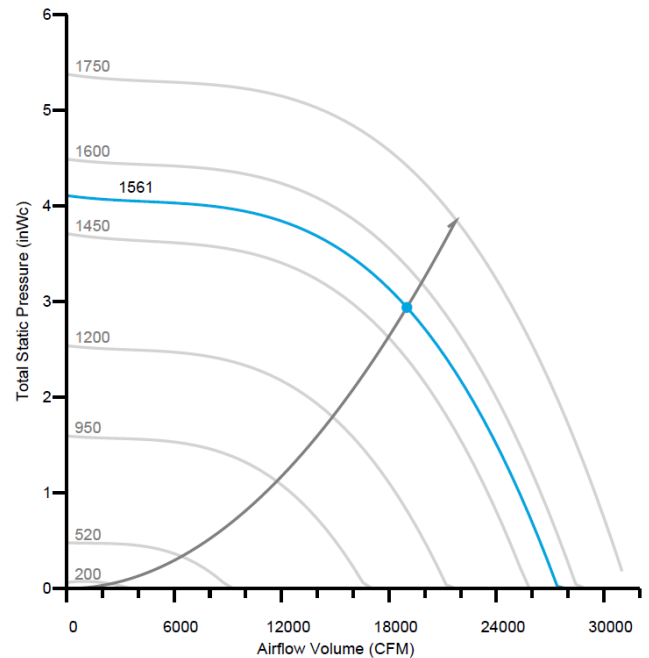
Bulkhead Width	59.000"
Bulkhead Height	114.000"
Quantity of Fans	3
Fan Model	FA1700081
Wheel Diameter	22.0"
Single Fan Weight	141 lbs
System Weight	769 lbs
Blade Material	HP Composite
Handing	Right
Backflow Device	Dampers
Control Panel Width	15.0"
Control Panel Height	23.8"
Control Panel Depth	10.1"

Electrical

Electrical Supply	3~ 440-480V 60Hz
Single Fan FLA	7.04 A
System MCA	23.08 A
System MOCP	30.00 A
QCB1 MCA	22.88 A
QCB2 MCA	-
SCC Rating	100 KAIC; Fused

Controls

Type	Basic
Rating	Outdoor



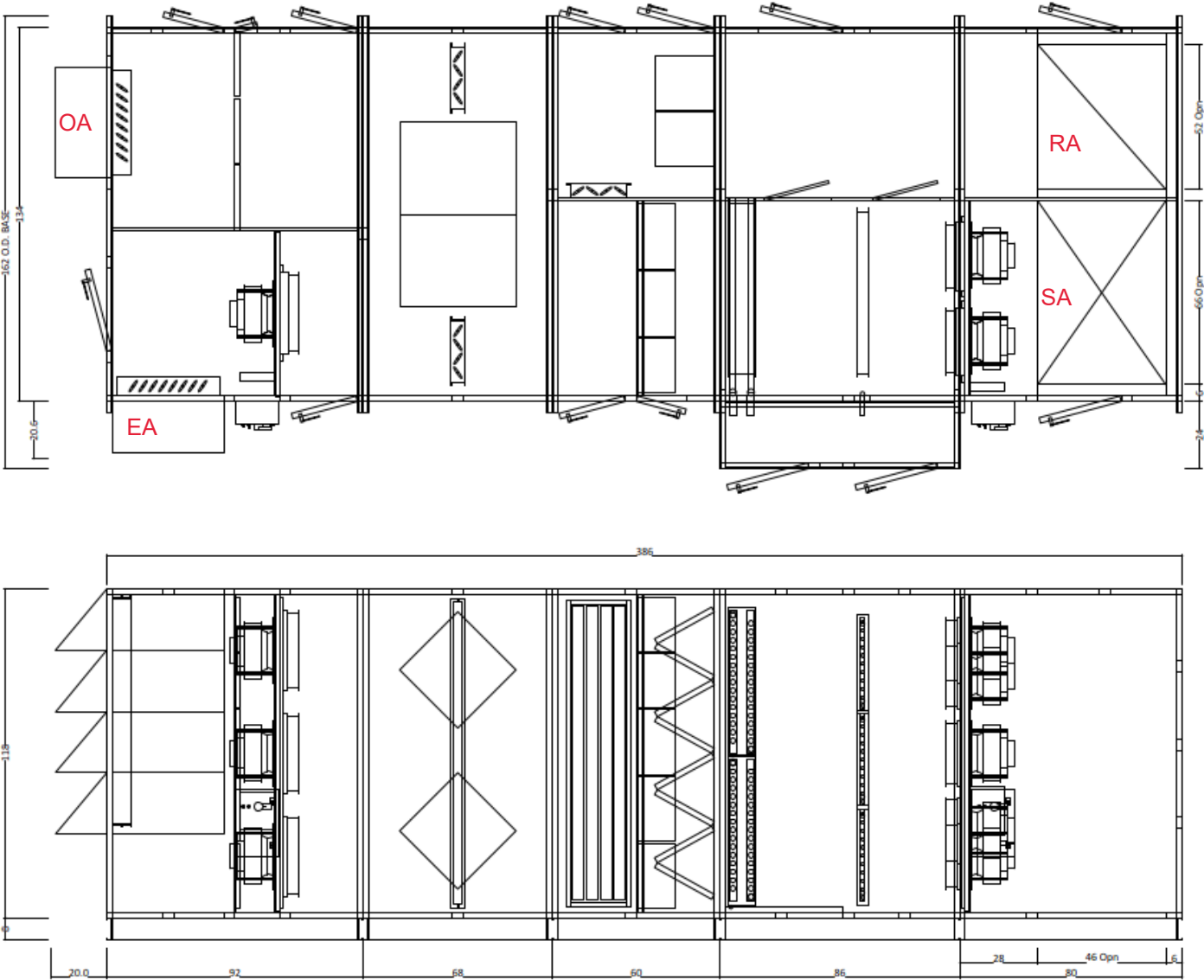
Array Sound Power (dB)

Type	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
Radiated:	67	72	72	68	58	49	36	39
Unit Discharge:	77	82	86	83	80	74	72	69
Unit Return:	71	78	80	76	71	69	67	64

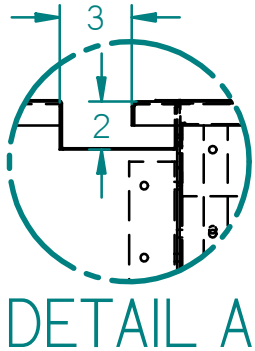
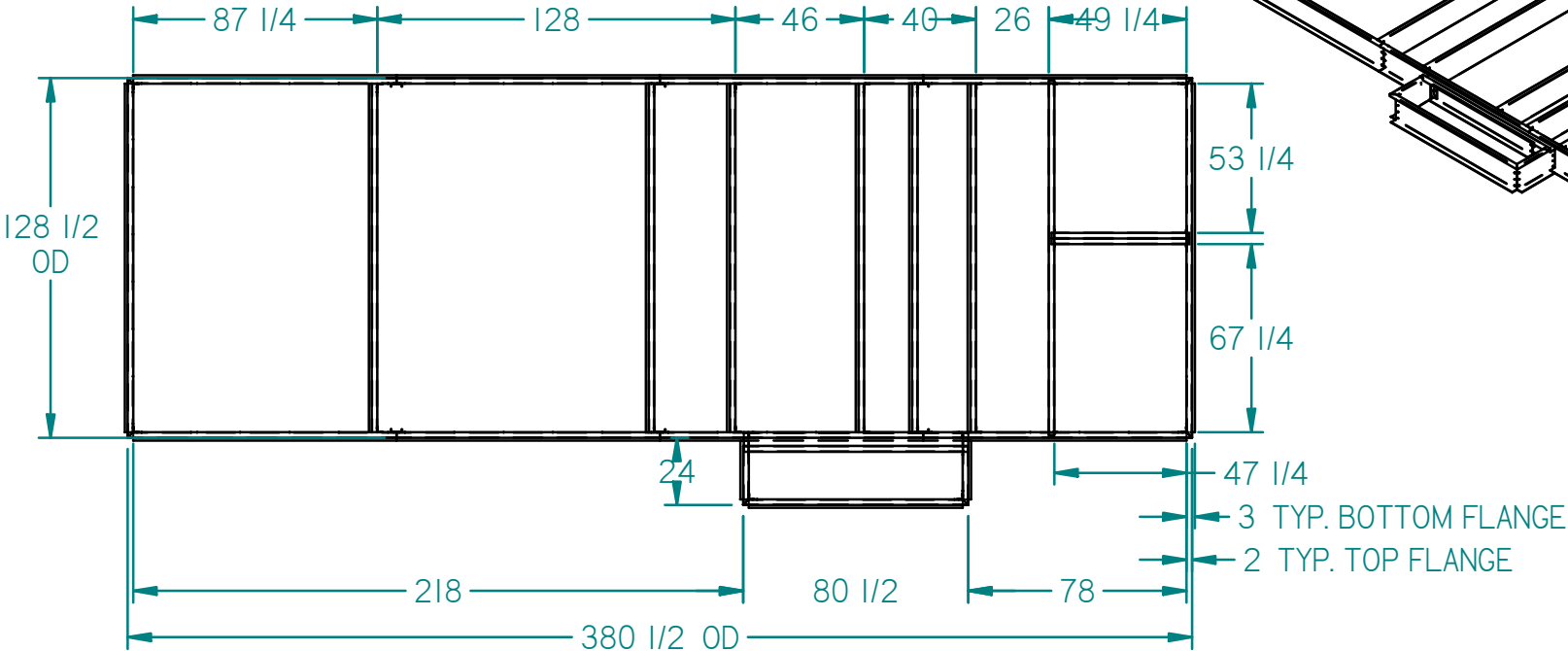
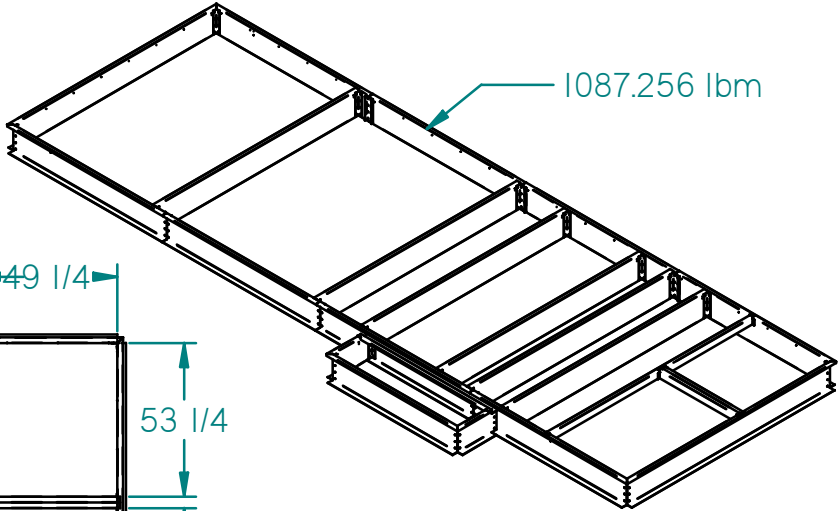
Shipping Section Details

Section	Length in	Weight lb
1	92	5363
2	68	2794
3	60	2584
4	86	5405
5	80	3244
Entire Unit	386	19390

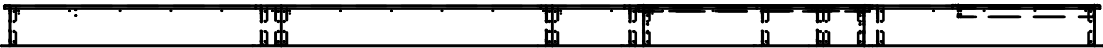
Layout Drawing



APPROX. WEIGHT
980 LBS

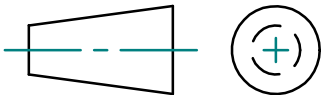


SLOPE TBD



NOTES:

1. CURB SHIPPED IN PIECES FOR FIELD ASSEMBLY
2. CURB MUST BE INSTALLED SQUARE AND LEVEL
3. MATERIAL IS GALVANIZED 12ga STEEL
4. FACTORY INSTALLED P.T. 2x4 WOOD NAILER
5. SUPPLIED WITH 1-1/2x1/4" CLOSED CELL NEOPRENE GASKET
6. INSULATED W/ 1" DUCT LINER
7. ATTACHMENT BRACKETS INCLUDED. NO CALCS



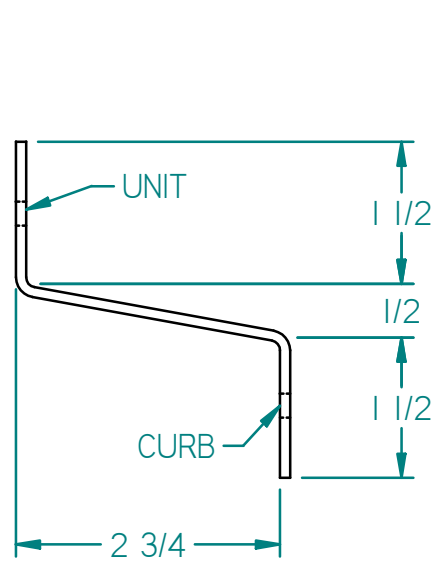
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DIMENSIONS: INCHES

DRAWN BY SGRR

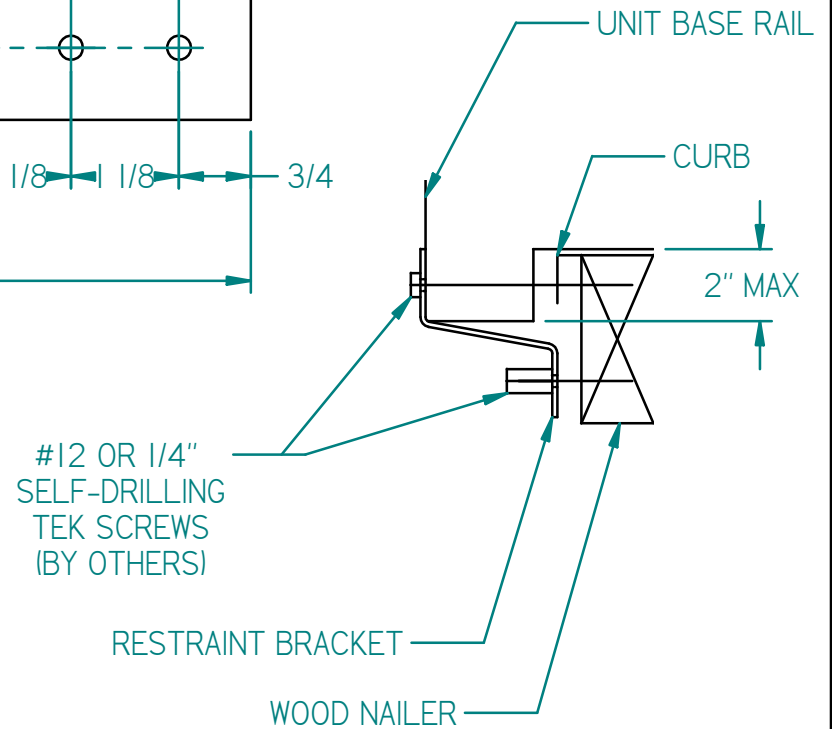
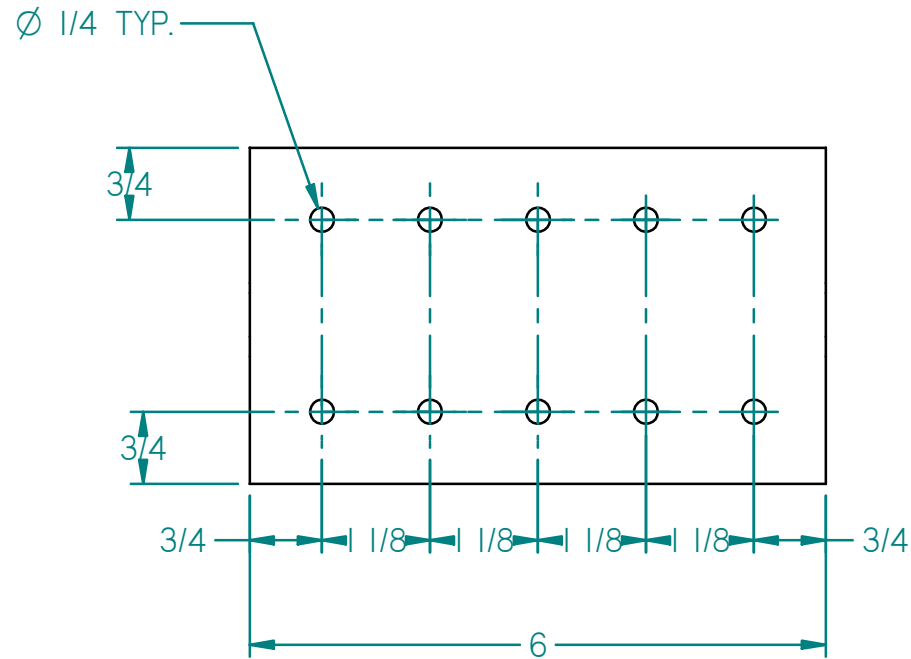
CURB TECHNOLOGIES™

PROJECT: Sharonville Convention Center Expansion (211025-TG15)
UNIT TAG: AHU-15
MODEL: D_OAH

Rev. 00 | 1/25/22



TAG: "A"



NOTES:

1. MATERIAL IS 12ga GALVNAIZED STEEL
2. ATTACHED TO UNIT & CURB W/ #12 OR 1/4" SELF-DRILLING SCREWS
3. PLACE BRACKETS ON 24" CENTERS UNLESS OTHERWISE SPECIFIED

	<p>CURB TECHNOLOGIES™</p>	
<p>QUANTITY: DIMENSIONS: INCHES</p>	<p>PROJECT: UNIT TAG:</p>	
<p>DRAWN BY JAS</p>	<p>MODEL: RESTRAINT BRACKET</p>	<p>Rev. 00 ??/??/??</p>

Job Information		Technical Data Sheet
Job Name	Sharonville Convention Center Expansion	
Date	January 05 2022	
Software Version	12.64	
Unit Tag	AHU-16	

Unit Overview									
Model	Overall Unit Dimensions			Supply			Return/Exhaust		
	External Dimensions			Air Volume cfm	Static Pressure		Air Volume cfm	Static Pressure	
	Height in	Width in	Length in		External inWc	Total inWc		External inWc	Total inWc
OAC095GVAM	122*	134*	370	24000	1.50	4.83	22000	1.00	3.19

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

Unit			
Model Number:	OAC095GVAM		
Outer Panel:	Painted 24 gauge G60 Galvanized Steel		
Liner:	24 gauge Galvanized Steel (unless noted per section)		
Insulation:	R-13 Injected Foam		
Unit Configuration:	Inline horizontal	Drive (Handling) Location:	Right
Base:	Curb ready	Wall Thickness:	2 in
Roof Curb Kit:	0 in	Altitude:	0 ft
Parts Warranty:	Standard One Year		

Unit Opening Locations							
Openings							
Opening	Location	Width	Height				
Return Air	Bottom	48 in	46 in				
Supply Air	Bottom	70 in	46 in				
Openings with Dampers							
Opening	Damper Type	Location	Size (Width x Height)		Material	Blade Action	Rainhood w/Screen
			Overall	Opening			
Outside Air	VCD43	End	40 in x 84 in	37 in x 81 in	Alum	Parallel	Provided - Field Installed
Exhaust Air	VCD43	Drive Side	40 in x 84 in	37 in x 81 in	Alum	Parallel	Provided - Field Installed

Supply Air Stream

Panel Filter							
Type	Efficiency		Face Velocity	Face Area	Air Volume	Filter Loading	
Pleated	MERV 8		436 ft/min	55.0 ft²	24000 cfm	Side	
Air Pressure Drop				Number of Filters	Height	Width	Depth
Clean Air	Mean Air	Dirty Air	User Spec	12	24 in	24 in	2 in
0.19 inWc	0.60 inWc	1.00 inWc	N/A		3	20 in	24 in
Door							
Location			Width		Opening		
Non-drive side			8 in		Outward		
Special Options							
Sound Baffle				Filter Gauge			
(As casing details)				Magnehelic 0-2"			
Special Text							
Extra filters 1 set(s)							

Enthalpy Plate Energy Recovery

	Summer		Winter	
	Outdoor (OA)	Return (RA)	Outdoor (OA)	Return (RA)
Airflow CFM	12000	10000	12000	10000
Dry Bulb Temp °F	93	72	0	70
Wet Bulb Temp °F	74	62	-2	53
Enthalpy (H) BTU/lb	37.42	27.76	0.3	21.93
Moisture Ratio (MR) grains/lb	95.65	66.91	1.86	32.65
Energy (Q) Btuh	686776	424587	5481	335369
	Exhaust (EA)	Supply (SA)	Exhaust (EA)	Supply (SA)
Airflow CFM	10000	12000	10000	12000
Dry Bulb Temp °F	86.2	81.2	23.1	39.3
Wet Bulb Temp °F	69.4	68.6	23.1	31.6
Enthalpy (H) BTU/lb	33.37	32.75	8.24	11.61
Moisture Ratio (MR) grains/lb	80.43	84.38	17.44	13.94
Energy (Q) Btuh	510316	601047	126098	213077

* Warning - Condensation may occur

	Summer	Winter
Supply pressure drop (PD) in.wg	0.65	0.65
Exhaust pressure drop (PD) in.wg	1.04	1.04
Sensible effectiveness %:	67.4	67.4
Latent effectiveness %:	47.1	47.1
Total effectiveness %:	58	62.8
Energy Recover Ratio %:	48.4	52.3
Supply air face velocity SFPM	415.94	415.94
Exhaust air face velocity SFPM	346.62	346.62
Moisture removed lb/h	88.66	94.95
Total energy saved Btuh	257187	622788
Energy balance %:	56.2	56.2
Water balance %:	39.2	39.2

Combination Filter										
Access			Face Velocity				Face Area		Air Volume	
Side			437 ft/min				55.0 ft ²		24000 cfm	
Portion	Type	Efficiency	Air Pressure Drop				Number of Filters	Height	Width	Depth
			Clean Air	Mean Air	Dirty Air	User Spec				
Pre-Filter	None	MERV 8	0.01 inWc	0.01 inWc	0.01 inWc	N/A	12	24 in	24 in	2 in
							3	20 in	24 in	2 in
Filter	Varicel SH cartridge	MERV 13	0.46 inWc	0.98 inWc	1.50 inWc	N/A	12	24 in	24 in	12 in
							3	20 in	24 in	12 in
Door										
Location				Width				Opening		
Drive side				18 in				Outward		
Special Options										
Sound Baffle						Filter Gauge				
(As casing details)						Magnehelic 0-2"				

Chilled Water Coil										
Coil Model	Total Capacity	Sensible Capacity	Number of Coils	Number of Rows	Fins per Inch	Tube Diameter	Tube Spacing (Face x Row)			
5WL1106A	928634 Btu/hr	651723 Btu/hr	2	6	11	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							
	Dry Bulb	Wet Bulb	Dry Bulb	Wet Bulb						
24000 cfm	76.6 °F	64.5 °F	51.8 °F	51.2 °F	0.40 inWc	54 in	65 in	48.75 ft ²	492 ft/min	
Water		Flow Rate	Pressure Drop	Velocity	Volume	Weight				
Entering	Leaving	131.20 gpm	12.30 ftHd	2.70 ft/s	41.0 gal	342.00 lb				
42.0 °F	56.2 °F									
Connection [Data Per Coil]					Min. Fin Surface Temp.	Min. Tube Wall Surface Temp.	Fouling Factor			
Type	Size	Location	Material		42.0 °F	42.0 °F	0.000			
Threaded	2.50 in	Drive side	Carbon steel							
Material				Drain Pan	Drain Side	Turbospiral				
Fin	Tube	Header	Case							
Aluminum .0075 in	Copper .025 in	Copper	Stainless steel	Stainless steel	Drive side	Yes				

Hot Water Coil							
Coil Model	Total Capacity	Number of Coils	Number of Rows	Fins per Inch	Tube Diameter	Tube Spacing (Face x Row)	
5WQ1301B	1039299 Btu/hr	3	1	13	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					
	Dry Bulb	Dry Bulb					
24000 cfm	52.0 °F	91.6 °F	0.13 inWc	36 in	62 in	46.50 ft ²	516 ft/min
Water		Flow Rate	Pressure Drop	Velocity	Volume	Weight	
Entering	Leaving	66.50 gpm	7.50 ftHd	4.10 ft/s	11.0 gal	96.00 lb	
190.0 °F	158.7 °F						
Connection [Data Per Coil]				Min. Fin Surface Temp.	Min. Tube Wall Surface Temp.	Fouling Factor	
Type	Size	Location	Material				
Threaded	1.50 in	Drive side	Carbon steel	158.7 °F	158.7 °F	0.000	
Material							
Fin		Tube		Header		Case	
Aluminum .0075 in		Copper .025 in		Copper		Galv. steel	

Supply Fan Array

Performance

Airflow (total)	24,000 CFM
Airflow (each)	4,000 CFM
Total Static Pressure	4.83"
Input HP (each)	5.09 HP
Max HP (each)	6.97 HP
Equiv BHP (each)	4.63 BHP
Operating RPM	2,332 RPM
Max RPM	2,570 RPM
System Efficiency	60%
Redundancy	110%

Physical

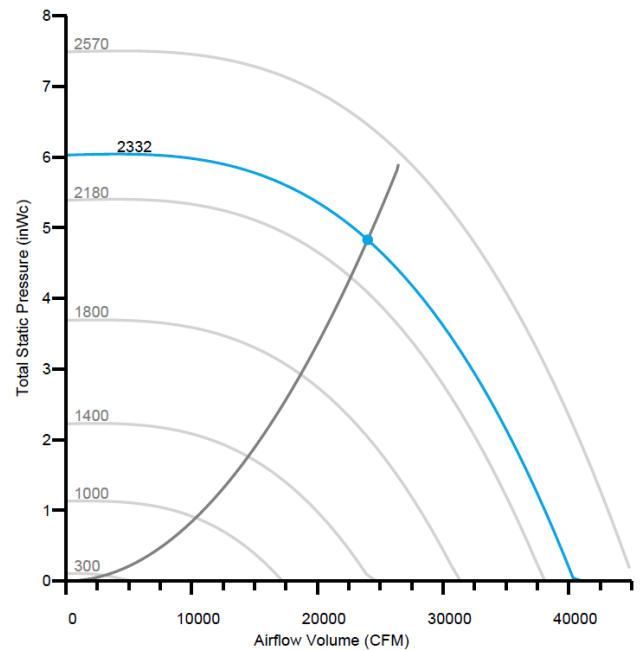
Bulkhead Width	74.000"
Bulkhead Height	118.000"
Quantity of Fans	6
Fan Model	FA1700078
Wheel Diameter	17.7"
Single Fan Weight	93 lbs
System Weight	1,053 lbs
Blade Material	HP Composite
Handing	Left
Backflow Device	Dampers
Control Panel Width	15.0"
Control Panel Height	23.8"
Control Panel Depth	10.1"

Electrical

Electrical Supply	3~ 440-480V 60Hz
Single Fan FLA	7.32 A
System MCA	45.95 A
System MOCP	50.00 A
QCB1 MCA	45.75 A
QCB2 MCA	-
SCC Rating	100 KAIC; Fused

Controls

Type	Basic
Rating	Outdoor



Array Sound Power (dB)

Type	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
Radiated:	73	71	76	71	65	62	46	47
Unit Discharge:	83	81	90	86	87	87	82	77
Unit Return:	78	77	86	81	77	75	70	69

Exhaust Air Stream

Panel Filter							
Type	Efficiency		Face Velocity	Face Area	Air Volume	Filter Loading	
Pleated	MERV 8		362 ft/min	60.7 ft²	22000 cfm	Side	
Air Pressure Drop				Number of Filters	Height	Width	Depth
Clean Air	Mean Air	Dirty Air	User Spec				
0.15 inWc	0.57 inWc	1.00 inWc	N/A	16	24 in	24 in	2 in
Door							
Location			Width		Opening		
Drive side			28 in		Outward		
Special Options							
Sound Baffle				Filter Gauge			
(As casing details)				Magnehelic 0-2"			
Special Text							
Extra filters 1 set(s)							

Enthalpy Plate Energy Recovery

(See Supply Air Stream)

Exhaust Fan Array

Performance

Airflow (total)	22,000 CFM
Airflow (each)	7,333 CFM
Total Static Pressure	3.19"
Input HP (each)	5.59 HP
Max HP (each)	6.71 HP
Equiv BHP (each)	5.09 BHP
Operating RPM	1,672 RPM
Max RPM	1,750 RPM
System Efficiency	66.1%
Redundancy	73%

Physical

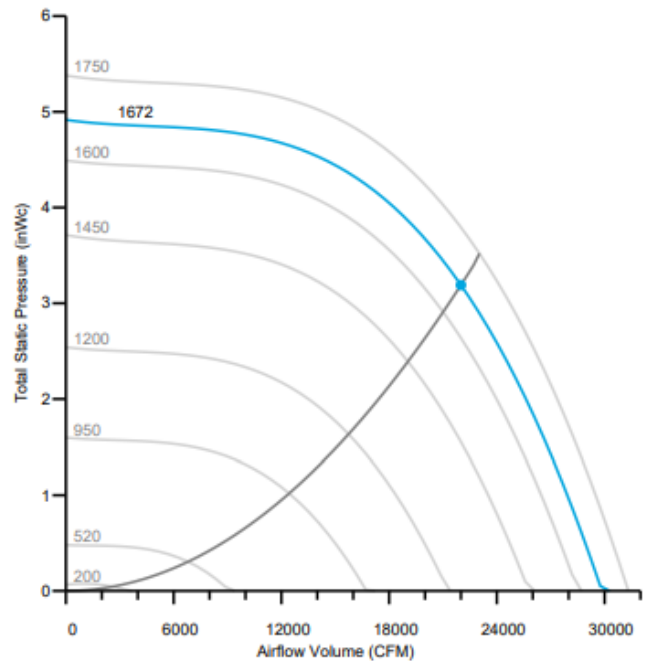
Bulkhead Width	55.000"
Bulkhead Height	122.000"
Quantity of Fans	3
Fan Model	FA1700081
Wheel Diameter	22.0"
Single Fan Weight	141 lbs
System Weight	707 lbs
Blade Material	HP Composite
Handing	Right
Backflow Device	Blank-Off Plate
Control Panel Width	15.0"
Control Panel Height	23.8"
Control Panel Depth	10.1"

Electrical

Electrical Supply	3~ 440-480V 60Hz
Single Fan FLA	7.04 A
System MCA	23.08 A
System MOCP	30.00 A
QCB1 MCA	22.88 A
QCB2 MCA	-
SCC Rating	100 KAIC; Fused

Controls

Type	Basic
Rating	Outdoor



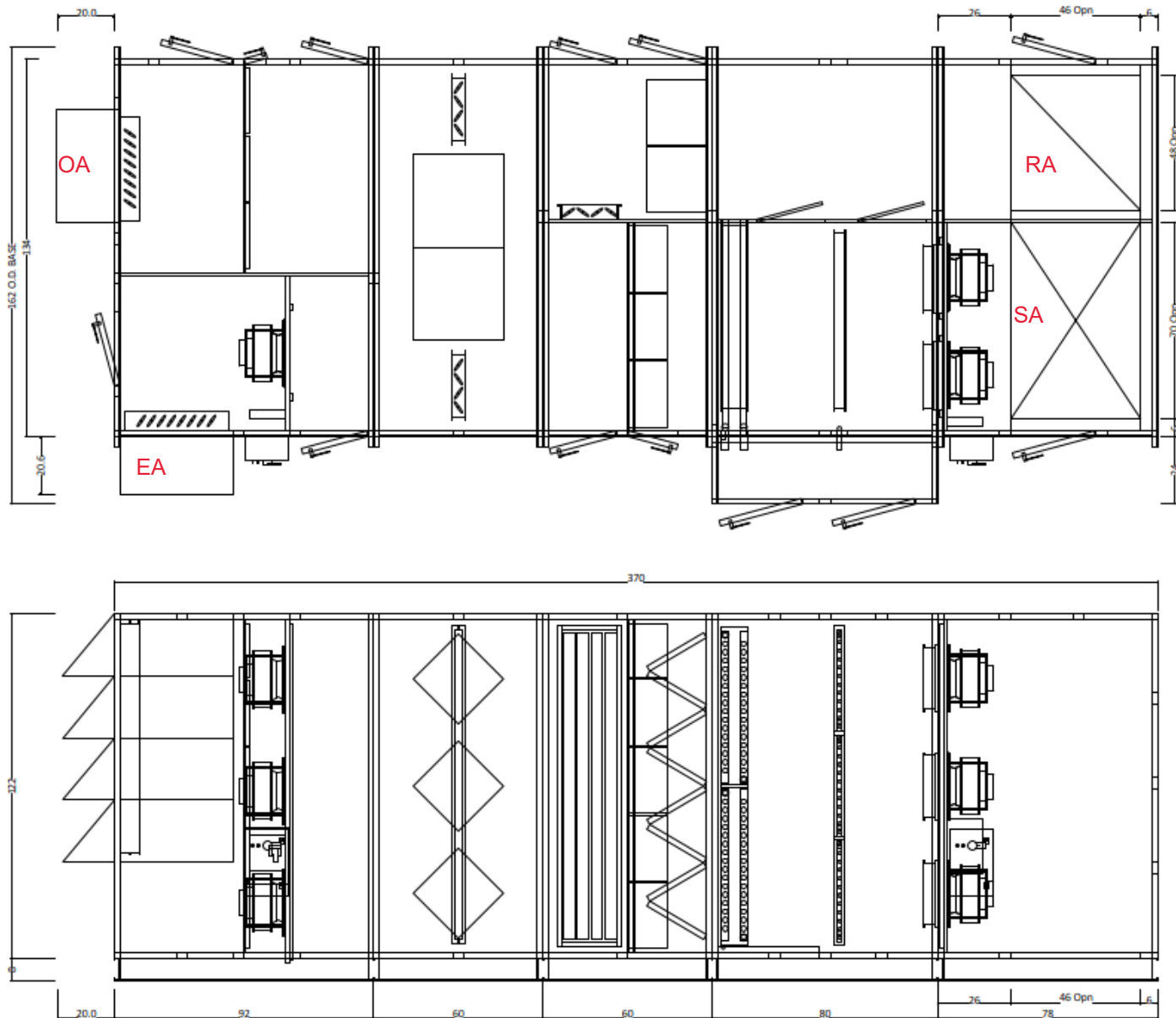
Array Sound Power (dB)

Type	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
Radiated:	69	71	76	70	60	52	39	43
Unit Discharge:	79	81	90	85	82	77	75	73
Unit Return:	74	78	83	79	73	71	70	69

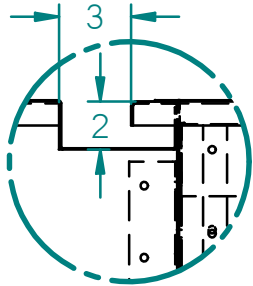
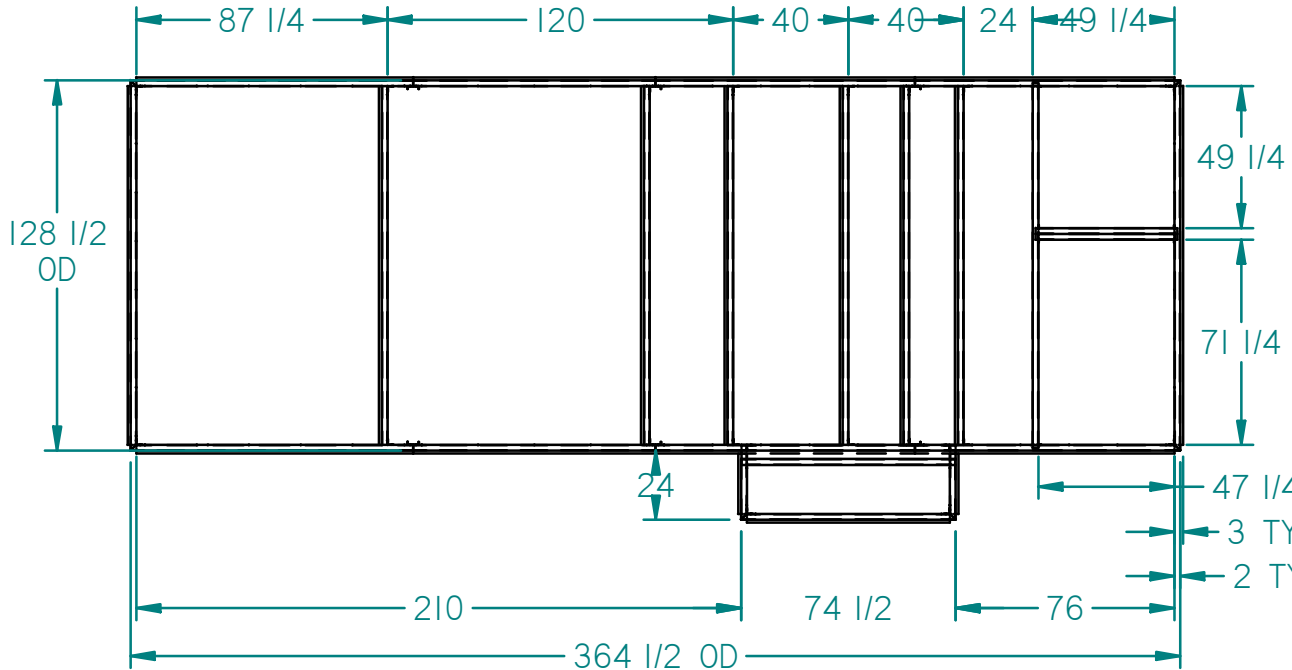
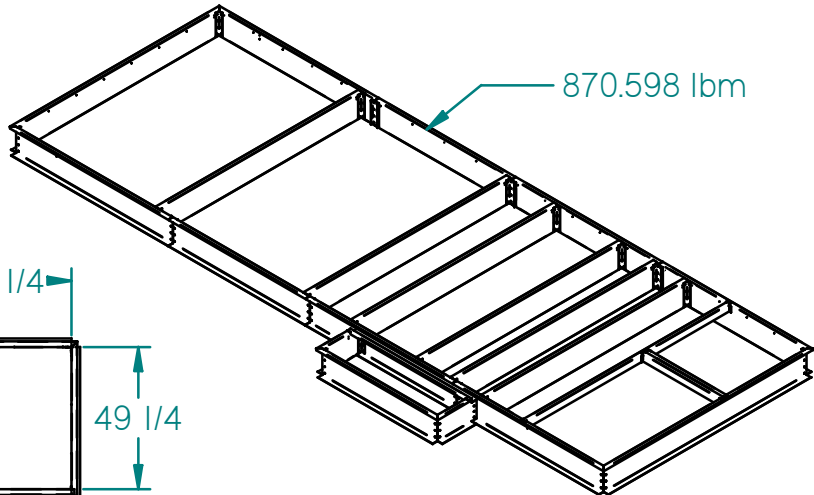
Shipping Section Details

Section	Length in	Weight lb
1	92	5404
2	60	2745
3	60	2644
4	80	5523
5	78	3364
Entire Unit	370	19680

Layout Drawing

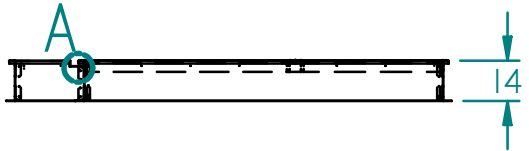
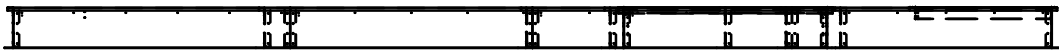


APPROX. WEIGHT
960 LBS



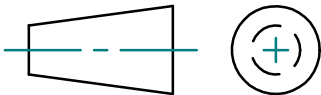
3 TYP. BOTTOM FLANGE
2 TYP. TOP FLANGE

SLOPE TBD



NOTES:

1. CURB SHIPPED IN PIECES FOR FIELD ASSEMBLY
2. CURB MUST BE INSTALLED SQUARE AND LEVEL
3. MATERIAL IS GALVANIZED 12ga STEEL
4. FACTORY INSTALLED P.T. 2x4 WOOD NAILER
5. SUPPLIED WITH 1-1/2x1/4" CLOSED CELL NEOPRENE GASKET
6. INSULATED W/ 1" DUCT LINER
7. ATTACHMENT BRACKETS INCLUDED. NO CALCS



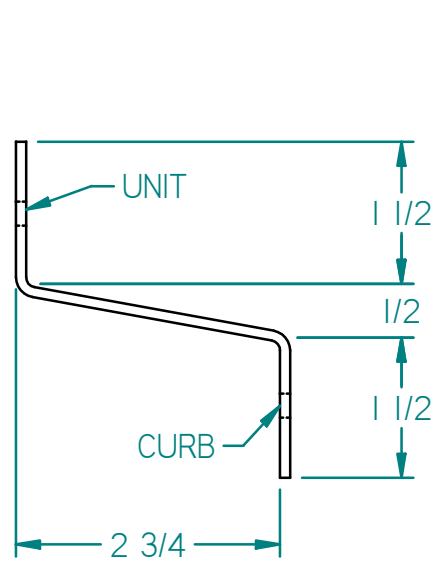
QUANTITY: 1
DIMENSIONS: INCHES

DRAWN BY SGRR

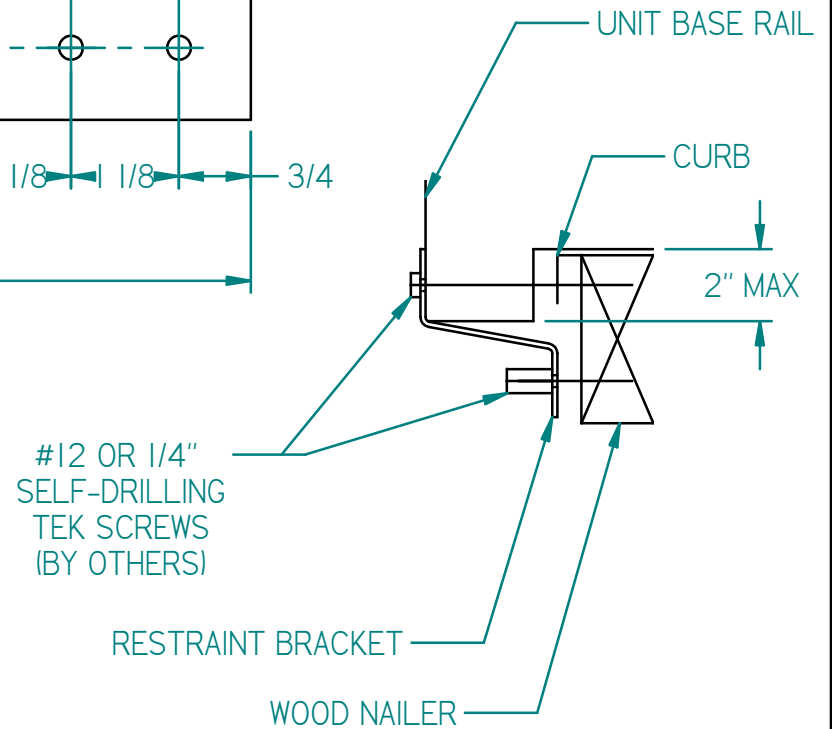
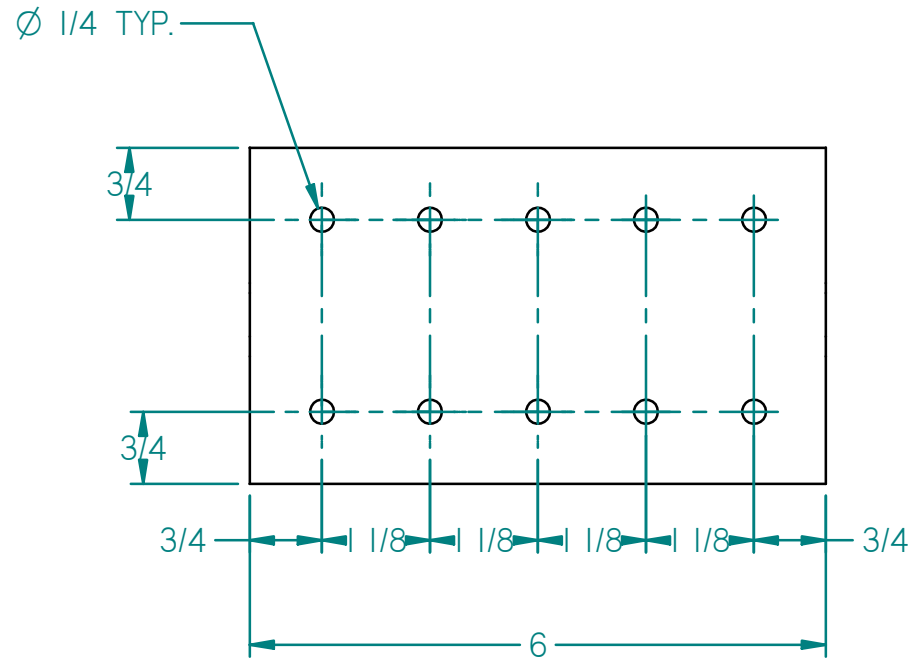
CURB TECHNOLOGIES™

PROJECT: Sharonville Convention Center Expansion (211025-TG15)
UNIT TAG: AHU-16
MODEL: D_OAH

Rev. 00 | 1/25/22



TAG: "A"



NOTES:

1. MATERIAL IS 12ga GALVNAIZED STEEL
2. ATTACHED TO UNIT & CURB W/ #12 OR 1/4" SELF-DRILLING SCREWS
3. PLACE BRACKETS ON 24" CENTERS UNLESS OTHERWISE SPECIFIED

	<p>CURB TECHNOLOGIES™</p>	
<p>QUANTITY: DIMENSIONS: INCHES</p>	<p>PROJECT: UNIT TAG:</p>	
<p>DRAWN BY JAS</p>	<p>MODEL: RESTRAINT BRACKET</p>	<p>Rev. 00 ??/??/??</p>

Job Information		Technical Data Sheet
Job Name	Sharonville Convention Center Expansion	
Date	January 05 2022	
Software Version	12.64	
Unit Tag	AHU-17	

Unit Overview									
Model	Overall Unit Dimensions			Supply			Return/Exhaust		
	External Dimensions			Air Volume cfm	Static Pressure		Air Volume cfm	Static Pressure	
Height in	Width in	Length in	External inWc		Total inWc	External inWc		Total inWc	
OAC033GVAM	60*	104*	350	8000	2.00	5.24	6000	1.50	3.31

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

Unit			
Model Number:	OAC033GVAM		
Outer Panel:	Painted 24 gauge G60 Galvanized Steel		
Liner:	24 gauge Galvanized Steel (unless noted per section)		
Insulation:	R-13 Injected Foam		
Unit Configuration:	Inline horizontal	Drive (Handling) Location:	Right
Base:	Curb ready	Wall Thickness:	2 in
Roof Curb Kit:	0 in	Altitude:	0 ft
Parts Warranty:	Standard One Year		

Unit Opening Locations							
Openings							
Opening	Location	Width	Height				
Return Air	Bottom	34 in	34 in				
Supply Air	Bottom	54 in	34 in				
Openings with Dampers							
Opening	Damper Type	Location	Size (Width x Height)		Material	Blade Action	Rainhood w/Screen
			Overall	Opening			
Exhaust Air	VCD43	Drive side	30 in x 50 in	22 in x 38 in	Alum	Parallel	Provided - Field Installed
Outside Air	VCD43	End	40 in x 56 in	32 in x 44 in	Alum	Parallel	Provided - Field Installed

Supply Air Stream

Panel Filter							
Type	Efficiency		Face Velocity	Face Area	Air Volume	Filter Loading	
Pleated	MERV 8		423 ft/min	18.9 ft ²	8000 cfm	Side	
Air Pressure Drop				Number of Filters	Height	Width	Depth
Clean Air	Mean Air	Dirty Air	User Spec				
0.18 inWc	0.59 inWc	1.00 inWc	N/A	6	24 in	20 in	2 in
Door							
Location			Width		Opening		
Non-drive side			8 in		Outward		
Special Options							
Sound Baffle				Filter Gauge			
(As casing details)				Magnehelic 0-2"			
Special Text							
Extra filters 1 set(s)							

Enthalpy Plate Energy Recovery

	Summer		Winter	
	Outdoor (OA)	Return (RA)	Outdoor (OA)	Return (RA)
Airflow CFM	3000	2000	3000	2000
Dry Bulb Temp °F	93	72	0	70
Wet Bulb Temp °F	74	62	-2	53
Enthalpy (H) BTU/lb	37.42	27.76	0.3	21.93
Moisture Ratio (MR) grains/lb	95.65	66.91	1.86	32.65
Energy (Q) Btuh	515082	254752	4110	201221
	Exhaust (EA)	Supply (SA)	Exhaust (EA)	Supply (SA)
Airflow CFM	2000	3000	2000	3000
Dry Bulb Temp °F	88.1	82.3	16.9	35.6
Wet Bulb Temp °F	70.5	69	16.9	29.4
Enthalpy (H) BTU/lb	34.31	33.06	6.06	10.68
Moisture Ratio (MR) grains/lb	83.49	84.59	12.93	13.7
Energy (Q) Btuh	314822	455012	55577	147011

* Warning - Condensation may occur

	Summer	Winter
Supply pressure drop (PD) in.wg	0.6	0.6
Exhaust pressure drop (PD) in.wg	0.66	0.66
Sensible effectiveness %:	76.3	76.3
Latent effectiveness %:	57.7	57.7
Total effectiveness %:	67.8	72
Energy Recover Ratio %:	45.2	48
Supply air face velocity SFPM	398.51	398.51
Exhaust air face velocity SFPM	265.67	265.67
Moisture removed lb/h	21.74	23.28
Total energy saved Btuh	60070	142901
Energy balance %:	50.9	50.9
Water balance %:	38.5	38.5

Combination Filter										
Access			Face Velocity				Face Area		Air Volume	
Side			455 ft/min				17.6 ft ²		8000 cfm	
Portion	Type	Efficiency	Air Pressure Drop				Number of Filters	Height	Width	Depth
			Clean Air	Mean Air	Dirty Air	User Spec				
Pre-Filter	None	MERV 8	N/A	N/A	N/A	N/A	2	24 in	24 in	2 in
							2	24 in	20 in	2 in
							2	24 in	12 in	2 in
Filter	Varicel SH cartridge	MERV 13	0.49 inWc	0.99 inWc	1.50 inWc	N/A	2	24 in	24 in	12 in
							2	24 in	20 in	12 in
							2	24 in	12 in	12 in
Door										
Location				Width				Opening		
Drive side				18 in				Outward		
Special Options										
Sound Baffle						Filter Gauge				
(As casing details)						Magnehelic 0-2"				

Chilled Water Coil										
Coil Model	Total Capacity	Sensible Capacity	Number of Coils	Number of Rows	Fins per Inch	Tube Diameter	Tube Spacing (Face x Row)			
5WH1205A	257916 Btu/hr	196326 Btu/hr	1	5	12	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							
8000 cfm	Dry Bulb 74.8 °F	Wet Bulb 62.8 °F	Dry Bulb 52.4 °F	Wet Bulb 51.6 °F	0.34 inWc	48 in	49 in	16.33 ft ²	490 ft/min	
Water		Flow Rate		Pressure Drop	Velocity	Volume	Weight			
Entering 42.0 °F		Leaving 55.9 °F		10.70 ftHd	2.60 ft/s	12.0 gal	103.00 lb			
Connection [Data Per Coil]					Min. Fin Surface Temp.	Min. Tube Wall Surface Temp.	Fouling Factor			
Type	Size	Location	Material							
Threaded	2.00 in	Drive side	Carbon steel		42.0 °F	42.0 °F	0.000			
Material					Drain Pan	Drain Side	Turbospiral			
Fin	Tube	Header	Case							
Aluminum .0075 in	Copper .025 in	Copper	Stainless steel		Stainless steel	Drive side	Yes			

Hot Water Coil							
Coil Model	Total Capacity	Number of Coils	Number of Rows	Fins per Inch	Tube Diameter	Tube Spacing (Face x Row)	
5WB1201B	183993 Btu/hr	2	1	12	0.625 in	3.00 in x 1.299 in	
Air Volume	Air Temperature		Coil Air Pressure Drop	Finned Height	Finned Length	Face Area	Face Velocity
	Entering	Leaving					
	Dry Bulb	Dry Bulb					
8000 cfm	60.0 °F	81.0 °F	0.13 inWc	24 in	46 in	15.33 ft ²	522 ft/min
Water		Flow Rate	Pressure Drop	Velocity	Volume	Weight	
Entering	Leaving						
190.0 °F	159.7 °F	12.10 gpm	0.40 ftHd	1.70 ft/s	3.0 gal	30.00 lb	
Connection [Data Per Coil]				Min. Fin Surface Temp.	Min. Tube Wall Surface Temp.	Fouling Factor	
Type	Size	Location	Material				
Threaded	1.50 in	Drive side	Carbon steel	159.7 °F	159.7 °F	0.000	
Material							
Fin		Tube		Header		Case	
Aluminum .0075 in		Copper .025 in		Copper		Galv. steel	

Supply Fan Array

Performance

Airflow (total)	8,000 CFM
Airflow (each)	2,667 CFM
Total Static Pressure	5.24"
Input HP (each)	3.55 HP
Max HP (each)	4.96 HP
Equip BHP (each)	3.23 BHP
Operating RPM	3,056 RPM
Max RPM	3,405 RPM
System Efficiency	62.1%
Redundancy	89%

Physical

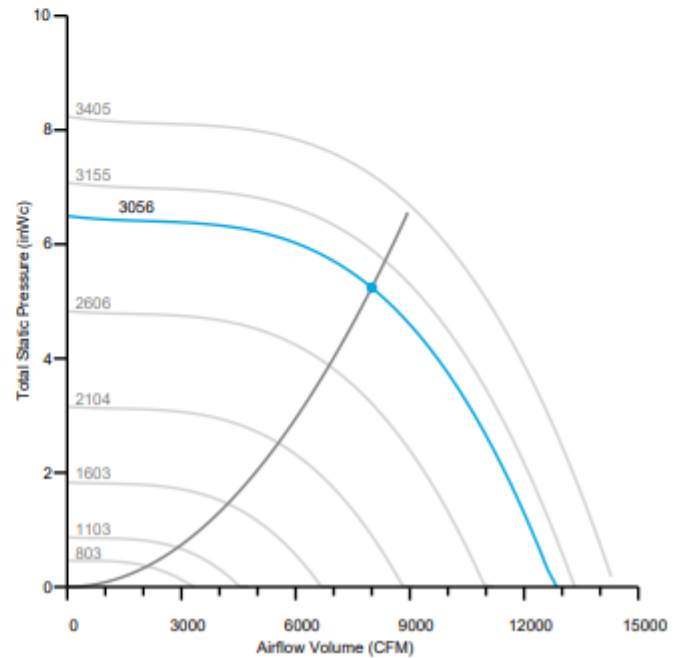
Bulkhead Width	58.000"
Bulkhead Height	56.000"
Quantity of Fans	3
Fan Model	FA1700069
Wheel Diameter	14.0"
Single Fan Weight	53 lbs
System Weight	363 lbs
Blade Material	HP Composite
Handing	Left
Backflow Device	Dampers
Control Panel Width	15.0"
Control Panel Height	23.8"
Control Panel Depth	10.1"

Electrical

Electrical Supply	3~ 440-480V 60Hz
Single Fan FLA	5.08 A
System MCA	16.71 A
System MOCP	20.00 A
QCB1 MCA	16.51 A
QCB2 MCA	-
SCC Rating	100 KAIC; Fused

Controls

Type	Basic
Rating	Outdoor



Array Sound Power (dB)

Type	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
Radiated:	73	65	68	67	61	56	40	43
Unit Discharge:	83	75	82	82	83	81	76	73
Unit Return:	79	70	79	79	72	72	70	66

Exhaust Air Stream

Panel Filter							
Type	Efficiency		Face Velocity	Face Area	Air Volume	Filter Loading	
Pleated	MERV 8		382 ft/min	15.7 ft²	6000 cfm	Side	
Air Pressure Drop				Number of Filters	Height	Width	Depth
Clean Air	Mean Air	Dirty Air	User Spec				
0.16 inWc	0.58 inWc	1.00 inWc	N/A	5	24 in	20 in	2 in
Door							
Location			Width		Opening		
Drive side			28 in		Outward		
Special Options							
Sound Baffle				Filter Gauge			
(As casing details)				Magnehelic 0-2"			
Special Text							
Extra filters 1 set(s)							

Enthalpy Plate Energy Recovery

(SEE SUPPLY AIR STREAM)

Exhaust Fan Array

Performance

Airflow (total)	6,000 CFM
Airflow (each)	3,000 CFM
Total Static Pressure	3.31"
Input HP (each)	2.70 HP
Max HP (each)	4.96 HP
Equiv BHP (each)	2.46 BHP
Operating RPM	2,812 RPM
Max RPM	3,405 RPM
System Efficiency	58%
Redundancy	68%

Physical

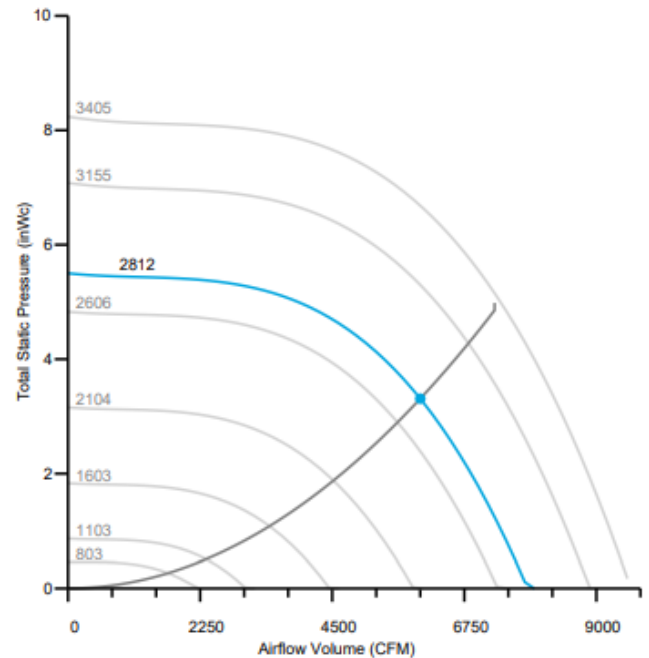
Bulkhead Width	41.000"
Bulkhead Height	56.000"
Quantity of Fans	2
Fan Model	FA1700069
Wheel Diameter	14.0"
Single Fan Weight	53 lbs
System Weight	256 lbs
Blade Material	HP Composite
Handing	Right
Backflow Device	Dampers
Control Panel Width	15.0"
Control Panel Height	23.8"
Control Panel Depth	10.1"

Electrical

Electrical Supply	3~ 440-480V 60Hz
Single Fan FLA	5.08 A
System MCA	11.63 A
System MOCP	15.00 A
QCB1 MCA	11.43 A
QCB2 MCA	-
SCC Rating	100 KAIC; Fused

Controls

Type	Basic
Rating	Outdoor



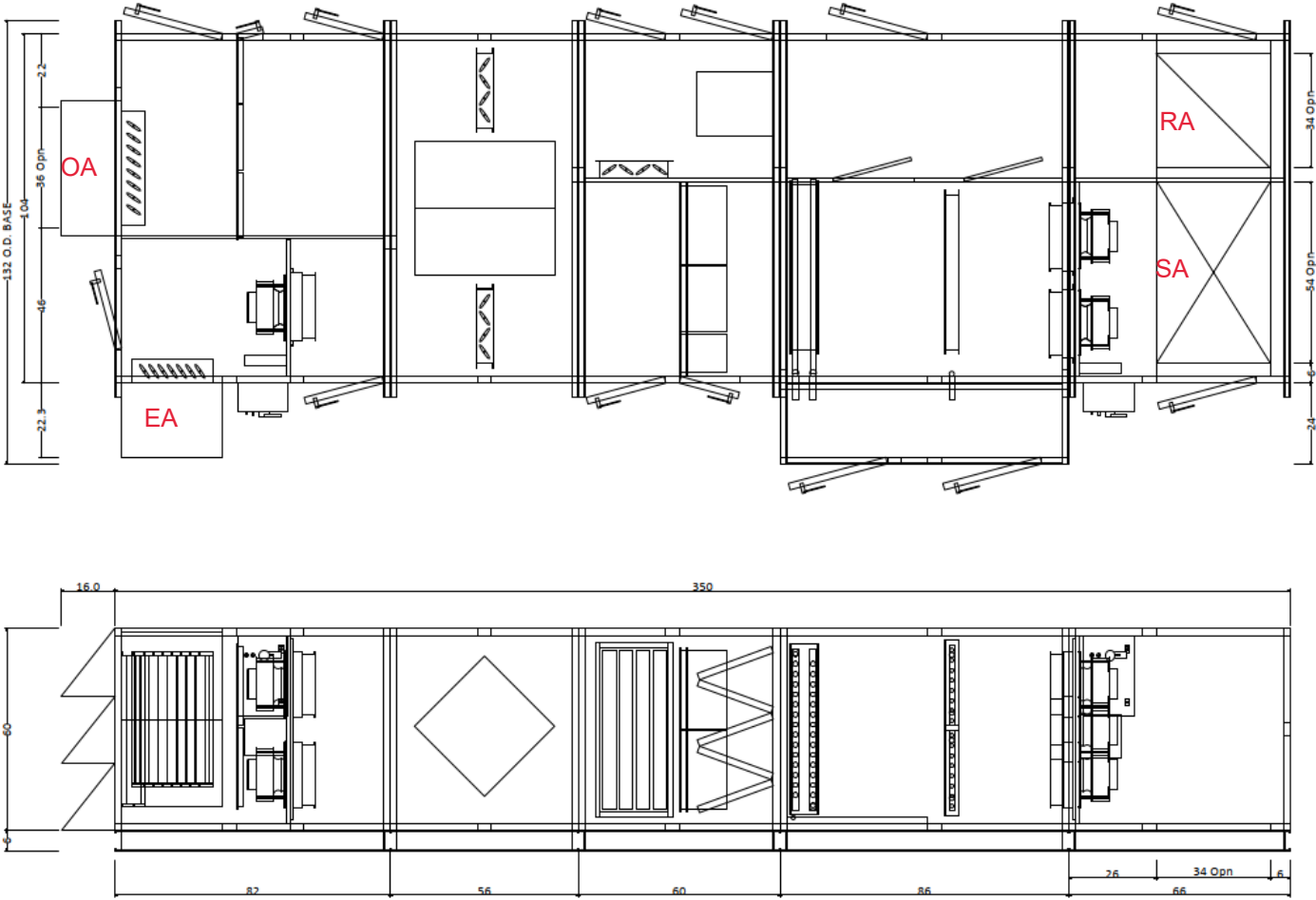
Array Sound Power (dB)

Type	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
Radiated:	68	62	66	64	58	52	36	40
Unit Discharge:	78	72	80	79	80	77	72	70
Unit Return:	77	68	77	75	70	69	66	63

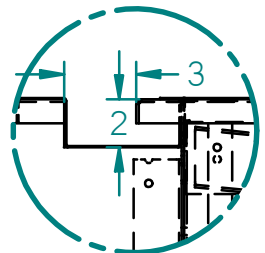
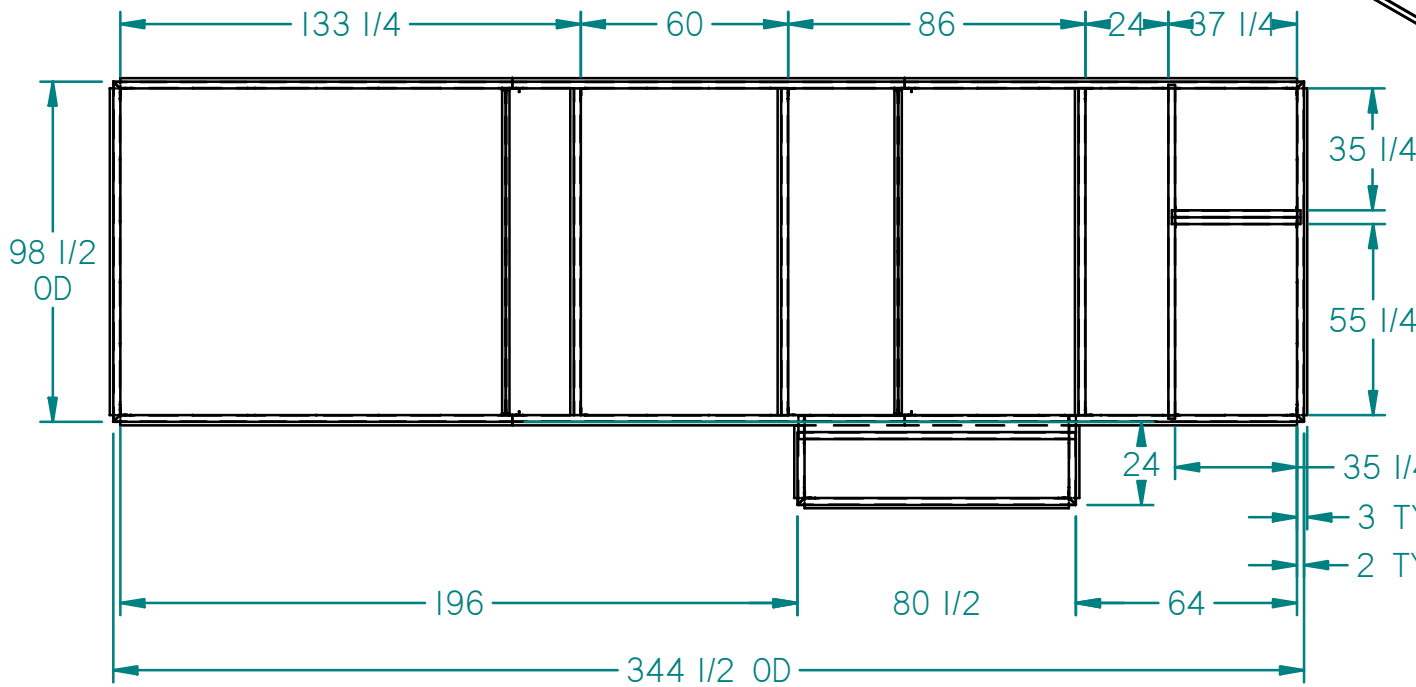
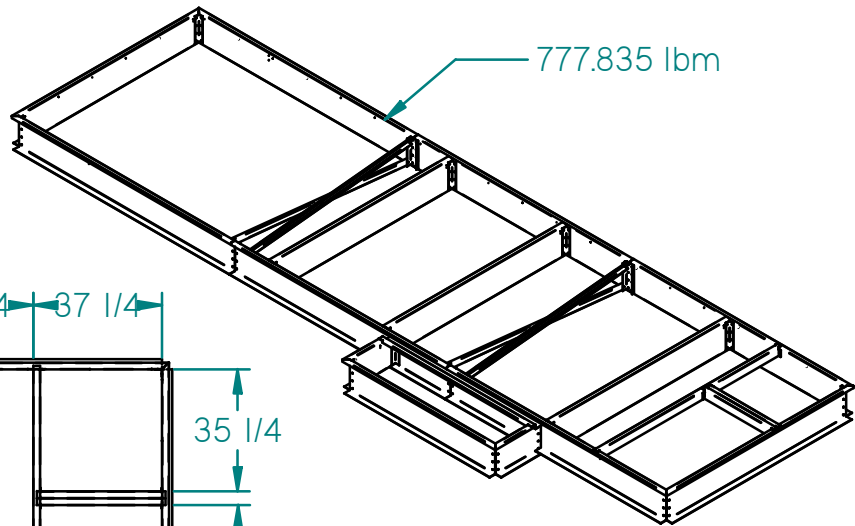
Shipping Section Details

Section	Length in	Weight lb
1	82	2436
2	56	1527
3	60	1615
4	86	2855
5	66	1661
Entire Unit	350	10094

Layout Drawing

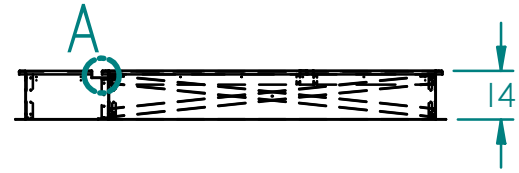


APPROX. WEIGHT
860 LBS



3 TYP. BOTTOM FLANGE
2 TYP. TOP FLANGE

DETAIL A



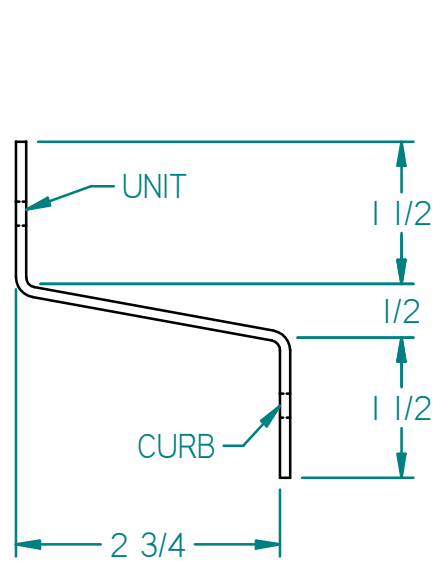
1. CURB SHIPPED IN PIECES FOR FIELD ASSEMBLY
2. CURB MUST BE INSTALLED SQUARE AND LEVEL
3. MATERIAL IS GALVANIZED 12ga STEEL
4. FACTORY INSTALLED P.T. 2x4 WOOD NAILER
5. SUPPLIED WITH 1-1/2x1/4" CLOSED CELL NEOPRENE GASKET
6. INSULATED W/ 1" DUCT LINER
7. ATTACHMENT BRACKETS INCLUDED. NO CALCS

QUANTITY: 1
DIMENSIONS: INCHES
DRAWN BY SGRR

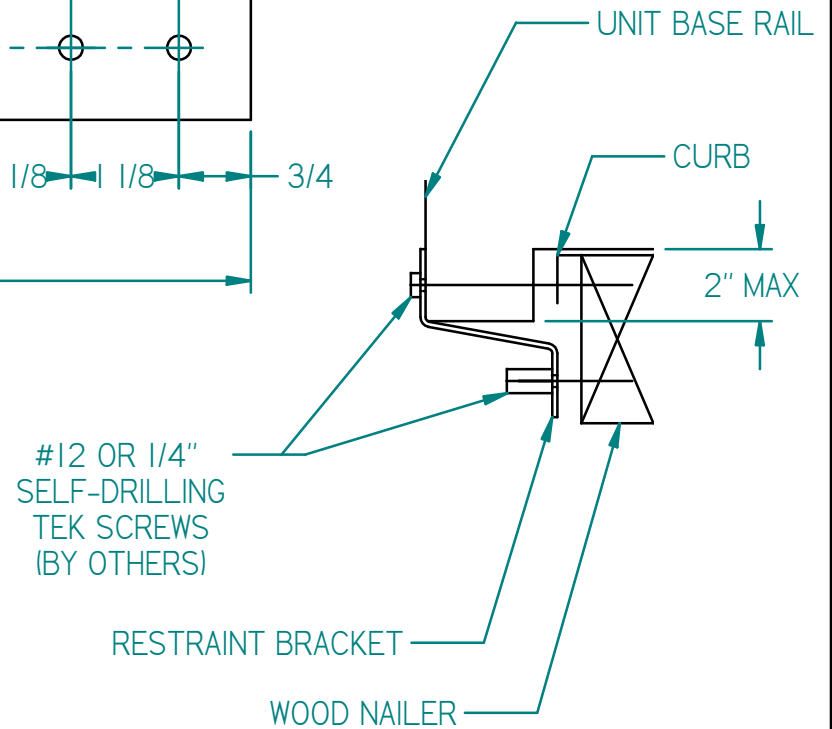
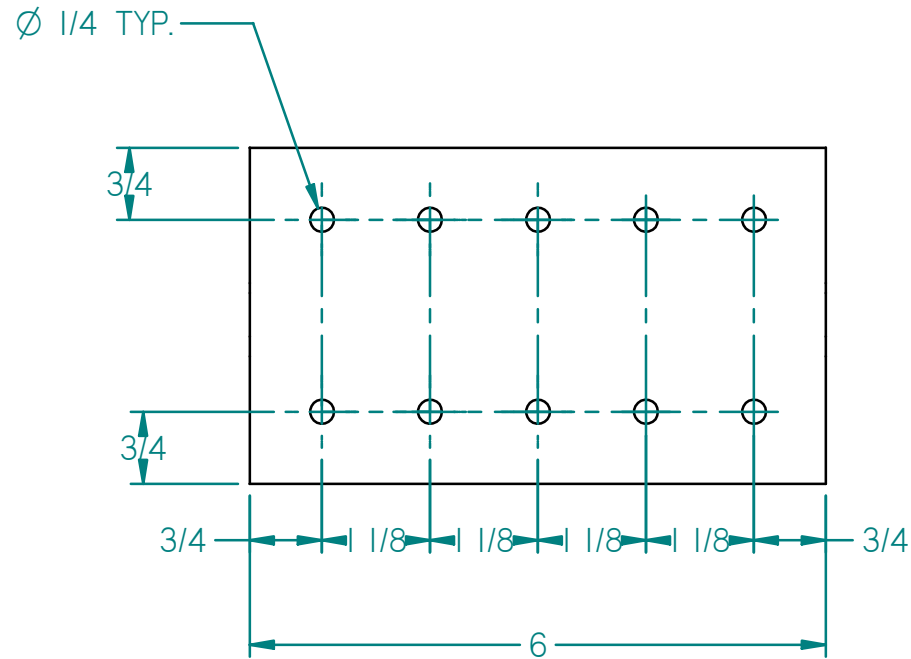
CURB TECHNOLOGIES™

PROJECT: Sharonville Convention Center Expansion (211025-TG15)
UNIT TAG: AHU-17
MODEL: D_OAH

Rev. 00	1/25/22
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TAG: "A"



NOTES:

1. MATERIAL IS 12ga GALVNAIZED STEEL
2. ATTACHED TO UNIT & CURB W/ #12 OR 1/4" SELF-DRILLING SCREWS
3. PLACE BRACKETS ON 24" CENTERS UNLESS OTHERWISE SPECIFIED

	<p>CURB TECHNOLOGIES™</p>	
<p>QUANTITY:</p> <p>DIMENSIONS: INCHES</p>	<p>PROJECT:</p> <p>UNIT TAG:</p>	
<p>DRAWN BY JAS</p>	<p>MODEL: RESTRAINT BRACKET</p>	<p>Rev. 00 ??/??/??</p>

CRITICALAIRE

Customer: **ElitAire** Project Name: **Sharonville Convention Cent**

Unit	Tag	Probe Length	Adjacent Side	Duct Shape	Mount Type	Cable Length	Internal Insulation	Model Number	Duct Area (FT ²)	Independent Sensors
AHU-14	OA	22	x 44	Rectangular	Stand-Off	25'	NONE	GTC116e-PC	6.7	4 x 2 Optional Add for 25' Cable
AHU-15	OA	32	x 68	Rectangular	Stand-Off	25'	NONE	GTC116e-PC	15.1	4 x 4 Optional Add for 25' Cable
AHU-16	OA	36	x 82	Rectangular	Stand-Off	25'	NONE	GTC116e-PC	20.5	4 x 4 Optional Add for 25' Cable
AHU-17	OA	36	x 48	Rectangular	Stand-Off	25'	NONE	GTC116e-PC	12.0	3 x 4 Optional Add for 25' Cable



Project Name [PROJECT NAME]		
Engineer [ENGINEER]		
Contractor [CONTRACTOR]		
<input checked="" type="checkbox"/> SCHEDULE ATTACHED		
Item #	Tag ID	
Probe Length	Adj. Side Length	Internal Insulation

REFER TO SCHEDULE

Refer to attached SCHEDULE for table details if button is checked in any of the tables

<input type="radio"/> BASE MODEL
<input checked="" type="checkbox"/> GTC116-P
<input type="checkbox"/> GTM116-P
<input type="checkbox"/> GTL116-P
<input type="checkbox"/> GTD116-P
<input type="checkbox"/> Other _____

<input type="radio"/> PROBES & SENSOR NODES	
<input checked="" type="checkbox"/> P+ Density (see density table, next page)	
<input type="checkbox"/> Custom	Probes: ____
	Nodes/Probe: ____
<input type="checkbox"/> Custom meets or exceeds P+ density	

<input checked="" type="checkbox"/> AVERAGING
<input checked="" type="checkbox"/> Airflow: Independent, arithmetic average
<input checked="" type="checkbox"/> Temperature: Independent, field selectable, velocity weighted (default) or arithmetic average

LISTINGS
<input checked="" type="checkbox"/> UL 873
<input checked="" type="checkbox"/> BTL (GTC116 and GTM116)
<input type="checkbox"/> CE (European shipments only)
<input type="checkbox"/> Other _____

<input type="radio"/> INDIVIDUAL SENSING NODES	
HOUSING	<input checked="" type="checkbox"/> Glass-filled polypropylene (std.) <input type="checkbox"/> Solid Kynar (/SS option)
THERMISTORS	<input checked="" type="checkbox"/> Self-heated sensor: Hermetically-sealed bead-in-glass thermistor probe <input checked="" type="checkbox"/> Temperature sensor: Hermetically-sealed bead-in-glass thermistor probe
INTERNAL WIRING	<input checked="" type="checkbox"/> Kynar coated copper
AIRFLOW MEASUREMENT	<input checked="" type="checkbox"/> Accuracy: ±2% of reading <input checked="" type="checkbox"/> Calibrated range: 0 to 5,000 fpm <input checked="" type="checkbox"/> Calibration points: 16 <input checked="" type="checkbox"/> NIST-traceable calibration
TEMPERATURE MEASUREMENT	<input checked="" type="checkbox"/> Accuracy: ±0.15°F <input checked="" type="checkbox"/> Calibrated range: -20 to 160°F <input checked="" type="checkbox"/> Calibration points: 3 <input checked="" type="checkbox"/> NIST-traceable calibration

<input checked="" type="checkbox"/> PROBE ENVIRONMENTAL LIMITS	
TEMPERATURE	
Probe	<input checked="" type="checkbox"/> -20 to 160°F
Transmitter	<input checked="" type="checkbox"/> -20 to 120°F
HUMIDITY (non-condensing)	
Probe	<input checked="" type="checkbox"/> 0 to 100%
Transmitter	<input checked="" type="checkbox"/> 5 to 95%

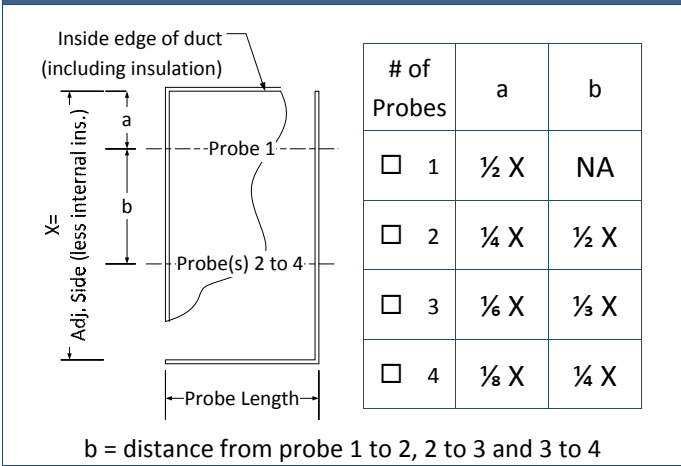
P+ SENSOR DENSITY TABLE (# Probes/# Sensor nodes per probe)

		Probe Length (inches)																						
		□ 6	□ 8	□ 10	□ 12	□ 14	□ 16	□ 18	□ 20	□ 22	□ 24	□ 30	□ 36	□ 42	□ 48	□ 54	□ 60	□ 66	□ 72	□ 84	□ 96	□ 108	□ 120	
Round >		<u>1/1</u>	1/1	1/1	<u>1/2</u>	2/2	2/2	2/2	2/4	2/4	2/4	2/4	2/4	2/6	2/8	2/8	2/8	2/8	4/4	4/4	4/4	4/4	4/4	
Flat Oval >	All flat ovals are custom. Contact EBTRON or your representative for information on flat ovals.																							
Square/Rectangle Adjacent Side Length (inches)	□6	<u>1/1</u>	1/1	1/1	1/1	1/2	1/2	1/2	1/2	1/2	1/2	1/4	1/4	1/4	1/4	1/6	1/6	1/6	1/6	1/6	1/6	1/8	1/8	
	□8	<u>1/1</u>	1/1	1/1	<u>1/2</u>	1/2	1/2	1/2	1/4	1/4	1/4	1/4	1/4	1/6	1/6	1/6	1/6	1/6	1/6	1/8	1/8	1/8	1/8	
	□10	<u>1/1</u>	1/1	1/1	<u>1/2</u>	1/2	1/3	<u>1/4</u>	1/4	1/4	1/4	1/6	1/6	1/6	1/6	1/6	1/8	1/8	1/8	1/8	1/8	1/8	1/8	
	□12	<u>1/1</u>	1/1	1/1	<u>1/2</u>	<u>1/3</u>	1/3	<u>1/4</u>	1/4	1/4	1/4	1/6	1/6	1/6	1/6	1/8	1/8	1/8	1/8	1/8	1/8	1/8	2/6	2/6
	□14	<u>2/1</u>	2/1	2/1	<u>2/2</u>	2/2	2/2	2/2	2/2	2/2	2/2	2/3	2/3	2/3	2/3	1/6	1/6	1/8	1/8	1/8	1/8	2/6	2/6	2/6
	□16	<u>2/1</u>	2/1	3/1	<u>2/2</u>	2/2	2/2	2/2	2/3	2/3	2/3	2/3	2/3	2/3	1/6	1/6	1/8	1/8	1/8	1/8	2/6	2/6	2/6	2/7
	□18	<u>2/1</u>	2/1	3/1	<u>2/2</u>	2/2	2/2	2/3	2/3	2/3	2/3	2/3	2/3	2/3	1/6	1/8	1/8	1/8	1/8	2/6	2/6	2/6	2/6	2/7
	□20	<u>2/1</u>	3/1	3/1	<u>2/2</u>	2/2	2/3	2/3	2/3	2/3	2/3	2/3	2/3	2/3	2/4	2/4	1/8	1/8	1/8	2/6	2/6	2/6	2/6	2/7
	□22	<u>2/1</u>	3/1	3/1	<u>2/2</u>	3/2	2/3	2/3	2/3	2/3	2/3	2/3	2/4	2/4	1/8	1/8	1/8	2/6	2/6	2/6	2/6	2/7	2/8	2/8
	□24	<u>2/1</u>	4/1	4/1	<u>2/2</u>	3/2	2/3	2/3	2/3	2/3	2/3	2/3	2/4	2/4	1/8	1/8	2/6	2/6	2/6	2/6	2/6	2/7	2/8	2/8
	□30	<u>4/1</u>	4/1	4/1	<u>3/2</u>	3/2	3/2	3/2	3/2	2/4	2/4	2/4	2/4	2/4	2/6	2/6	2/6	2/7	2/7	2/8	2/8	2/8	2/8	2/8
	□36	<u>4/1</u>	4/1	4/1	<u>3/2</u>	3/2	3/2	3/2	2/2	4/2	4/2	2/4	2/4	2/6	2/6	2/6	2/7	2/8	2/8	2/8	2/8	2/8	2/8	2/8
□42	<u>4/1</u>	4/1	4/1	<u>3/2</u>	4/2	4/2	4/2	4/2	4/2	4/2	4/2	2/6	2/6	2/7	2/7	2/8	2/8	2/8	2/8	2/8	2/8	2/8	2/8	
□48	<u>4/1</u>	4/1	4/1	<u>3/2</u>	4/2	4/2	4/2	4/2	4/2	4/2	4/2	3/4	2/6	2/7	2/8	2/8	2/8	2/8	2/8	2/8	2/8	2/8	2/8	
□54	<u>4/1</u>	4/1	4/1	<u>4/2</u>	4/2	4/2	4/2	4/2	3/4	3/4	3/4	2/7	2/8	2/8	2/8	2/8	2/8	4/4	2/8	2/8	2/8	2/8	2/8	
□60	<u>4/1</u>	4/1	4/1	<u>4/2</u>	4/2	4/2	4/2	3/4	3/4	3/4	4/4	4/4	4/4	2/8	2/8	2/8	4/4	4/4	4/4	4/4	2/8	2/8	2/8	
□66	<u>4/1</u>	4/1	4/1	<u>4/2</u>	4/2	4/2	3/4	3/4	3/4	3/4	4/4	4/4	4/4	2/8	2/8	4/4	4/4	4/4	4/4	4/4	4/4	2/8	2/8	
□72	<u>4/1</u>	4/1	4/1	<u>4/2</u>	4/2	4/2	3/4	3/4	3/4	3/4	4/4	4/4	4/4	2/8	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	2/8	
□84	<u>4/1</u>	4/1	4/1	<u>4/2</u>	4/3	4/3	3/4	3/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	
□96	<u>4/1</u>	4/1	4/1	<u>4/2</u>	4/3	4/3	3/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	
□108	<u>4/1</u>	4/1	4/1	<u>4/2</u>	4/3	4/3	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	
□120	<u>4/1</u>	4/1	4/1	<u>4/2</u>	4/3	4/3	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	

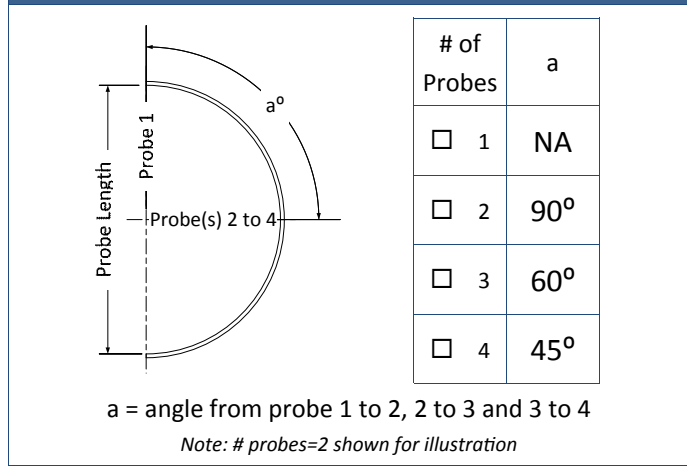
IMPORTANT NOTES REGARDING SENSOR DENSITY

- Items in **RED** do not meet guide spec sensor density due to manufacturing limitations.
- Items in **GREEN** meet sensor density requirements but do not match guide spec aspect ratio requirements for the number of probes.
- UNDERLINED** items cannot be manufactured as internal mount due to manufacturing limitations.

RECTANGULAR PROBE POSITIONING IN DUCT



ROUND PROBE POSITIONING IN DUCT



MOUNTING STYLES MAY DIFFER. REFER TO SCHEDULE.

○ PROBE MOUNTING STYLE

INTERNAL - 304 stainless steel brackets

INSERTION - 304 stainless steel brackets

Probes < 18 in. are ¼ in. undersized and do not have a terminal stud

STAND-OFF - 304 stainless steel brackets

Overall tube length is 2 in. > ordered probe length

○ TRANSMITTER

<input checked="" type="checkbox"/> GTC116	Two isolated analog output signals (field selectable/scalable 0-5/0-10 VDC or 4-20mA) plus one isolated RS-485 network connection (field selectable BACnet MS/TP or Modbus RTU)
<input type="checkbox"/> GTM116	Two isolated analog output signals (field selectable/scalable 0-5/0-10 VDC or 4-20mA) plus one isolated Ethernet network connection (simultaneously supported BACnet Ethernet, BACnet IP, Modbus TCP or TCP/IP)
<input type="checkbox"/> GTL116	One isolated Lonworks Free Topology network connection
<input type="checkbox"/> GTD116	One USB connection for thumb drive data-logging of sensor airflow and temperature over specified time intervals
<input type="checkbox"/> EB-Link (/EL opt.)	Interface for handheld EB-Link Reader (provided separately)

○ 24 VAC TRANSFORMER SELECTION

TOTAL SENSORS							
<input type="checkbox"/> 2	<input type="checkbox"/> 4	<input type="checkbox"/> 6	<input type="checkbox"/> 8	<input type="checkbox"/> 10	<input type="checkbox"/> 12	<input type="checkbox"/> 14	<input type="checkbox"/> 16
13 VA	14 VA	15 VA	16 VA	17 VA	18 VA	19 VA	20 VA

○ PROBE TUBE MATERIAL

<input checked="" type="checkbox"/> Standard	Gold anodized 6063 aluminum (1.1" dia.)
<input type="checkbox"/> /SS option	316 stainless steel (1.125" dia.)

CABLE TYPE

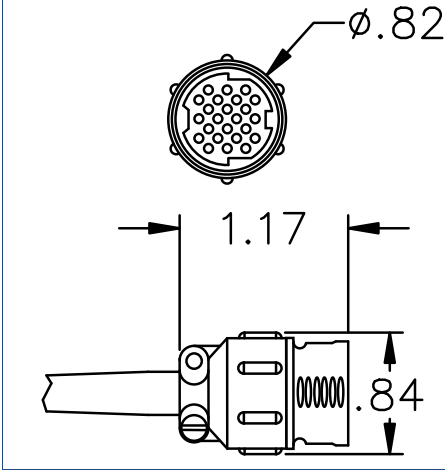
<input checked="" type="checkbox"/> FEP Plenum Rated (std.)
<input type="checkbox"/> Other _____

○ CABLE LENGTH

<input type="checkbox"/> 10 ft. (std.)	<input type="checkbox"/> 30 ft.
<input type="checkbox"/> 15 ft.	<input type="checkbox"/> 45 ft.
<input type="checkbox"/> 20 ft.	<input type="checkbox"/> 50 ft. (max.)
<input type="checkbox"/> 25 ft.	<input type="checkbox"/> Custom ____ ft.

REFER TO SCHEDULE

✓ CONNECTOR PLUG DIMENSIONS



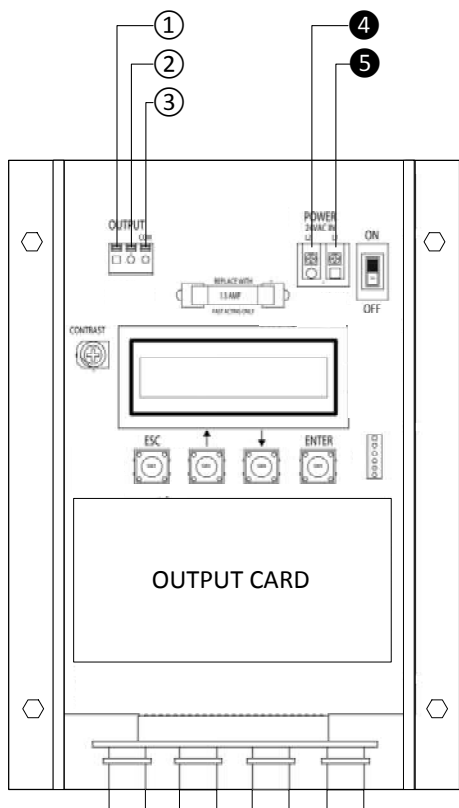
○ TRANSMITTER CONNECTOR PLATE

# OF PROBES	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
MAX. SENS/PROBE	8		4	
TYPE	A		B	
RECEPTACLES	2		4	

✓ CONNECTORS & INTERCONNECTS

- ✓ Gold plated plug/receptacle pins
- ✓ Gold plated PCB edge card fingers
- ✓ Gold plated PCB interconnects
- ✓ ENIG plated printed circuit boards

○ MAIN CIRCUIT BOARD CONNECTIONS



ANALOG OUTPUT CONNECTIONS

Models GTC116-P
 GTM116-P

	+	Common
Airflow	①	③
Temperature or Alarm	②	③

NETWORK CONNECTIONS

Models GTL116-P

	Net +	Net -
Lon Free Top.	①	②

24 VAC POWER CONNECTIONS

Models ALL

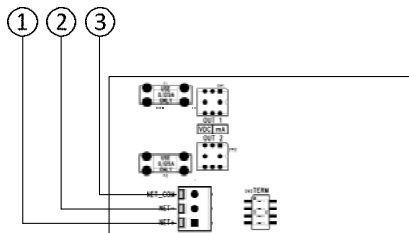
	L2 (gnd.)	L1 (hot)
24 VAC	④	⑤

○ OUTPUT CARD CONNECTIONS

NETWORK CONNECTIONS

Models GTC116-P

	Net +	Net -	Net Com
RS-485	①	②	③



NETWORK CONNECTIONS

Models GTM116-P

Ethernet	① RJ-45 (10/100)
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