# Submittal

***Prepared For:***
*Kroeschell Engineering Company*

***Date:*** *February 16, 2010*

***Job Name:***
*Columbus AFB Dental Clinic*

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

**Product Summary**

| Qty | Product |
|---|---|
| 1 | Performance Climate Changer |

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

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## Table Of Contents

**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 $ft^2$-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. 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

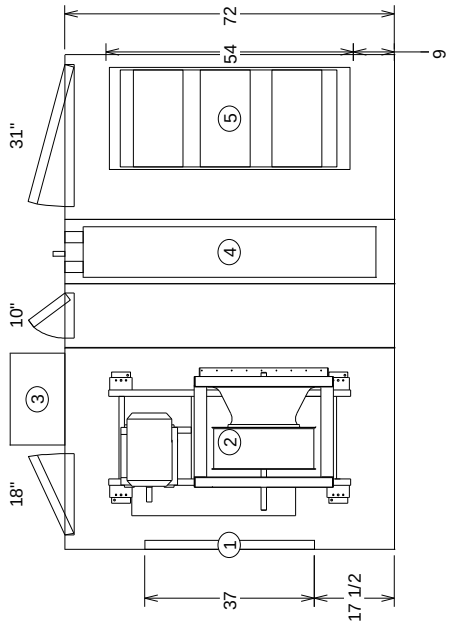
Units with factory-mounted controls shall include a control transformer with sufficient capacity to support both the VFD and controls requirements, binary output on/off wiring, analog output-speed-signal wiring, and all interfacing wiring between the VFD and the direct digital controller.

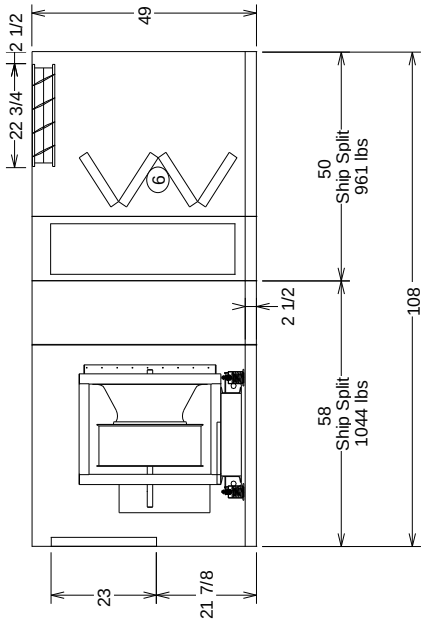
The VFD shall be UL508C listed and CSA certified and conform to applicable NEMA, ICS, NFPA, & IEC standards.

## 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*

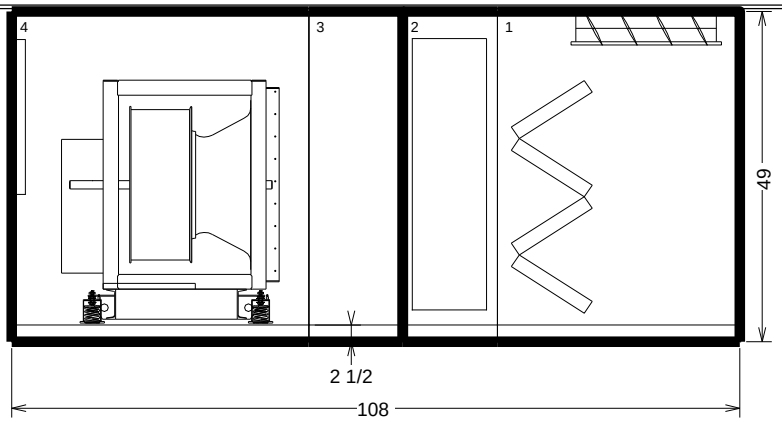
Unit size: 17
Product group: Indoor unit
Integral base frame: 2.5in. integral base frame
Paint: Unpainted

Job Name:
Actual airflow: 8000 cfm
Sales Office:

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

TRANE®
*Performance Climate Changer™*
*Air Handlers*

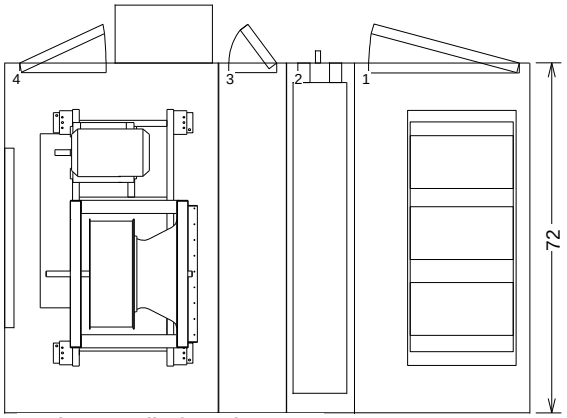
## As-Built - Performance Climate Changer
## Item: A1 Qty: 1 Tag(s): AHU-1




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

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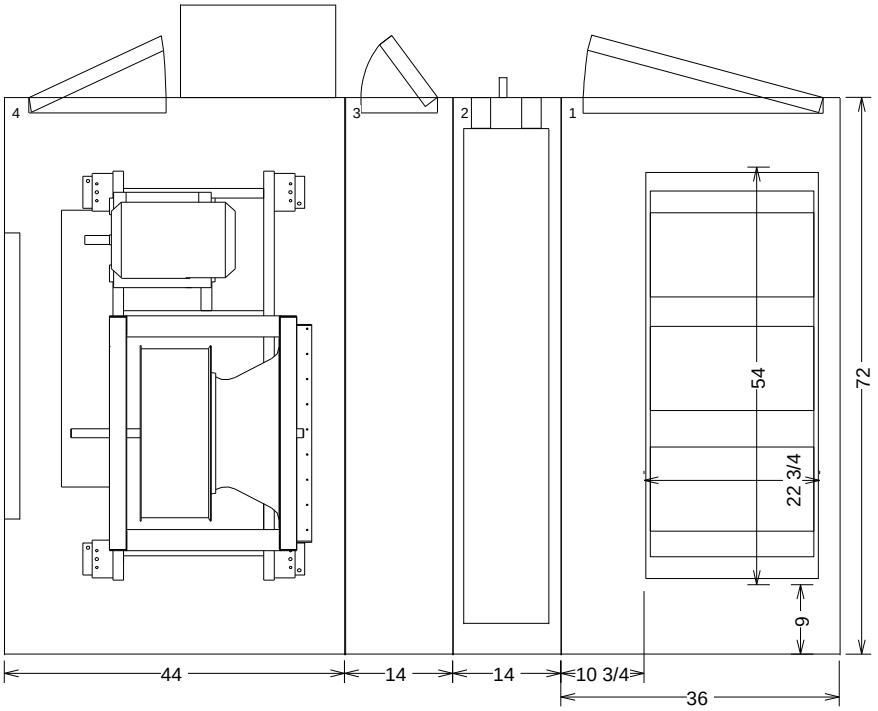
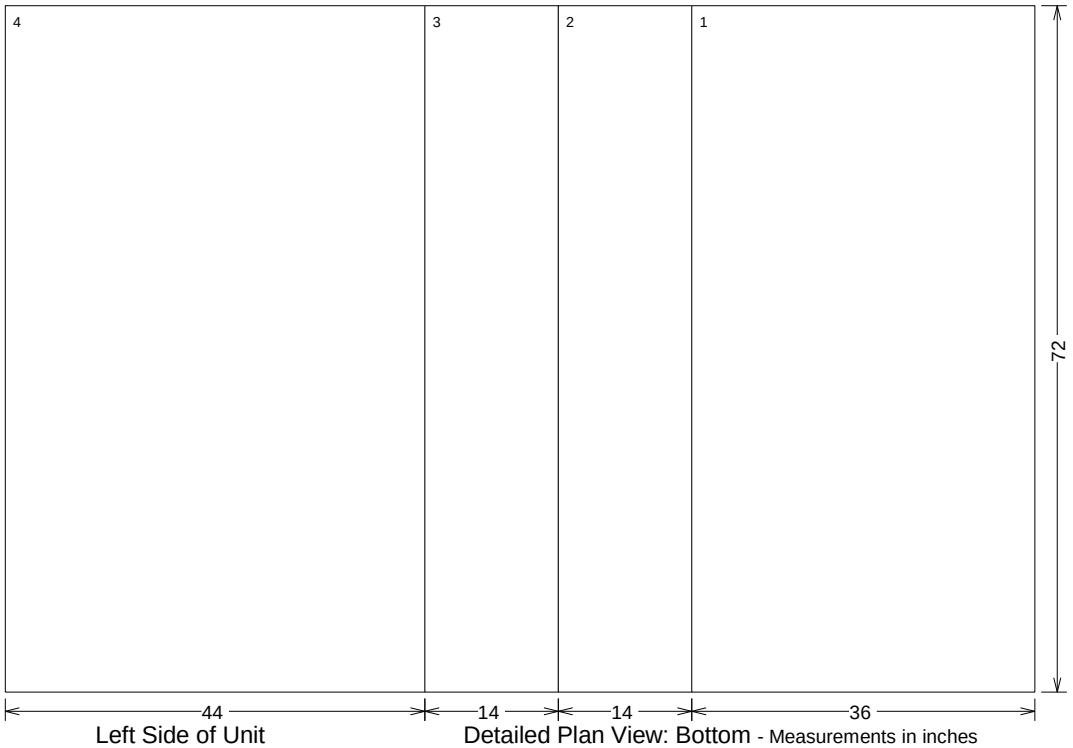
| | | | |
|---|---|---|---|
| Unit size: 17 | Job Name: | Unit Casing: 2in Double Wall | TRANE® Performance Climate Changer™ Air Handlers |
| Product group: Indoor unit | | Proposal Number: | |
| Integral base frame: 2.5in. integral base frame | Actual airflow: 8000 cfm | | |
| Paint: Unpainted | Sales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

## As-Built - Performance Climate Changer
## Item: A1 Qty: 1 Tag(s): AHU-1




Right Side of Unit

Detailed Plan View: Top - Measurements in inches




Left Side of Unit

Detailed Plan View: Bottom - Measurements in inches

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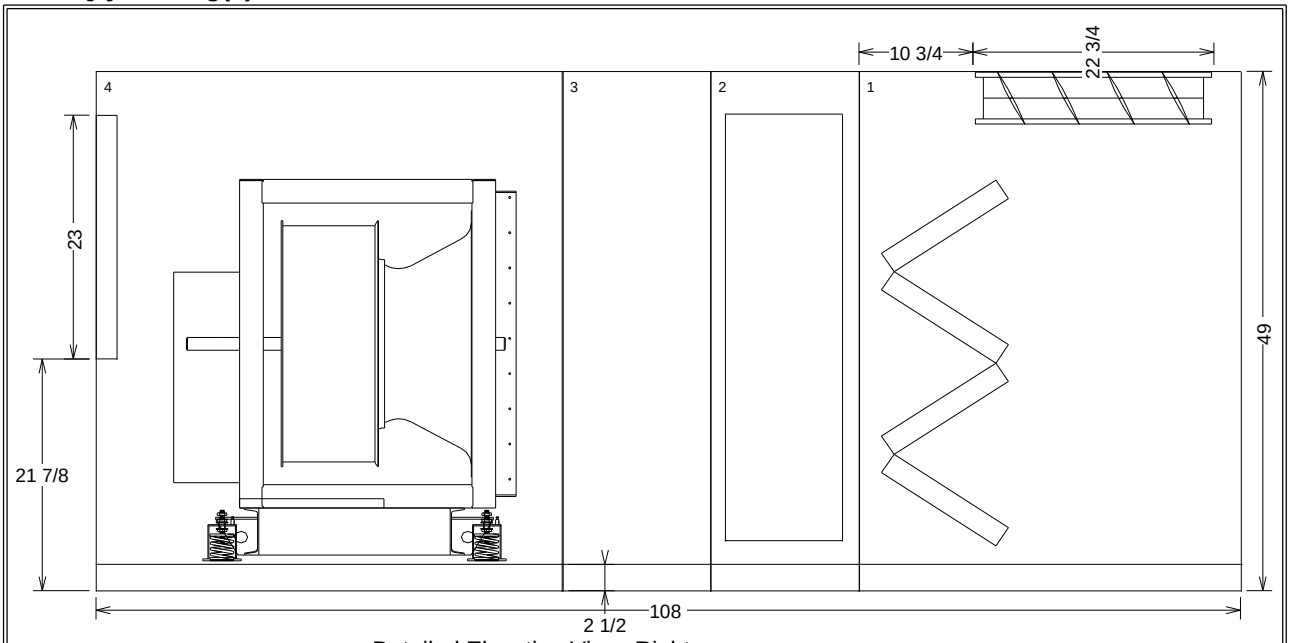
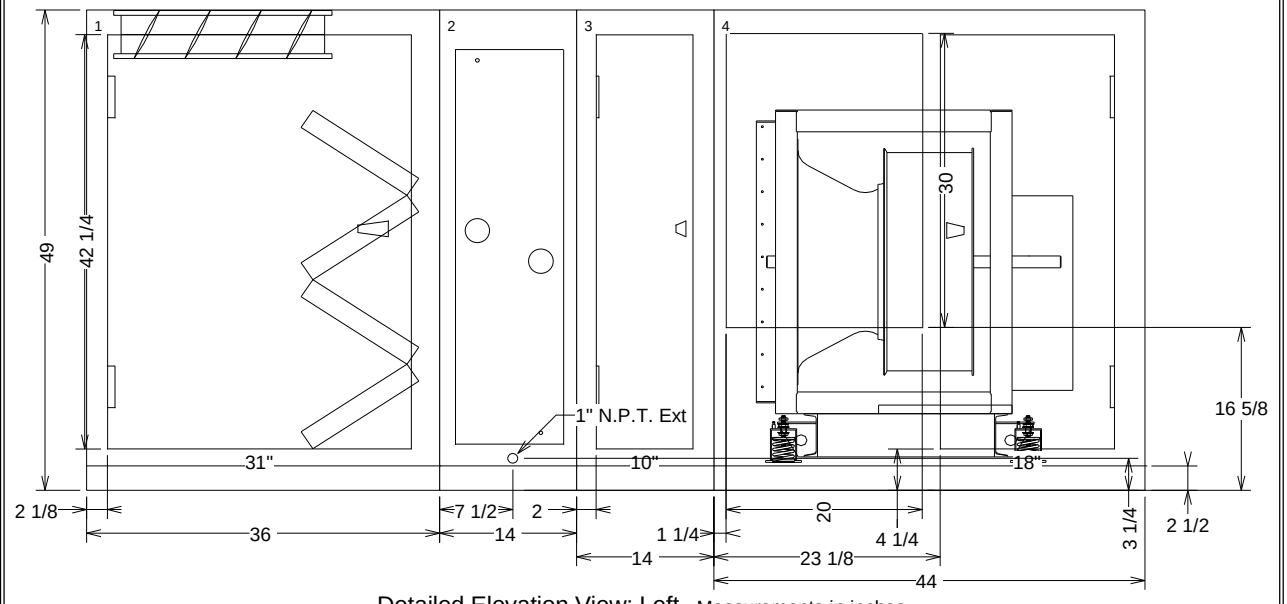
| | | | |
|---|---|---|---|
| Unit size: 17 | Job Name: | Unit Casing: 2in Double Wall | TRANE® |
| Product group: Indoor unit | | Proposal Number: | |
| Integral base frame: 2.5in. integral base frame | Actual airflow: 8000 cfm | | *Performance Climate Changer™ Air Handlers* |
| Paint: Unpainted | Sales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

**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

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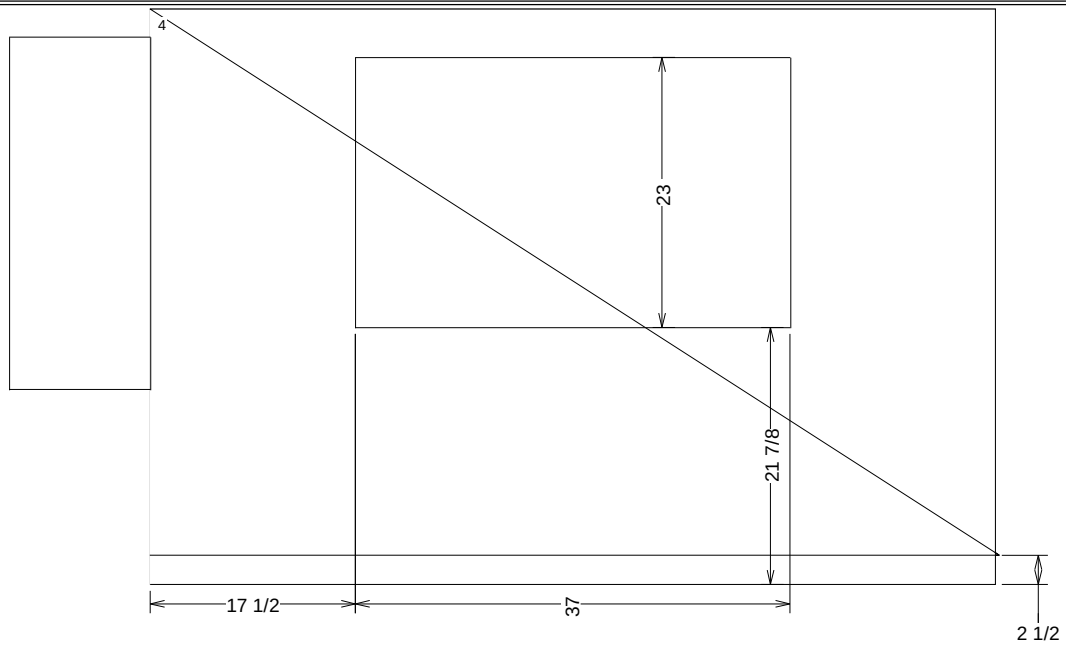
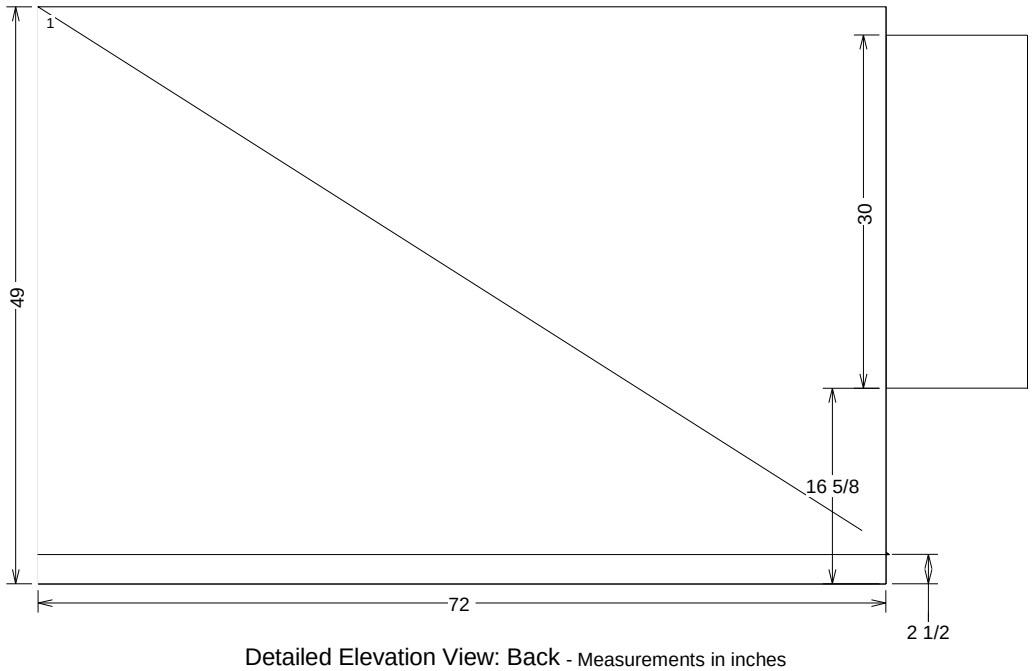
| | | | |
|---|---|---|---|
| Unit size: 17 | Job Name: | Unit Casing: 2in Double Wall | TRANE |
| Product group: Indoor unit | | Proposal Number: | |
| Integral base frame: 2.5in. integral base frame | Actual airflow: 8000 cfm | | *Performance Climate Changer™ Air Handlers* |
| Paint: Unpainted | Sales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

## 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

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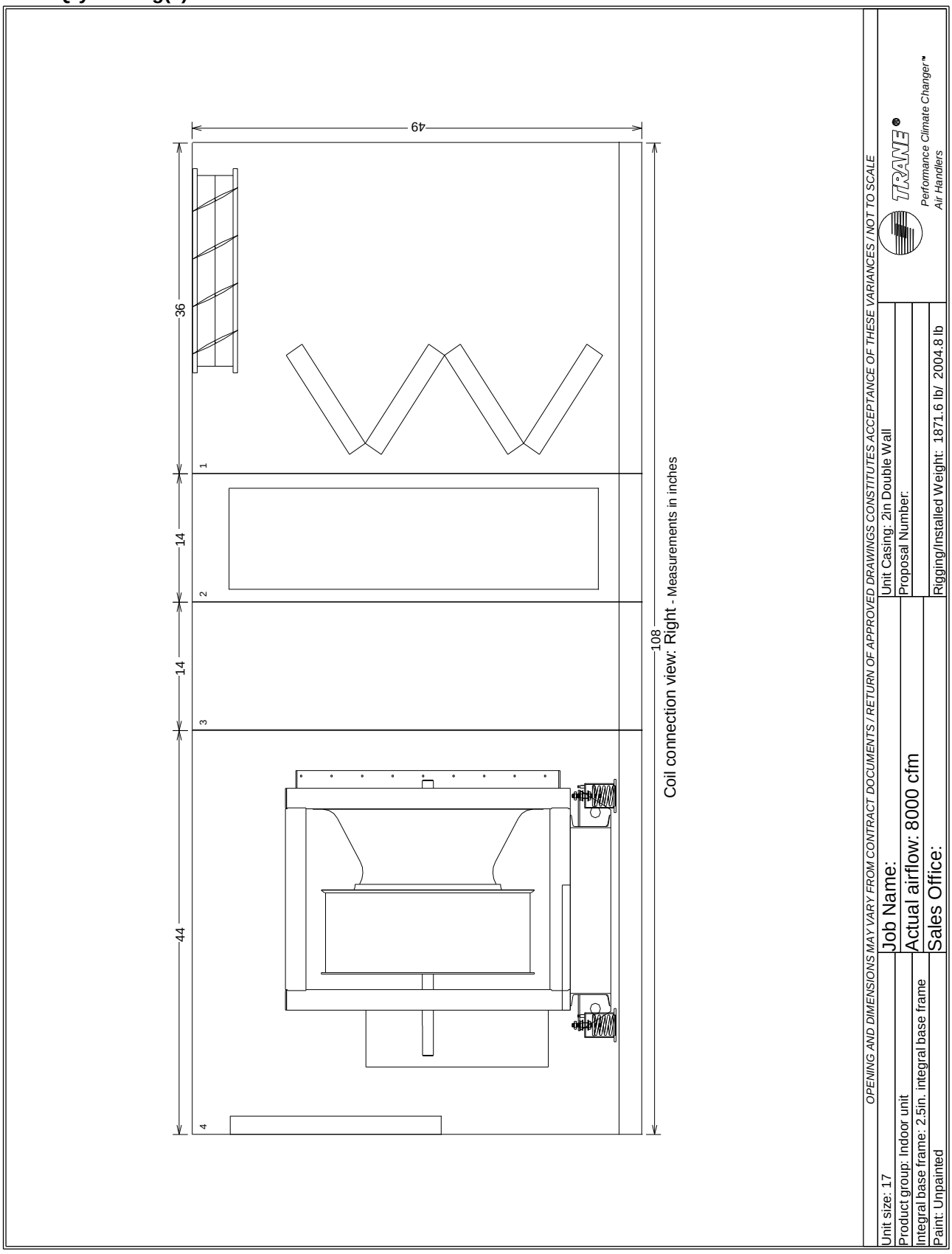
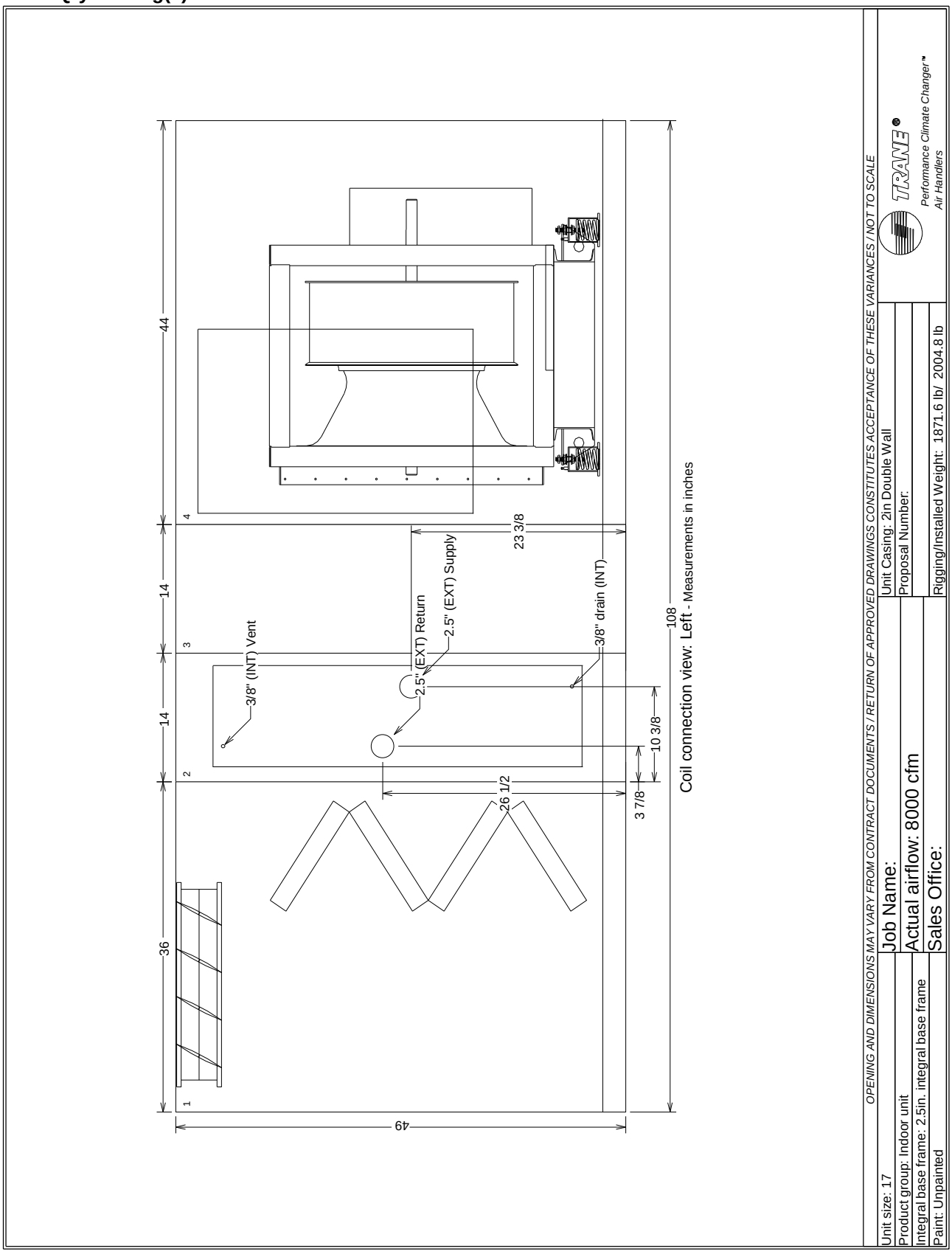
| | | | |
|---|---|---|---|
| Unit size: 17 | Job Name: | Unit Casing: 2in Double Wall | TRANE® |
| Product group: Indoor unit | | Proposal Number: | |
| Integral base frame: 2.5in. integral base frame | Actual airflow: 8000 cfm | | *Performance Climate Changer™ Air Handlers* |
| Paint: Unpainted | Sales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

## 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



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

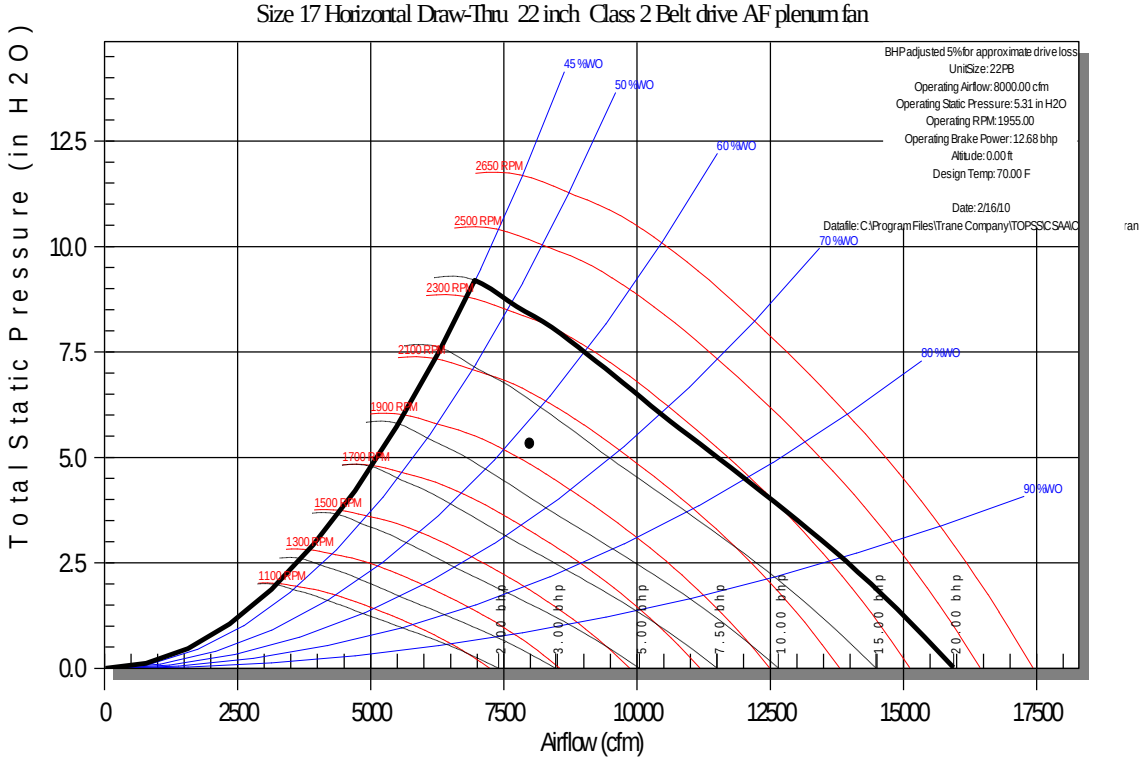
Overall Unit Acoustics

| | 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

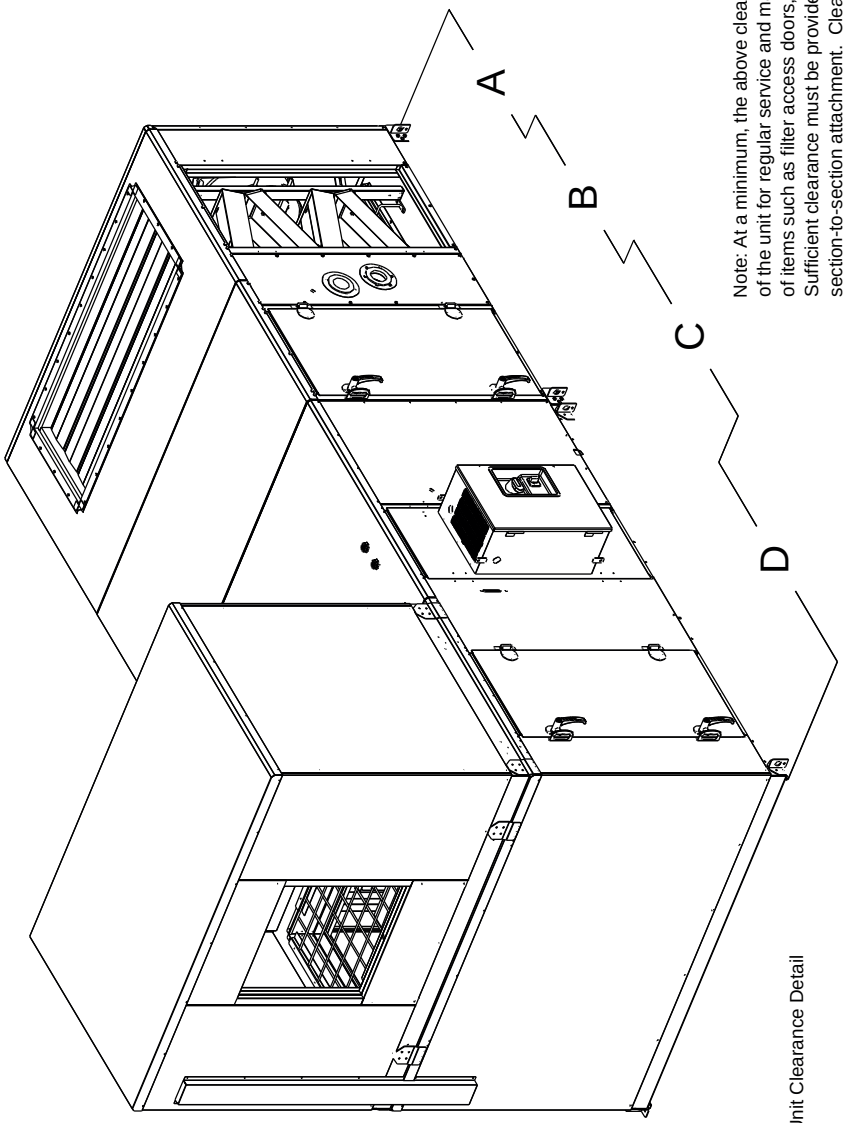
Size 17 Horizontal Draw-Thru 22 inch Class 2 Belt drive AF plenum fan




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

| | 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 |

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

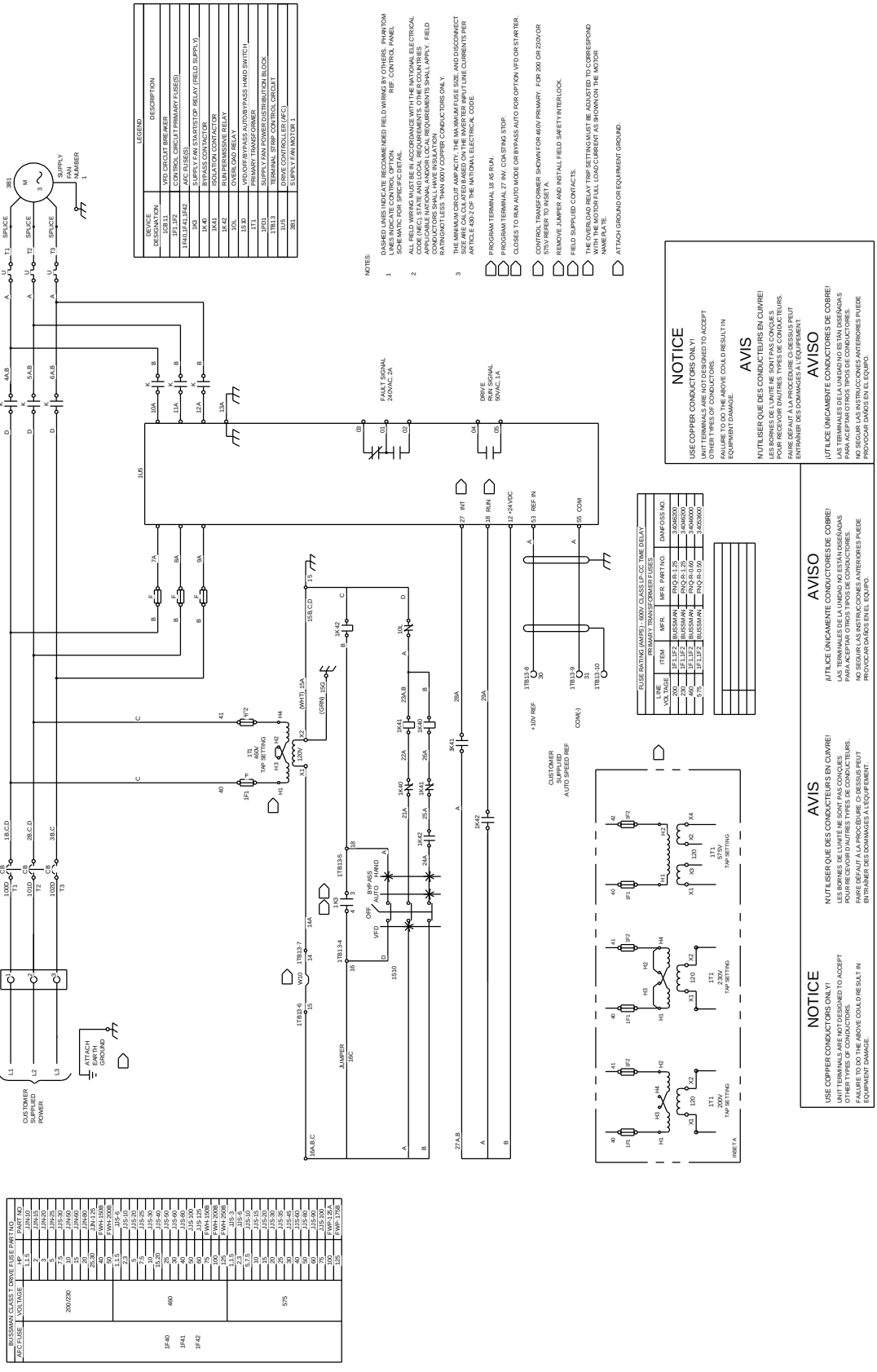



Typical Unit Clearance Detail

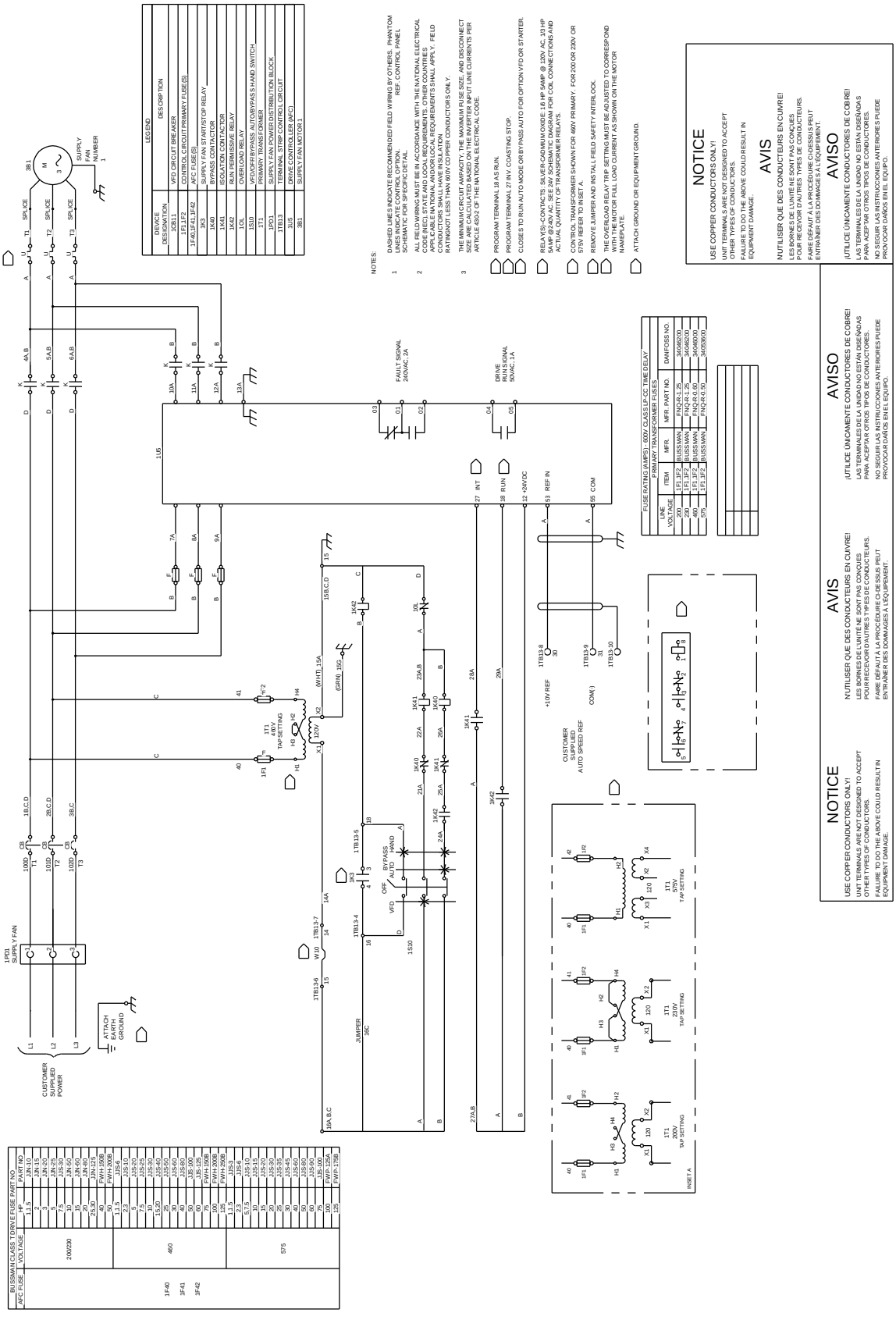
Note: At a minimum, the above clearance dimensions are recommended on one side of the unit for regular service and maintenance. Refer to as-built submittal for locations of items such as filter access doors, coil, piping connections, motor locations, etc. Sufficient clearance must be provided on all 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 |

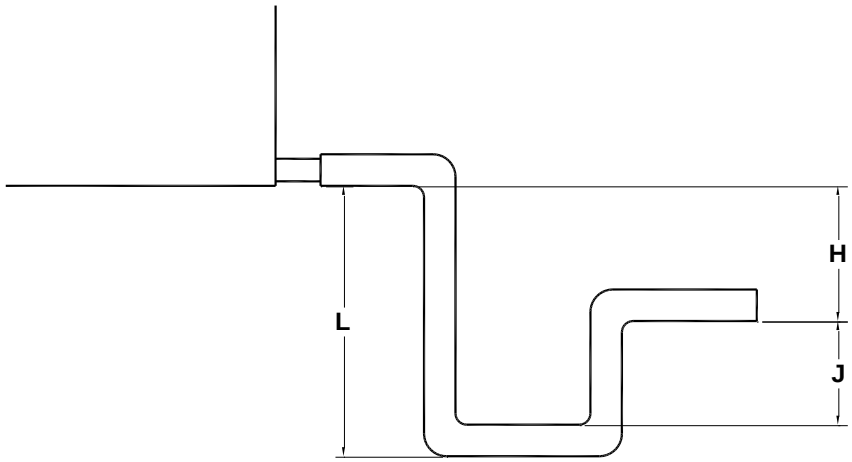
## Accessory - Performance Climate Changer
## Item: A1 Qty: 1 Tag(s): AHU-1



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



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




**Drain pan trapping for section under negative pressure**

**L = H** + **J** + pipe diameter where:
**H** = 1 inch for each inch of negative pressure (loaded filters) plus 1 inch
**J** = ½ **H**

**Drain pan trapping for section under positive pressure**

**L = H** + **J** + pipe diameter where:
**H** = 1/2 inch (minimum)
**J** = ½ inch plus the unit positive static pressure at coil discharge (loaded filters)

| 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<br>4 | 16in.x20in.<br>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 | |