Trane Performance Climate Changer Air Handler

Unit Overview - AHU 2-1

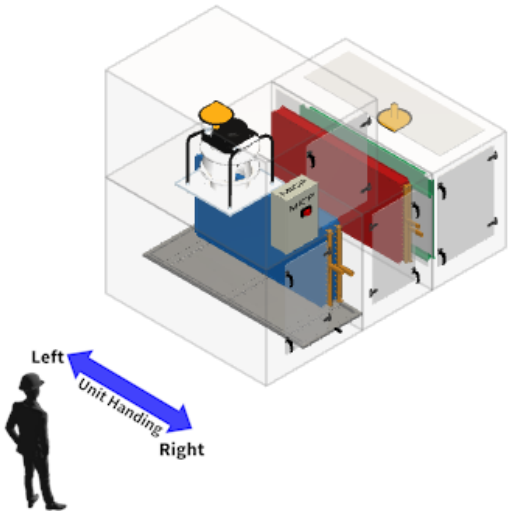
Application	Unit Size	External Dimensions			Weight	
		Height	Width	Length	Installed	Rigging
Indoor unit	CSAA014	45.0 in	72.0 in	107.614 in	1975 lb	1861 lb

Quantity of Shipping Sections	Largest Ship Split			Heaviest Ship Split	Elevation
	Height	Width	Length		
2 piece(s)	86.5 in	72.0 in	74.4 in	1604 lb	0.00 ft

Supply Fan			
Airflow	6400 cfm	**Total Static Pressure**	3.735 in H2O

Construction Features

Panel	2in. foam injected R-13 with thermal break
Panel Material	All unit inner panels - galvanized
Integral Base Frame	6in. integral base frame
Short Circuit Current Rating	65 kA
Agency Approval	UL listed unit



Unit Electrical

Circuit	Voltage/Phase/Frequency	FLA	MCA	Max Fuse Size
Circuit number 1 Supply fan motor(s)	200-208/3/60	20.79 A	25.67	45.00

Unit Controls

Controller Type	No controller

Warranty

Warranty section	Std. warranty only

Air mixing section - Position: 1

Openings

Face	Path	Type	Airflow	Face Velocity	Area	Pressure Drop	Hood
Top	Return	Sizeable rectangular opening	6400 cfm	755 ft/min	8.47 sq ft	0.000 in H2O	N/A

Filter

Type	Frame	MERV Rating	Quantity	Size
Pleated media - MERV 13	2"	MERV 13	4.00 2.00	16in.x20in. 16in.x25in.

Pressure Drop	Condition	Face Velocity	Airflow	Area
0.679	Mid-life	443 ft/min	6400 cfm	14.44 sq ft

Section Options

Door Location	Right

Heating coil section - Position: 2

Coil Construction	
Model	Hot water - 5/8" Shipping Coil, General (5W)
Rows	1
Tube Diameter	5/8in. tube diameter (15.875 mm)
Coil Connection	Standard
Tube Matl/Wall Thickness	.020" (0.508 mm) copper tubes
Fin Spacing	80 Per Foot
Fin Material	Aluminum fins
Fin Type	Prima flo E (energy efficient)
Face Area	12.50 sq ft
Coil (top/single) H x L	30 in. (762 mm) X 60" (1524 mm) finned length
Casing	Stainless steel
Coating	CompleteCoat(TM) Epoxy E-coat
Turbulators	Not Included
Rigging Weight	61.3 lb
Installed Weight	80.0 lb
Coil Section Options	
Extended Drain and Vent	Holes only
Drain Pan Size	Small
Door Location	Right

Coil Performance	
Capacity	
Total	142.94 MBh
Air	
Flow	6400 cfm
Entering Dry Bulb	34.00 F
Leaving Dry Bulb	54.59 F
Pressure Drop	0.080 in H2O
Face Velocity	512 ft/min
Fluid	
Flow	14.32 gpm
Entering	140.00 F
Leaving	120.00 F
Pressure Drop	0.69 ft fluid
Tube Velocity	1.58 ft/s
Reynolds Number	15123.09
Type	Water
Fouling Factor	0.00025 hr-sq ft-deg F/Btu
Volume	2.25 gal
AHRI 410 Classification	
AHRI 410 Classification	NOT Certified by AHRI
Data Generation Date	6/10/2024
Trane Select Assist update number	2830

Note: Coil is NOT certified by AHRI. Coil is within the scope of AHRI Standard 410.

Cooling coil section - Position: 3

Coil Construction	
Model	Chilled water - 1/2" Unit Optimized, General (UW)
Rows	8
Tube Diameter	1/2in. tube diameter (12.7 mm)
Coil Connection	Standard
Tube Matl/Wall Thickness	.016" (0.406 mm) copper tubes
Fin Spacing	106 Per Foot
Fin Material	Aluminum fins
Fin Type	Delta flo H (Hi efficient)
Face Area	13.65 sq ft
Coil (top/single) H x L	32 in. (813 mm) X 61" (1549 mm) finned length
Casing	Stainless steel
Coating	CompleteCoat(TM) Epoxy E-coat
Turbulators	Not Included
Rigging Weight	258.2 lb
Installed Weight	353.6 lb
Coil Section Options	
Extended Drain and Vent	Holes only
Drain Pan	Stainless steel
Drain Pan Size	Medium large
Drain Connection	Right
Minimum Trap Height (L)	7.137 in
H Trap Dimension	4.092 in
J Trap Dimension	2.046 in
Door Location	Right

Coil Performance	
Capacity	
Total	344.89 MBh
Sensible	207.83 MBh
Air	
Flow	6400 cfm
Entering Dry Bulb	81.38 F
Entering Wet Bulb	69.40 F
Leaving Dry Bulb	52.00 F
Leaving Wet Bulb	51.90 F
Pressure Drop	1.262 in H2O
Face Velocity	469 ft/min
Fluid	
Flow	49.09 gpm
Entering	42.00 F
Leaving	56.00 F
Pressure Drop	8.43 ft fluid
Tube Velocity	3.37 ft/s
Reynolds Number	9689.71
Type	Water
Fouling Factor	0.00000 hr-sq ft-deg F/Btu
Volume	11.41 gal
AHRI 410 Classification	
AHRI 410 Classification	NOT Certified by AHRI
Data Generation Date	7/10/2024
Trane Select Assist update number	2840

Note: Coil is NOT certified by AHRI. Coil is within the scope of AHRI Standard 410.

Supply fan section - Position: 4

Fan Data	
Wheel Diameter/Type/Class	19.7 impeller fan full width
Fan Quantity	1
Discharge Location	Top front
Motor Location	Right side drive
Drive Service Factor	Direct drive
Fan K-factor	2610.00

Fan Performance	
Airflow	6400 cfm
Total Static Pressure	3.735 in H2O
Operating Speed	2014 rpm
Fan electrical power (FEP)	4.26 kW
Max Total Static Pressure @ 10V	4.660 in H2O

Motor Interface Options	
Selection Type	MICP with H-O-A
Voltage	200-208/3
Mounting Location	External mounting

Motor Data	
Voltage	200-208/3
Impeller Fan Control Voltage	9.0 V
Impeller Fan HP per fan	8.050 hp
FEI	1.44
Wire to air static efficiency	65.87 %

Note: Certified airflow performance per AHRI 430

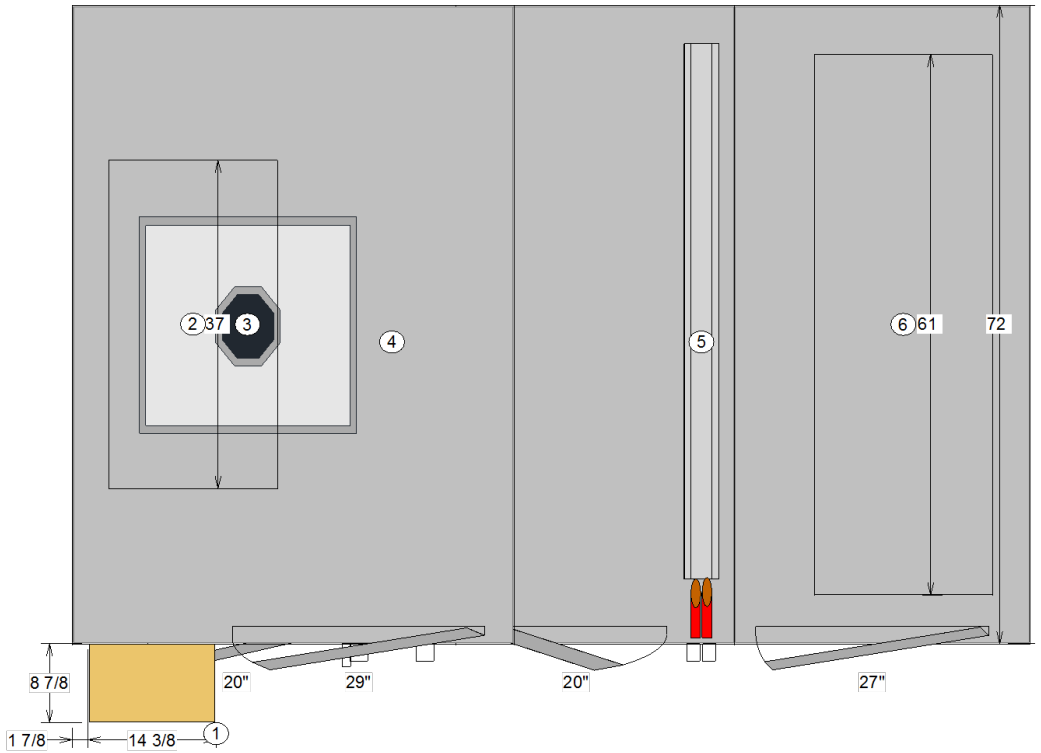
Fan Section Options	
Door Location	Right
Door Guard	Yes

Fan Discharge Options

Face	Type	Airflow	Face Velocity	Area	Pressure Drop	Exhaust Hood	Damper Torque Requirement
Top Face Feature	Sizeable rectangular opening	6400 cfm	1311 ft/min	4.88 sq ft	0.215 in H2O	N/A	N/A

Note: Certified by the AHRI Central Station Air-Handling Unit (AHU) Certification Program, 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.

Pressure Drop in (in w.g.)	
Supply fan	
Air mixing section	0.68
Coil section	0.08
Coil section	1.26
Fan section	0.21
Internal Static Pressure	**2.24**
External Static Pressure	**1.50**
Total Static Pressure	**3.74**



1 HMI Control box RH
21 x 14.38
2 Opening top
37 x 19
3 Plenum fan - 19.7 impeller
fan full width Supply fan
Motorized impeller fan
200-208/3
4 Cooling coil - 8 Rows
Coil type 1/2" Unit
Optimized, General (UW)
5 Heating coil - 1 Rows
Coil type 5/8" Shipping
Coil, General (5W)
6 Opening top
61 x 20

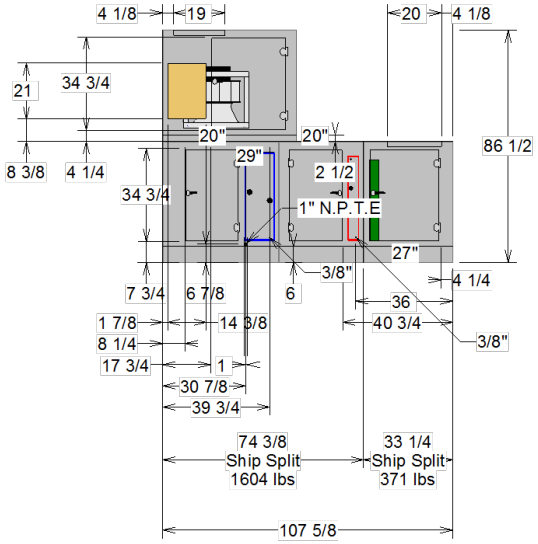
Doors
20 width x 35 height
29 width x 35 height
27 width x 35 height

For maneuvering purposes, include 1.125 inches to each ship split length for overlapping panel flange. Flange will not add to overall installed unit length shown.

OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size: 14	Job Name: FSDB Kramer	Unit Casing: 2in Double Wall Foam
Product group: Indoor unit	6400 cfm	Proposal Number:
Integral base frame: 6in. integral base frame	Sales Office:	Tags: AHU 2-1
Paint:		1861.3 lb / 1975.4 lb

TRANE
Performance Climate Changer
Air Handlers



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4 Cooling coil - 8 Rows
Coil type 1/2" Unit
Optimized, General (UW)
5 Heating coil - 1 Rows
Coil type 5/8" Shipping
Coil, General (5W)
6 Opening top
61 x 20
7 3/8"
8 1" N.P.T.E

Doors
20 width x 35 height
29 width x 35 height
27 width x 35 height

For maneuvering purposes, include 1.125 inches to each ship split length for overlapping panel flange. Flange will not add to overall installed unit length shown.

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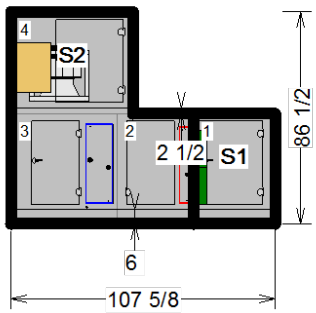
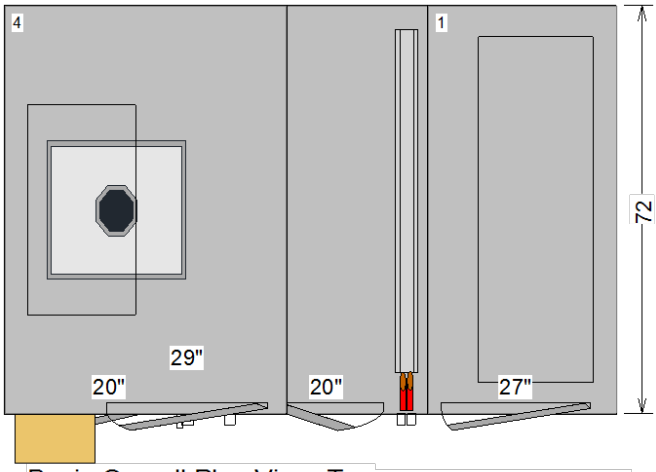


For maneuvering purposes, include 1.125 inches to each ship split length for overlapping panel flange. Flange will not add to overall installed unit length sh

Pos #	Module	Length	Weight
1	Air mixing section	33 1/4	371.22
2	Coil section	31 3/8	315.25
3	Coil section	43 1/8	754.48
4	Fan section	49 5/8	534.43
		Installed Unit Weight	1975.38 lbs



Basic Overall Plan View: Top - Measurements in inches

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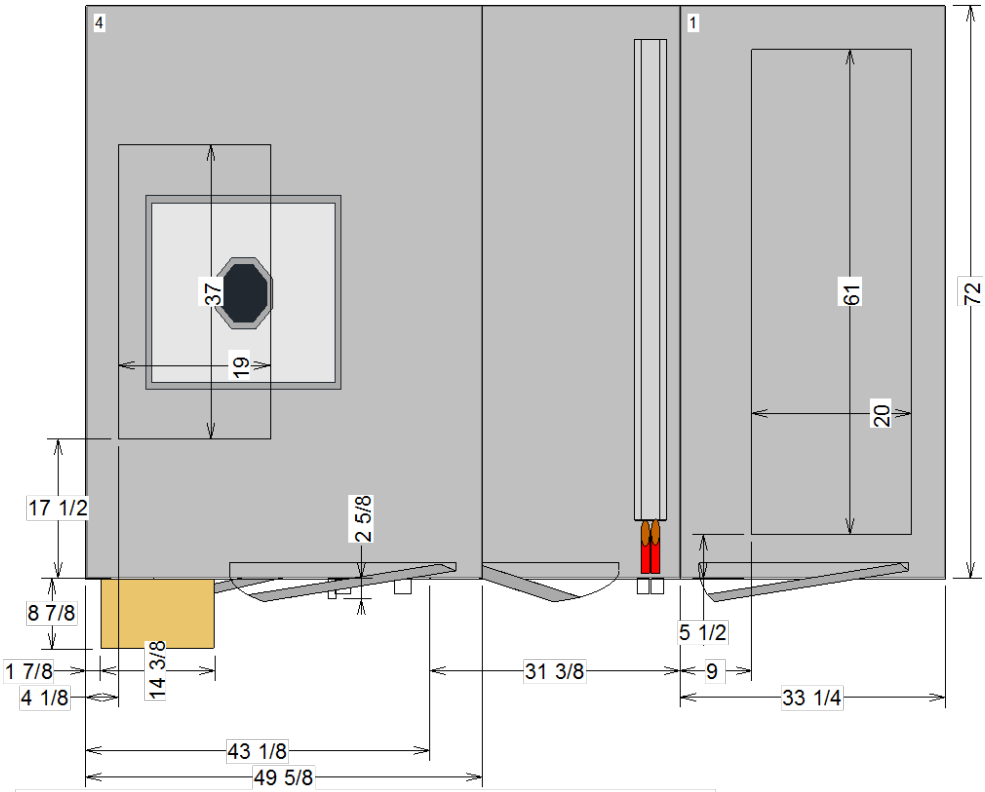
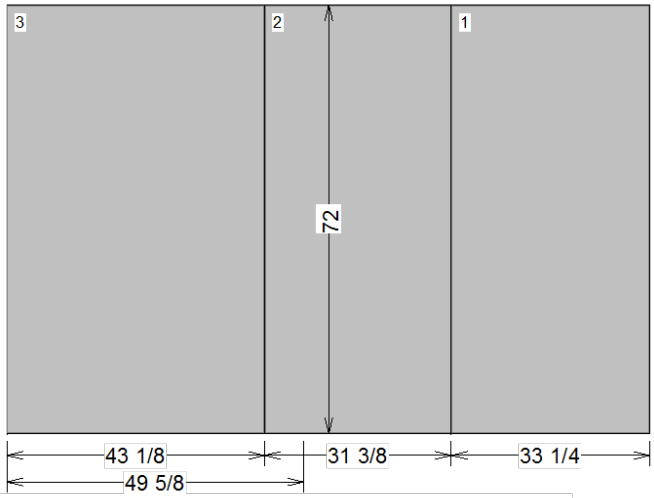


Right Side of Unit Detailed Plan View: Top - Measurements in inches



Left Side of Unit Detailed Plan View: Bottom - Measurements in inches

****Placement of electrical conduit may vary by a tolerance of 8" in any direction.**

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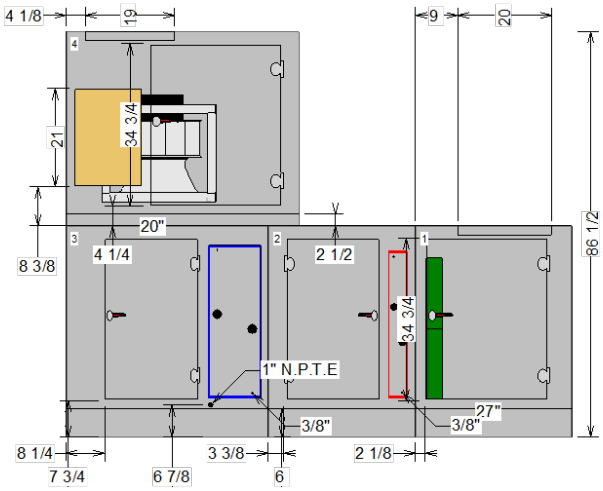
Product group: Indoor unit	6400 cfm	Proposal Number:	
Integral base frame: 6in. integral base frame	Sales Office:	Tags: AHU 2-1	
Paint:		1861.3 lb / 1975.4 lb	



Detailed Elevation View: Left - Measurements in inches

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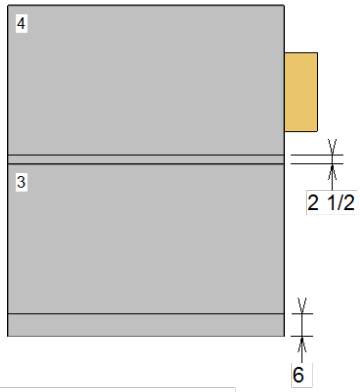
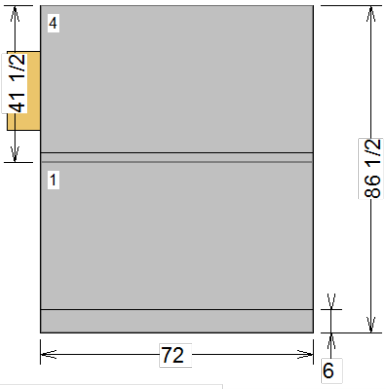


Detailed Elevation View: Front - Measurements in inches



Detailed Elevation View: Back - Measurements in inches

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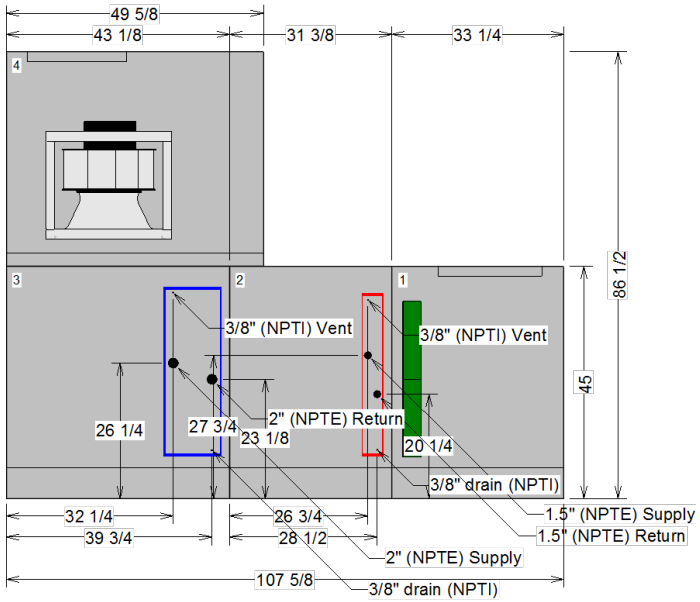
Performance Climate Changer
Air Handlers



NPTI : National Pipe Thread Internal Connection
NPTE : National Pipe Thread External Connection

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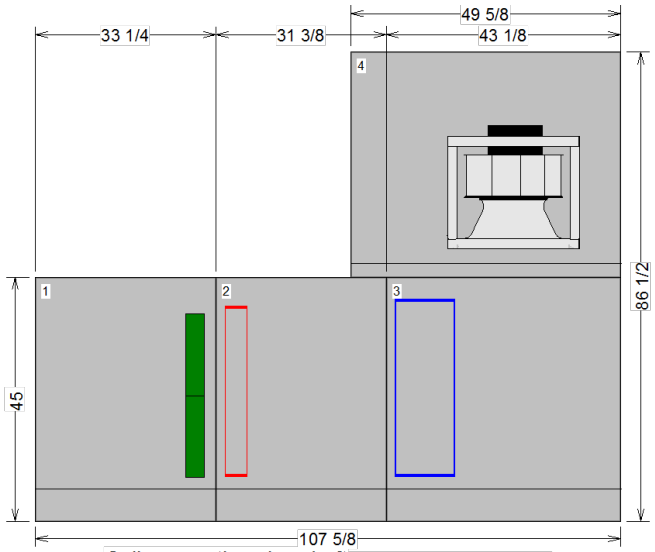
Air Handlers



Coil connection view: Left - Measurements in inches

NPTI : National Pipe Thread Internal Connection
NPTE : National Pipe Thread External Connection

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Product group: Indoor unit	6400 cfm	Proposal Number:
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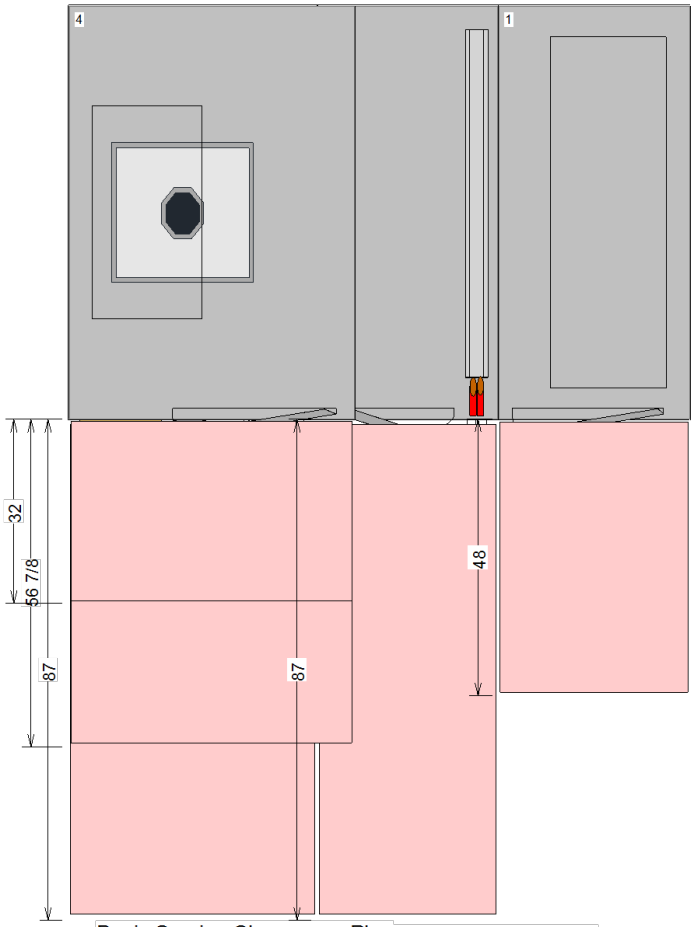
TRANE
Performance Climate Changer
Air Handlers



Basic Service Clearance - Plan - Measurements in inches

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Integral base frame: 6in. integral base frame	Sales Office:	Tags: AHU 2-1
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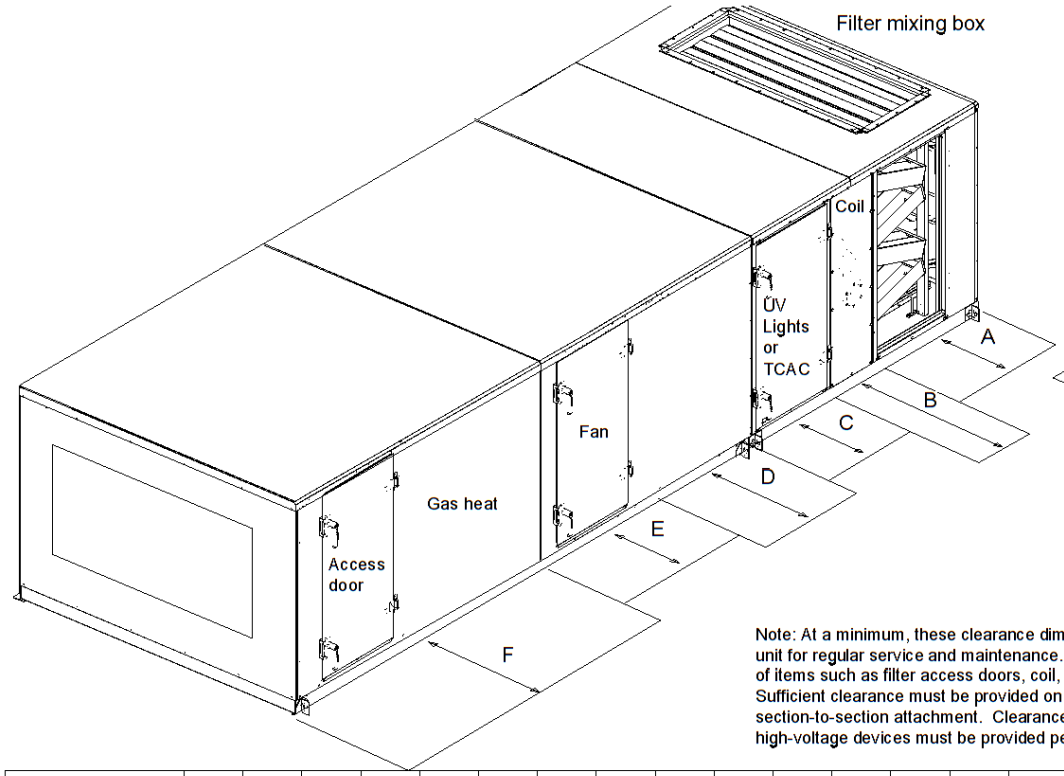
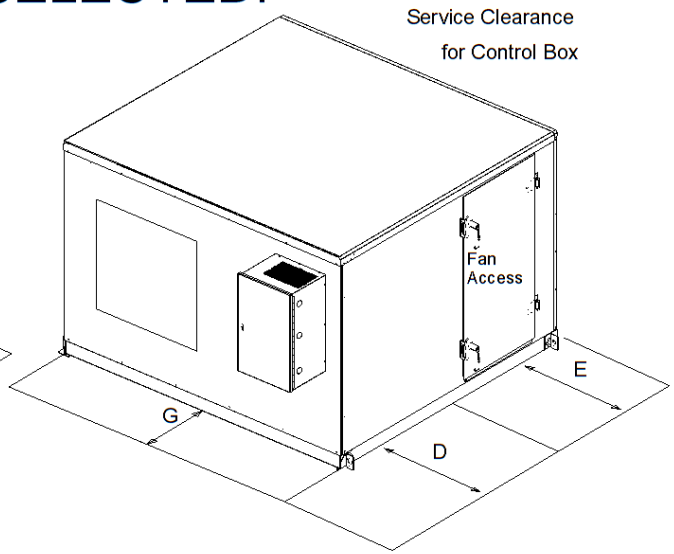
Performance Climate Changer
Air Handlers

EXAMPLE UNIT - NOT CONFIGURED AS SELECTED.



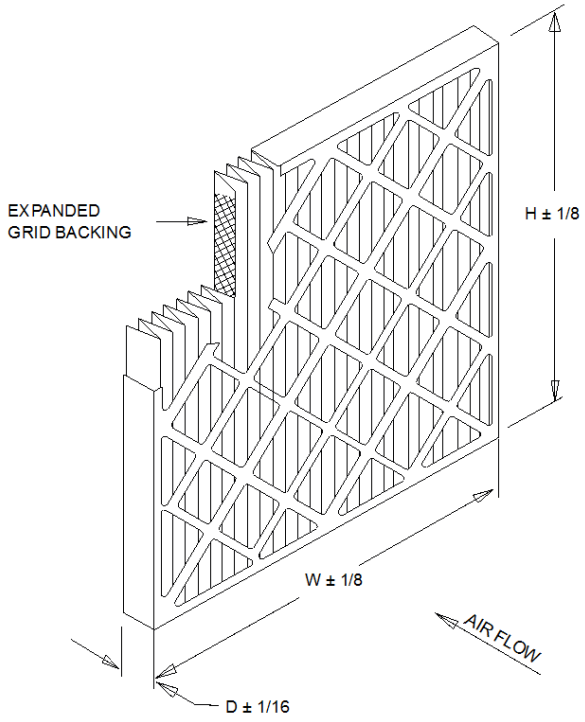


Note: At a minimum, these clearance dimensions are recommended on one side of the unit for regular service and maintenance. Refer to as-built submittal for locations of items such as filter access doors, coil, piping connections, motor locations, etc. Sufficient clearance must be provided on all sides of unit for removal of panels or section-to-section attachment. Clearance for starters, VFDs, or other high-voltage devices must be provided per NEC requirements.

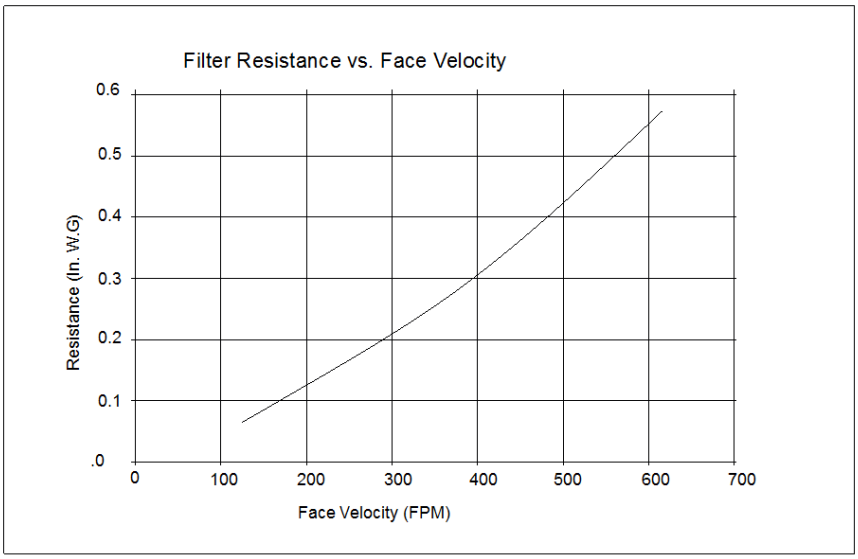
Component	3	4	6	8	10	12	14	17	21	25	30	35	40	50	57	66	80	100	120
A (filter)	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	52	56	58	58
B (coil, humidifier)	48	59	59	66	77	82	87	87	95	95	109	115	128	141	141	156	156	170	197
B (staggered coil)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	67	67	76	80	88	96	96	105	105	113	129
C (UV Lights)	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	52	56	58	58
C (TCAC)	43	59	59	63	75	81	83	83	58	58	83	75	83	83	83	83	83	75	83
D (External Starter, VFD, LV box or Overload box)	61	61	61	61	61	61	61	61	64	64	64	64	64	64	64	64	64	64	64
D (Internal Starter or VFD)	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
E (fan)	48	48	48	48	51	54	58	61	60	66	66	66	70	77	77	93	93	101	101
F (Gas Heat Ext Vestible)	N/A	N/A	89	90	108	100	100	105	115	115	118	136	140	156	156	170	179	180	N/A
F (Gas Heat Int Vestible)	N/A	N/A	56	63	74	79	84	84	92	92	106	112	125	138	138	153	153	167	194

Component	All Sizes
G (Side mount LV box)	36
G (Front mount LV box)	13

Base Detail



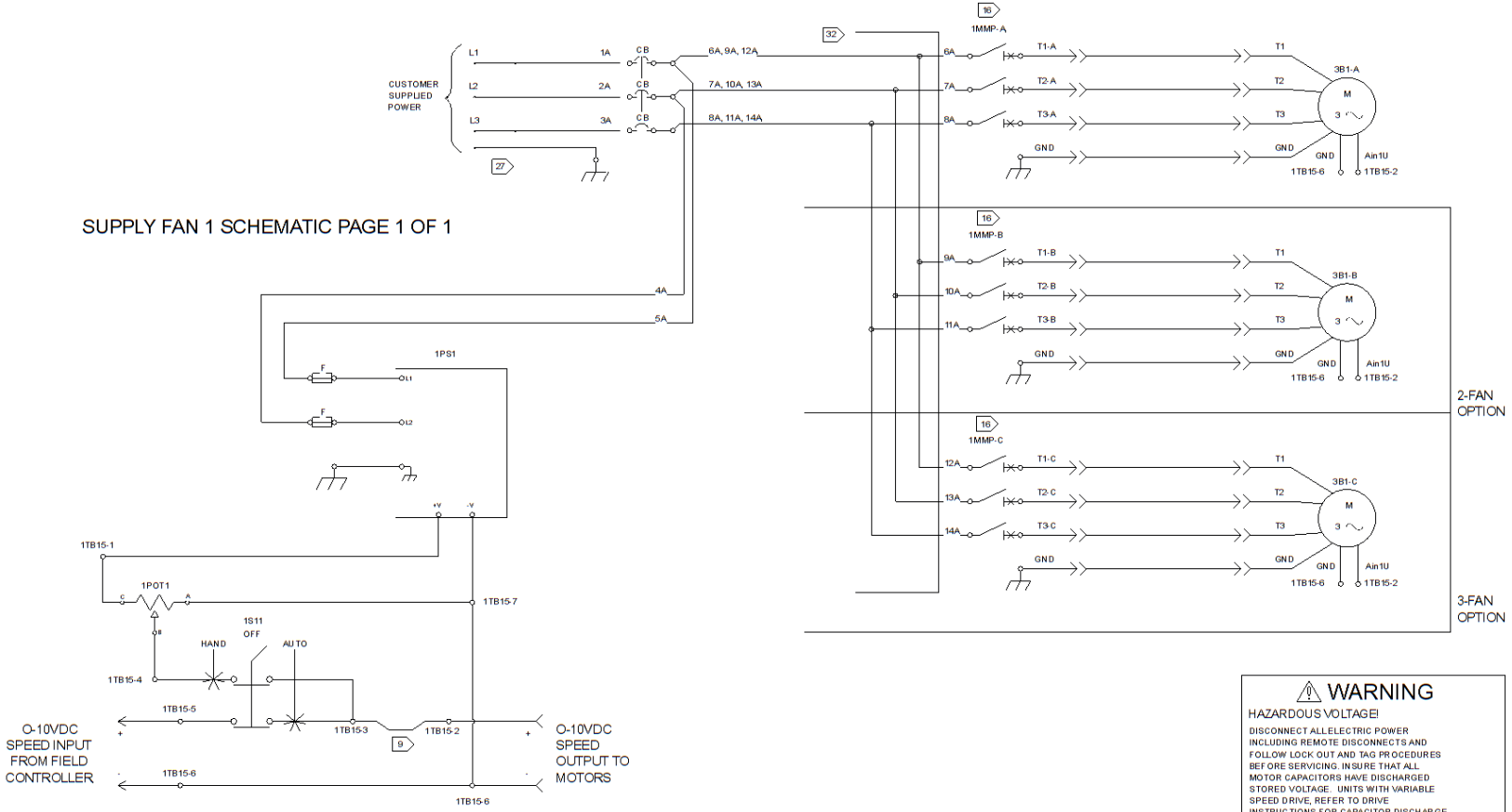
NOMINAL SIZE (WxHxD)	ACTUAL SIZE (WxHxD)	RATED AIR FLOW (CFM)	INITIAL RESISTANCE (IN. W.G.)	MEDIA AREA (SQUARE FEET)	FILTER UNIT WEIGHT (LBS)
12x24x2	11-3/8 x 23-3/8 x 1-3/4	1000	0.41	10.5	0.9
16x20x2	15-1/2 x 19-1/2 x 1-3/4	1120	0.41	10.9	1.1
16x25x2	15-1/2 x 24-1/2 x 1-3/4	1400	0.41	14.9	1.3
20x20x2	19-1/2 x 19-1/2 x 1-3/4	1400	0.41	14.5	1.3
20x24x2	19-3/8 x 23-3/8 x 1-3/4	1670	0.41	17.4	1.4
20x25x2	19-1/2 x 24-1/2 x 1-3/4	1750	0.41	18.5	1.4
24x24x2	23-3/8 x 23-3/8 x 1-3/4	2000	0.41	21.1	1.6



STANDARD CONSTRUCTION
1. 100 % Synthetic White Media
2. 17.5 Pleats Per Foot
3. Expanded Metal Pleat Supports
4. Moisture Resistant Beverage Board Frame
5. Double Wall Frame

NOTES
1. MERV 13 per ASHRAE 52.2-2012
Tested at 492 FPM on 24x24x2 Nominal Size
2. Final Resistance: 1.0" W.G.
3. Rated Velocity: 500 FPM
4. Classified per U.L. Standard 900 for Flammibility
5. Maximum Operating Temperature: 200 deg. F

SUPPLY FAN 1 SCHEMATIC PAGE 1 OF 1



NOTES:

1. DASHED LINES INDICATE RECOMMENDED FIELD WIRING BY OTHERS. PHANTOM LINES INDICATE CONTROL OPTION. REF. CONTROL PANEL SCHEMATIC FOR SPECIFIC DETAIL.
2. ALL FIELD WIRING MUST BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC), STATE AND LOCAL REQUIREMENTS. OTHER COUNTRIES APPLICABLE NATIONAL AND/OR LOCAL REQUIREMENTS SHALL APPLY. FIELD CONDUCTORS SHALL HAVE INSULATION RATING NOT LESS THAN 600V COPPER CONDUCTORS ONLY.
3. THE MINIMUM CIRCUIT AMPACITY, THE MAXIMUM FUSE SIZE, AND DISCONNECT SIZE ARE CALCULATED BASED ON THE INVERTER INPUT LINE CURRENTS PER ARTICLE 430-2 OF THE NATIONAL ELECTRICAL CODE.

9 REMOVE JUMPER AND INSTALL FIELD SAFETY CONTACT.

16 MMP AND OVERLOAD RELAY TRIP SETTING MUST BE ADJUSTED TO CORRESPOND WITH THE MOTOR FULL LOAD CURRENT AS SHOWN ON THE MOTOR NAMEPLATE.

27 ATTACH GROUND OR EQUIPMENT GROUND.

32 BUSBARS CONNECTING POWER ACROSS MULTIPLE MMP'S MAY BE USED IN PLACE OF INDIVIDUAL CONDUCTORS FOR SMALLER AMP DRAW MOTORS.

DEVICE PREFIX LOCATION CODE	
AREA	LOCATION
1	HIGH VOLTAGE PANEL,
2	LOW VOLTAGE PANEL (UNIT SCHEMATIC)
3	AIR HANDLER SECTION

PRIMARY POWER SUPPLY FUSES (CLASS CC)		
FUSE	VOLTAGE	P/N
1F20 1F21	200 230 460	CCMR-3

LEGEND	
DEVICE DESIGNATION	DESCRIPTION
1MMP-A, B, C	MANUAL MOTOR PROTECTOR
1TB15	TERMINAL STRIP CONTROL CIRCUIT
3B1-A, 3B1-B, 3B1-C	SUPPLY FAN MOTOR 1, 2, 3
1CB11	CIRCUIT BREAKER
1F20 TO 1F21	PRIMARY POWER SUPPLY FUSES
1POT1	POTENTIOMETER
1PS1	POWER SUPPLY DC
1S11	HAND/OFF/AUTO SWITCH

49514273

CAUTION

USE COPPER CONDUCTORS ONLY!

UNIT TERMINALS ARE NOT DESIGNED TO ACCEPT OTHER TYPES OF CONDUCTORS.

FAILURE TO DO SO MAY CAUSE DAMAGE TO THE EQUIPMENT.

ATTENTION

N'UTILISER QUE DES CONDUCTEURS EN CUIVRE!

LES BORNES DE L'UNITÉ NE SONT PAS CONÇUES POUR RECEVOIR D'AUTRES TYPES DE CONDUCTEURS.

L'UTILISATION DE TOUT AUTRE CONDUCTEUR PEUT ENDOMMAGER L'ÉQUIPEMENT.

PRECAUCIÓN

¡UTILICE ÚNICAMENTE CONDUCTORES DE COBRE!

LAS TERMINALES DE LA UNIDAD NO ESTÁN DISEÑADAS PARA ACEPTAR OTROS TIPOS DE CONDUCTORES.

SI NO LO HACE, PUEDE OCASIONAR DAÑO AL EQUIPO.

⚠ WARNING

HAZARDOUS VOLTAGE!

DISCONNECT ALL ELECTRIC POWER INCLUDING REMOTE DISCONNECTS AND FOLLOW LOCK OUT AND TAG PROCEDURES BEFORE SERVICING. INSURE THAT ALL MOTOR CAPACITORS HAVE DISCHARGED STORED VOLTAGE. UNITS WITH VARIABLE SPEED DRIVE, REFER TO DRIVE INSTRUCTIONS FOR CAPACITOR DISCHARGE.

FAILURE TO DO THE ABOVE BEFORE SERVICING COULD RESULT IN DEATH OR SERIOUS INJURY.

⚠ AVERTISSEMENT

TENSION DANGEREUSE!

COUPER TOUTES LES TENSIONS ET OUVRIR LES SECTIONNEURS À DISTANCE, PUIS SUIVRE LES PROCÉDURES DE VERROUILLAGE ET DES ÉTIQUETTES AVANT TOUTE INTERVENTION. VÉRIFIER QUE TOUS LES CONDENSATEURS DES MOTEURS SONT DÉCHARGÉS. DANS LE CAS D'UNITÉS COMPORTANT DES ENTRAÎNEMENTS À VITESSE VARIABLE, SE REPORTER AUX INSTRUCTIONS DE L'ENTRAÎNEMENT POUR DÉCHARGER LES CONDENSATEURS.

NE PAS RESPECTER CES MESURES DE PRÉCAUTION PEUT ENTRAÎNER DES BLESSURES GRAVES POUVANT ÊTRE MORTELLES.

⚠ ADVERTENCIA

¡VOLTAJE PELIGROSO!

DESCONECTE TODA LA ENERGÍA ELÉCTRICA, INCLUSO LAS DESCONEXIONES REMOTAS Y SIGA LOS PROCEDIMIENTOS DE CIERRE Y ETIQUETADO ANTES DE PROCEDER AL SERVICIO. ASEGÚRESE DE QUE TODOS LOS CAPACITORES DEL MOTOR HAYAN DESCARGADO EL VOLTAJE ALMACENADO. PARA LAS UNIDADES CON EJE DE DIRECCIÓN DE VELOCIDAD VARIABLE, CONSULTE LAS INSTRUCCIONES PARA LA DESCARGA DEL CONDENSADOR.

EL NO REALIZAR LO ANTERIORMENTE INDICADO, PODRÍA OCASIONAR LA MUERTE O SERIAS LESIONES PERSONALES.

GENERAL

Per ASHRAE 62.1 recommendation, indoor air handling units will be wrapped to protect unit from in-transit rain and debris.

Installing contractor is responsible for long term storage in accordance with the Installation, Operation, and Maintenance manual (CLCH-SVX07*-EN).

Unit shall be UL and C-UL Listed.

Supply fans within the scope of AHRI Standard 430 are "Certified by the AHRI Central Station Air-Handling Unit (AHU) Certification Program, 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".

Unit sound performance data shall be reported as sound power. Trane, in providing this program and data, does not certify or warrant NC levels. These levels are affected by factors specific to each application and/or installation and therefore unable to be predicted or certified by Trane. Refer to product data for specific fan footnote references.

Refer to product data for AHRI certification status. Propylene glycol and calcium chloride, or mixtures thereof, are outside the scope of AHRI Standard 410 and, therefore, do not require AHRI rating or certification. For coils within the scope of AHRI Standard 410 cooling coil performance is 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. Heating performance for heat pump or condenser mode is not certified.

Unit Construction

All unit panels shall be 2" solid, double-wall construction to facilitate cleaning of unit interior. Unit panels shall be provided with a mid-span, no-through-metal, internal thermal break. Casing thermal performance shall be such that under 55°F supply air temperature and design conditions on the exterior of the unit of 81°F dry bulb and 73°F wet bulb, condensation shall not form on the casing exterior. Casing construction will comply with NFPA 90A.

All exterior and interior indoor AHU panels will be made of galvanized steel.

Unit Paint

Unit to ship unpainted from factory. If required, unit to be painted by 3rd party finisher, or by painting contractor at job site.

Casing Deflection

The casing shall not exceed 0.0042 inch deflection per inch of panel span at 1.00 times design static pressure. Maximum design static shall not exceed +8 inches w.g. in all positive pressure sections and -8 inches w.g. in all negative pressure sections.

Floor Construction

The unit floor shall be of sufficient strength to support a 300.0 lb load during maintenance activities and shall deflect no more than 0.0042 inch per inch of panel span.

Unit Base

Manufacturer to provide a full perimeter integral base frame for either ceiling suspension of units or to support and raise all sections of the unit for proper trapping. Indoor unit base frame will either be bolted construction or welded construction. All outdoor unit base frames shall be welded construction. For indoor units, refer to schedule for base height and construction type. Contractor will be responsible for providing a housekeeping pad when unit base frame is not of sufficient height to properly trap unit. Unit base frames not constructed of galvanized steel shall be chemically cleaned and coated with both a rust-inhibiting primer and finished coat of rust-inhibiting enamel. Unit base height to be included in total height required for proper trap height.

Insulation
Panel insulation shall provide a minimum thermal resistance (R) value of 13 ft²-h-ºF/Btu throughout the entire unit. Insulation shall completely fill the panel cavities in all directions so that no voids exist and settling of insulation is prevented.

Drain Pan
In sections provided with a drain pan, the drain pan shall be designed in accordance with ASHRAE 62.1. To address indoor air quality (IAQ) the drain pan shall be sloped in two planes promoting positive drainage to eliminate stagnant water conditions. Drain pan shall be insulated, and of double wall construction. The outlet shall be the lowest point on the pan, and shall be of sufficient diameter to preclude drain pan overflow under normally expected operating conditions. All drain pans connections shall have a threaded connection, extending a minimum of 2-1/2" beyond the unit base, and shall be made from the same material as the drain pan. Drain pan located under a cooling coil shall be of sufficient size to collect all condensate produced from the coil.
Refer to Product Data for specific information on which sections are supplied with a drain pan, the drain pan material and connection location.

Access Door Construction
Access doors shall be 2" double wall construction. Interior and exterior door panels shall be of the same construction as the interior and exterior wall panels respectively. All doors shall be provided with a thermal break construction of door panel and door frame. Gasketing shall be provided around the full perimeter of the doors to prevent air leakage. Surface mounted handles shall be provided to allow quick access to the interior of the functional section and to prevent through cabinet penetrations that could likely weaken the casing leakage and thermal performance. Handle hardware shall be designed to prevent unintended closure. Outswing doors shall have easily removable hinges and handles that can be relocated to change the door swing if needed. Door hinges shall be made of stainless steel.

All doors shall be a minimum of 60" high when sufficient height is available or the maximum height allowed by the unit height.

Door handles shall be provided for each latching point of the door necessary to maintain the specified air leakage integrity of the unit. An optional shatterproof window shall be provided in access doors where indicated on the plans. Window shall either be single pane, or thermal dual pane, as defined on schedule. Window shall be capable of withstanding unit operating pressures and shall be safe for viewing UV-C lamps.
Refer to Product Data for specific information on which sections are supplied with an access door, the door location, a single handle and a window.

Lifting Instructions
The air handling units must be rigged, lifted, and installed in strict accordance with the Installation, Operation, and Maintenance manual (CLCH-SVX07G-EN). The units are also to be installed in strict accordance with the specifications. Units may be shipped fully assembled or disassembled to the minimum functional section size in accordance with shipping and job site requirements.

Indoor units shall be shipped on an integral base frame (variable from the standard 2.5" to 8" height) for the purpose of mounting units to a housekeeping pad and providing additional height to properly trap condensate from the unit. The integral base frame may be used for ceiling suspension, external isolation, or as a housekeeping pad. Indoor sizes 3 to 30 will also be shipped with a shipping skid designed for forklift transport. Refer to the unit As-Built or Product Data section of the submittal for the base frame height of each unit.

All units will be shipped with an integral base frame designed with the necessary number of lift points for safe installation. All lifting lugs are to be utilized during lift. The lift points will be designed to accept standard rigging devices and be removable after installation.

MIXING SECTION
A mixing section shall be provided to support the damper assembly for outdoor, return, and/or exhaust air.

Title 24
The following specifications apply only to units with outside air and return air dampers, with actuators. The 5 year warranty applies only to these items.
This unit contains Economizer that meets or exceeds all mandatory requirements prescribed by Title 24, including but not limited to:
- 5 yr parts only warranty
- Successfully tested to 60,000 Actuations
- Less than 10 cfm/sq.ft. of damper leakage at 1" WG per AMCA 500L

Filters

Mixing sections shall be provided with a filter rack as indicated in the Product Data and As-Built sections of the submittal.

2 inch pleated media filters made with 100% synthetic fibers that are continuously laminated to a supported steel wire grid with water repellent adhesive shall be provided. Filters shall be capable of operating up to 625 fpm face velocity without loss of filter efficiency and holding capacity. The filters shall have a MERV 13 rating when tested in accordance with the ANSI/ASHRAE Standard 52.2.

COIL SECTION WITH FACTORY INSTALLED COIL
The coil section shall be provided complete with coil and coil holding frame. The coils shall be installed such that headers and return bends are enclosed by unit casings. If two or more cooling coils are stacked in the unit, an intermediate drain pan shall be installed between each coil and be of the same material as the primary drain pan. Like the primary drain pan, the intermediate drain pan shall be designed being of sufficient size to collect all condensation produced from the coil and sloped to promote positive drainage to eliminate stagnant water conditions. The intermediate pan shall begin at the leading face of the water-producing device and be of sufficient length extending downstream to prevent condensate from passing through the air stream of the lower coil. Intermediate drain pan shall include downspouts to direct condensate to the primary drain pan. The outlet shall be located at the lowest point of the pan and shall be sufficient diameter to preclude drain pan overflow under any normally expected operating condition.

Coil with Inspection
The coil section complete with a double-wall, shall include a removable door downstream of the coil for inspection, cleaning, and maintenance. Interior and exterior door panels shall be of the same construction as the interior and exterior wall panels, respectively. All doors shall be provided with a thermal break construction of door panel and door frame.

Casing penetrations supplied for hydronic drain and vents. Piping contractor shall provide extended piping.

Water Coils (UP, WP, UW, UU, UA, 3W, 3U, W, 5W, 5A, WD, 5D, D1, D2, P, or TT)
The coils shall have aluminum fins and seamless copper tubes. Copper fins may be applied to coils with 5/8-inch tubes. Fins shall have collars drawn, belled, and firmly bonded to tubes by mechanical expansion of the tubes. The coil casing may be galvanized or stainless steel. Refer to the Product Data section of the submittal for the coil casing material.
The coils shall be proof-tested to 300 psig and leak-tested under water to 200 psig. Refer to the Product Data section of the submittals for AHRI certirification status.

Coil connections are constructed of cast iron with female connections, steel block with female connections or steel pipe with male connections. Type P or TT coil connections do not extend out of unit casing. All other water coil types have connections that extend out beyond unit casing. Headers on downstream coil bank of staggered coil sections do not extend beyond the unit casing and must be completed by the on-site piping contractor.

Tubes are 1/2" [13 mm] OD 0.016" [0.406 mm] thick copper.

Tubes are 5/8" [16 mm] OD 0.020" [0.508 mm] thick copper.

Coil Coating
Coil shall have a flexible epoxy polymer e-coat uniformly applied to all coil surface areas without material bridging between fins. Coating process shall ensure complete coil encapsulation and a uniform dry film thickness from 0.8 - 1.2 mil on all surface areas including fin edges. Superior hardness characteristics of 2H per ASTM D3363-92A and a cross-hatch adhesion of 4B-5B per ASTM B3359-93. Impact resistance shall be up to 160 in/lb per ASTM D2794-93. Humidity and water immersion resistance shall be up to a minimum 1000 and 260 hours respectively (ASTM D2247-92 and ASTM D870-02). Corrosion durability shall be confirmed through testing to no less than 5,000 hours salt spray per ASTM B117-90 using scribed aluminum test coupons.

MOTORIZED IMPELLER FAN SECTION

Direct plenum fans provided with electronically commutated external- rotor motor with integrated control electronics, radial aluminum impeller with backward curved, continuously welded blades.

1. Individual Fan Assemblies shall be statically and dynamically balanced in two planes as per DIN / ISO 1940 to balancing grade G 6.3.
2. Fan-to-fan interaction can cause a significant increase in individual fan vibration when mounted to the same structure. Fans applied in an array shall be tested as a system and the total fan vibration shall be less that 0.42 (in/s) RMS including all fan-to-fan interaction. This system effect shall be accounted for by the air handler manufacturer. Individual fan vibration performance values shall not be acceptable.
3. Fan performance is "Certified by the AHRI Central Station Air-Handling Unit (AHU) Certification Program, 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". Fan shall be spaced to minimize aerodynamic fan interaction. Minimum center-to-center spacing between fans shall be 1.6 diameter ratio to ensure proper performance.
4. Fan wheels shall be constructed of materials that comply with UL 1995/60335 requirements of flame and smoke spread per NFPA 90A. The flame spread index not exceeding 25 and a smoke-developed index not exceeding 50.

5. Fan Electrical Power (FEP) rated in accordance with AHRI 430-2020.
6. Motor shall contain integrated PID controller and accept a 0-10VDC input signal for variable speed control.
7. Motor efficiency class shall comply with IE4
8. Fan system manufacturer must stock replacement parts in North America
9. Fan array shall be designed and constructed for easy field assembly and maintenance. Fan shall be assembled to bulkhead wall with minimal fasteners and the fan shall have quick disconnects for the high voltage and low voltage connections.
10. For units utilizing multiple fans in a fan section, a fan curve shall be provided showing the performance of the entire bank of fans at design conditions. In addition, a fan curve shall be provided showing the performance of each individual fan in the bank of fans at design conditions. Also a fan curve shall be provided showing the performance of the bank of fans, if one fan is down. The percent redundancy of the bank of fans with one fan down shall be noted on the fan curve or in the tabulated fan data.

On units supplied with plenum or motorized impeller fans, door guard(s) shall be supplied on the access door(s) to the fan and those downstream access door(s) where unintended access to the plenum or motorized impeller fan could occur. Door guard is intended to deter unauthorized entry and incidental contact with rotating components. *Refer to the Product Data section for fans with access door guard(s)*.

Motorized Impeller Control Panel with Hand-Off-Auto Switch

The fan shall be provided with a factory installed NEMA 1 or NEMA 3R motorized impeller motor control panel. The control panel provides a common externally accessible disconnect means, motor over current protection for each fan and a terminal block for ease of control wiring. The box shall include:

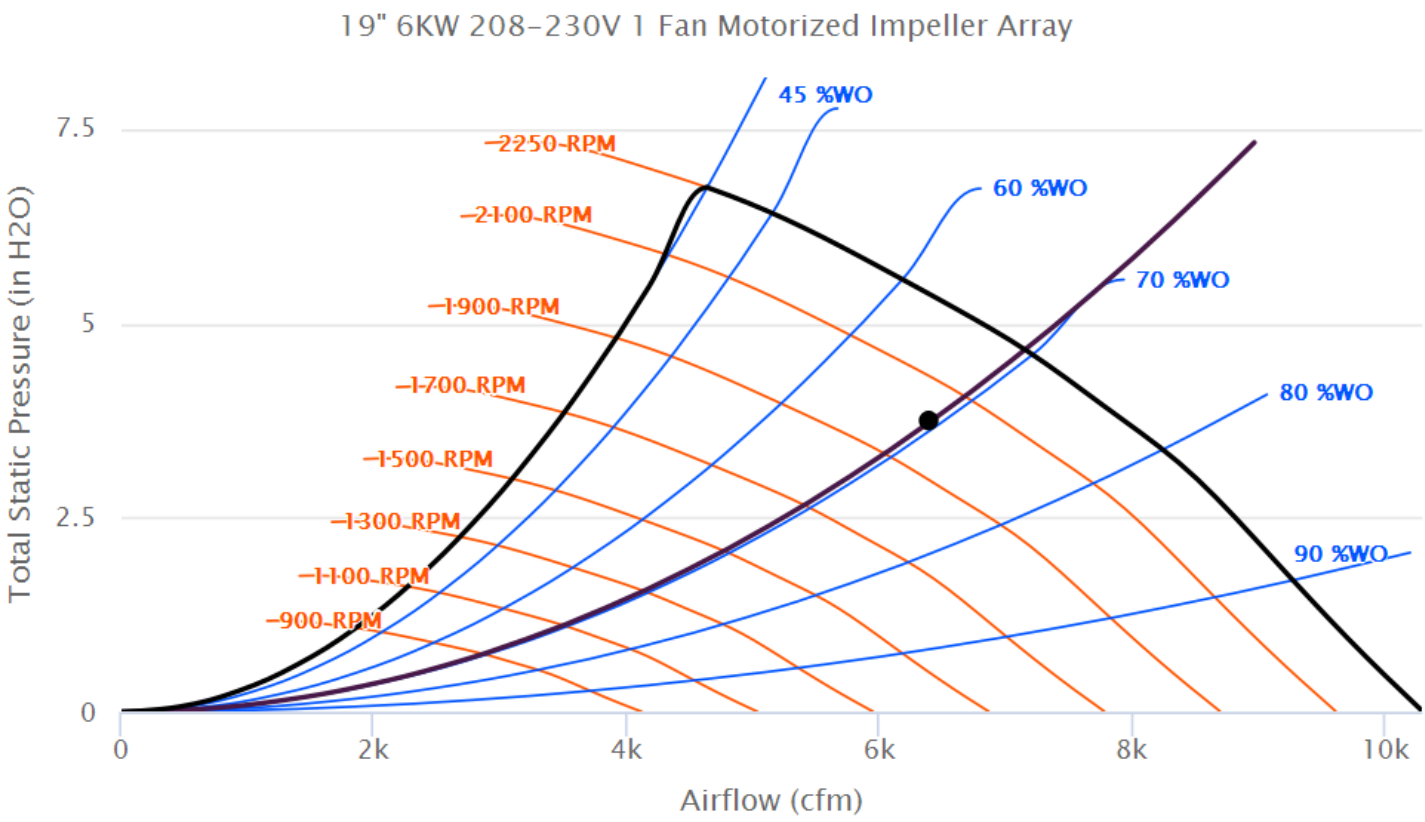
1.Individual motor protection with individual disconnnecting means with lockable feature. Fusable motor protection is not permissable.
2.Fused main panel disconnect with lock out tag out capability
3.Common control terminal block for common signal wiring. Single 0-10vdc signal used for fan speed control.
4.Control panel box shall be UL508a compliant and manufactured by a UL508a approved manufacturer or UL certified during air handler installation.
5.Control panel to include hand/off/auto switch for unit startup and commissioning.
6.Dial potentiometer to be included to for manual speed control in the 'hand' position.
7.Control panel shall be able to operate fans without a BAS signal for purposes of troubleshooting and commissioning

Fan Details

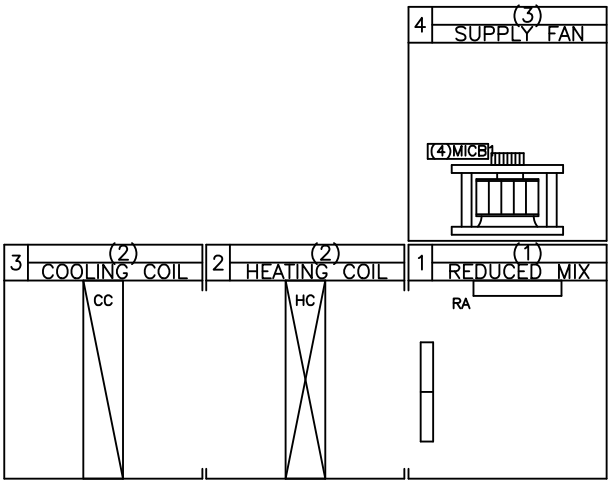
Unit Size	19FM	**Operating RPM**	2,014 rpm
Control Signal Voltage	9.0 V	**Altitude**	0.00 ft
Operating Airflow	6,400 cfm	**Design Temp.**	52.00 F
Operating Static Pressure	3.735 in H2O	**Efficiency**	65.87 %

Design voltage is less than 10. Ensure the air delivery system can handle being pressurized to the Maximum static pressure detailed in the product data and shown on the fan curve.

19" 6KW 208-230V 1 Fan Motorized Impeller Array - Single Fan



WIRING DETAIL 1



DRAWN BY SERVICE ACCOUNT	Trane	
DATE 7/10/2024		CSIA–SCHEMATIC UNIT SIZE: 14 UNIT TAG: AHU 2–1
SOFTWARE VERSION 1.4.0		
DRAWING VERSION		

LEGEND DETAIL 1

POS#	BUILD GROUP	DESCRIPTION	PT	LABEL	PWR HR-WIRE	SIGNAL HR-WIRE	XFMR	POWER VA
4	3	Supply Fan Speed	AO1	VFD1				

DRAWN BY SERVICE ACCOUNT	Trane	
DATE 7/10/2024		CSIA-SCHEMATIC UNIT SIZE: 14 UNIT TAG: AHU 2-1
SOFTWARE VERSION 1.4.0		
DRAWING VERSION		