



Submittal

Prepared For:
Kroeschell Engineering Company

Date: February 16, 2010

Job Name:
Columbus AFB Dental Clinic

Trane U.S. Inc. is pleased to provide the enclosed submittal for your review and approval.

Product Summary

Qty	Product
1	Performance Climate Changer

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

Peter A Hill
Trane
7100 South Madison
Willowbrook, IL 60527-5505
Phone: (630) 734-3200
Fax: (630) 323-9040

Table Of Contents

Product Summary	1
Performance Climate Changer (Item A1)	
Tag Data	3
Product Data	3
Performance Data	4
Mechanical Specifications	6
As-Built	10
Fan Curve	17
Accessory	19
Field Wiring	24
Field Installed Options - Part/Order Number Summary	
Performance Climate Changer	25

Tag Data - Performance Climate Changer (Qty: 1)

Item	Tag(s)	Qty	Description	Model Number
A1	AHU-1	1	Performance Climate Changer (CSAA)	CSIA017

Product Data - Performance Climate Changer**Item: A1 Qty: 1 Tag(s): AHU-1****Unit level options**

Indoor unit
 Unit size 17
 2.5in. integral base frame
 UL listed unit
 Multiple composite handles/latches
 108 Unit length
 No marine LED lights in unit

Air mixing section (Pos #1)

Air mixing section
 Mixing box w/filter
 Door- left side

Coil section (Pos #2)

Horizontal coil
 Medium
 Stainless steel drain pan
 Left side - drain connection
 Left side - coil supply
 Unit coil height
 Cooling coil
 Single use coil
 Type "UU" coil
 8 rows
 99 Fin spacing
 Aluminum fins
 Delta flo H (Hi efficient)
 .016" (0.406mm) copper tubes
 1/2in. tube diameter (12.7 mm)
 Stainless steel coil casing
 Turbulators

Access section (Pos #3)

Access/blank/turning section
 Medium
 Door- left side

Fan section (Pos #4)

Fan section
 Supply fan
 Door- left side
 22in. belt-drive plenum, class 2
 Plenum fan
 Left side drive
 NEMA premium compliant ODP
 Voltage 200-208/3
 15 hp
 1800 RPM
 Inverter balance
 VFD w/ bypass

Notes:

DOES NOT INCLUDE: Startup, Labor Warranty, Extended Warranties, Controls, Control Valves, Extra Belts, Extra Filters, External Isolation, Owner Training and Maintenance Service

Performance Data - Performance Climate Changer

Tags	AHU-1
Unit level options	
Position	
Length (in)	108.000
Width (in)	72.000
Rigging weight (lb)	1871.6
Installed weight (lb)	2004.8
Actual airflow (cfm)	8000
Unit elevation (ft)	0.00
Shipping split 1 weight (lb)	960.8
Shipping split 2 weight (lb)	1044.0
Fan section	
Position	#4
Section length (in)	44.000
Section weight (lb)	912.0
Fan airflow (cfm)	8000
Elevation (ft)	0.00
Overall ESP (in H2O)	3.500
Total static pressure (in H2O)	5.307
Fan pressure drop (in H2O)	3.786
Speed (rpm)	1955
Brake horsepower (hp)	12.684
Static efficiency (%)	52.66
Discharge 1 front - face velocity (ft/min)	1354
Discharge 1 front - pressure drop (in H2O)	0.286
Discharge 1 front - area (sq ft)	5.91
Access section	
Position	#3
Section length (in)	14.000
Section weight (lb)	132.0
Coil section	
Position	#2
Section length (in)	14.000
Section weight (lb)	642.8
Coil performance airflow (cfm)	8000
Unit airflow (cfm)	8000
Coil face area (sq ft)	16.81
Coil face velocity (ft/min)	476
Air pressure drop (in H2O)	0.825
Coil section pressure drop (in H2O)	0.825
Coil rigging weight (lb)	322.6
Coil installed weight (lb)	455.8
Top or single coil dry weight (lb)	322.6
Leaving dry bulb (F)	54.96
Leaving wet bulb (F)	54.78
Entering dry bulb (F)	80.30
Entering wet bulb (F)	67.60
Fluid type	Propylene glycol
Coil fluid percentage (%)	25.00
Entering fluid temperature (F)	45.00
Leaving fluid temperature (F)	57.00
Fluid temperature rise (F)	12.00
Standard fluid flow rate (gpm)	56.81
Fluid pressure drop (ft H2O)	3.60
Fluid velocity (ft/s)	1.57

Tags	AHU-1
Fluid volume (gal)	14.71
Sensible capacity (MBh)	223.61
Total capacity (MBh)	320.17
Air mixing section	
Position	#1
Section length (in)	36.000
Section weight (lb)	318.0
Opening 1 front - airflow (cfm)	8000
Opening 1 top - airflow (cfm)	8000
Opening 1 top - area (sq ft)	6.99
Opening 1 top - face velocity (ft/min)	1144
Opening 1 top - pressure drop (in H2O)	0.154
Top inlet type	Ducted
Opening 1 top total pressure drop (in H2O)	0.154
Greatest entry PD (in H2O)	0.154
Filter condition	Mid-life
Filter airflow (cfm)	8000
Filter area (sq ft)	28.89
Filter face velocity (ft/min)	277
Filter pressure drop (in H2O)	0.543
Total mixing section pressure drop (in H2O)	0.696
Front total pressure drop (in H2O)	0.000
Back total pressure drop (in H2O)	0.000
Top total pressure drop (in H2O)	0.154
Bottom total pressure drop (in H2O)	0.000
Right side total pressure drop (in H2O)	0.000
Left side total pressure drop (in H2O)	0.000

Mechanical Specifications - Performance Climate Changer
Item: A1 Qty: 1 Tag(s): AHU-1**GENERAL**

The units must be rigged, lifted, and installed in strict accordance with the Installation, Operation, and Maintenance manual (CLCH-SVX07A-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. 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 provide 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. *Refer to the unit As-Built or Product Data section of the submittal for the base frame height of each unit.*

Units will be shipped with a shipping skid designed for forklift transport and the integral base frame will be designed with the necessary number of lift points for safe installation. The lift points will be designed to accept standard rigging devices and removable after installation. Units shipped in sections will have a minimum of four points of lift.

Per ASHRAE 62.1 recommendation, units will be shipped stretch-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-SVX07A-EN).

Unit shall be UL and C-UL Listed.

Air-handling performance data shall be certified in accordance with ARI Standard 430.

Unit sound performance data shall be provided using ARI Standard 260 test methods and 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.

Coil performance shall be certified in accordance with ARI Standard 410.

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.

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

The casing shall be able to withstand up to 8 inches w.g. positive or negative static pressure with no more than 0.0042 inch deflection per inch of panel span.

The unit floor shall be of sufficient strength to support a 250-lb load during maintenance activities and shall deflect no more than 0.0042 inch per inch of panel span.

Insulation

Panel insulation shall provide a minimum thermal resistance (R) value of 13 ft²-h-°F/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. Panel insulation shall comply with NFPA 90A.

Drain Pan

All cooling coil sections shall be provided with an insulated, double-wall, galvanized or stainless steel drain pan. To address indoor air quality (IAQ), the drain pan shall be designed in accordance with ASHRAE 62.1 being of sufficient size to collect all condensation produced from the coil and sloped in two planes promoting positive drainage to eliminate stagnant water conditions. 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. All drain pan threaded connections shall be visible external to the unit. Drain connections shall be of the same material as the primary drain pan and shall extend a minimum of 2'-1/2" beyond the base to ensure adequate room for field piping of condensate drain traps. Coil support members inside the drain pan shall be of the same material as the drain pan and coil casing.

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 downstream of cooling coils 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. Access doors shall be hinged and removable for quick, easy access. Hinges shall be interchangeable with the door handle hardware to allow for alternating door swing in the field to minimize access interference due to unforeseen job site obstructions. Door handle hardware shall be adjustable and visually indicate locking position of door latch external to the section.

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. Optionally, outward swing doors may be provided with a single handle linked to multiple latching points. Unit doors may also be provided with an optional shatterproof window for viewing, capable of withstanding unit operating pressures.

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.

MIXING SECTION

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

Dampers

Dampers shall modulate the volume of outdoor, return, or exhaust air. The dampers shall be of double-skin airfoil design with metal, compressible jamb seals and extruded-vinyl blade-edge seals on all blades. The blades shall rotate on stainless-steel sleeve bearings. The dampers shall be rated for a maximum leakage rate of 4 cfm/ft² at 1 in. w.g. complying with ASHRAE 90.1 maximum damper leakage. All leakage testing and pressure ratings shall be based on AMCA Standard 500-D. Dampers may be arranged in a parallel or opposed-blade configuration.

Filters

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

4-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 8 rating when tested in accordance with the ANSI/ASHRAE Standard 52.2.

COIL SECTION

The coil section shall be provided complete with coil and coil holding frame. Coil section side panels shall be easily removable to allow for removal and replacement of coils without impacting the structural integrity of the unit. 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.

Water Coils (UW, UU, UA, 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. Coil performance data and coils containing water or ethylene glycol shall be certified in accordance with ARI Standard 410. Propylene glycol and calcium chloride, or mixtures thereof, are outside the scope of ARI Standard 410 and, therefore, do not require ARI 410 rating or certification.

Headers are constructed of round copper pipe or cast iron.

Tubes shall be 1/2-inch OD, 0.016-inch (0.41mm) copper.

ACCESS/INSPECTION / TURNING SECTION

A section shall be provided to allow additional access/inspection of unit components and space for field-installed components as needed. An access door shall be provided for easy access. All access sections shall be complete with a double-wall, removable door downstream 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 downstream of cooling coils shall be provided with a thermal break construction of door panel and door frame.

PLENUM FAN (BELT-DRIVE) SECTION

The fan type shall be provided as required for stable operation and optimum energy efficiency. The fan shall be a single-width, single-inlet, multiblade-type, plenum fan.

The fan blades shall be backward-inclined airfoil.

Plenum fans shall be equipped with self-aligning, antifriction, pillow-block bearings with an L-50 life of 200,000 hours as calculated per ANSI/AFBMA Standard 9. For any bearing requiring relubrication, the grease line shall be extended to the fan support bracket on the drive side. The fan shall be statically and dynamically balanced at the factory as a complete fan assembly (fan wheel, motor, drive, and belts). The fan shaft shall not exceed 75 percent of its first critical speed at any cataloged speed. Fan wheels shall be keyed to the fan shaft to prevent slipping. The fan shafts shall be solid steel. The fan section shall be provided with an access door on the drive side of the fan.

Motor Frame

The motor shall be mounted integral to the isolated fan assembly and furnished by the unit manufacturer. The motor is mounted inside the unit casing on an adjustable base to permit adjustment of drive belt tension (not applicable for direct drive plenum fans). The motor shall meet or exceed all NEMA Standards Publication MG 1 requirements and comply with NEMA Premium efficiency levels when applicable except for fractional horsepower motors which are not covered by the NEMA classification. The motor shall be T-frame, squirrel cage with size, type, and electrical characteristics as shown on the equipment schedule. *Refer to the Product Data section for selected fan motors within each unit.*

Two-Inch Spring Isolators

The fan and motor assembly (on sizes 10 to 120) shall be internally isolated from the unit casing with 2-inch (50.8 mm) deflection spring isolators, furnished and installed by the unit manufacturer. The isolation system shall be designed to resist loads produced by external forces, such as earthquakes, and conform to the current IBC seismic requirements.

Drive Service Factor

The drives shall be constant speed with fixed-pitch sheaves. The drives shall be selected at a minimum 50 percent larger than the motor brake horsepower (1.5 service factor).

Starter/VFD shall be mounted externally in a NEMA Type 1 enclosure with a durable painted finish (when mounted on 3-30 Fan Section). An external disconnect shall be mounted through-the-door to the starter/VFD to disconnect full power from starter/VFD, lights, or control power.

Combination VFD / Disconnect w/ Bypass

A combination Variable Frequency Drive (VFD) / disconnect shall be provided for each fan motor. Each VFD / disconnect shall be properly sized, factory mounted in a full metal enclosure, wired to the fan motor, and commissioned to facilitate temporary heating, cooling, ventilation, and/or timely completion of the project. VFD / disconnects shall include a circuit breaker disconnect with a through-the-door interlocking handle (when mounted externally on 3-30 Fan Section) or a beside-the-door interlocking handle (when mounted internally in 35-120 Fan Section, 3-120 Controls Section) spring loaded and designed to rest only in the full "ON" or "OFF" state and shall be lockable in these states. A concealed defeater mechanism shall allow entry into the enclosure when the handle is in the "ON" position. The VFD package shall also include:

- a) Electronic manual speed control
- b) Hand-Off-Auto (H-O-A) selector switch
- c) VFD/OFF/Bypass selector switch
- d) Bypass Relays
- e) Bypass Circuitry
- f) Inlet fuses to provide maximum protection against inlet short circuit
- g) Fused control transformer
- h) Manual reset overloads

- i) Current limited stall prevention
- g) Auto restart after momentary power loss
- h) Speed search for starting into rotating motor
- i) Anti-windmill w/DC injection before start
- j) Phase-to-phase short circuit protection
- k) Ground fault protection

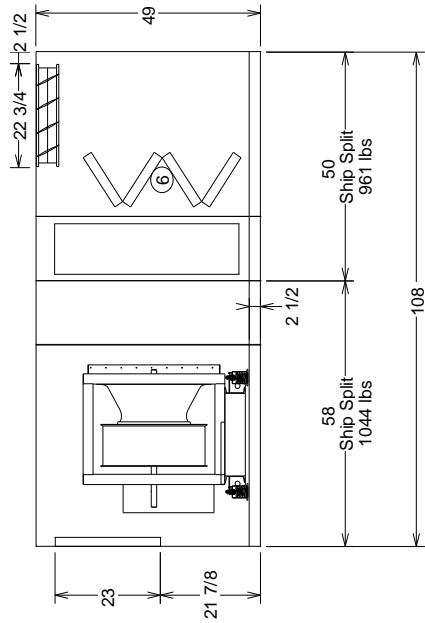
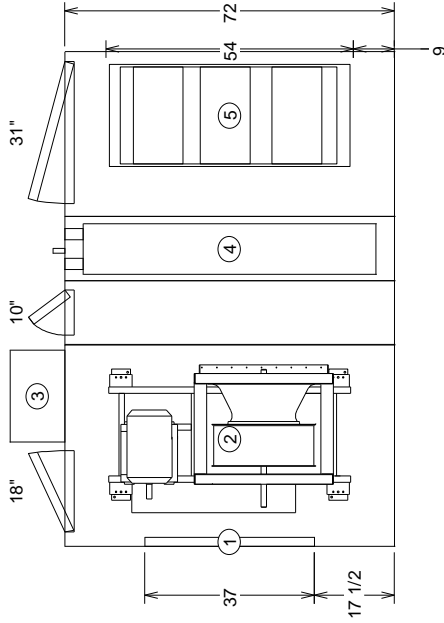
Units with factory-mounted controls shall include a control transformer with sufficient capacity to support both the VFD and controls requirements, binary output on/off wiring, analog output-speed-signal wiring, and all interfacing wiring between the VFD and the direct digital controller.

The VFD shall be UL508C listed and CSA certified and conform to applicable NEMA, ICS, NFPA, & IEC standards.

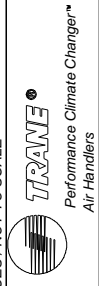
As-Built - Performance Climate Changer

Item: A1 Qty: 1 Tag(s): AHU-1

- 1 Opening front
23,000 x 37,000
 - 2 Plenum fan - 22in.
belt-drive plenum, class 2
Supply fan 15 hp
200-208/3
 - 3 External VFD LH
 - 4 Cooling coil - 8 rows Coil
type UU
 - 5 Damper top
22,750 x 54,000
 - 6 Angled filters -
- Doors
18 width x 42 height
10 width x 42 height
31 width x 42 height



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



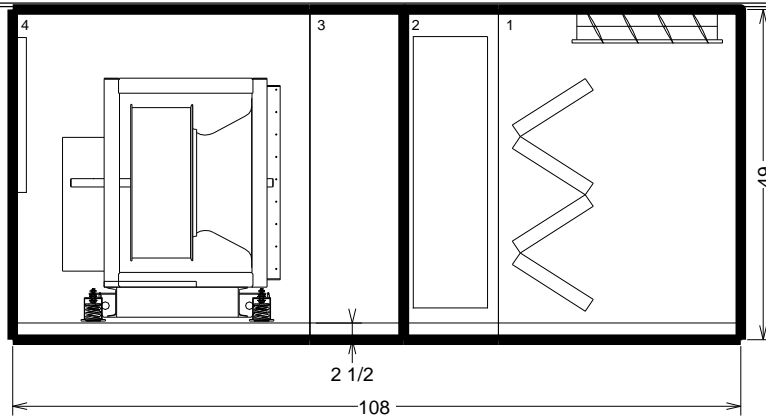
Unit Casing: 2in Double Wall
Proposal Number:
Rigging/Installed Weight: 1871.6 lb/ 2004.8 lb

Job Name:
Actual airflow: 8000 cfm
Sales Office:

Unit size: 17
Product group: Indoor unit
Integral base frame: 2.5in. integral base frame
Paint: Unpainted

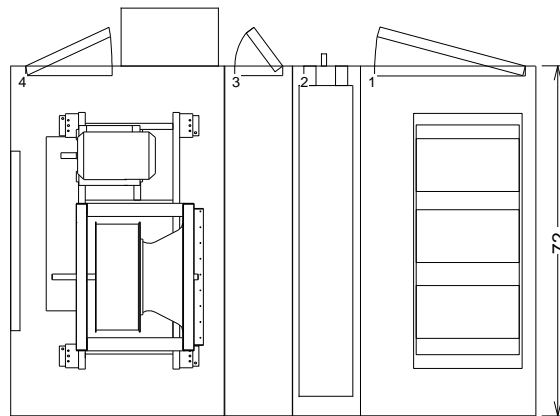
As-Built - Performance Climate Changer

Item: A1 Qty: 1 Tag(s): AHU-1




Overall Elevation View: Right - Shipping splits indicated by bold outline. - Measurements in inches

Pos #	Module	Length	Weight
1	Air mixing section	36	331.60
2	Coil section	14	642.80
3	Access section	14	132.00
4	Fan section	44	912.00
Installed Unit Weight 2018.40 lbs			



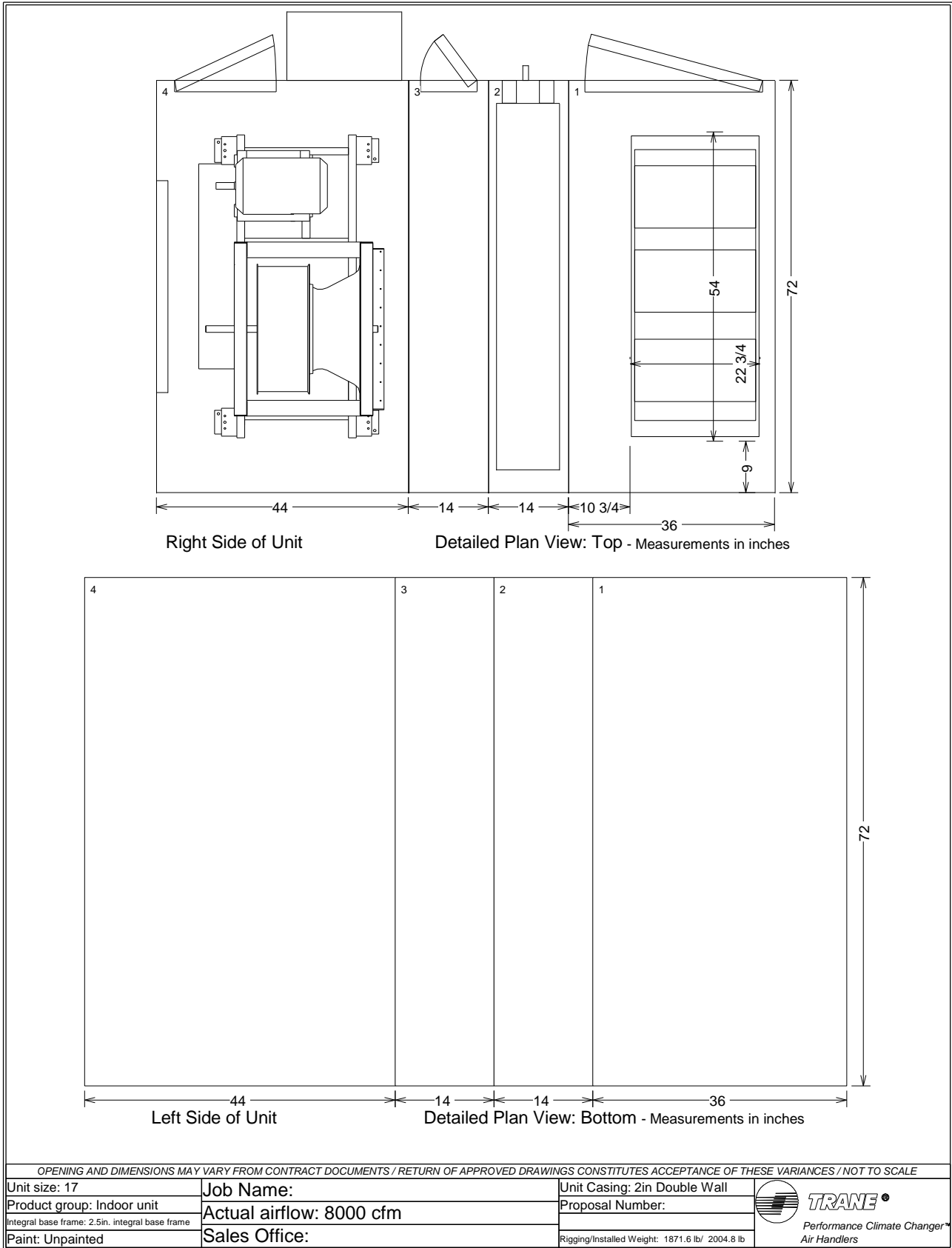
Basic Overall Plan View: Top - Measurements in inches

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

Unit size: 17	Job Name:	Unit Casing: 2in Double Wall	 TRANE Performance Climate Changer™ Air Handlers
Product group: Indoor unit	Actual airflow: 8000 cfm	Proposal Number:	
Integral base frame: 2.5in. integral base frame	Sales Office:	Rigging/Installed Weight: 1871.6 lb/ 2004.8 lb	
Paint: Unpainted			

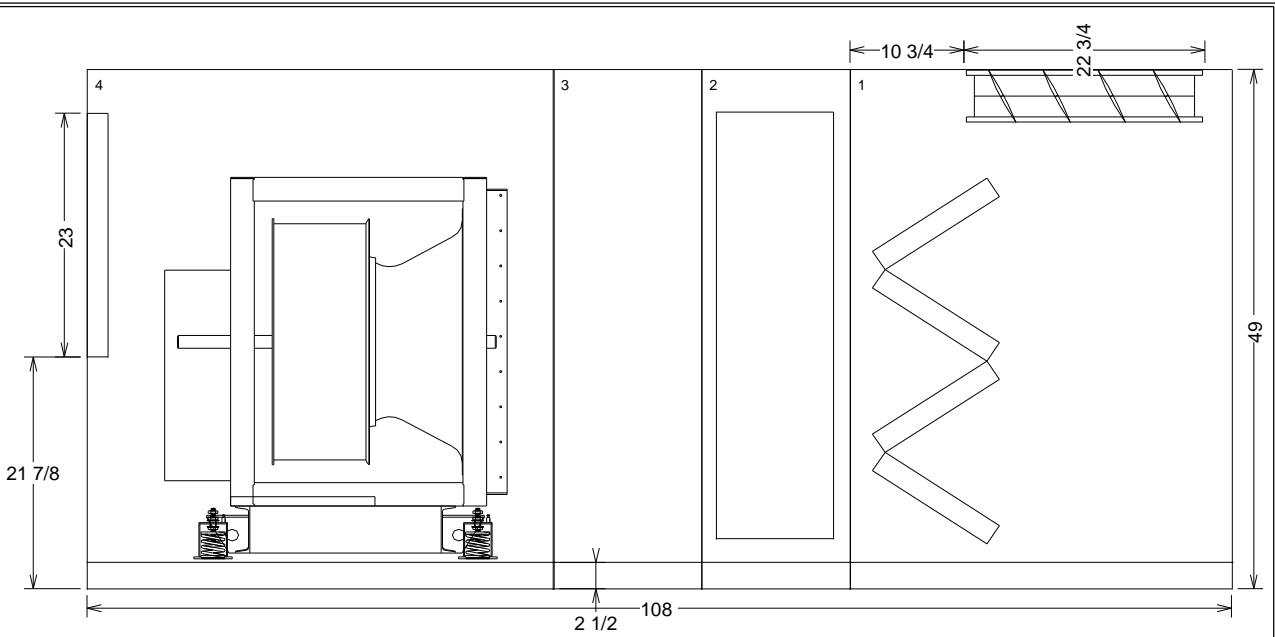
As-Built - Performance Climate Changer

Item: A1 Qty: 1 Tag(s): AHU-1

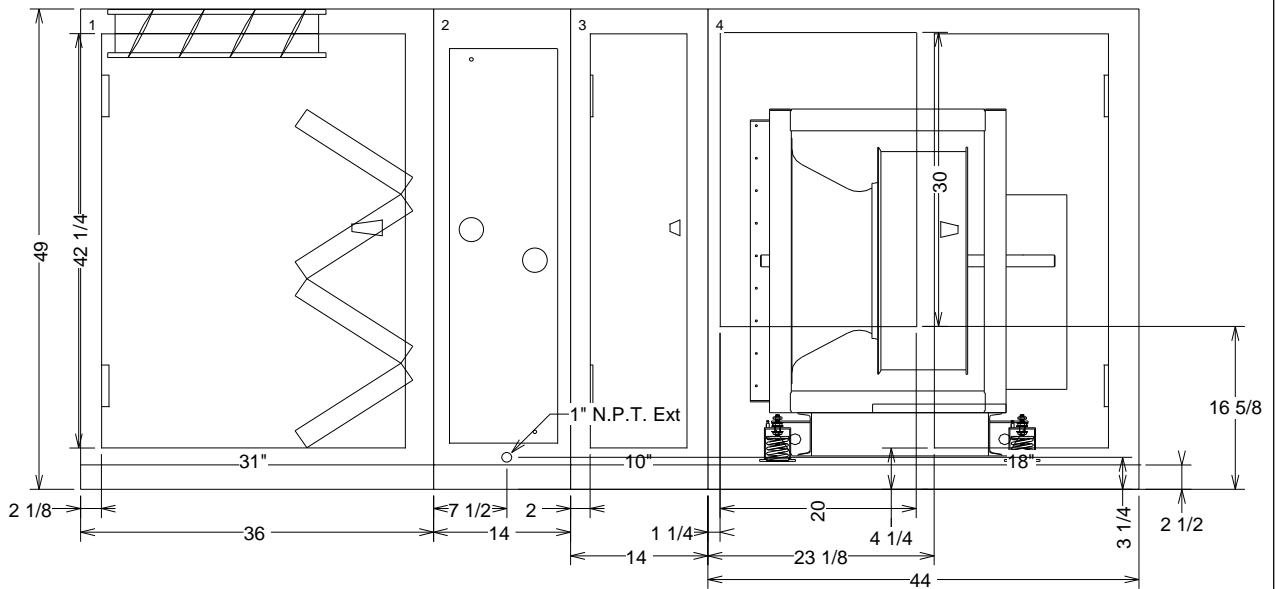


As-Built - Performance Climate Changer


Item: A1 Qty: 1 Tag(s): AHU-1



Detailed Elevation View: Right - Measurements in inches

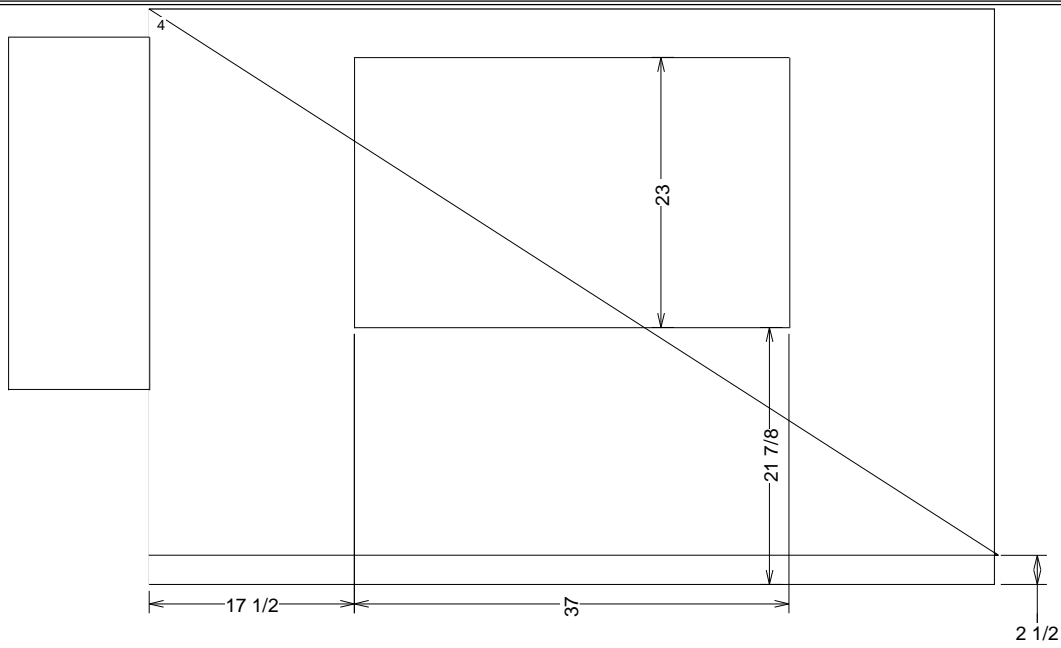


Detailed Elevation View: Left - Measurements in inches

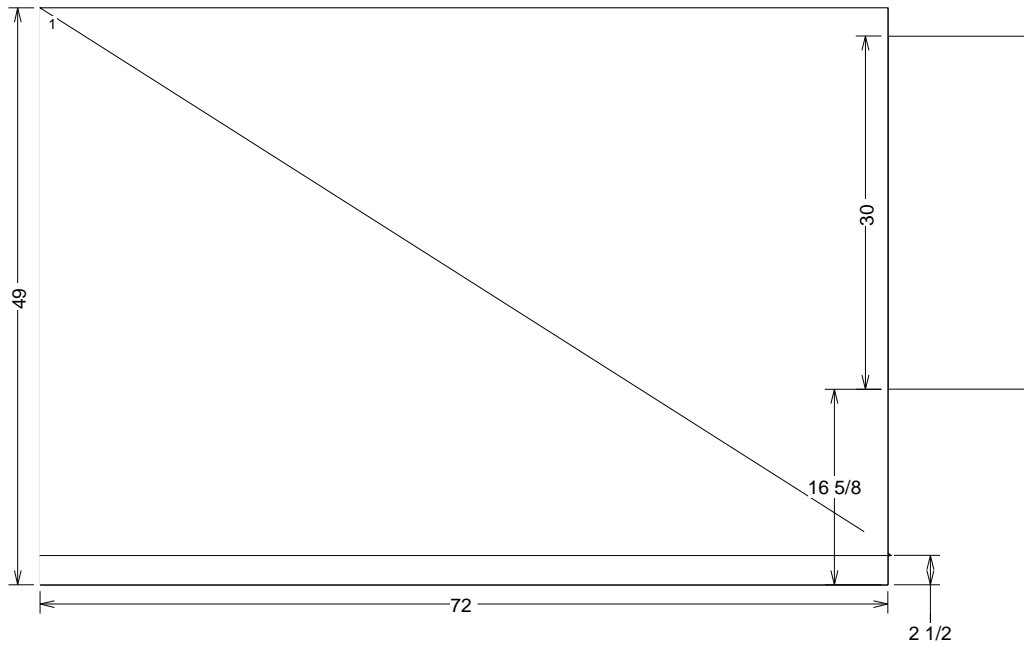
OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE			
Unit size: 17	Job Name:	Unit Casing: 2in Double Wall	 Performance Climate Changer™ Air Handlers
Product group: Indoor unit	Actual airflow: 8000 cfm	Proposal Number:	
Integral base frame: 2.5in. integral base frame	Sales Office:	Rigging/Installed Weight: 1871.6 lb/ 2004.8 lb	
Paint: Unpainted			

As-Built - Performance Climate Changer

Item: A1 Qty: 1 Tag(s): AHU-1




Detailed Elevation View: Front - Measurements in inches



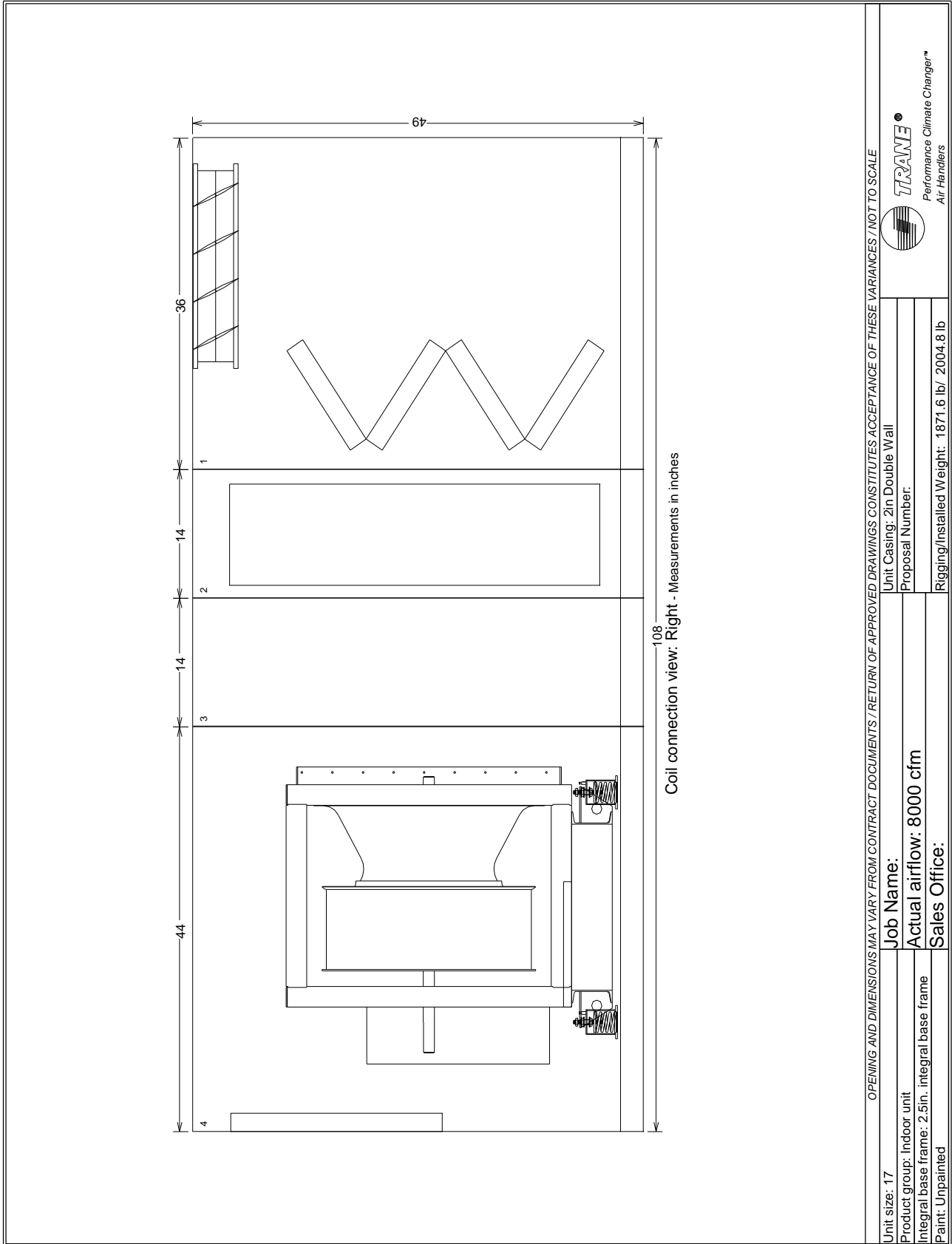
Detailed Elevation View: Back - Measurements in inches

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

Unit size: 17	Job Name:	Unit Casing: 2in Double Wall	 TRANE Performance Climate Changer™ Air Handlers
Product group: Indoor unit	Actual airflow: 8000 cfm	Proposal Number:	
Integral base frame: 2.5in. integral base frame	Sales Office:	Rigging/Installed Weight: 1871.6 lb/ 2004.8 lb	
Paint: Unpainted			

As-Built - Performance Climate Changer

Item: A1 Qty: 1 Tag(s): AHU-1



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

Unit size: 17

Product group: Indoor unit

Integral base frame: 2.5in. integral base frame

Paint: Unpainted

Job Name:

Actual airflow: 8000 cfm

Sales Office:

Unit Casing: 2in Double Wall

Proposal Number:

Rigging/Installed Weight: 1871.6 lb/ 2004.8 lb

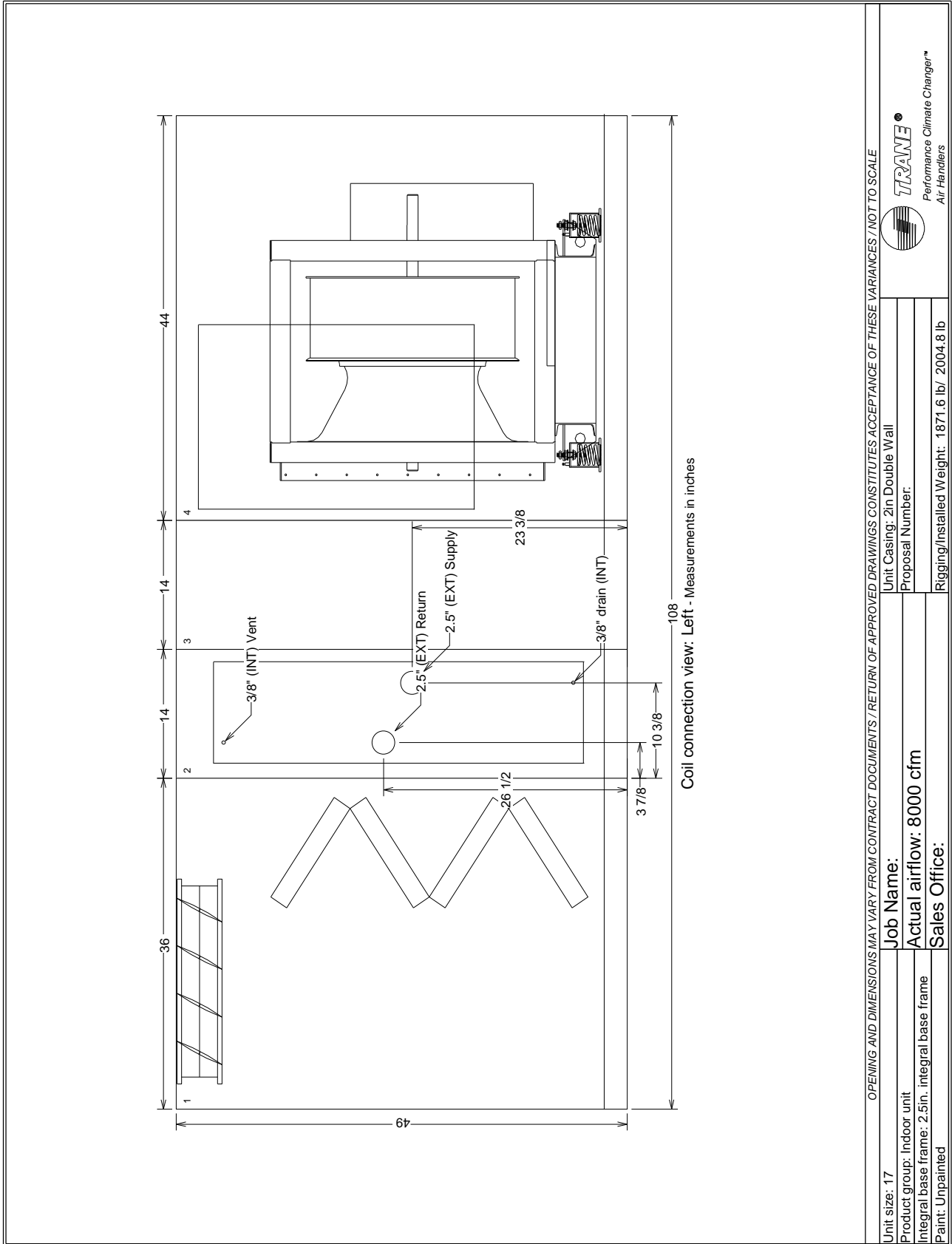


Performance Climate Changer™
Air Handlers

Coil connection view: Right - Measurements in inches

As-Built - Performance Climate Changer

Item: A1 Qty: 1 Tag(s): AHU-1



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

Unit size: 17	Job Name:	Unit Casing: 2in Double Wall
Product group: Indoor unit	Actual airflow: 8000 cfm	Proposal Number:
Integral base frame: 2.5in. integral base frame	Sales Office:	Rigging/Installed Weight: 1871.6 lb/ 2004.8 lb
Paint: Unpainted		



Fan Curve - Performance Climate Changer
Item: A1 Qty: 1 Tag(s): AHU-1

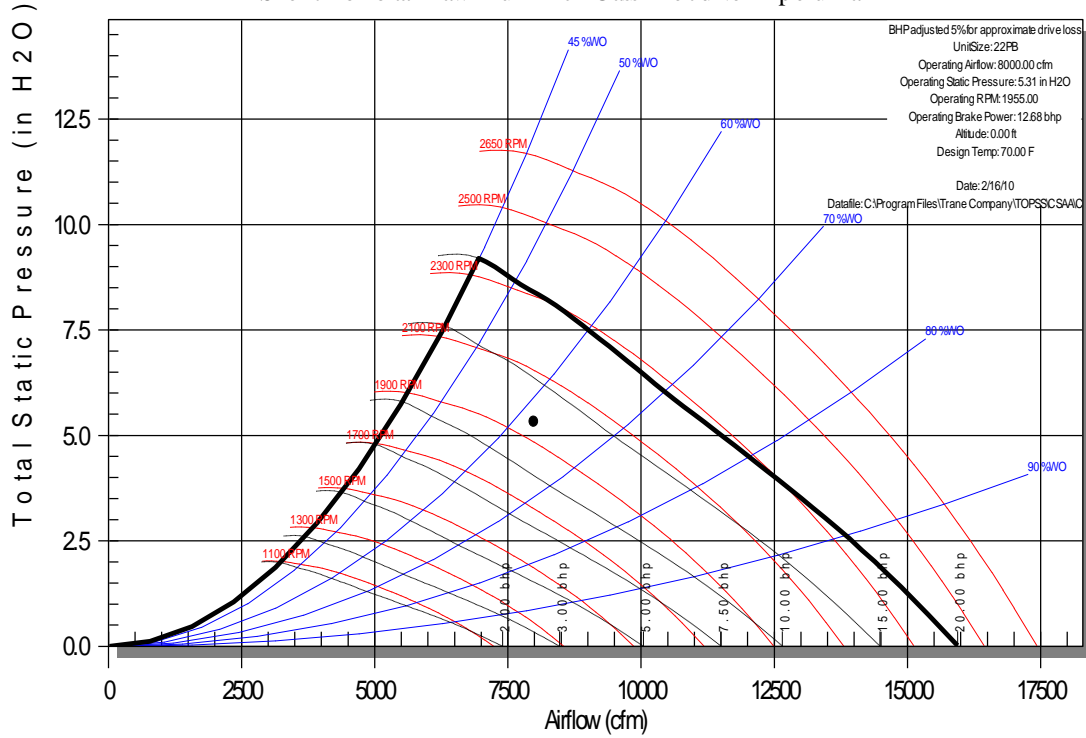
Overall Unit Acoustics

	63Hz	125Hz	250Hz	500Hz	1 kHz	2 kHz	4 kHz	8 kHz
Discharge	87	82	82	89	83	83	72	66
Inlet + Casing	91	82	86	90	79	77	70	66
Casing	81	75	73	84	74	59	43	42
Ducted Inlet	89	78	86	90	78	76	69	65

Fan Curve - Performance Climate Changer
 Item: A1 Qty: 1 Tag(s): AHU-1

Supply

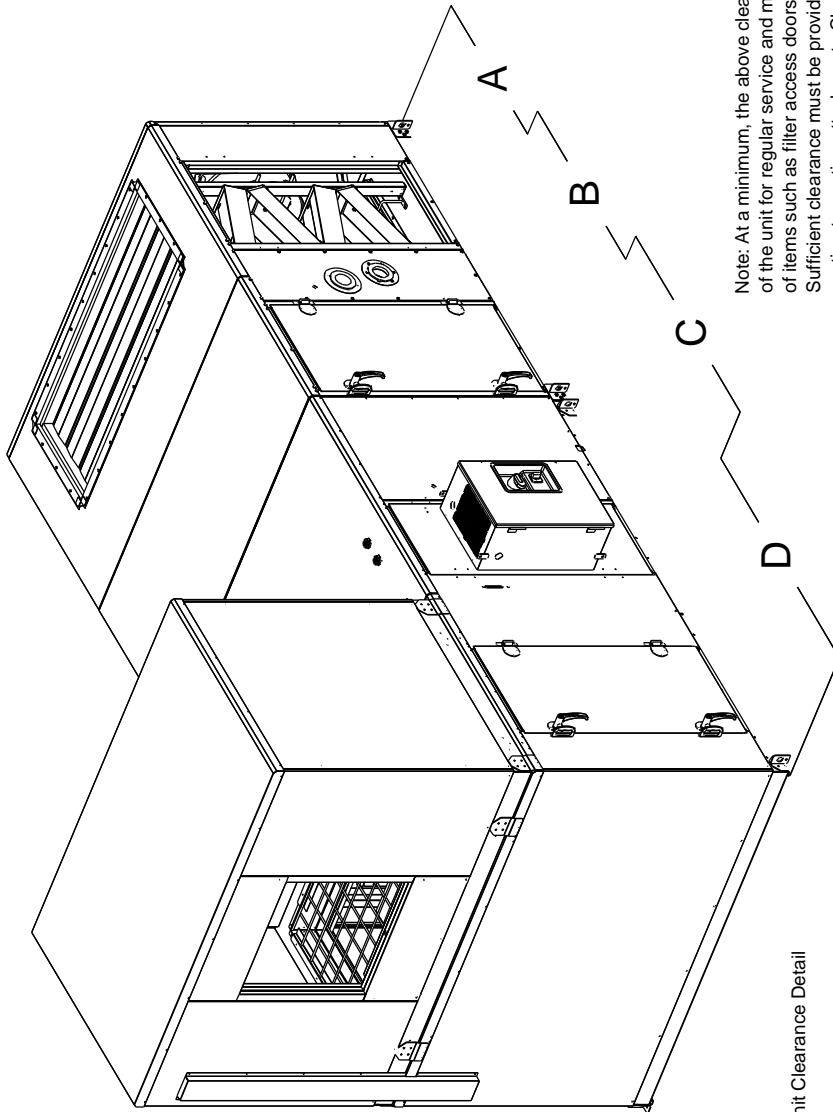
Size 17 Horizontal Draw-Thru 22 inch Class 2 Belt drive AF plenum fan



Size 17 Horizontal Draw-Thru 22 inch Class 2 Belt drive AF plenum fan

	63-hz	125-hz	250-hz	500-hz	1 kHz	2 kHz	4 kHz	8 kHz
Discharge	87	82	82	89	83	83	72	66
Inlet + Casing	91	82	86	90	79	77	70	66
Casing	81	75	73	84	74	59	43	42
Ducted Inlet	89	78	86	90	78	76	69	65

Accessory - Performance Climate Changer
Item: A1 Qty: 1 Tag(s): AHU-1

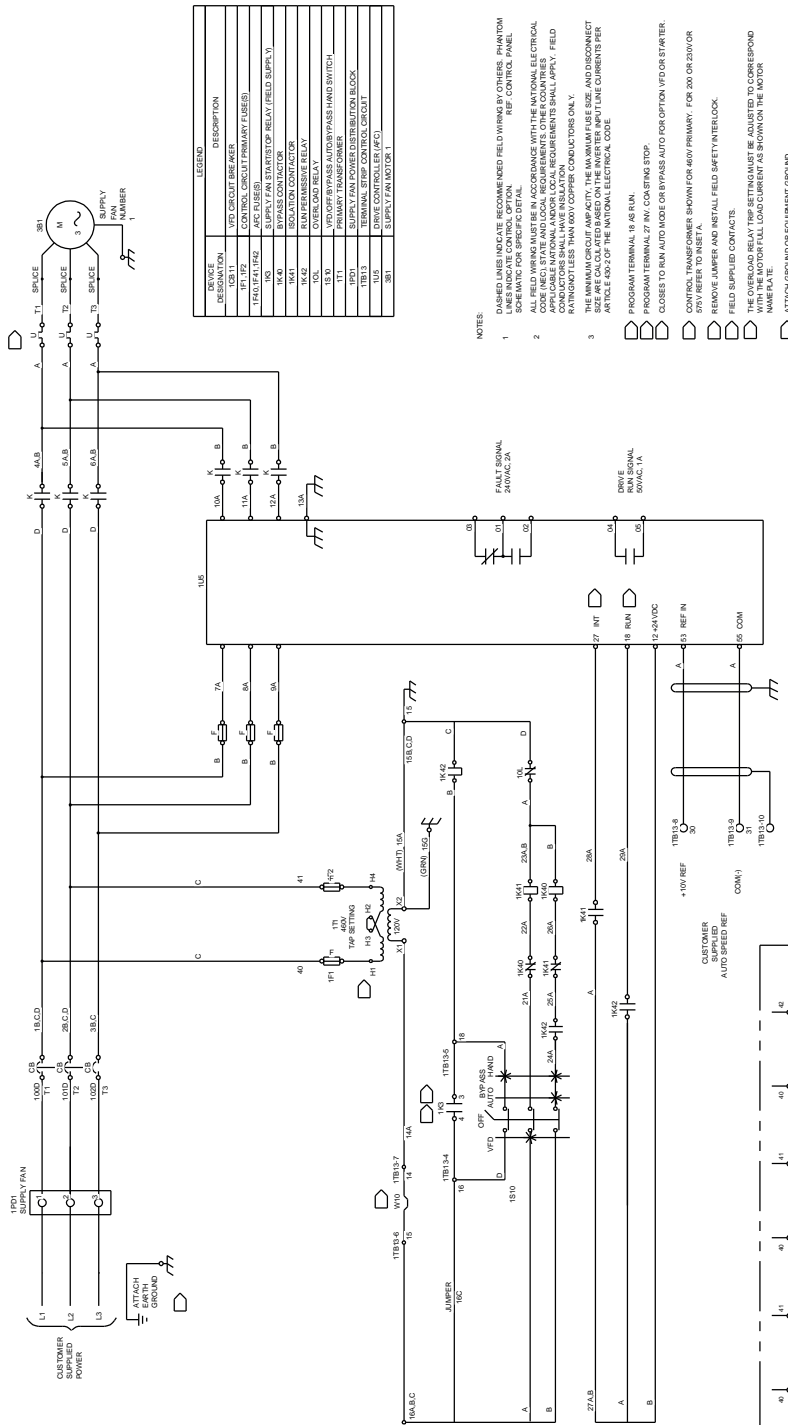


Typical Unit Clearance Detail

Note: At a minimum, the above 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.

Clearance items	3	4	6	8	10	12	14	17	21	25	30
A (filter)	48	48	48	48	48	48	48	48	48	48	48
B (coil)	48	59	59	66	77	82	87	87	95	95	109
C (External Starter or VFD - shown)	72	78	78	78	78	78	78	78	83	83	83
C (Internal Starter or VFD)	60	60	60	60	60	60	60	60	60	60	60
D (fan)	48	48	48	48	51	54	58	61	60	66	66

Accessory - Performance Climate Changer
 Item: A1 Qty: 1 Tag(s): AHU-1



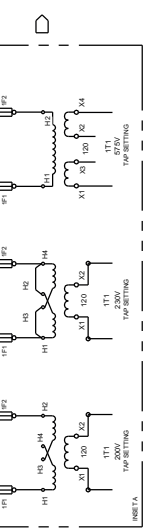
- NOTE:
- DASHED LINES INDICATE PROGRAMMED FIELD WIRING BY OTHERS. PHANTOM WIRING IS NOT TO BE USED UNLESS SPECIFICALLY NOTED ON THE SCHEMATIC FOR SPECIFIC DETAIL.
 - ALL FIELD WIRING MUST BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND ALL APPLICABLE NATIONAL AND LOCAL REQUIREMENTS SHALL APPLY. FIELD WIRING SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND ALL APPLICABLE NATIONAL AND LOCAL REQUIREMENTS SHALL APPLY. FIELD WIRING SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND ALL APPLICABLE NATIONAL AND LOCAL REQUIREMENTS SHALL APPLY.
 - THE MINIMUM CIRCUIT AMPACITY (MCA) OF THE MAIN WIRE SIZE AND DISCONNECT SIZE ARE CALCULATED BASED ON THE INVERTER INPUT LINE CURRENTS PER ARTICLE 430.52 OF THE NATIONAL ELECTRICAL CODE.
- PROGRAM TERMINAL 19: AS RUN.
 - PROGRAM TERMINAL 27: INV. COASTING STOP.
 - CLOSES TO RUN AUTO MODE OR BYPASS AUTO FOR OPTION VFD OR STARTER.
 - CONTACTS TRANSFORMERS SHOWN FOR 480V PRIMARY. FOR 200 OR 250V OR 375V REFER TO INSET A.
 - REMOVE JUMPER AND INSTALL FIELD SAFETY INTERLOCK.
 - FIELD SUPPLIED CONTACTS.
 - THE OVERLOAD RELAY TAP SETTING MUST BE ADJUSTED TO CORRESPOND WITH THE MOTOR FULL LOAD CURRENT AS SHOWN ON THE MOTOR NAMEPLATE.
 - ATTACH GROUND OR EQUIPMENT GROUND.

NOTICE
 USE COPPER CONDUCTORS ONLY!
 OTHER TYPES OF CONDUCTORS ARE NOT DESIGNED TO ACCEPT FAILURE TO DO THE ABOVE COULD RESULT IN EQUIPMENT DAMAGE.

AVIS
 UTILISER QUE DES CONDUCTEURS EN COBRE!
 AUTRES TYPES DE CONDUCTEURS NE SONT PAS CONÇUS POUR FAIRE FACE À LA PROCÉDURE CI-DESSUS PEUT ENTRAÎNER DES DOMMAGES À L'ÉQUIPEMENT.

AVISO
 ¡UTILICE ÚNICAMENTE CONDUCTORES DE COBRE!
 OTROS TIPOS DE CONDUCTORES NO ESTÁN DISEÑADOS PARA HACER FRENTE A LAS INSTRUCCIONES ANTERIORES PUEDE PROVOCAR DAÑOS EN EL EQUIPO.

LINE NO.	ITEM	MFR. PART NO.	DWG/ORD. NO.
200.000	1F11.1FZ	BUSSMAN	PNOR-R-125
200.000	1F11.2FZ	BUSSMAN	PNOR-R-150
200.000	1F11.3FZ	BUSSMAN	PNOR-R-160
200.000	1F11.4FZ	BUSSMAN	PNOR-R-175
200.000	1F11.5FZ	BUSSMAN	PNOR-R-150
200.000	1F11.6FZ	BUSSMAN	PNOR-R-150



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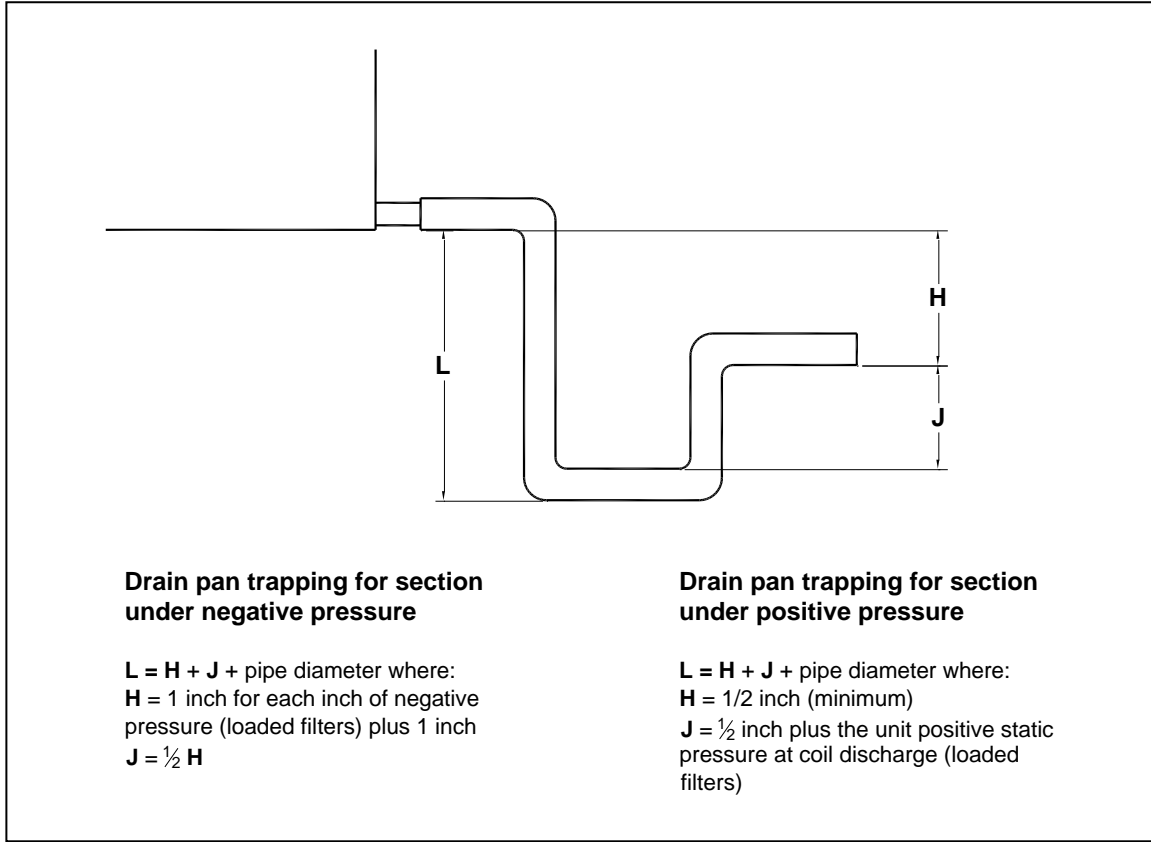
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BUSSEMAN CLASS T TAP SETTING	AMP	PART NO.
1F40	10	J1F15-10
1F41	15	J1F15-15
1F42	20	J1F15-20
1F43	25	J1F15-25
1F44	30	J1F15-30
1F45	35	J1F15-35
1F46	40	J1F15-40
1F47	45	J1F15-45
1F48	50	J1F15-50
1F49	55	J1F15-55
1F50	60	J1F15-60
1F51	65	J1F15-65
1F52	70	J1F15-70
1F53	75	J1F15-75
1F54	80	J1F15-80
1F55	85	J1F15-85
1F56	90	J1F15-90
1F57	95	J1F15-95
1F58	100	J1F15-100
1F59	105	J1F15-105
1F60	110	J1F15-110
1F61	115	J1F15-115
1F62	120	J1F15-120
1F63	125	J1F15-125
1F64	130	J1F15-130
1F65	135	J1F15-135
1F66	140	J1F15-140
1F67	145	J1F15-145
1F68	150	J1F15-150
1F69	155	J1F15-155
1F70	160	J1F15-160
1F71	165	J1F15-165
1F72	170	J1F15-170
1F73	175	J1F15-175
1F74	180	J1F15-180
1F75	185	J1F15-185
1F76	190	J1F15-190
1F77	195	J1F15-195
1F78	200	J1F15-200
1F79	205	J1F15-205
1F80	210	J1F15-210
1F81	215	J1F15-215
1F82	220	J1F15-220
1F83	225	J1F15-225
1F84	230	J1F15-230
1F85	235	J1F15-235
1F86	240	J1F15-240
1F87	245	J1F15-245
1F88	250	J1F15-250
1F89	255	J1F15-255
1F90	260	J1F15-260
1F91	265	J1F15-265
1F92	270	J1F15-270
1F93	275	J1F15-275
1F94	280	J1F15-280
1F95	285	J1F15-285
1F96	290	J1F15-290
1F97	295	J1F15-295
1F98	300	J1F15-300
1F99	305	J1F15-305
1F100	310	J1F15-310
1F101	315	J1F15-315
1F102	320	J1F15-320
1F103	325	J1F15-325
1F104	330	J1F15-330
1F105	335	J1F15-335
1F106	340	J1F15-340
1F107	345	J1F15-345
1F108	350	J1F15-350
1F109	355	J1F15-355
1F110	360	J1F15-360
1F111	365	J1F15-365
1F112	370	J1F15-370
1F113	375	J1F15-375
1F114	380	J1F15-380
1F115	385	J1F15-385
1F116	390	J1F15-390
1F117	395	J1F15-395
1F118	400	J1F15-400
1F119	405	J1F15-405
1F120	410	J1F15-410
1F121	415	J1F15-415
1F122	420	J1F15-420
1F123	425	J1F15-425
1F124	430	J1F15-430
1F125	435	J1F15-435
1F126	440	J1F15-440
1F127	445	J1F15-445
1F128	450	J1F15-450
1F129	455	J1F15-455
1F130	460	J1F15-460
1F131	465	J1F15-465
1F132	470	J1F15-470
1F133	475	J1F15-475
1F134	480	J1F15-480
1F135	485	J1F15-485
1F136	490	J1F15-490
1F137	495	J1F15-495
1F138	500	J1F15-500
1F139	505	J1F15-505
1F140	510	J1F15-510
1F141	515	J1F15-515
1F142	520	J1F15-520
1F143	525	J1F15-525
1F144	530	J1F15-530
1F145	535	J1F15-535
1F146	540	J1F15-540
1F147	545	J1F15-545
1F148	550	J1F15-550
1F149	555	J1F15-555
1F150	560	J1F15-560
1F151	565	J1F15-565
1F152	570	J1F15-570
1F153	575	J1F15-575
1F154	580	J1F15-580
1F155	585	J1F15-585
1F156	590	J1F15-590
1F157	595	J1F15-595
1F158	600	J1F15-600
1F159	605	J1F15-605
1F160	610	J1F15-610
1F161	615	J1F15-615
1F162	620	J1F15-620
1F163	625	J1F15-625
1F164	630	J1F15-630
1F165	635	J1F15-635
1F166	640	J1F15-640
1F167	645	J1F15-645
1F168	650	J1F15-650
1F169	655	J1F15-655
1F170	660	J1F15-660
1F171	665	J1F15-665
1F172	670	J1F15-670
1F173	675	J1F15-675
1F174	680	J1F15-680
1F175	685	J1F15-685
1F176	690	J1F15-690
1F177	695	J1F15-695
1F178	700	J1F15-700
1F179	705	J1F15-705
1F180	710	J1F15-710
1F181	715	J1F15-715
1F182	720	J1F15-720
1F183	725	J1F15-725
1F184	730	J1F15-730
1F185	735	J1F15-735
1F186	740	J1F15-740
1F187	745	J1F15-745
1F188	750	J1F15-750
1F189	755	J1F15-755
1F190	760	J1F15-760
1F191	765	J1F15-765
1F192	770	J1F15-770
1F193	775	J1F15-775
1F194	780	J1F15-780
1F195	785	J1F15-785
1F196	790	J1F15-790
1F197	795	J1F15-795
1F198	800	J1F15-800
1F199	805	J1F15-805
1F200	810	J1F15-810
1F201	815	J1F15-815
1F202	820	J1F15-820
1F203	825	J1F15-825
1F204	830	J1F15-830
1F205	835	J1F15-835
1F206	840	J1F15-840
1F207	845	J1F15-845
1F208	850	J1F15-850
1F209	855	J1F15-855
1F210	860	J1F15-860
1F211	865	J1F15-865
1F212	870	J1F15-870
1F213	875	J1F15-875
1F214	880	J1F15-880
1F215	885	J1F15-885
1F216	890	J1F15-890
1F217	895	J1F15-895
1F218	900	J1F15-900
1F219	905	J1F15-905
1F220	910	J1F15-910
1F221	915	J1F15-915
1F222	920	J1F15-920
1F223	925	J1F15-925
1F224	930	J1F15-930
1F225	935	J1F15-935
1F226	940	J1F15-940
1F227	945	J1F15-945
1F228	950	J1F15-950
1F229	955	J1F15-955
1F230	960	J1F15-960
1F231	965	J1F15-965
1F232	970	J1F15-970
1F233	975	J1F15-975
1F234	980	J1F15-980
1F235	985	J1F15-985
1F236	990	J1F15-990
1F237	995	J1F15-995
1F238	1000	J1F15-1000

Accessory - Performance Climate Changer

Trap Schedule

Item: A1 Qty: 1 Tag(s): AHU-1



Unit Tag(s)	Unit Size	Entering Ext. Static Pressure (in H2O)	Discharge Ext. Static Pressure (in H2O)	Drain pan Section Location	Recommended Trap Dimensions ¹			Selected Baserail Height (in) ¹
					H (in)	J (in)	L (in)	
AHU-1 ²	Unit size 17	1.750	1.750	Coil section [2]	5.014	2.507	8.522	2.000

¹ Trap height and selected baserail heights should be reviewed to determine appropriate housekeeping pad height.

² The external static pressure used for fan selection was assumed to be divided 50% to entering duct external static pressure and 50% discharge external static pressure.

Accessory - Performance Climate Changer**Filter Schedule****Item: A1 Qty: 1 Tag(s): AHU-1**

Unit Tag(s)	Unit Size	Filter Location	Filter Arrangement	Filter Depth	Filter Type	MERV Rating	Filter Quantity	Filter Size
AHU-1	Unit size 17	Air mixing section [1]	-	4in. filter frame	Pleated media	MERV 8	8 4	16in.x20in. 16in.x25in.

Field Wiring - Performance Climate Changer**MCA MOP Schedule****Item: A1 Qty: 1 Tag(s): AHU-1**

Unit Tag(s)	Circuit	Circuit Description	Voltage/Phase/Hz	MCA (A)	MOP (A)
AHU-1	1	Supply fan motor 1	200-208/3/60	60.38	108.68

Field Installed Options - Part/Order Number Summary

This is a report to help you locate field installed options that arrive at the jobsite. This report provides part or order numbers for each field installed option, and references it to a specific product tag. It is NOT intended as a bill of material for the job.

Product Family - Performance Climate Changer

Item	Tag(s)	Qty	Description	Model Number
A1	AHU-1	1	Performance Climate Changer (CSAA)	CSIA017

Field Installed Option Description	Part/Ordering Number
Pleated media	