



# Submittal

Trane U.S. Inc.

**Engineer:** Jacobs

**Date:** January 26, 2012

**Prepared For:**

Airtemp Incorporated  
11 Wallace Avenue  
South Portland, ME 04106

**Customer P.O. Number:** 099298

**Customer Project Number:**

**Job Name:**

Hannaford Supermarket - Forest Ave Portland  
295 Forest Avenue  
Portland, ME 04102

**Job Number:** A2-22546

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

<u>Qty</u>	<u>Description</u>	<u>Tag(s)</u>
	Rooftop Air Handling Units	
1	Trane CSOA012 Performance Climate Changer™ Rooftop Air Handling Unit	RTAH-1
1	Trane CSOA008 Performance Climate Changer™ Rooftop Air Handling Unit	RTAH-2
1	Trane CSOA021 Performance Climate Changer™ Rooftop Air Handling Unit	RTAH-3
1	Trane CSOA010 Performance Climate Changer™ Rooftop Air Handling Unit	OAU-1
	<ul style="list-style-type: none"> <li>Mixing Box Section bottom return air opening, access door on one side, 2" angled filter rack with 1 set of MERV 8 filters. OAU-1 with back parallel blade outside air damper with hood w/ moisture eliminator (no bottom opening). <i>Damper actuator by others.</i></li> <li>Flat Filter Section with 4" flat filter rack, 1 set of 4" MERV 14 cartridge filters, access door on one side.</li> <li>Medium Coil Section with 4 row DX coil, sloped stainless steel drain pan, coil and drain pan connections on same side. <i>RTAH-3 without coil section.</i></li> <li>Medium Access Section with door on one side. <i>RTAH-3 without access section.</i></li> <li>Coil Section with 4 or 6 row Hot Water Coil (Green Chill loop), sloped galvanized drain pan, coil and drain pan connections on same side.</li> <li><i>RTAH-3 only:</i> Medium Access Section with door on one side</li> <li>Supply fan section with AF Belt Drive Fan (RTAH-3 with dual fan array Direct Drive AF fans), 460v/3ph/60hz NEMA premium compliant ODP motor(s), internally spring and flex duct isolated fan/motor assembly, flow meter, ABB variable frequency drive/disconnect in NEMA 3R enclosure (field installed by Trane), access door on motor/drive side, 115v GFI outlet (field powered). <i>Direct drive plenum fans are not available in units with gas heat sections. Variable frequency drives will be submitted in a separate package. Refer to VFD submittal for actual electrical requirements. Note that for dual fan unit (RTAH-3) the VFD size is based on one size larger than the sum of the motors (in this case a single 15hp drive will control both 5hp motors).</i></li> <li>Gas Heat Section with drum and tube indirect fired natural gas burner, 115v/1ph/60hz power (separate power feed required), bottom discharge opening. <i>RTAH-3 without gas heat section</i></li> <li><i>RTAH-3 only:</i> Discharge Plenum with bottom discharge opening, access door on one side</li> <li>6" integral base frame</li> <li>Standard 14" high non-seismic roof curb (field insulated by others)</li> <li>Single metal handles with ganged latches</li> <li>Trane <i>Slate Grey</i> unit finish</li> <li>UL listed unit</li> <li>5 year parts warranty</li> </ul>	

(continued next page)

**Dan Broderick**

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

- All units will be provided with coil connections, drain pan connections and access door locations as shown in the attached submittal unless otherwise requested at time of release. GC coil for RTAH-2 is submitted opposite shown in plans. Submitted configurations summarized below:

Tag	DX Coil	GC Coil	Furnace vestibule	Access Doors
RTAH-1	LH	LH	RH	RH
RTAH-2	LH	LH	RH	RH
RTAH-3	n/a	RH	n/a	LH
OAU-1	LH	LH	RH	RH

RH = right hand side

LH = left hand side

GC = Green Chill Heating Coil (Heating Coil 1)

Notes:

- RTAH-2 requires a 5hp motor (versus the 3hp scheduled)
- RTAH-3 is provided with a dual fan array consisting of 2 direct drive fans each with a 5hp motor. A single 15hp VFD will be provided to operate both fans simultaneously.
- OAU-1 requires a 7.5hp motor versus the 5hp motor scheduled
- All controls, valves, TXV's and actuators are by others.
- No external piping cabinets. All piping field insulated by others.
- Refer to VFD submittal for supply fan electrical data. Data in this submittal reflects the fan motor only.
- 115v GFI outlet and gas heat section require separate power feeds

**Mechanical Specifications - Performance Climate Changer**

Qty: 4 Tag(s): RTAH-1, RTAH-2, RTAH-3, OAU-1

**GENERAL****Lifting Instructions**

The air handling units must be rigged, lifted, and installed in strict accordance with the Installation, Operation, and Maintenance manual (CLCH-SVX07B-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.

Outdoor units shall be shipped on 6" integral base frame for the purpose of mounting units on a roof curb or field-supplied pier support system. *Refer to the Product Data section for type of the base frame provided (for roof curb or pier-mount).*

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. Units shipped in sections will have a minimum of four points of lift.

Outdoor air handling units will be shipped with all openings covered to protect unit interior from in-transit debris.

Installing contractor is responsible for long term storage in accordance with the Installation, Operation, and Maintenance manual (CLCH-SVX07B-EN).

Unit shall be UL and C-UL Listed.

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

Unit sound performance data shall be provided using AHRI 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 AHRI 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 outdoor AHU interior casing panels will be made of galvanized steel.

**Unit Paint**

External surface of unit casing will be coated with water-based polyurethane paint. Color to be standard "Slate Gray". Factory-painted units will be able to withstand a salt spray test in accordance with ASTM B117 for a minimum of 500 consecutive hours and shall meet the following requirements following the salt-spray test:

- Mean scribe creepage rating of at least 6 per ASTM D1654 procedure A
- Blister size no larger than #6 per ASTM D714
- Blister density no greater than Medium per ASTM D714
- No onset of red rust

**Casing Deflection**

The casing shall not exceed 0.0042 inch deflection per inch of panel span at 1.5 times design static pressure up to a maximum of +8 inches w.g. in all positive pressure sections and -8 inches w.g. in all negative pressure sections.

The unit floor shall be of sufficient strength to support a 300-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<sup>2</sup>-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 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 for indoor AHUs and as standard on outdoor AHUs, outward swing doors are 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.*

**Factory-supplied Curb**

Outdoor AHU will be provided with a factory-supplied roof curb. Curb will be shipped to jobsite disassembled. Contractor will be responsible for assembly and mounting to roof structure per the Roof Curb Manual. Units with factory-supplied external piping cabinet(s), the factory-supplied curb will include a curb section for the pipe cabinet(s). *Refer to the Roof Curb Detail drawing and Product Data section of submittal for height of factory-supplied roof curb(s).*

**MIXING SECTION**

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

**Inlet Hoods – OAU-1 only**

Inlet hoods are provided on the outside air openings and equipped with high performance moisture eliminators to minimize water carryover from the outside into the unit casing. Eliminators also perform the function of a bird screen to prevent nesting.

*Refer to the unit As-Built and Product Data section for specific information on which sections are supplied with inlet hood.*

**Dampers – OAU-1 only**

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/ft<sup>2</sup> 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.

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 8 rating when tested in accordance

with the ANSI/ASHRAE Standard 52.2.

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## **FILTER SECTION**

A section shall be provided to support the filter rack as indicated throughout the unit. Refer to Product Data and As-Built sections of the submittal for specific locations within each unit.

### **Primary Filters**

4-inch high-efficiency filters constructed with a fine fiber media made into closely spaced pleats shall be provided. The filters shall be capable of operating up to 625 fpm face velocity without loss of filter efficiency and holding capacity. The filter media shall be sealed into a frame assembled in a rigid manner.

The 4-inch high efficiency filters shall have a MERV 14 rating when tested in accordance with the ANSI/ASHRAE Standard 52.2.

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## **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 AHRI Standard 410. Propylene glycol and calcium chloride, or mixtures thereof, are outside the scope of AHRI Standard 410 and, therefore, do not require AHRI 410 rating or certification.

Headers are constructed of round copper pipe or cast iron.

Tubes are 1/2" [13mm] OD 0.016" [0.406mm] or " [16mm] OD 0.020" [0.508 mm] thick copper.

### **Refrigerant Cooling Coils**

The coils shall have aluminum fins and seamless copper tubes. The fins shall have collars drawn, belled, and firmly bonded to tubes by mechanical expansion of the tubes. Suction and liquid line connections shall extend to the unit exterior. 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 450 psig and leak-tested to 300 psig air pressure under water. After testing, the inside of the coils shall be dried, all connections shall be sealed, and the coil shall be shipped with a charge of dry air.

Suction headers shall be constructed of copper tubing with connections penetrating unit casings to permit sweat connections to refrigerant lines. The coils shall have equalizing vertical distributors sized according to the capacities of the coils. Coil performance data shall be certified in accordance with AHRI Standard 410.

Refrigerant coil tubes are 1/2" [13mm] OD, 0.016" [0.406mm] thick, internally enhanced copper.

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## **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.

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**AF FAN SECTION – RTAH-1, RTAH-2, OAU-1**

The fan type shall be provided as required for stable operation and optimum energy efficiency. The fan shall be a double-width, double-inlet, multiblade-type, airfoil (AF) fan. The fan shall be equipped with self-aligning, antifriction 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. Fan performance shall be certified as complying with AHRI Standard 430.

**DIRECT-DRIVE PLENUM FAN SECTION – RTAH-3**

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 direct-drive plenum fan. *Refer to the Product Data section for fan quantity and number of blades selected within each unit.*

**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.*

**One-Inch Spring Isolators**

The fan and motor assembly (on sizes 3 to 8) shall be internally isolated from the unit casing with 1-inch (25.3mm) 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.

**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.

Fans sections with plenum fans shall be provided with an expanded-metal guard screen for the access door, mounted on the door opening, to deter unauthorized entry and incidental contact with rotating components. Refer to the Product Data section for fans with access door guards.

**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).

**Flow Meter**

The fan shall have an airflow measurement system to measure fan airflow directly or to measure differential pressure that can be used to calculate fan airflow. The system shall predict airflow within +/-5 percent total accuracy (device & transmitter) when operating within the stable operating region of the fan curve. The submitted fan airflow performance and noise levels shall not be affected by the installation of the device. Any device that provides an obstruction to the fan inlet will not be accepted. *Refer to the Product Data section for fans with flow meters.*

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**DISCHARGE PLENUM SECTION – RTAH-3 only**

Penums shall be provided to efficiently turn air and provide sound attenuation. Discharge plenum opening types and sizes shall be scaled to meet engineering requirements. The vertical discharge plenum height may be scaled to accommodate the appropriate discharge duct height.

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**GAS HEAT SECTION**

Indirect-fired gas heaters shall be completely factory assembled, piped, and operationally fire tested at the factory prior to shipment. The heat exchanger primary drum and secondary tubes shall constructed from 14-gauge, 409 stainless steel. The industrial / commercial burner shall be UL listed, forced draft, and fully modulating. The control panel shall be equipped with Honeywell RM7800 flame management controls and appropriate safeties. The gas heat section construction shall match the rest of the air handling unit and be an integral part of the unit. All burner and control components shall be housed in a burner vestibule with a large access door. The entire section shall bear a UL or CUL label for Commercial-Industrial Gas Heating Equipment (ANSI / UL Standard 795) and Industrial Gas-Fired Package

Furnaces (CGA Standard 3.2-1976).

Features:

- Natural gas burner
- 115 V 1-phase power
- 10:1 full-modulating nominal turndown
- UL / Factory Mutual insurance-rated gas train

Field connections:

- 9 -14 in. w.c. gas pressure in appropriate volume
- 120 VAC or 3-phase power (voltage requirements depend on size)
- Start / stop dry contact
- Modulating 0-10 VDC control signal
- Condensate drain
- Hardwired supply fan interlocks are recommended
- Flue stack (factory supplied, field installed for outdoor units)

# Performance Climate Changer



**Job Name** Hannafood Supermarket - Forest Ave Portland  
**User Name** (B16)Daniel Broderick  
**Address** Portland ME  
 J:\PM\Hannaford - Forest Ave.psd

Performance Climate Changer RTAH-1  
**Quantity** 1  
**Job Comments**

**Unit level options**

**Module Position:** 0

Actual airflow	4800 cfm	Circuit number 1	Supply fan motor(s)
Unit elevation	0.00 ft	MCA circuit 1	9.50 A
Unit size	12	MOP circuit 1	17.10 A
Integral base frame	6in. integral base frame	Supply or return/exhaust fan starter/VFD	No VFD/starter in sup or ret/exh fan
Modified coil - min face velocity	250 ft/min	Supply fan motor horsepower	5 HP
Modified coil - max face velocity	600 ft/min	Marine LED lights in unit	No marine LED lights in unit
HEPA filter - min face velocity	0 ft/min	FLA circuit 2	13.04 A
HEPA filter - max face velocity	600 ft/min	MCA circuit 2	16.30 A
UL listed unit	UL listed unit	MOP circuit 2	29.34 A
High voltage location	Right	Fuse size circuit 2	25.00 A
Length	199.750 in	FLA circuit 3	8.00 A
Width	66.500 in	MCA circuit 3	10.00 A
Installed weight	3787.6 lb	MOP circuit 3	18.00 A
Rigging weight	3415.4 lb	Fuse size circuit 3	15.00 A
Shipping split type	Factory splits	Roof curb type	Standard roof curb
Door handle type - unit level	Single metal handle - ganged	Curb height	14 in.
FLA circuit 1	7.60 A	Paint	Factory painted - slate gray
Fuse size circuit 1	15.00 A		

**Controls and VFD/starter**

**Module Position:** 0

Factory controls package	No factory mount	Total number of control points	0 control points
Automatic Selection	No auto selection	NEMA SF	Field provided VFD
Controller mounting	No mount	VFD/Starter location supply fan	No mounting
Controller type	No controller	Fan wheel balance SF	Inverter balance
LCD screen and keypad	No LCD	NEMA RF/EF	No NEMA
Design Sequence	B	VFD/Starter location ret/exh fan	No mounting
Prepackaged solution option used	MP common configuration not used		

Coil performance data is certified in accordance with AHRI standard 410. Propylene glycol and calcium chloride, or mixtures thereof, are not covered under the scope of AHRI 410.

Air-handling performance data is certified in accordance with AHRI standard 430. Air handlers with plenum fans and vertical draw-thru air handlers where the coil is mounted immediately below the fan section are not covered under the scope of AHRI 430.

All weights and dimensions are approximate. Certified prints on request.



# Performance Climate Changer

**Air mixing section**

**Module Position: 1**

Section type	Air mixing section	Design sequence	B
Unit size	12	Opening 1 bottom - airflow	4800 cfm
Mixing section type	with filter	Filter condition	Mid-life
Filter frame	2"	Filter airflow	4800 cfm
Filter type	Pleated media - MERV 8	Opening 1 front - airflow	4800 cfm
Access door location	Right	Opening 1 bottom - face velocity	1135 ft/min
Back opening type	No opening	Opening 1 bottom - pressure drop	0.000 in H2O
Front opening type	Full face opening	Opening 1 bottom total pressure drop	0.000 in H2O
Front air path	Leaving	Greatest entry PD	0.000 in H2O
Top opening type	No opening	Opening 1 front - area	15.19 sq ft
Bottom opening type	1st bottom rectangular opening	Opening 1 bottom - area	4.23 sq ft
Bottom air path	Entering	Filter area	16.67 sq ft
Bottom air path type	Return	Filter face velocity	288 ft/min
Bottom inlet type	Ducted	Filter pressure drop	0.569 in H2O
Right side opening type	No opening	Access door	Yes
Left side opening type	No opening	Total mixing section pressure drop	0.569 in H2O

**Filter section**

**Module Position: 2**

Section type	Filter	Filter condition	Mid-life
Unit size	12	Filter area	13.33 sq ft
Filter type	Flat filter	Filter face velocity	360 ft/min
Filter frame	4in. filter frame	Filter pressure drop	0.750 in H2O
Access door location	Right	Filter section pressure drop	0.750 in H2O
Primary filter type 1	4in. cartridge - 95% eff - MERV 14	Section length	14.000 in
Pre-filter filter type	No prefilter	Section weight	208.1 lb
Design sequence	B	Access door	Yes
Filter airflow	4800 cfm		

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Air-handling performance data is certified in accordance with AHRI standard 430. Air handlers with plenum fans and vertical draw-thru air handlers where the coil is mounted immediately below the fan section are not covered under the scope of AHRI 430.

All weights and dimensions are approximate. Certified prints on request.

# Performance Climate Changer

Coil section		Module Position: 3	
<b>Coil se [3]-1</b>			
Section type	Horizontal coil	Suction temperature	44.00 F
Unit size	12	Coil type	UF
Section size	Medium	Rows	4 rows
Coil application	Cooling coil	Fin type	Delta flo E (energy efficient)
Changeover coil	No	Fin material	Aluminum fins
System type	Refrigerant	Tube diameter	1/2in. tube diameter (12.7 mm)
Coil supply/cabinet side	Left	Tube matl/wall thickness	.016" (0.406mm) int enh copper tubes
Coil casing	Galvanized	Corrosion resistant coating	None
Coil height	Unit coil height	Circuiting type	Intertwined circuits
Drain pan	Stainless steel	Coil face velocity	390 ft/min
Drain connection location	Left	Air pressure drop	0.300 in H2O
Design sequence	B	J trap dimension	2.000 in
Apply AHRI ranges	Yes	H trap dimension	4.000 in
Coil performance airflow	4800 cfm	Fluid volume	5.53 gal
Coil elevation	0.00 ft	Distributor tube	3/16" (5mm) diameter
Entering dry bulb	75.00 F	DX circuits	Full circuiting
Entering wet bulb	63.00 F	Number of distr - coil #1	2.00 Each
Leaving dry bulb	54.00 F	Total cap coil #1	146.43 MBh
Leaving wet bulb	52.47 F	Coil face area	12.30 sq ft
Sensible capacity	110.48 MBh	Coil rigging weight	122.6 lb
Total capacity	146.43 MBh	Coil section pressure drop	0.300 in H2O
Fin spacing	89 Per Foot	Section length	14.000 in
Refrigerant	R-410A	Section weight	299.7 lb
Liquid temperature	115.00 F	Access door	No

Access section		Module Position: 4	
Section type	Access/blank/turning	Back opening	Full Face
Unit size	12	Design sequence	B
Section size	Medium	Section length	14.000 in
Access door location	Right	Section weight	126.1 lb
Door swing direction	Outward swing	Access door	Yes
Front opening	Full Face		

Coil performance data is certified in accordance with AHRI standard 410. Propylene glycol and calcium chloride, or mixtures thereof, are not covered under the scope of AHRI 410.

Air-handling performance data is certified in accordance with AHRI standard 430. Air handlers with plenum fans and vertical draw-thru air handlers where the coil is mounted immediately below the fan section are not covered under the scope of AHRI 430.

# Performance Climate Changer

Coil section

Module Position:

5

<b>Coil se [7]-1</b>			
Section type	Horizontal coil	Coil type	UW
Unit size	12	Rows	6 rows
Section size	Medium	Fin type	Delta flo E (energy efficient)
Coil application	Heating coil	Fin material	Aluminum fins
Changeover coil	No	Tube diameter	1/2in. tube diameter (12.7 mm)
System type	Hot water	Tube matl/wall thickness	.016" (0.406mm) copper tubes
Coil supply/cabinet side	Left	Turbulators	Yes
Coil casing	Galvanized	Corrosion resistant coating	None
Coil height	Unit coil height	Coil face velocity	390 ft/min
Drain pan	Galvanized	Air pressure drop	0.348 in H2O
Drain connection location	Left	J trap dimension	2.174 in
Design sequence	B	H trap dimension	4.348 in
Apply AHRI ranges	No	Leaving fluid temperature	88.22 F
Coil performance airflow	4800 cfm	Fluid pressure drop	5.72 ft H2O
Coil elevation	0.00 ft	Fluid volume	8.06 gal
Entering dry bulb	65.00 F	Fluid velocity	1.92 ft/s
Leaving dry bulb	93.00 F	Total cap coil #1	145.76 MBh
Total capacity	145.76 MBh	Coil face area	12.30 sq ft
Fin spacing	135 Per Foot	Coil rigging weight	208.5 lb
Entering fluid temperature	100.00 F	Coil installed weight	275.7 lb
Fluid temperature drop	11.78 F	Coil section pressure drop	0.348 in H2O
Standard fluid flow rate	28.00 gpm	Section length	14.000 in
Coil fouling factor	0.00050 hr-sq ft-deg F/Btu	Section weight	463.2 lb
Fluid type	Propylene glycol	Access door	No
Coil fluid percentage	45.00 %		

Coil performance data is certified in accordance with AHRI standard 410. Propylene glycol and calcium chloride, or mixtures thereof, are not covered under the scope of AHRI 410.

Air-handling performance data is certified in accordance with AHRI standard 430. Air handlers with plenum fans and vertical draw-thru air handlers where the coil is mounted immediately below the fan section are not covered under the scope of AHRI 430.

# Performance Climate Changer

**Fan section**

**Module Position:**

**6**

<b>Fan sec [9]-1</b>			
Section type	Fan	Minimum temperature	40.00 F
Fan application	Supply fan	Design temperature	70.00 F
Unit size	12	Fan size and type	15in. diameter AF, class 1
Inlet location	Back inlet	Total brake horsepower	4.637 hp
Fan orientation	Front-bottom discharge	Total brake horsepower at min temp	4.916 hp
Fan discharge	Front bottom	Total static pressure	3.755 in H2O
Access door location	Right	Speed	2091 rpm
Drive location	Right side drive	Outlet area	2.05 sq ft
Design sequence	D	Fan outlet velocity	2338 ft/min
Motor horsepower per fan	5 hp	Fan module pressure drop	1.000 in H2O
Motor class	NEMA premium compliant ODP	Fan discharge loss pressure drop	0.000 in H2O
Motor voltage	460/3	Section length	42.500 in
Cycle	60 cycles/sec	Section weight	788.6 lb
Drive service factor	1.5 fixed drive	Static pressure origin	Program calculated
Motor RPM	1800	Access door	Yes
Fan airflow	4800 cfm	Fan type	Housed
Overall ESP	1.000 in H2O	Starter/VFD - factory mounted & wired	Field provided VFD
Unit entering ESP	0.500 in H2O	Fan wheel balance	Inverter balance
Unit discharge ESP	0.500 in H2O	Motor slip	1.00 %
Elevation	0.00 ft	Flow meter	Flow meter

**Gas heat**

**Module Position:**

**7**

<b>Gas hea [7]-1</b>			
Section type	Gas heat module	Exchanger type	Drum and tube - indirect
Unit size	12	Burner turndown ratio	10:1 Burner turndown ratio
Discharge location	Bottom-front	Section height	45.000 in
Design sequence	D	Section width	66.500 in
Agency specification	UL/Factory Mutal	Section length	65.000 in
Fuel type	Natural gas	Section weight	1224.7 lb
Gas heat vestibule side	Right	Output capacity	360.00 MBh
Vestibule door location	Right hand door	Input capacity	450.00 MBh
Gas heat voltage	115/60/1	Air temperature rise	68.18 F
Gas heat performance airflow	4800 cfm	Gas heat component PD	0.788 in H2O
Unit airflow	4800 cfm	Gas heat module PD	0.788 in H2O
Section elevation	30.00 ft	Minimum gas inlet pressure	7.000 in H2O
Entering dry bulb	45.00 F	Maximum gas inlet pressure	14.000 in H2O
Leaving dry bulb	113.18 F	Minimum gas manifold pressure	0.080 in H2O
High heat value of gas	1000.0 Btu/cu ft	Maximum gas manifold pressure	3.600 in H2O
Gas heat output - nominal	360 MBH output		

Coil performance data is certified in accordance with AHRI standard 410. Propylene glycol and calcium chloride, or mixtures thereof, are not covered under the scope of AHRI 410.

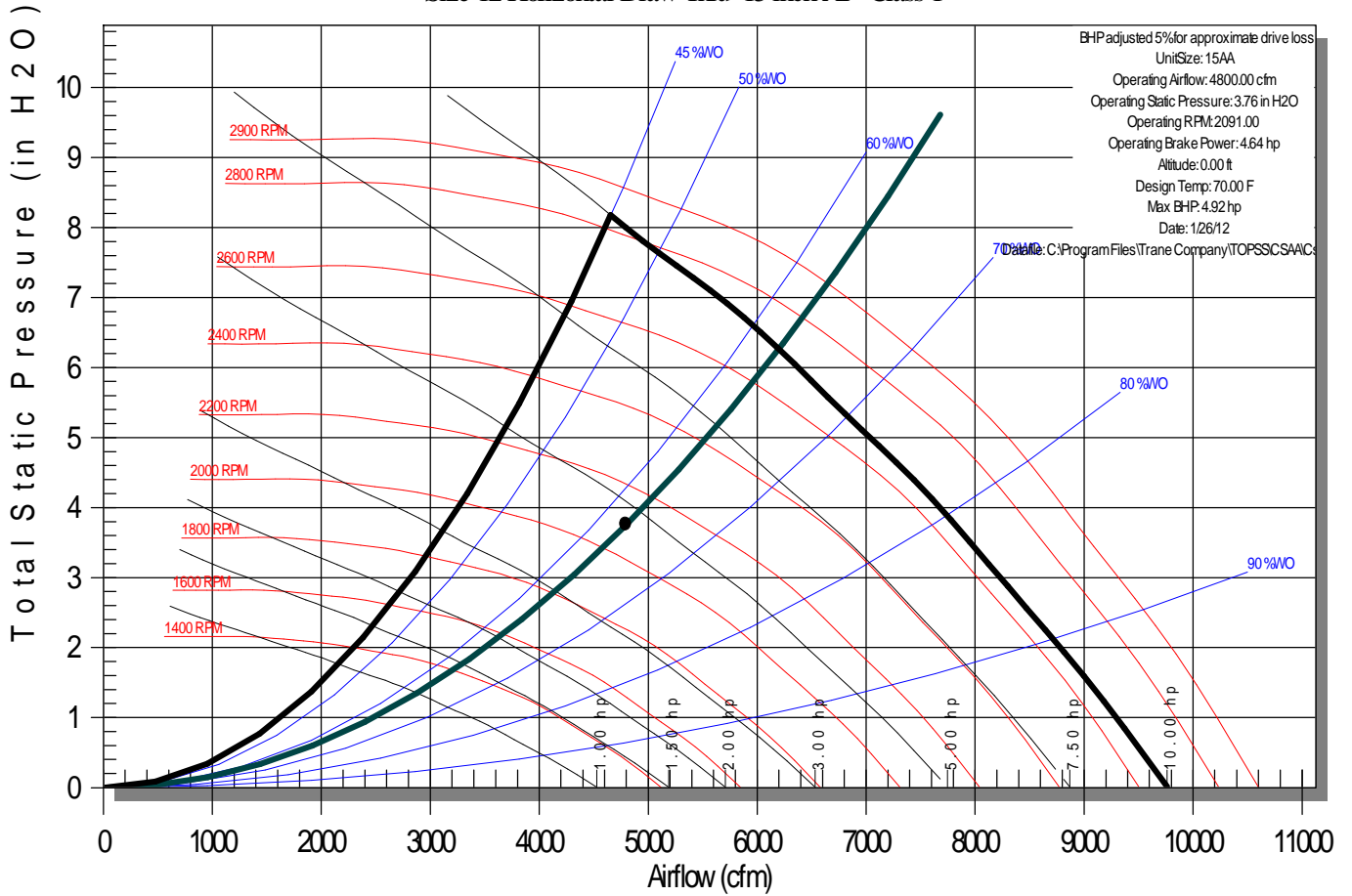
Air-handling performance data is certified in accordance with AHRI standard 430. Air handlers with plenum fans and vertical draw-thru air handlers where the coil is mounted immediately below the fan section are not covered under the scope of AHRI 430.

Fan Curve - CSOA012 Performance Climate Changer™ Rooftop Air Handling Unit

Qty: 1 Tag(s): RTAH-1

# Supply

Size 12 Horizontal Draw-Thru 15 inch AF Class 1



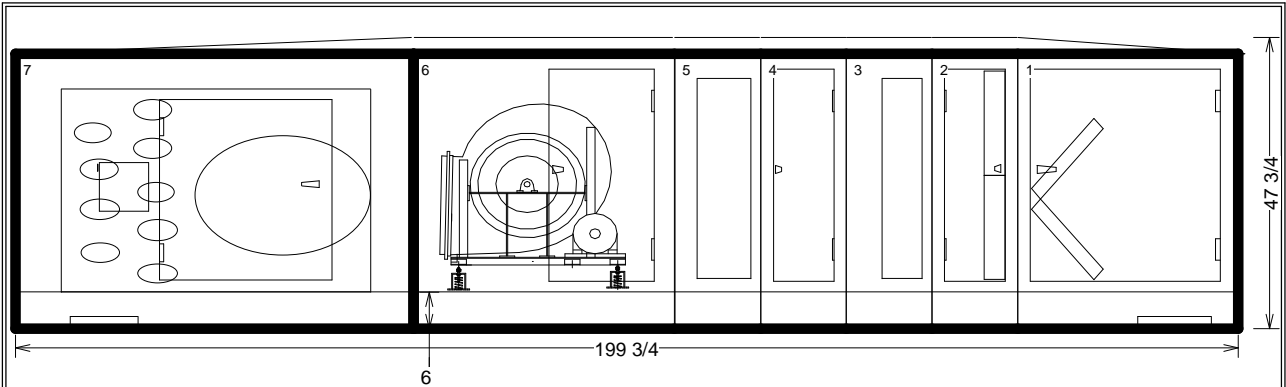
As-Built - CSOA012 Performance Climate Changer™ Rooftop Air Handling Unit

Qty: 1 Tag(s): RTAH-1

<ol style="list-style-type: none"> <li>1 BTFT discharge opening 11,000 x 46,000</li> <li>2 Gas heater right hand supply</li> <li>3 Exhaust flue right</li> <li>4 Housed fan, -15in. diameter AF, class 1</li> <li>5 Supply fan 5 hp 460/3 type LW</li> <li>6 Heating coil - 6 rows Coil type UF</li> <li>7 Cooling coil - 4 rows Coil type UF</li> <li>8 Flat filters - 4in. cartridge - 95% eff - MERV 14</li> <li>9 Angled filters - Opening bottom</li> <li>10 12,000 x 50,750</li> </ol> <ol style="list-style-type: none"> <li>Doors</li> <li>28 width x 30 height</li> <li>17 width x 35 height</li> <li>10 width x 35 height</li> <li>31 width x 35 height</li> </ol>	<p>Technical drawing showing front and side views of the Performance Climate Changer Rooftop Air Handling Unit. The front view includes dimensions: 46" (width), 9 1/2" (height), 19 5/8" (height), 50 1/2" (width), 26" (width), 7 1/2" (width), 3 3/4" (width), 17" (height), 10" (height), 10" (height), 31" (height), and 66 1/2" (width). The side view includes dimensions: 45" (width), 38" (height), 12" (height), 134 3/4" (height), 2258 lbs (weight), 65 1/8" (height), 1225 lbs (weight), 6" (height), 199 3/4" (height), 3 3/4" (width), 1" (width), 8" (width), 9 1/4" (width), and 8" (width). Callouts 1 through 9 are placed on the drawing to identify components.</p>																		
<p>For manufacturing purposes, include 1.125 inches to each ship split length for overlapping panel flange. Flange will not add to overall installed unit length shown.</p> <p><b>OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE</b></p>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Unit size: 12</td> <td style="width: 30%;">Job Name:</td> <td style="width: 40%; text-align: center;"><b>PERFORMANCE</b></td> </tr> <tr> <td>Product group: Outdoor unit</td> <td>Unit Casting: 2in Double Wall</td> <td style="text-align: center;">Performance Climate Changer™</td> </tr> <tr> <td>Integral base frame: Bin, integral base frame</td> <td>Proposal Number:</td> <td style="text-align: center;">Air Handler</td> </tr> <tr> <td>Paint: Factory painted - slate gray</td> <td>Actual airflow: 4800 cfm</td> <td></td> </tr> <tr> <td></td> <td>Sales Office:</td> <td></td> </tr> <tr> <td></td> <td>Rigging/installed Weight: 3415.3 lbs / 3787.6 lb</td> <td></td> </tr> </table>		Unit size: 12	Job Name:	<b>PERFORMANCE</b>	Product group: Outdoor unit	Unit Casting: 2in Double Wall	Performance Climate Changer™	Integral base frame: Bin, integral base frame	Proposal Number:	Air Handler	Paint: Factory painted - slate gray	Actual airflow: 4800 cfm			Sales Office:			Rigging/installed Weight: 3415.3 lbs / 3787.6 lb	
Unit size: 12	Job Name:	<b>PERFORMANCE</b>																	
Product group: Outdoor unit	Unit Casting: 2in Double Wall	Performance Climate Changer™																	
Integral base frame: Bin, integral base frame	Proposal Number:	Air Handler																	
Paint: Factory painted - slate gray	Actual airflow: 4800 cfm																		
	Sales Office:																		
	Rigging/installed Weight: 3415.3 lbs / 3787.6 lb																		

**As-Built - CSOA012 Performance Climate Changer™ Rooftop Air Handling Unit**

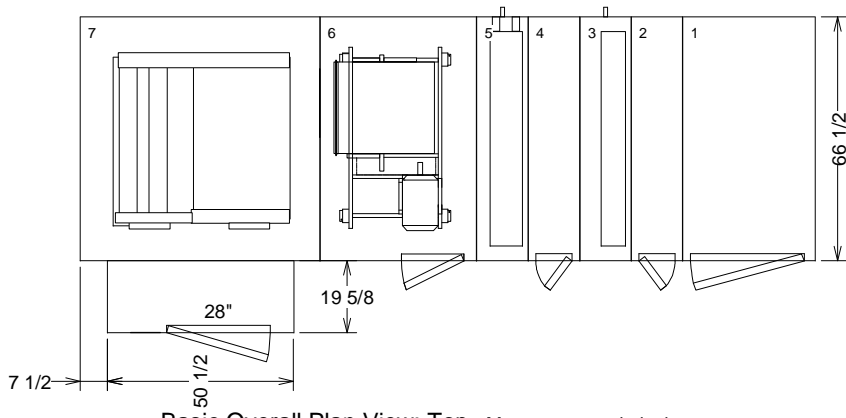
Qty: 1 Tag(s): RTAH-1




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

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	36	372.15
2	Filter section	14	208.06
3	Coil section	14	299.66
4	Access section	14	126.06
5	Coil section	14 1/8	463.26
6	Fan section	42 5/8	788.57
7	Gas heat	65 1/8	1224.75
		Installed Unit Weight 3482.50 lbs	

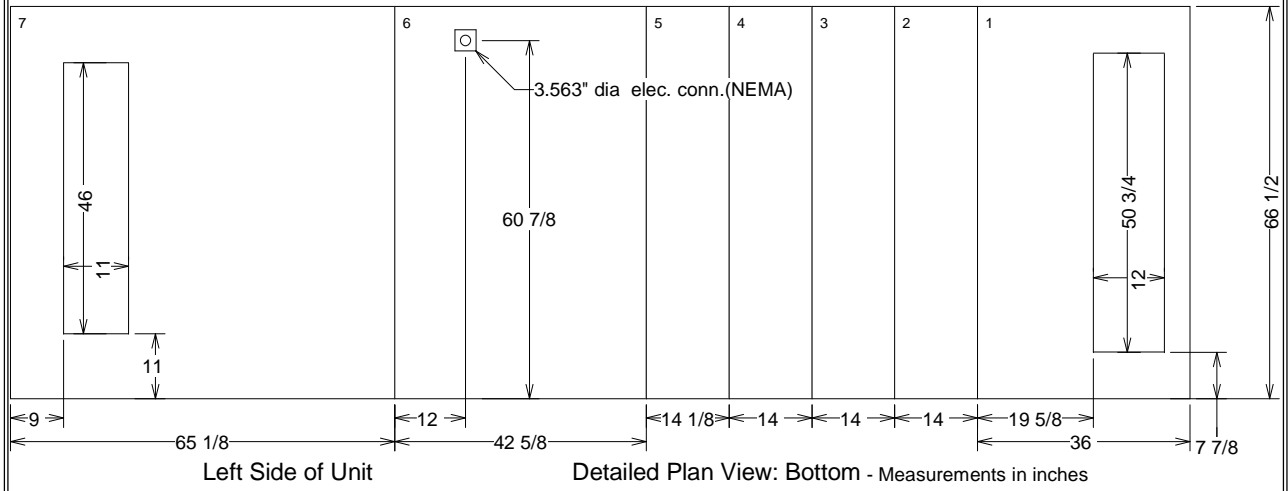
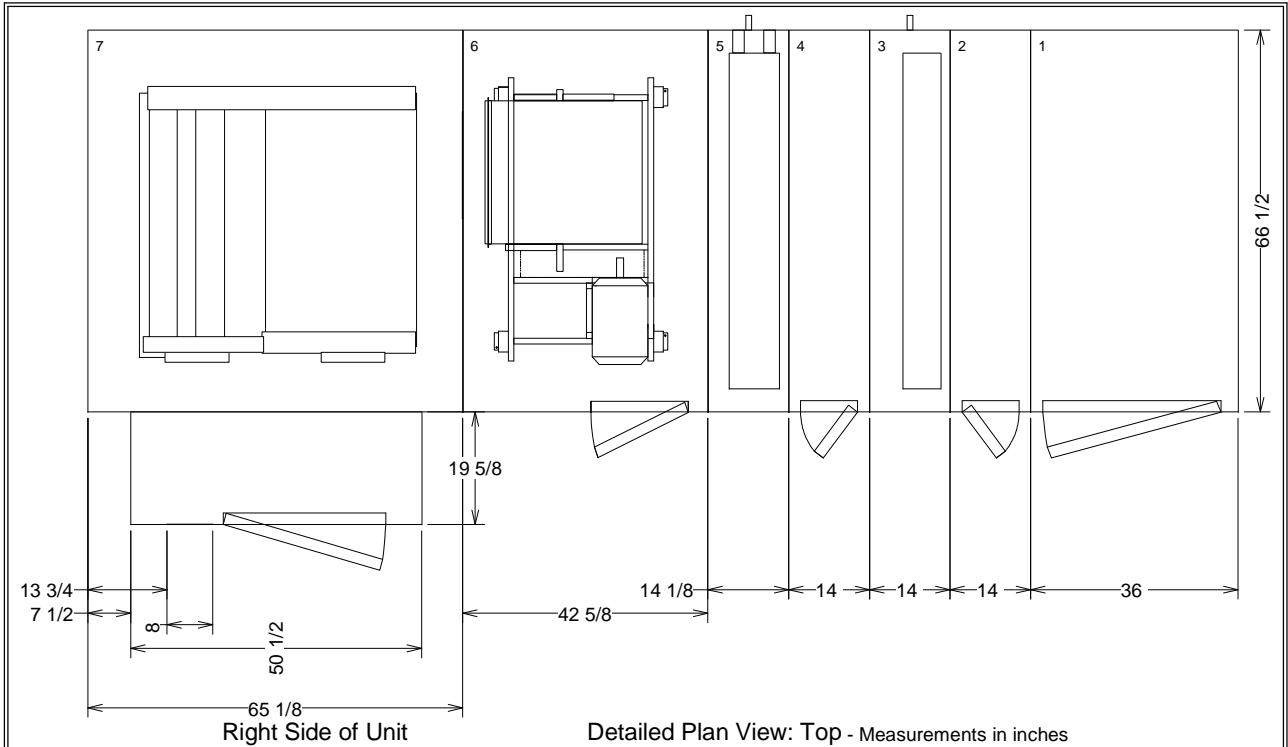


Basic Overall Plan View: Top - Measurements in inches

<small>OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE</small>			
Unit size: 12	Job Name:	Unit Casing: 2in Double Wall	 Performance Climate Changer™ Air Handlers
Product group: Outdoor unit	Actual airflow: 4800 cfm	Proposal Number:	
Integral base frame: 6in. integral base frame	Sales Office:	Rigging/Installed Weight: 3415.3 lb/ 3787.6 lb	
Paint: Factory painted - slate gray			

**As-Built - CSOA012 Performance Climate Changer™ Rooftop Air Handling Unit**

Qty: 1 Tag(s): RTAH-1



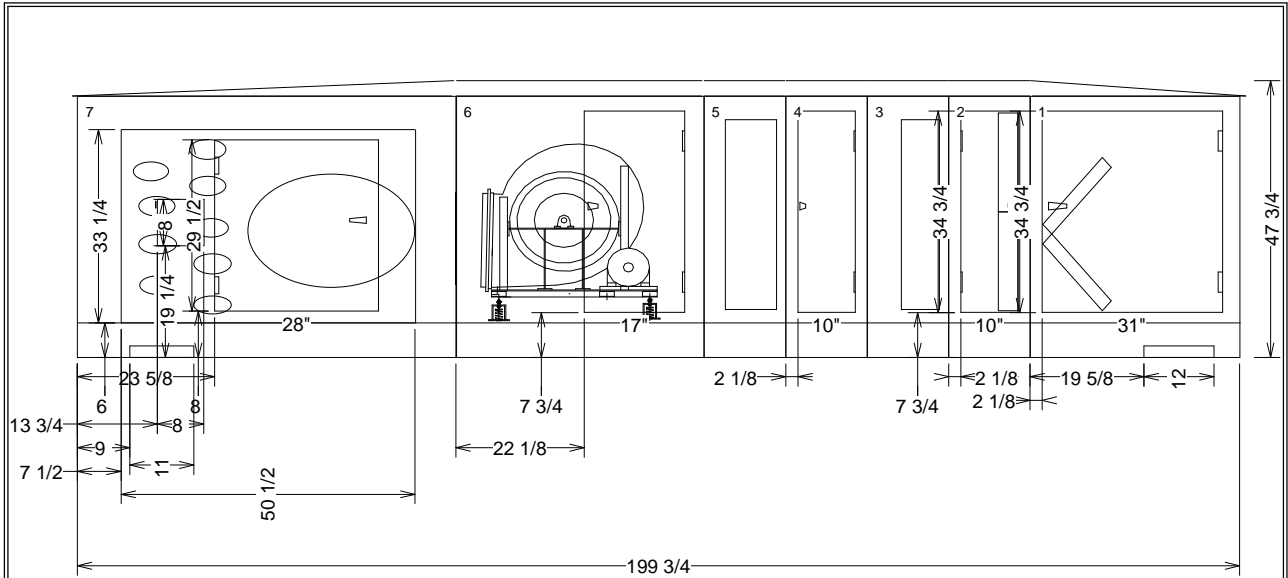
OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size: 12	Job Name:	Unit Casing: 2in Double Wall	<b>TRANE</b> <small>Performance Climate Changer™ Air Handlers</small>
Product group: Outdoor unit	Actual airflow: 4800 cfm	Proposal Number:	
Integral base frame: 6in. integral base frame	Sales Office:	Rigging/Installed Weight: 3415.3 lb/ 3787.6 lb	
Paint: Factory painted - slate gray			

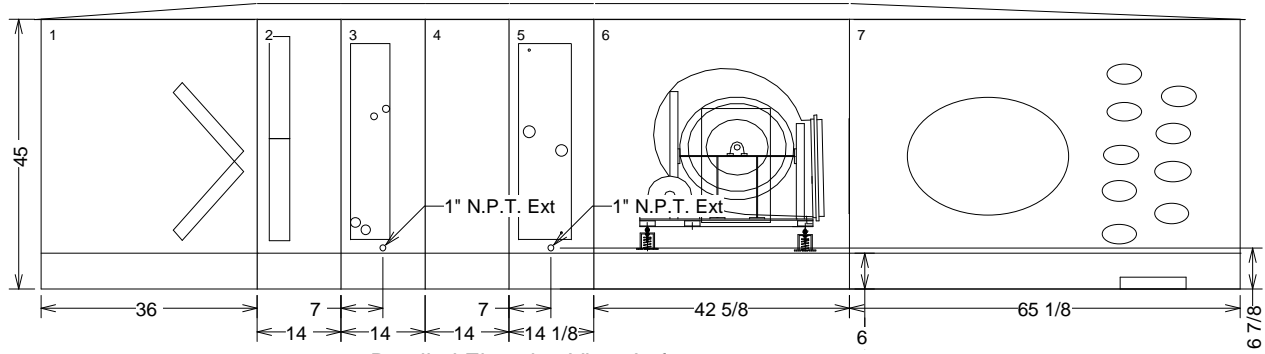


**As-Built - CSOA012 Performance Climate Changer™ Rooftop Air Handling Unit**

Qty: 1 Tag(s): RTAH-1




Detailed Elevation View: Right - Measurements in inches



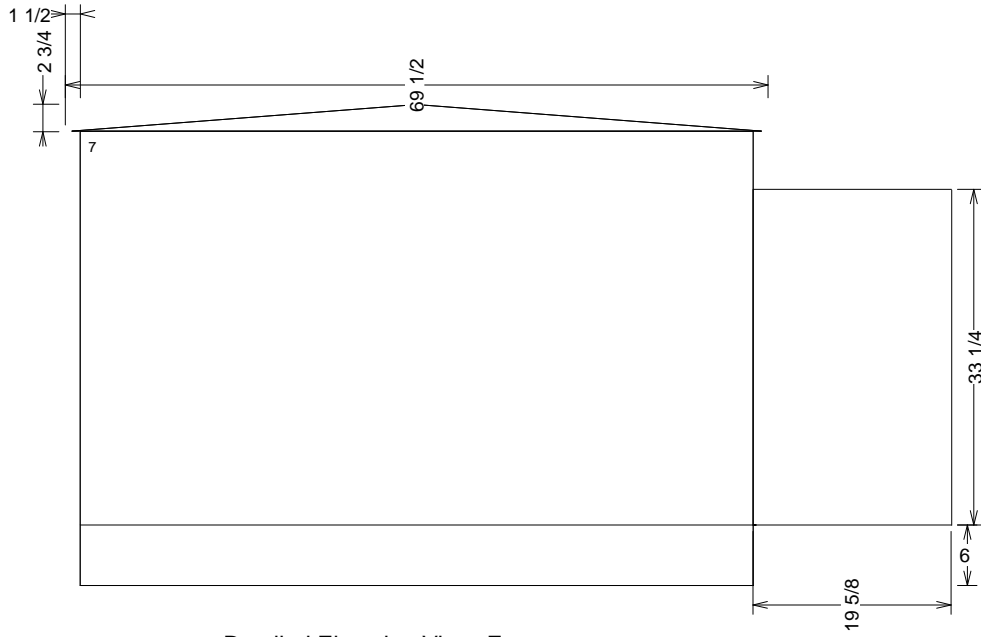
Detailed Elevation View: Left - Measurements in inches

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

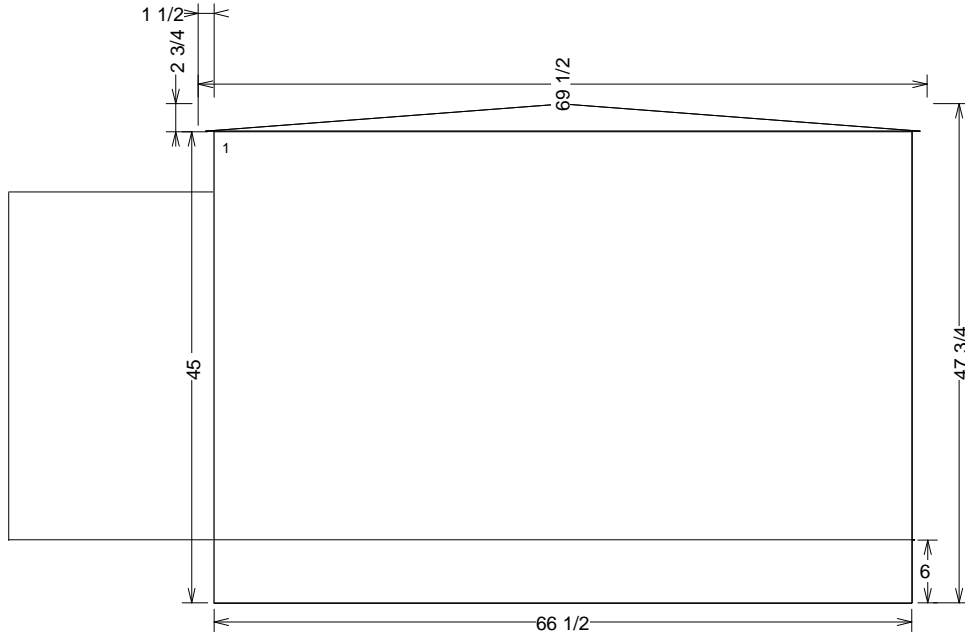
Unit size: 12	Job Name:	Unit Casing: 2in Double Wall	 <b>TRANE</b> Performance Climate Changer™ Air Handlers
Product group: Outdoor unit	Actual airflow: 4800 cfm	Proposal Number:	
Integral base frame: 6in. integral base frame	Sales Office:	Rigging/Installed Weight: 3415.3 lb/ 3787.6 lb	
Paint: Factory painted - slate gray			

**As-Built - CSOA012 Performance Climate Changer™ Rooftop Air Handling Unit**

Qty: 1 Tag(s): RTAH-1




Detailed Elevation View: Front - Measurements in inches



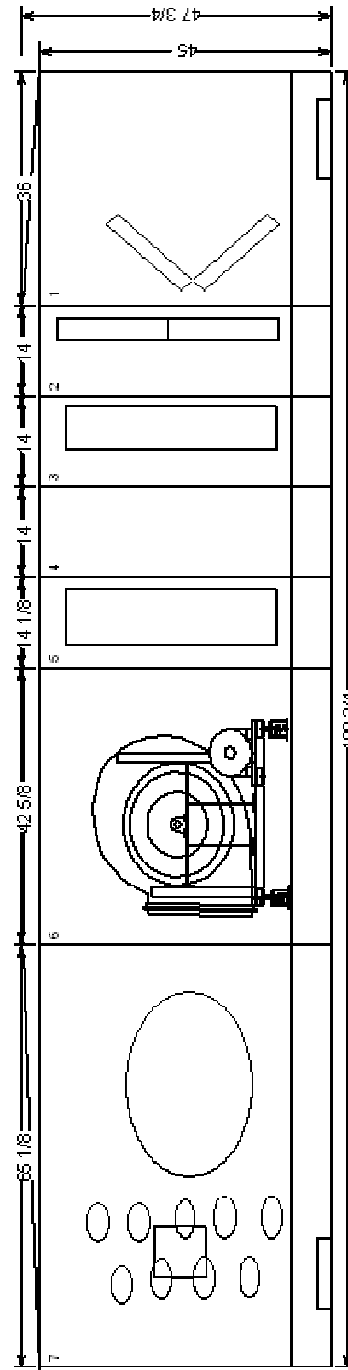
Detailed Elevation View: Back - Measurements in inches

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


Unit size: 12	Job Name:	Unit Casing: 2in Double Wall	 <b>TRANE</b> Performance Climate Changer™ Air Handlers
Product group: Outdoor unit	Actual airflow: 4800 cfm	Proposal Number:	
Integral base frame: 6in. integral base frame	Sales Office:	Rigging/Installed Weight: 3415.3 lb/ 3787.6 lb	
Paint: Factory painted - slate gray			

As-Built - CSOA012 Performance Climate Changer™ Rooftop Air Handling Unit

Qty: 1 Tag(s): RTAH-1



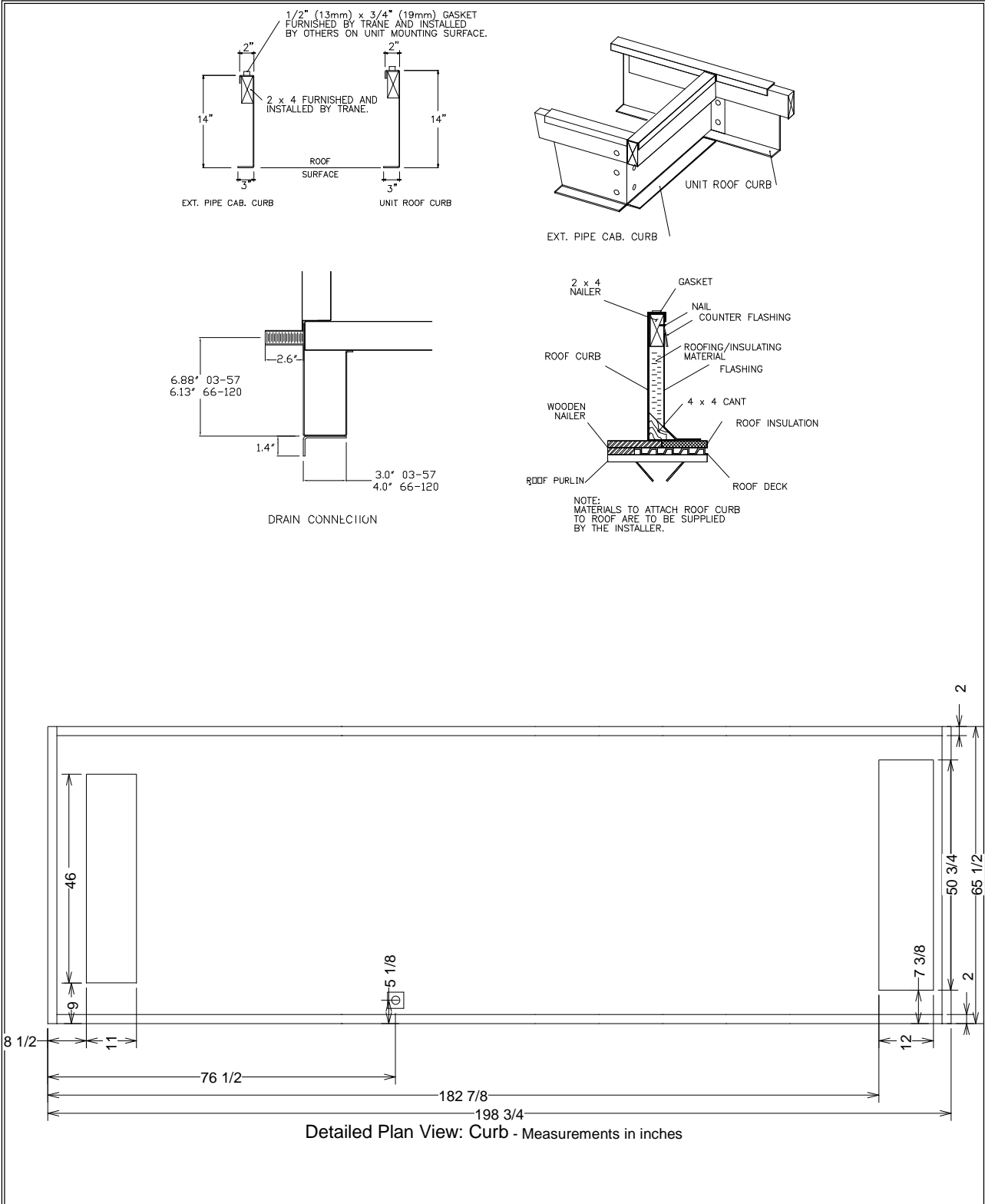
OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size: 12	Job Name:	 Performance Climate Changer™ Air Handlers
Product group: Outdoor unit	Unit Casting: 2in Double Wall	
Integral base frame: 6in. Integral base frame	Proposal Number:	
Paint: Factory painted - slate gray	Actual airflow: 4800 cfm	
	Sales Office:	
	Rigging/installed Weight: 3415.3 lbs/ 3787.6 lb	



**As-Built - CSOA012 Performance Climate Changer™ Rooftop Air Handling Unit**

Qty: 1 Tag(s): RTAH-1



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

Unit size: 12	Job Name:	Unit Casing: 2in Double Wall	<p><b>TRANE</b> Performance Climate Changer™ Air Handlers</p>
Product group: Outdoor unit	Actual airflow: 4800 cfm	Proposal Number:	
Integral base frame: 6in. integral base frame	Sales Office:	Rigging/Installed Weight: 3415.3 lb/ 3787.6 lb	
Paint: Factory painted - slate gray			

# Performance Climate Changer



**Job Name** Hannafood Supermarket - Forest Ave Portland  
**User Name** (B16)Daniel Broderick  
**Address** Portland ME  
 J:\PM\Hannaford - Forest Ave.psd

Performance Climate Changer RTAH-2  
**Quantity** 1  
**Job Comments**

**Unit level options**

**Module Position:** 0

Actual airflow	3100 cfm	Circuit number 1	Supply fan motor(s)
Unit elevation	0.00 ft	MCA circuit 1	9.50 A
Unit size	8	MOP circuit 1	17.10 A
Integral base frame	6in. integral base frame	Supply or return/exhaust fan starter/VFD	No VFD/starter in sup or ret/exh fan
Modified coil - min face velocity	250 ft/min	Supply fan motor horsepower	5 HP
Modified coil - max face velocity	600 ft/min	Marine LED lights in unit	No marine LED lights in unit
HEPA filter - min face velocity	0 ft/min	FLA circuit 2	13.04 A
HEPA filter - max face velocity	600 ft/min	MCA circuit 2	16.30 A
UL listed unit	UL listed unit	MOP circuit 2	29.34 A
High voltage location	Right	Fuse size circuit 2	25.00 A
Length	205.250 in	FLA circuit 3	8.00 A
Width	50.500 in	MCA circuit 3	10.00 A
Installed weight	3030.9 lb	MOP circuit 3	18.00 A
Rigging weight	2731.3 lb	Fuse size circuit 3	15.00 A
Shipping split type	Factory splits	Roof curb type	Standard roof curb
Door handle type - unit level	Single metal handle - ganged	Curb height	14 in.
FLA circuit 1	7.60 A	Paint	Factory painted - slate gray
Fuse size circuit 1	15.00 A		

**Controls and VFD/starter**

**Module Position:** 0

Factory controls package	No factory mount	Total number of control points	0 control points
Automatic Selection	No auto selection	NEMA SF	Field provided VFD
Controller mounting	No mount	VFD/Starter location supply fan	No mounting
Controller type	No controller	Fan wheel balance SF	Inverter balance
LCD screen and keypad	No LCD	NEMA RF/EF	No NEMA
Design Sequence	B	VFD/Starter location ret/exh fan	No mounting
Prepackaged solution option used	MP common configuration not used		

Coil performance data is certified in accordance with AHRI standard 410. Propylene glycol and calcium chloride, or mixtures thereof, are not covered under the scope of AHRI 410.

Air-handling performance data is certified in accordance with AHRI standard 430. Air handlers with plenum fans and vertical draw-thru air handlers where the coil is mounted immediately below the fan section are not covered under the scope of AHRI 430.

All weights and dimensions are approximate. Certified prints on request.

# Performance Climate Changer

**Air mixing section**

**Module Position:**

**1**

Section type	Air mixing section	Design sequence	B
Unit size	8	Opening 1 bottom - airflow	3100 cfm
Mixing section type	with filter	Filter condition	Mid-life
Filter frame	2"	Filter airflow	3100 cfm
Filter type	Pleated media - MERV 8	Opening 1 front - airflow	3100 cfm
Access door location	Right	Opening 1 bottom - face velocity	1145 ft/min
Back opening type	No opening	Opening 1 bottom - pressure drop	0.000 in H2O
Front opening type	Full face opening	Opening 1 bottom total pressure drop	0.000 in H2O
Front air path	Leaving	Greatest entry PD	0.000 in H2O
Top opening type	No opening	Opening 1 front - area	10.09 sq ft
Bottom opening type	1st bottom rectangular opening	Opening 1 bottom - area	2.71 sq ft
Bottom air path	Entering	Filter area	11.11 sq ft
Bottom air path type	Return	Filter face velocity	279 ft/min
Bottom inlet type	Ducted	Filter pressure drop	0.566 in H2O
Right side opening type	No opening	Access door	Yes
Left side opening type	No opening	Total mixing section pressure drop	0.566 in H2O

**Filter section**

**Module Position:**

**2**

Section type	Filter	Filter condition	Mid-life
Unit size	8	Filter area	7.33 sq ft
Filter type	Flat filter	Filter face velocity	423 ft/min
Filter frame	4in. filter frame	Filter pressure drop	0.780 in H2O
Access door location	Right	Filter section pressure drop	0.780 in H2O
Primary filter type 1	4in. cartridge - 95% eff - MERV 14	Section length	14.000 in
Pre-filter filter type	No prefilter	Section weight	147.3 lb
Design sequence	B	Access door	Yes
Filter airflow	3100 cfm		

Coil performance data is certified in accordance with AHRI standard 410. Propylene glycol and calcium chloride, or mixtures thereof, are not covered under the scope of AHRI 410.

Air-handling performance data is certified in accordance with AHRI standard 430. Air handlers with plenum fans and vertical draw-thru air handlers where the coil is mounted immediately below the fan section are not covered under the scope of AHRI 430.

All weights and dimensions are approximate. Certified prints on request.

# Performance Climate Changer

Coil section		Module Position: 3	
<b>Coil se [3]-1</b>			
Section type	Horizontal coil	Suction temperature	44.00 F
Unit size	8	Coil type	UF
Section size	Medium	Rows	4 rows
Coil application	Cooling coil	Fin type	Delta flo E (energy efficient)
Changeover coil	No	Fin material	Aluminum fins
System type	Refrigerant	Tube diameter	1/2in. tube diameter (12.7 mm)
Coil supply/cabinet side	Left	Tube matl/wall thickness	.016" (0.406mm) int enh copper tubes
Coil casing	Galvanized	Corrosion resistant coating	None
Coil height	Unit coil height	Circuiting type	Standard distributor
Drain pan	Stainless steel	Coil face velocity	388 ft/min
Drain connection location	Left	Air pressure drop	0.278 in H2O
Design sequence	B	J trap dimension	2.039 in
Apply AHRI ranges	Yes	H trap dimension	4.078 in
Coil performance airflow	3100 cfm	Fluid volume	3.85 gal
Coil elevation	0.00 ft	Distributor tube	3/16" (5mm) diameter
Entering dry bulb	75.00 F	DX circuits	Half circuiting
Entering wet bulb	63.00 F	Number of distr - coil #1	1.00 Each
Leaving dry bulb	55.00 F	Total cap coil #1	90.01 MBh
Leaving wet bulb	53.03 F	Coil face area	7.99 sq ft
Sensible capacity	67.96 MBh	Coil rigging weight	81.5 lb
Total capacity	90.01 MBh	Coil section pressure drop	0.278 in H2O
Fin spacing	76 Per Foot	Section length	14.000 in
Refrigerant	R-410A	Section weight	227.8 lb
Liquid temperature	115.00 F	Access door	No

Access section		Module Position: 4	
Section type	Access/blank/turning	Back opening	Full Face
Unit size	8	Design sequence	B
Section size	Medium	Section length	14.000 in
Access door location	Right	Section weight	105.3 lb
Door swing direction	Outward swing	Access door	Yes
Front opening	Full Face		

Coil performance data is certified in accordance with AHRI standard 410. Propylene glycol and calcium chloride, or mixtures thereof, are not covered under the scope of AHRI 410.

Air-handling performance data is certified in accordance with AHRI standard 430. Air handlers with plenum fans and vertical draw-thru air handlers where the coil is mounted immediately below the fan section are not covered under the scope of AHRI 430.



# Performance Climate Changer

Coil section

Module Position:

5

<b>Coil se [7]-1</b>			
Section type	Horizontal coil	Coil type	UW
Unit size	8	Rows	4 rows
Section size	Medium	Fin type	Delta flo H (Hi efficient)
Coil application	Heating coil	Fin material	Aluminum fins
Changeover coil	No	Tube diameter	1/2in. tube diameter (12.7 mm)
System type	Hot water	Tube matl/wall thickness	.016" (0.406mm) copper tubes
Coil supply/cabinet side	Left	Turbulators	Yes
Coil casing	Galvanized	Corrosion resistant coating	None
Coil height	Unit coil height	Coil face velocity	388 ft/min
Drain pan	Galvanized	Air pressure drop	0.339 in H2O
Drain connection location	Left	J trap dimension	2.208 in
Design sequence	B	H trap dimension	4.416 in
Apply AHRI ranges	No	Leaving fluid temperature	89.99 F
Coil performance airflow	3100 cfm	Fluid pressure drop	2.11 ft H2O
Coil elevation	0.00 ft	Fluid volume	4.01 gal
Entering dry bulb	65.00 F	Fluid velocity	1.48 ft/s
Leaving dry bulb	90.00 F	Total cap coil #1	84.05 MBh
Total capacity	84.05 MBh	Coil face area	7.99 sq ft
Fin spacing	169 Per Foot	Coil rigging weight	112.4 lb
Entering fluid temperature	100.00 F	Coil installed weight	145.8 lb
Fluid temperature drop	10.01 F	Coil section pressure drop	0.339 in H2O
Standard fluid flow rate	19.00 gpm	Section length	14.000 in
Coil fouling factor	0.00050 hr-sq ft-deg F/Btu	Section weight	300.1 lb
Fluid type	Propylene glycol	Access door	No
Coil fluid percentage	45.00 %		

Coil performance data is certified in accordance with AHRI standard 410. Propylene glycol and calcium chloride, or mixtures thereof, are not covered under the scope of AHRI 410.

Air-handling performance data is certified in accordance with AHRI standard 430. Air handlers with plenum fans and vertical draw-thru air handlers where the coil is mounted immediately below the fan section are not covered under the scope of AHRI 430.

# Performance Climate Changer

**Fan section**

**Module Position:**

**6**

<b>Fan sec [9]-1</b>			
Section type	Fan	Minimum temperature	40.00 F
Fan application	Supply fan	Design temperature	70.00 F
Unit size	8	Fan size and type	12in. diameter AF, class 1
Inlet location	Back inlet	Total brake horsepower	3.032 hp
Fan orientation	Front-top discharge	Total brake horsepower at min temp	3.214 hp
Fan discharge	Front top	Total static pressure	3.842 in H2O
Access door location	Right	Speed	2626 rpm
Drive location	Right side drive	Outlet area	1.46 sq ft
Design sequence	D	Fan outlet velocity	2116 ft/min
Motor horsepower per fan	5 hp	Fan module pressure drop	1.200 in H2O
Motor class	NEMA premium compliant ODP	Fan discharge loss pressure drop	0.000 in H2O
Motor voltage	460/3	Section length	44.000 in
Cycle	60 cycles/sec	Section weight	627.1 lb
Drive service factor	1.5 fixed drive	Static pressure origin	Program calculated
Motor RPM	1800	Access door	Yes
Fan airflow	3100 cfm	Fan type	Housed
Overall ESP	1.200 in H2O	Starter/VFD - factory mounted & wired	Field provided VFD
Unit entering ESP	0.600 in H2O	Fan wheel balance	Inverter balance
Unit discharge ESP	0.600 in H2O	Motor slip	1.00 %
Elevation	0.00 ft	Flow meter	Flow meter

**Gas heat**

**Module Position:**

**7**

<b>Gas hea [7]-1</b>			
Section type	Gas heat module	Exchanger type	Drum and tube - indirect
Unit size	8	Burner turndown ratio	10:1 Burner turndown ratio
Discharge location	Bottom-front	Section height	41.250 in
Design sequence	D	Section width	50.500 in
Agency specification	UL/Factory Mutal	Section length	69.000 in
Fuel type	Natural gas	Section weight	1057.4 lb
Gas heat vestibule side	Right	Output capacity	300.00 MBh
Vestibule door location	Right hand door	Input capacity	375.00 MBh
Gas heat voltage	115/60/1	Air temperature rise	87.98 F
Gas heat performance airflow	3100 cfm	Gas heat compnent PD	0.680 in H2O
Unit airflow	3100 cfm	Gas heat module PD	0.680 in H2O
Section elevation	30.00 ft	Minimum gas inlet pressure	7.000 in H2O
Entering dry bulb	45.00 F	Maximum gas inlet pressure	14.000 in H2O
Leaving dry bulb	132.98 F	Minimum gas manifold pressure	0.120 in H2O
High heat value of gas	1000.0 Btu/cu ft	Maximum gas manifold pressure	3.700 in H2O
Gas heat output - nominal	300 MBH output		

Coil performance data is certified in accordance with AHRI standard 410. Propylene glycol and calcium chloride, or mixtures thereof, are not covered under the scope of AHRI 410.

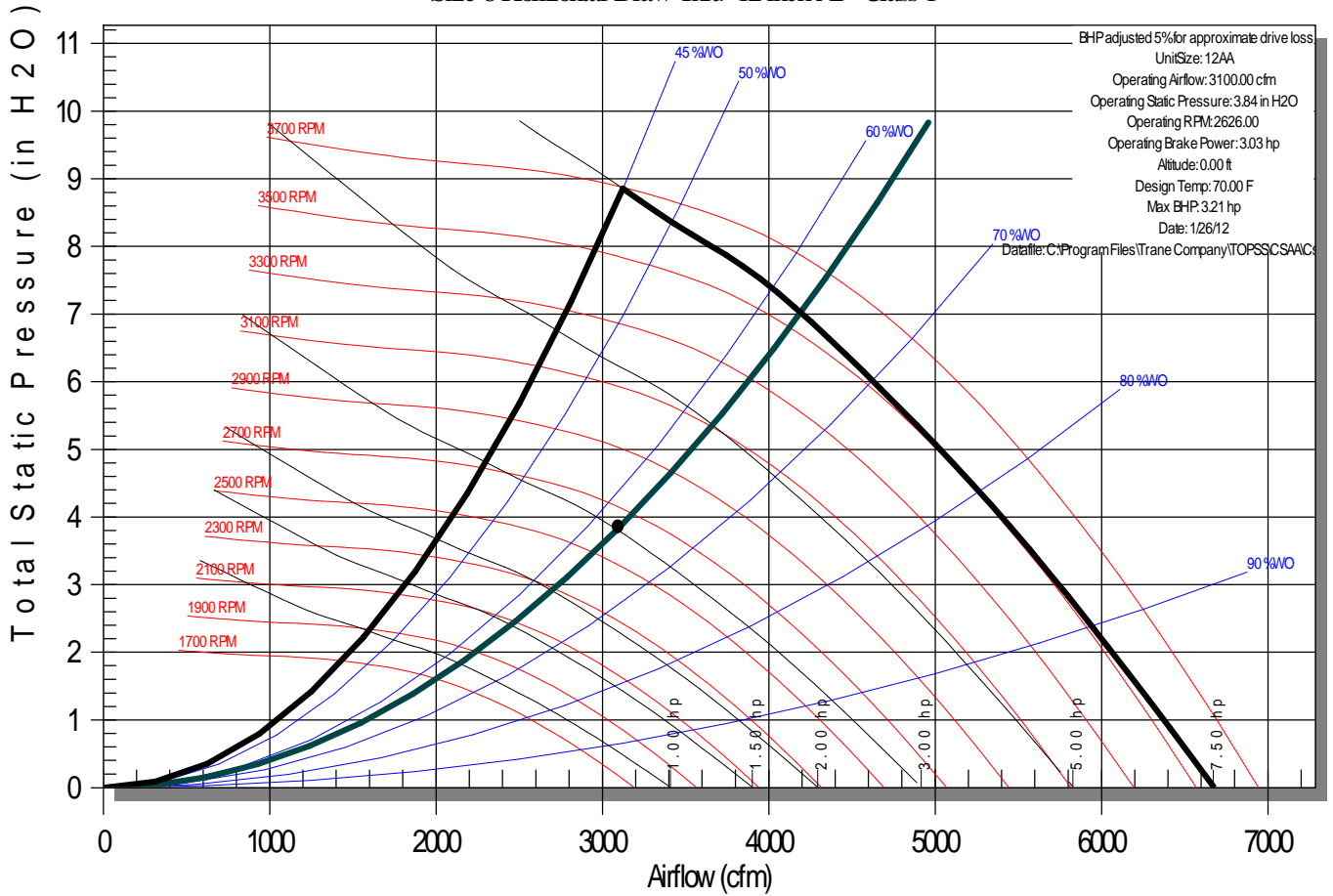
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Fan Curve - CSOA008 Performance Climate Changer™ Rooftop Air Handling Unit

Qty: 1 Tag(s): RTAH-2

# Supply

Size 8 Horizontal Draw-Thru 12 inch AF Class 1



As-Built - CSOA008 Performance Climate Changer™ Rooftop Air Handling Unit

Qty: 1 Tag(s): RTAH-2

- 1 BTFT discharge opening  
19.875 x 17.000
- 2 Gas heater right hand supply
- 3 Exhaust flue right 9.000 x 9.000
- 4 Housed fan - 12in. diameter AF, class 1 Supply fan 5 hp 460/3 type LVV
- 5 Heating coil - 4 rows Coil type LVV
- 6 Cooling coil - 4 rows Coil type LVV
- 7 Flat filters - 4in. cartridge - 95% eff - MERV 14
- 8 Anechoic filters -
- 9 Opening bottom 12.000 x 32.500

Doors  
28 width x 26 height  
19 width x 3' height  
10 width x 3' height  
31 width x 3' height

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

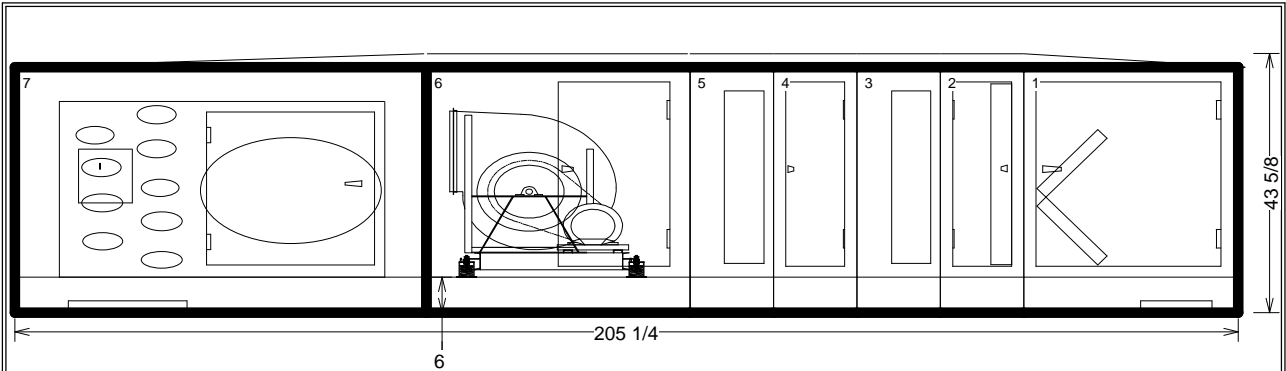
205 1/4  
**OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE**

Unit size: 8	Job Name:	Unit Casting: 2in Double Wall	
Product group: Outdoor unit	Actual airflow: 3100 cfm	Proposal Number:	
Integral base frame: Bin, integral base frame	Sales Office:	Rigging/installed Weight: 2731.3 lbs	
Paint: Factory painted - slate gray			

Performance Climate Changer  
Air Handlers

**As-Built - CSOA008 Performance Climate Changer™ Rooftop Air Handling Unit**

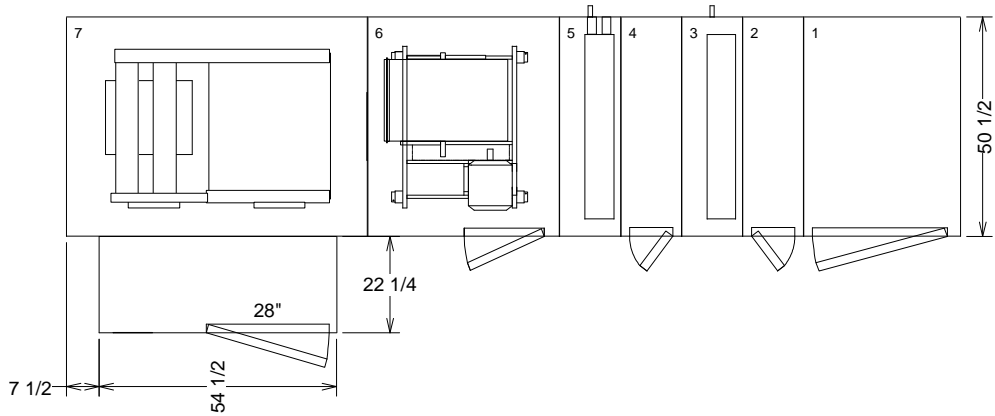
Qty: 1 Tag(s): RTAH-2



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


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

Pos #	Module	Length	Weight
1	Air mixing section	36	299.51
2	Filter section	14	147.35
3	Coil section	14	227.85
4	Access section	14	105.35
5	Coil section	14 1/8	300.12
6	Fan section	44 1/8	627.07
7	Gas heat	69 1/8	1057.43
		Installed Unit Weight 2764.67 lbs	



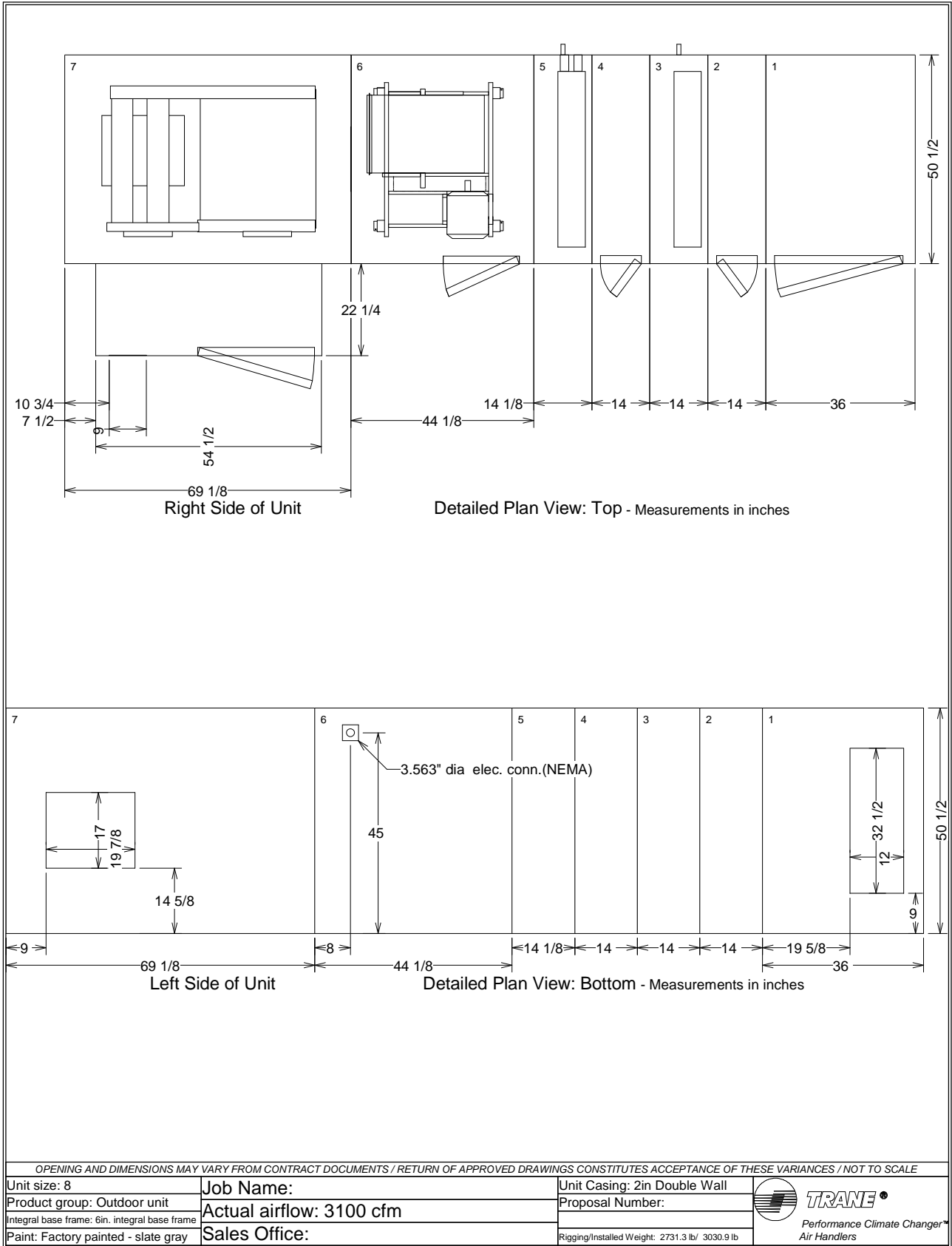
Basic Overall Plan View: Top - Measurements in inches

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Unit size: 8	Job Name:	Unit Casing: 2in Double Wall	 <b>TRANE</b> Performance Climate Changer™ Air Handlers
Product group: Outdoor unit	Actual airflow: 3100 cfm	Proposal Number:	
Integral base frame: 6in. integral base frame	Sales Office:	Rigging/Installed Weight: 2731.3 lb/ 3030.9 lb	
Paint: Factory painted - slate gray			

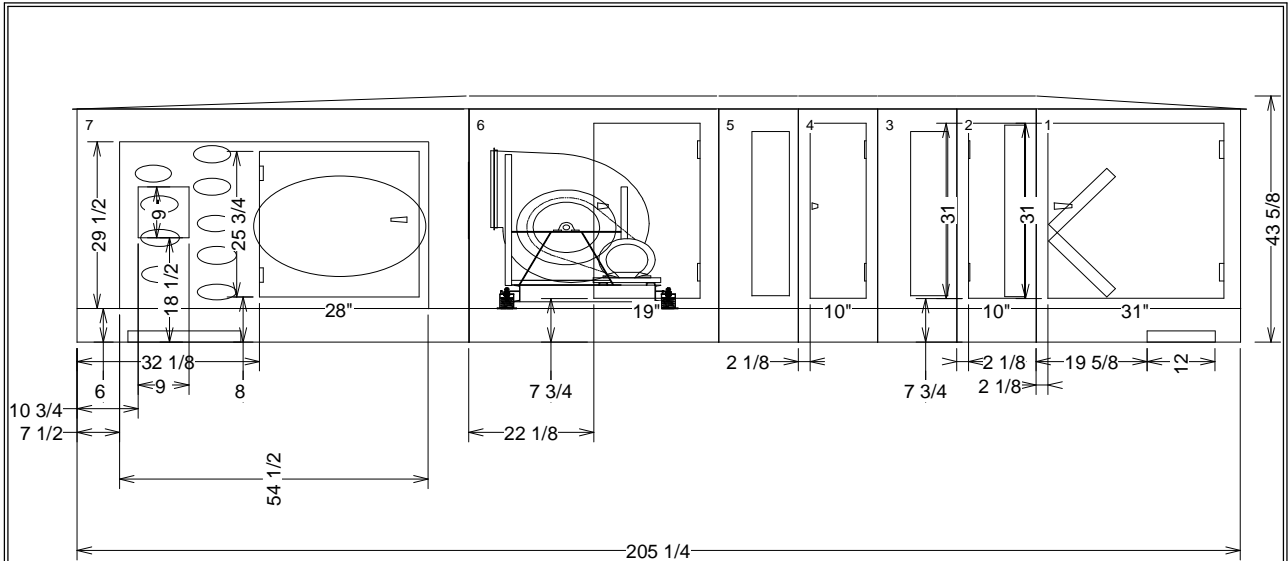
**As-Built - CSOA008 Performance Climate Changer™ Rooftop Air Handling Unit**

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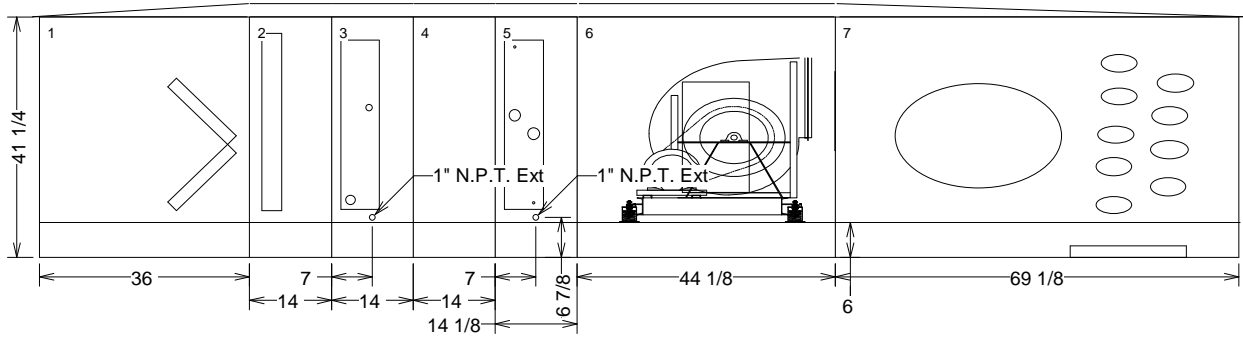


**As-Built - CSOA008 Performance Climate Changer™ Rooftop Air Handling Unit**

Qty: 1 Tag(s): RTAH-2




Detailed Elevation View: Right - Measurements in inches



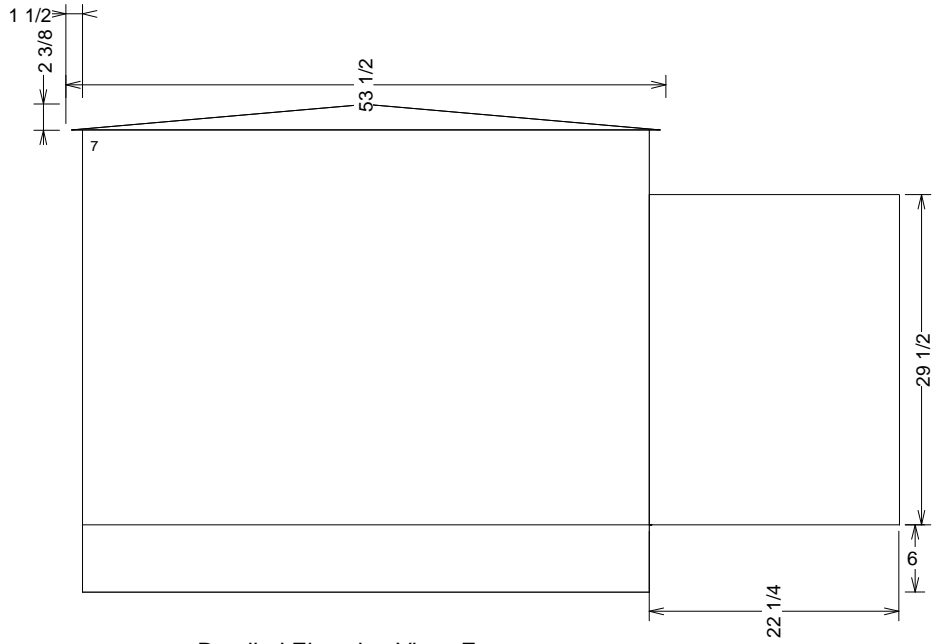
Detailed Elevation View: Left - Measurements in inches

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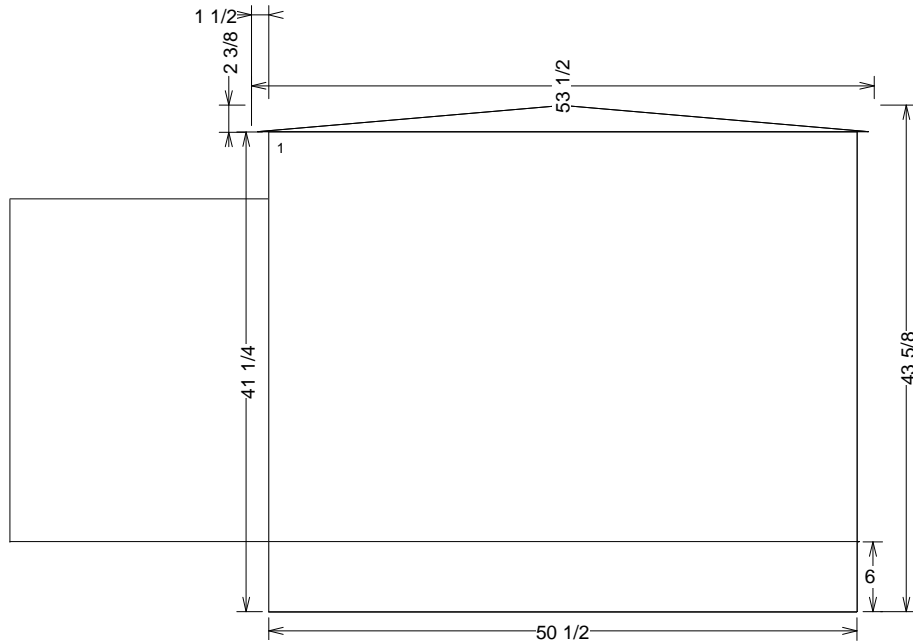
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


Detailed Elevation View: Front - Measurements in inches



Detailed Elevation View: Back - Measurements in inches

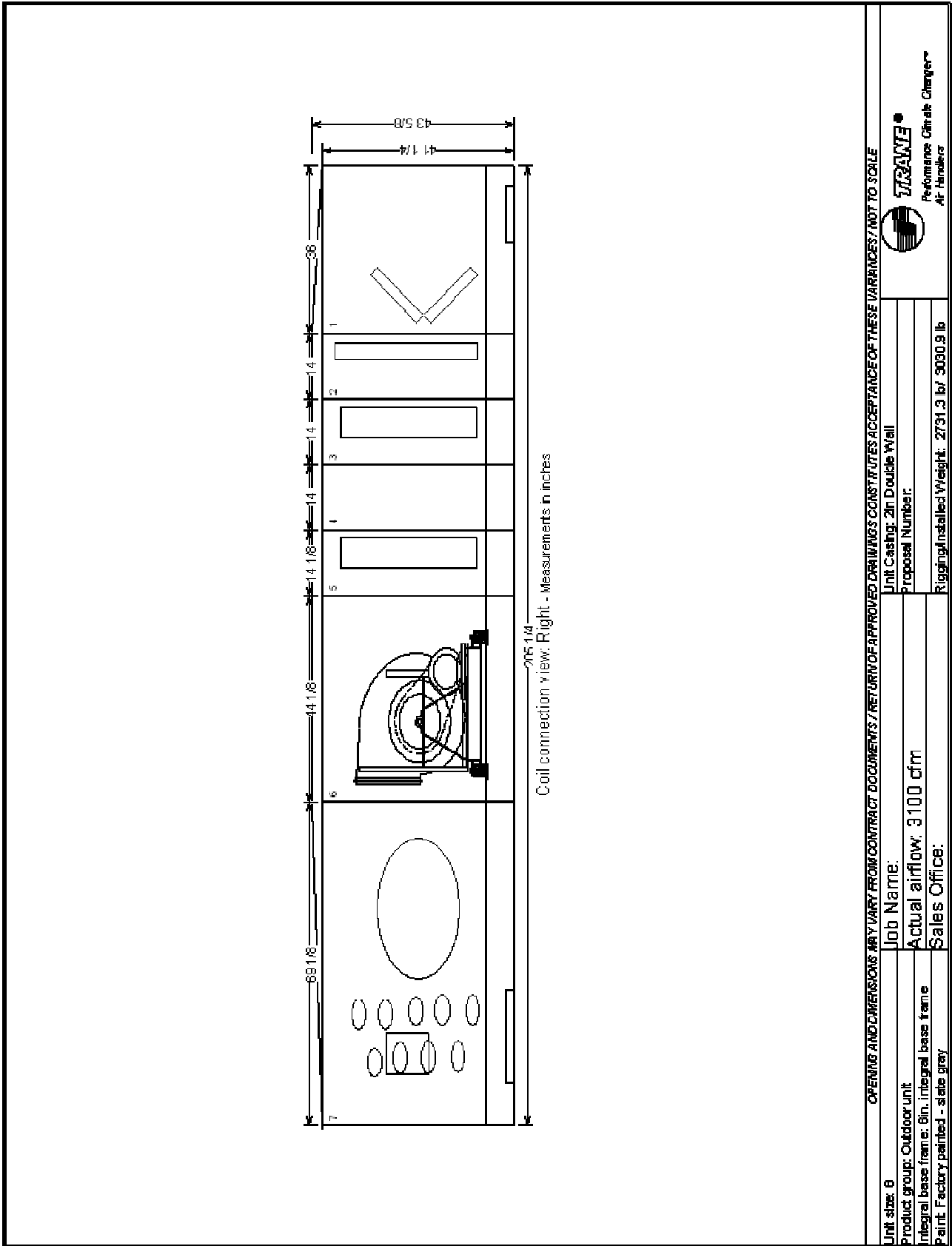
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Product group: Outdoor unit	Actual airflow: 3100 cfm	Proposal Number:	
Integral base frame: 6in. integral base frame	Sales Office:	Rigging/Installed Weight: 2731.3 lb/ 3030.9 lb	
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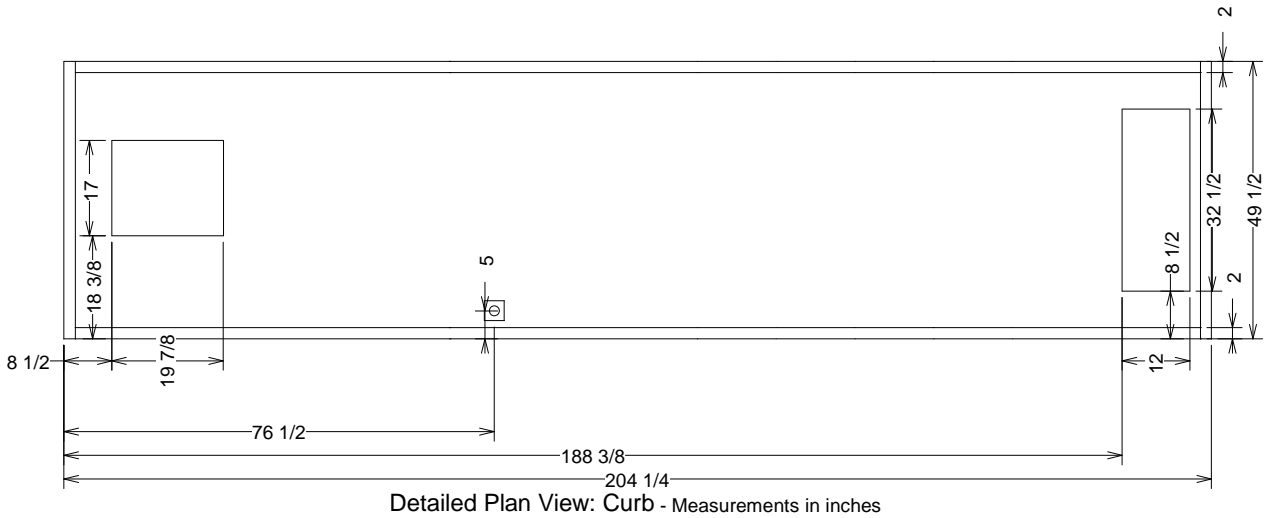
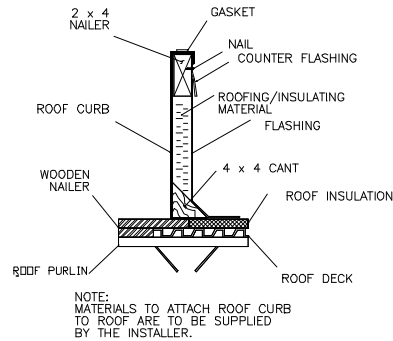
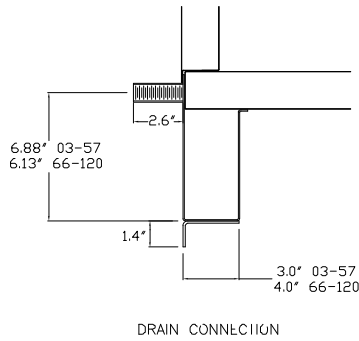
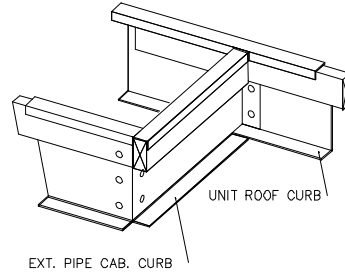
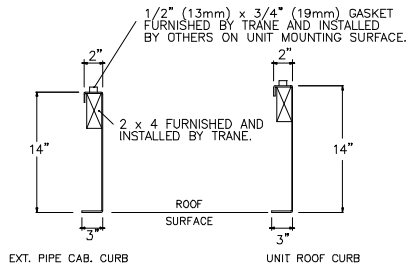
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Unit size: 8	Job Name:	Unit Casing: 2in Double Wall	 Performance Climate Changer™ Air Handlers
Product group: Outdoor unit	Proposal Number:	Rigging/Installed Weight: 2731.3 lbs / 3030.9 lb	
Integral base frame: 6in. Integral base frame	Actual airflow: 3100 cfm		
Paint: Factory painted - slate gray	Sales Office:		



**As-Built - CSOA008 Performance Climate Changer™ Rooftop Air Handling Unit**

Qty: 1 Tag(s): RTAH-2



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

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Integral base frame: 6in. integral base frame	Sales Office:	Rigging/Installed Weight: 2731.3 lb/ 3030.9 lb	
Paint: Factory painted - slate gray			

# Performance Climate Changer



**Job Name** Hannafood Supermarket - Forest Ave Portland  
**User Name** (B16)Daniel Broderick  
**Address** Portland ME  
 J:\PM\Hannaford - Forest Ave.psd

Performance Climate Changer RTAH-3  
**Quantity** 1  
**Job Comments**

**Unit level options**

**Module Position:** 0

Actual airflow	10000 cfm	FLA circuit 1	15.20 A
Unit elevation	0.00 ft	Fuse size circuit 1	30.00 A
Unit size	21	Circuit number 1	Supply fan motor(s)
Integral base frame	6in. integral base frame	MCA circuit 1	19.00 A
Modified coil - min face velocity	250 ft/min	MOP circuit 1	34.20 A
Modified coil - max face velocity	600 ft/min	Supply or return/exhaust fan starter/VFD	No VFD/starter in sup or ret/exh fan
HEPA filter - min face velocity	0 ft/min	Supply fan motor horsepower	5 HP
HEPA filter - max face velocity	600 ft/min	Marine LED lights in unit	No marine LED lights in unit
UL listed unit	UL listed unit	FLA circuit 2	8.00 A
High voltage location	Right	MCA circuit 2	10.00 A
Length	160.375 in	MOP circuit 2	18.00 A
Width	80.000 in	Fuse size circuit 2	15.00 A
Installed weight	3383.4 lb	Roof curb type	Standard roof curb
Rigging weight	3000.1 lb	Curb height	14 in.
Shipping split type	Factory splits	Paint	Factory painted - slate gray
Door handle type - unit level	Single metal handle - ganged latches		

**Controls and VFD/starter**

**Module Position:** 0

Factory controls package	No factory mount	Total number of control points	0 control points
Automatic Selection	No auto selection	NEMA SF	Field provided VFD
Controller mounting	No mount	VFD/Starter location supply fan	No mounting
Controller type	No controller	Fan wheel balance SF	Inverter balance
LCD screen and keypad	No LCD	NEMA RF/EF	No NEMA
Design Sequence	B	VFD/Starter location ret/exh fan	No mounting
Prepackaged solution option used	MP common configuration not used		

Coil performance data is certified in accordance with AHRI standard 410. Propylene glycol and calcium chloride, or mixtures thereof, are not covered under the scope of AHRI 410.

Air-handling performance data is certified in accordance with AHRI standard 430. Air handlers with plenum fans and vertical draw-thru air handlers where the coil is mounted immediately below the fan section are not covered under the scope of AHRI 430.

All weights and dimensions are approximate. Certified prints on request.

# Performance Climate Changer

**Air mixing section**

**Module Position:**

**1**

Section type	Air mixing section	Design sequence	B
Unit size	21	Opening 1 bottom - airflow	10000 cfm
Mixing section type	with filter	Filter condition	Mid-life
Filter frame	2"	Filter airflow	10000 cfm
Filter type	Pleated media - MERV 8	Opening 1 front - airflow	10000 cfm
Access door location	left	Opening 1 bottom - face velocity	1325 ft/min
Back opening type	No opening	Opening 1 bottom - pressure drop	0.000 in H2O
Front opening type	Full face opening	Opening 1 bottom total pressure drop	0.000 in H2O
Front air path	Leaving	Greatest entry PD	0.000 in H2O
Top opening type	No opening	Opening 1 front - area	24.41 sq ft
Bottom opening type	1st bottom rectangular opening	Opening 1 bottom - area	7.55 sq ft
Bottom air path	Entering	Filter area	33.33 sq ft
Bottom air path type	Return	Filter face velocity	300 ft/min
Bottom inlet type	Ducted	Filter pressure drop	0.574 in H2O
Right side opening type	No opening	Access door	Yes
Left side opening type	No opening	Total mixing section pressure drop	0.574 in H2O

**Filter section**

**Module Position:**

**2**

Section type	Filter	Filter condition	Mid-life
Unit size	21	Filter area	21.53 sq ft
Filter type	Flat filter	Filter face velocity	464 ft/min
Filter frame	4in. filter frame	Filter pressure drop	0.800 in H2O
Access door location	left	Filter section pressure drop	0.800 in H2O
Primary filter type 1	4in. cartridge - 95% eff - MERV 14	Section length	14.000 in
Prefilter filter type	No prefilter	Section weight	264.2 lb
Design sequence	B	Access door	Yes
Filter airflow	10000 cfm		

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Air-handling performance data is certified in accordance with AHRI standard 430. Air handlers with plenum fans and vertical draw-thru air handlers where the coil is mounted immediately below the fan section are not covered under the scope of AHRI 430.

All weights and dimensions are approximate. Certified prints on request.

# Performance Climate Changer

Coil section		Module Position: 3	
<b>Coil se [5]-1</b>			
Section type	Horizontal coil	Coil type	W
Unit size	21	Rows	4 rows
Section size	Medium	Fin type	Prima flo H (Hi efficient)
Coil application	Heating coil	Fin material	Aluminum fins
Changeover coil	No	Tube diameter	5/8in. tube diameter (15.875 mm)
System type	Hot water	Tube matl/wall thickness	.020" (0.508mm) copper tubes
Coil supply/cabinet side	right	Turbulators	Yes
Coil casing	Galvanized	Corrosion resistant coating	None
Coil height	Unit coil height	Coil face velocity	504 ft/min
Drain pan	Galvanized	Air pressure drop	0.344 in H2O
Drain connection location	right	J trap dimension	2.022 in
Design sequence	B	H trap dimension	4.044 in
Apply AHRI ranges	No	Leaving fluid temperature	89.89 F
Coil performance airflow	10000 cfm	Fluid pressure drop	3.09 ft H2O
Coil elevation	0.00 ft	Fluid volume	12.28 gal
Entering dry bulb	70.00 F	Fluid velocity	1.66 ft/s
Leaving dry bulb	87.30 F	Total cap coil #1	187.62 MBh
Total capacity	187.62 MBh	Coil face area	19.83 sq ft
Fin spacing	112 Per Foot	Coil rigging weight	308.0 lb
Entering fluid temperature	100.00 F	Coil installed weight	410.3 lb
Fluid temperature drop	10.11 F	Coil section pressure drop	0.344 in H2O
Standard fluid flow rate	42.00 gpm	Section length	14.000 in
Coil fouling factor	0.00050 hr-sq ft-deg F/Btu	Section weight	654.5 lb
Fluid type	Propylene glycol	Access door	No
Coil fluid percentage	45.00 %		

Access section		Module Position: 4	
Section type	Access/blank/turning	Back opening	Full Face
Unit size	21	Design sequence	B
Section size	Medium	Section length	14.000 in
Access door location	Left	Section weight	160.8 lb
Door swing direction	Outward swing	Access door	Yes
Front opening	Full Face		

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# Performance Climate Changer

**Fan section**

**Module Position:**

**5**

<b>Fan sec [9]-1</b>			
Section type	Fan	Design temperature	70.00 F
Fan application	Supply fan	Fan size and type	20in. direct-drive plenum, full width
Unit size	21	Total brake horsepower	6.874 hp
Inlet location	Back inlet	Total brake horsepower at min temp	7.287 hp
Fan orientation	Plenum fan	Total static pressure	2.805 in H2O
Fan discharge	Front top	Speed	1813 rpm
Access door location	left	Fan module pressure drop	1.026 in H2O
Drive location	left side drive	Section length	50.250 in
Design sequence	D	Section weight	1168.9 lb
Motor horsepower per fan	5 hp	Static pressure origin	Program calculated
Motor class	NEMA premium compliant ODP	Access door	Yes
Motor voltage	460/3	Fan type	Plenum
Cycle	60 cycles/sec	Direct drive fan blades	Nine
Drive service factor	Direct drive	Fan quantity	2.00 Each
Motor RPM	1800	Motor hertz	62.00 Hz
Fan airflow	10000 cfm	Starter/VFD - factory mounted & wired	Field provided VFD
Overall ESP	1.000 in H2O	Fan wheel balance	Inverter balance
Unit entering ESP	0.500 in H2O	Direct drive fan	882.67 Each
Unit discharge ESP	0.500 in H2O	Motor slip	1.07 %
Elevation	0.00 ft	Flow meter	Flow meter
Minimum temperature	40.00 F		

**Discharge plenum**

**Module Position:**

**6**

Section type	Discharge plenum	Top total pressure drop	0.000 in H2O
Unit size	21	Discharge 1 bottom - area	7.12 sq ft
Mounting location and type	Horizontal standard length	Discharge 1 bottom - pressure drop	0.062 in H2O
Perforated panels	No	Bottom total pressure drop	0.062 in H2O
Access door location	left	Right total pressure drop	0.000 in H2O
Door swing direction	Outward swing	Left total pressure drop	0.000 in H2O
Design sequence	B	Section length	34.000 in
Discharge 1 bottom - airflow	10000 cfm	Section weight	401.7 lb
Back total pressure drop	0.000 in H2O	Bottom discharge type	1st bottom rectangular opening
Front total pressure drop	0.000 in H2O	Plenum length	34.000 in

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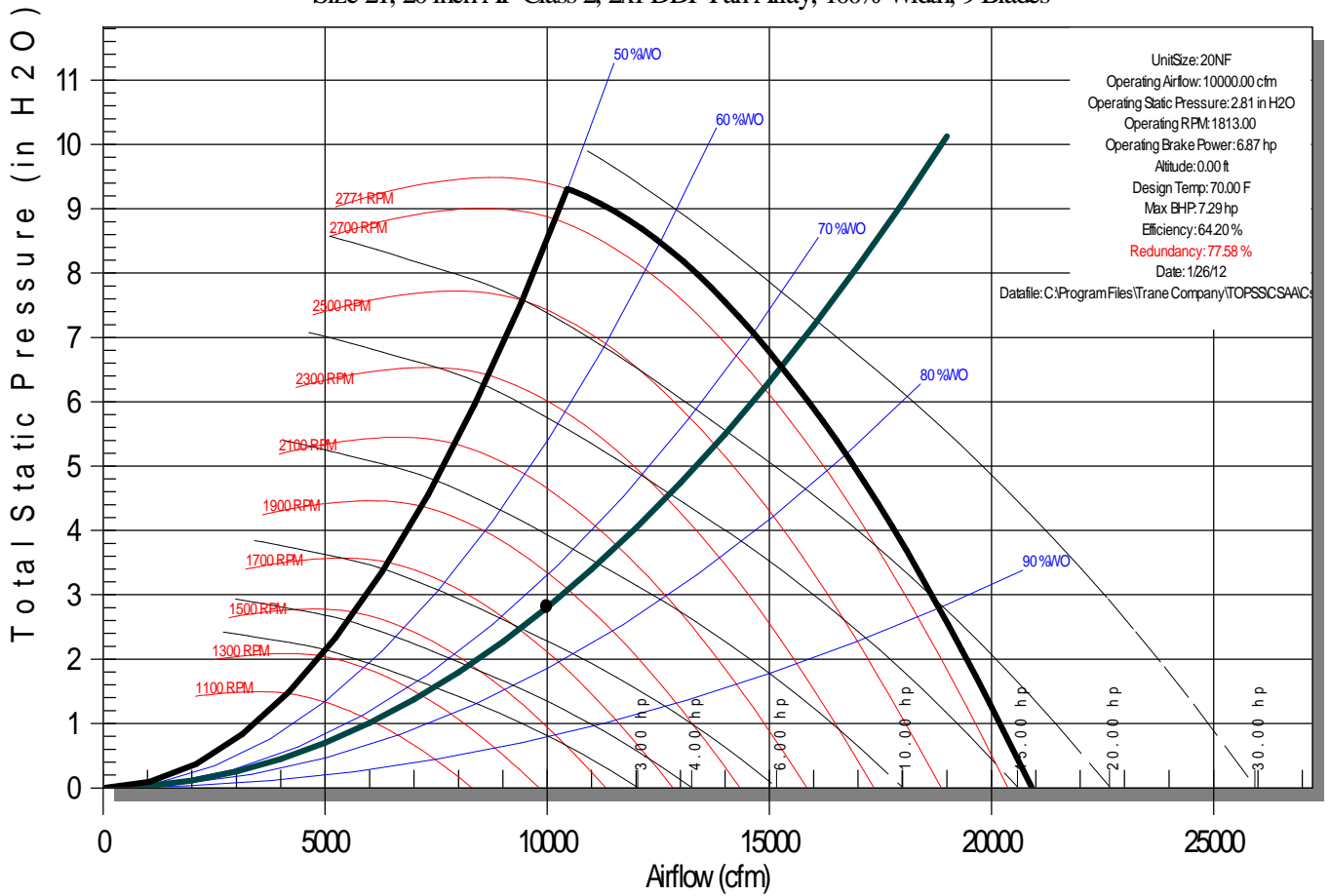
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Fan Curve - CSOA021 Performance Climate Changer™ Rooftop Air Handling Unit

Qty: 1 Tag(s): RTAH-3

# Supply

Size 21; 20 inch AF Class 2; 2x1 DDP Fan Array; 100% Width; 9 Blades



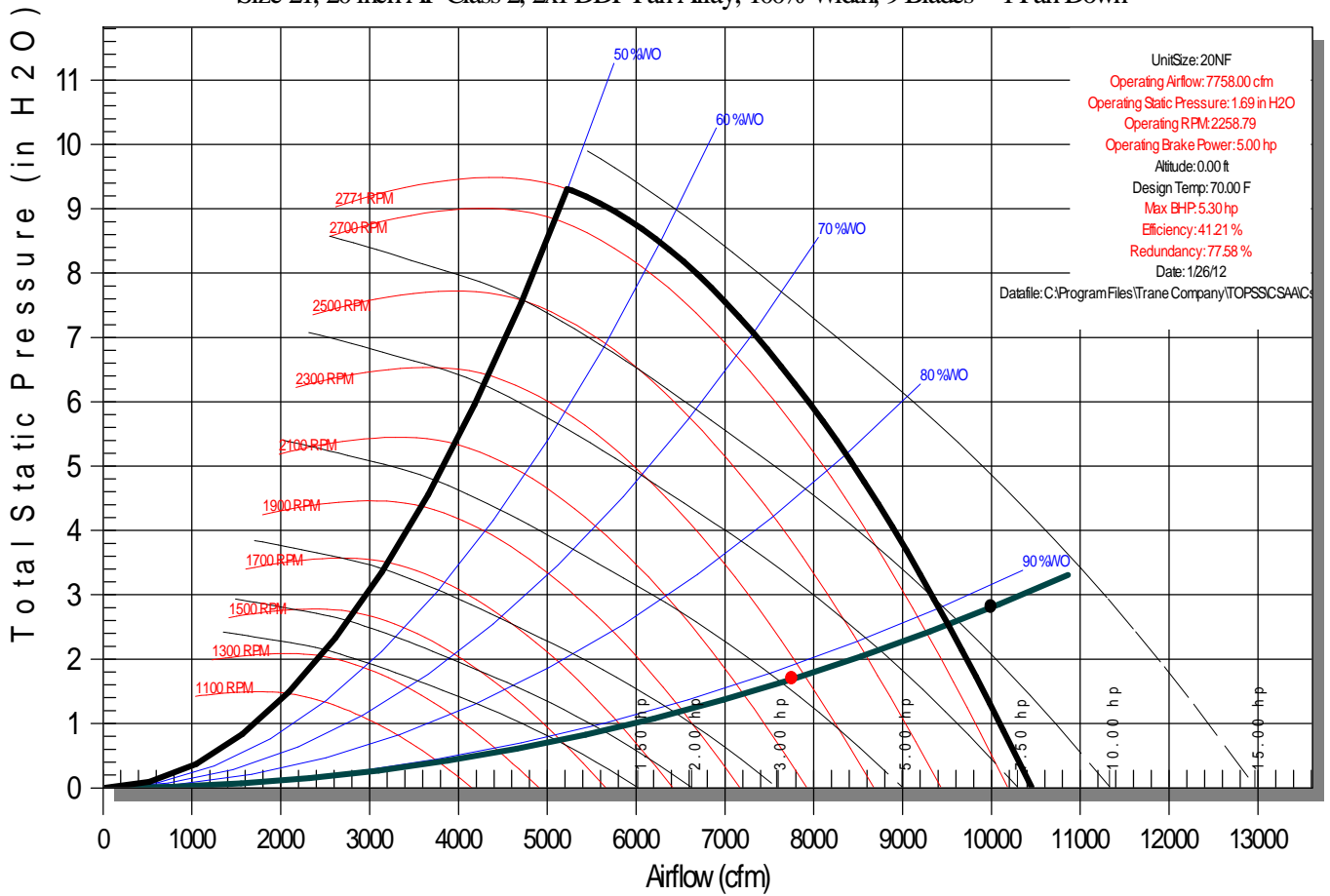


Fan Curve - CSOA021 Performance Climate Changer™ Rooftop Air Handling Unit

Qty: 1 Tag(s): RTAH-3

# Supply

Size 21; 20 inch AF Class 2; 2x1 DDP Fan Array; 100% Width; 9 Blades - 1 Fan Down

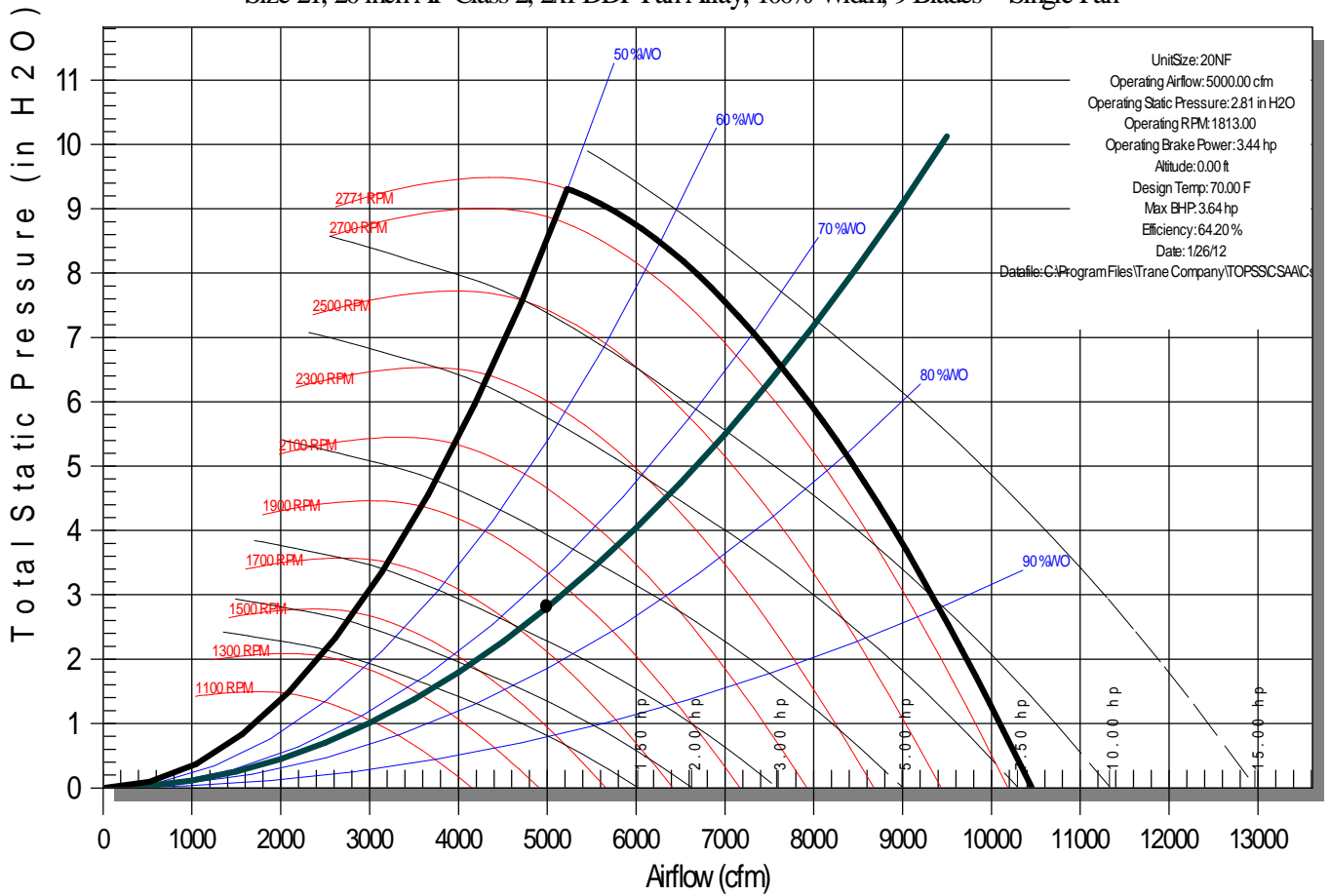


Fan Curve - CSOA021 Performance Climate Changer™ Rooftop Air Handling Unit

Qty: 1 Tag(s): RTAH-3

# Supply

Size 21; 20 inch AF Class 2; 2x1 DDP Fan Array; 100% Width; 9 Blades - Single Fan



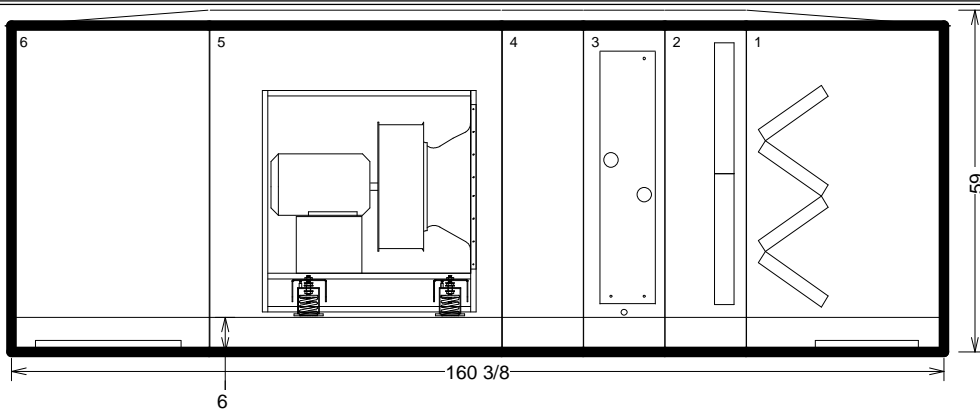
**As-Built - CSOA021 Performance Climate Changer™ Rooftop Air Handling Unit**

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<ol style="list-style-type: none"> <li>1 Plenum fan - 20in. direct-drive plenum, full width Supply fan 5hp 4603</li> <li>2 Heating coil - 4 rows Coil type W</li> <li>3 1" N.P.T. EX</li> <li>4 Opening bottom 25,000 x 41,000</li> <li>5 Flat filters - 4in. cartridge - 95% eff - MERV 14</li> <li>6 Angled filters - Opening bottom 17,750 x 61,250</li> <li>7 Doors 18 width x 46 height 18 width x 46 height 10 width x 46 height 28 width x 46 height</li> </ol>							
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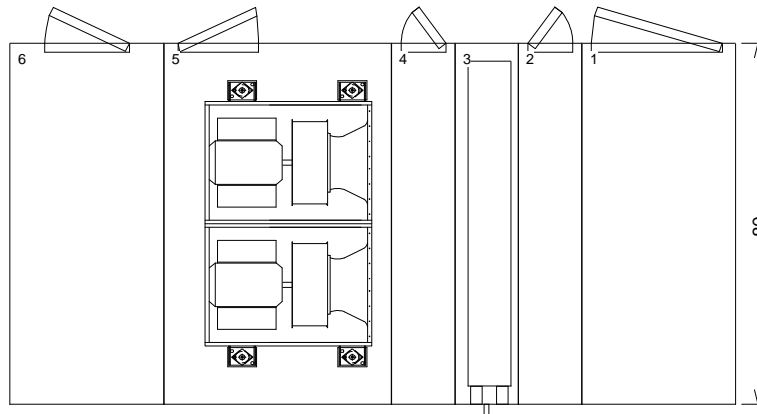
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Overall Elevation View: Right - Shipping splits indicated by bold outline. - Measurements in inches


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.

Pos #	Module	Length	Weight
1	Air mixing section	34	452.15
2	Filter section	14	264.19
3	Coil section	14	654.49
4	Access section	14 1/8	160.83
5	Fan section	50 3/8	1168.94
6	Discharge plenum	34	401.75
			Installed Unit Weight 3102.35 lbs



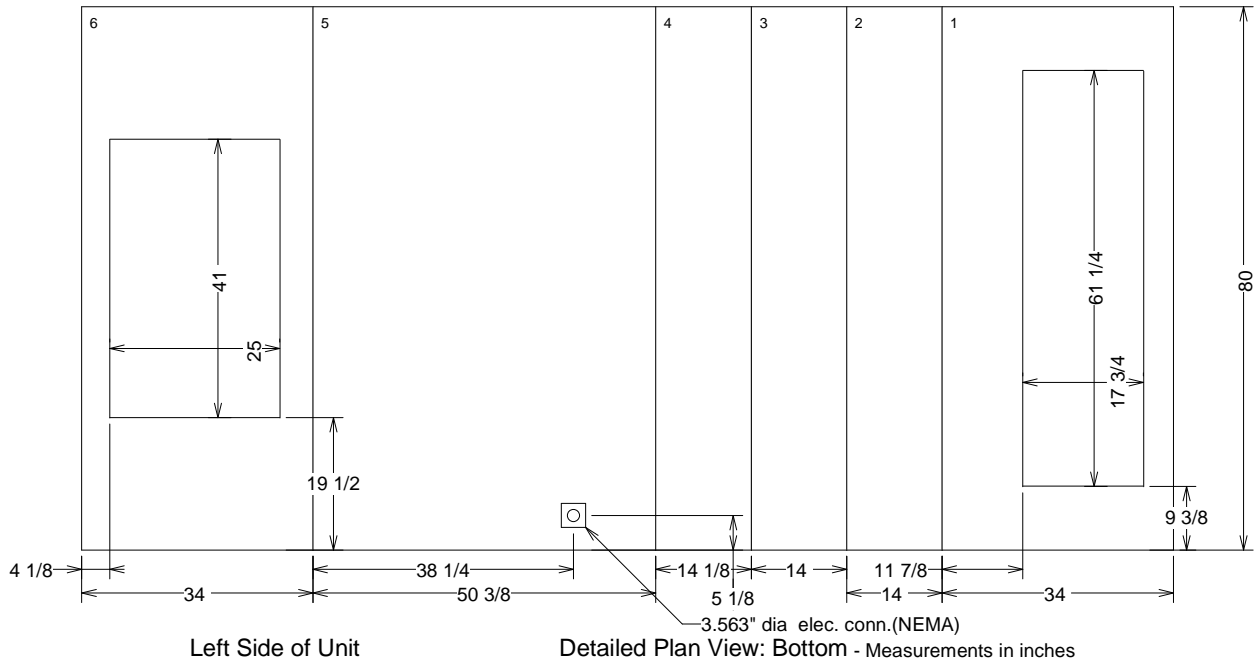
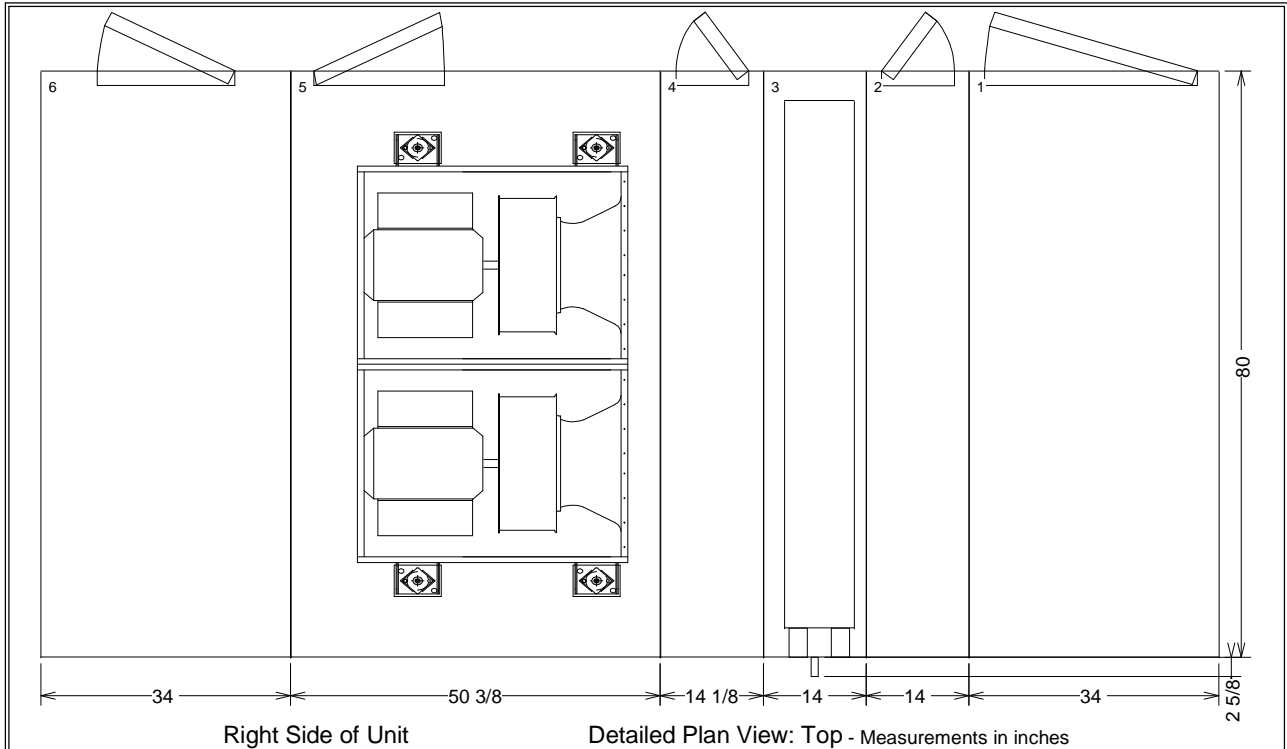
Basic Overall Plan View: Top - Measurements in inches

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Unit size: 21	Job Name:	Unit Casing: 2in Double Wall	 <b>TRANE</b> Performance Climate Changer™ Air Handlers
Product group: Outdoor unit	Actual airflow: 10000 cfm	Proposal Number:	
Integral base frame: 6in. integral base frame	Sales Office:	Rigging/Installed Weight: 3000.0 lb/ 3383.4 lb	
Paint: Factory painted - slate gray			

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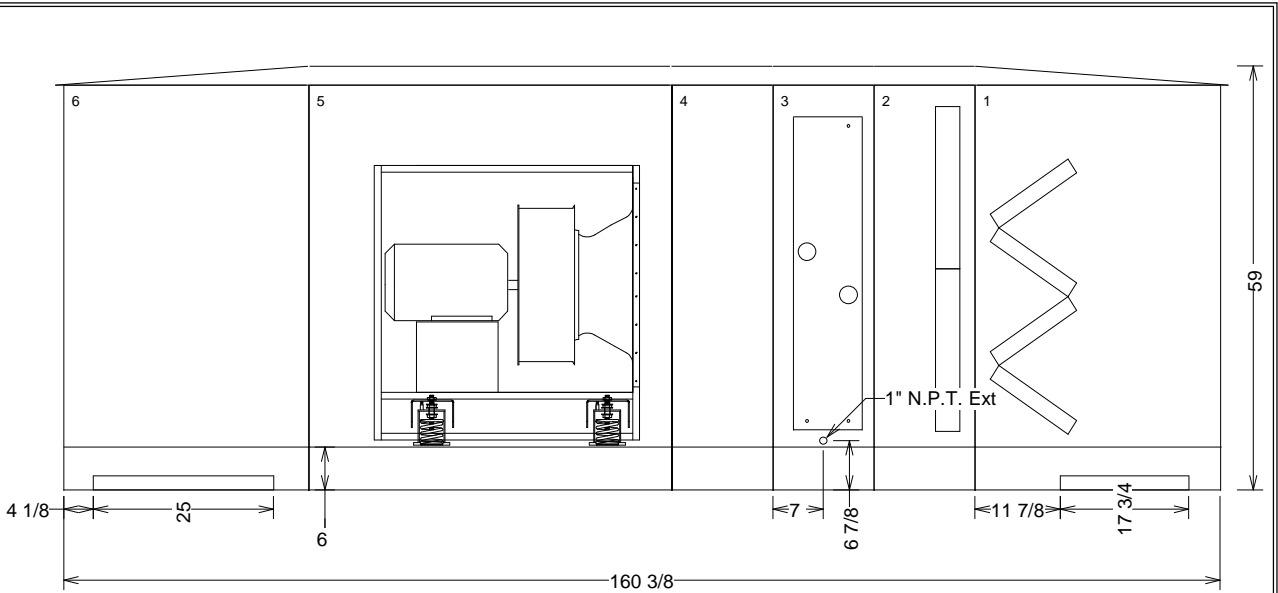


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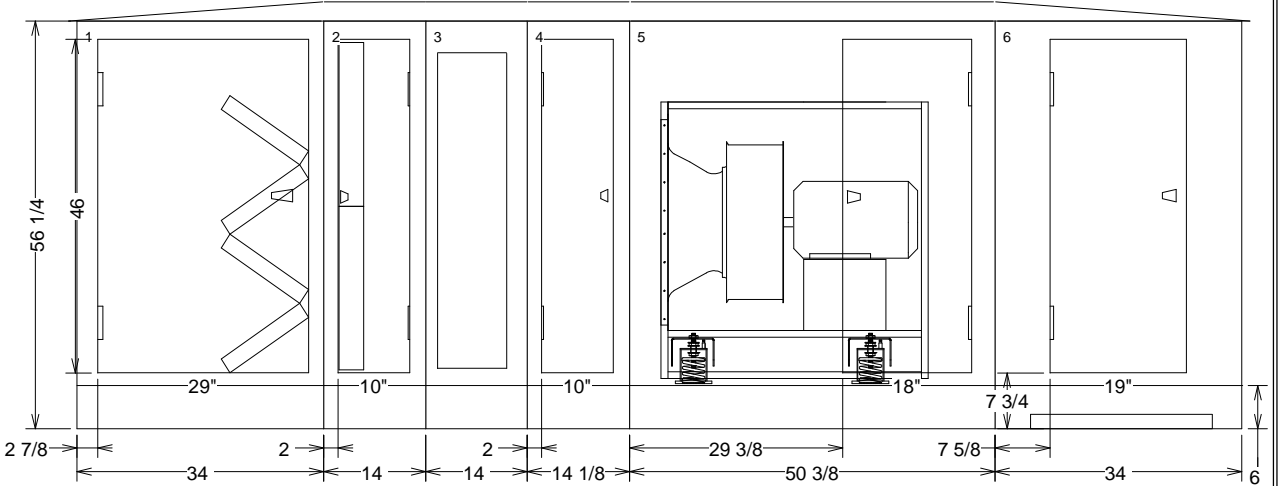
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


Detailed Elevation View: Right - Measurements in inches



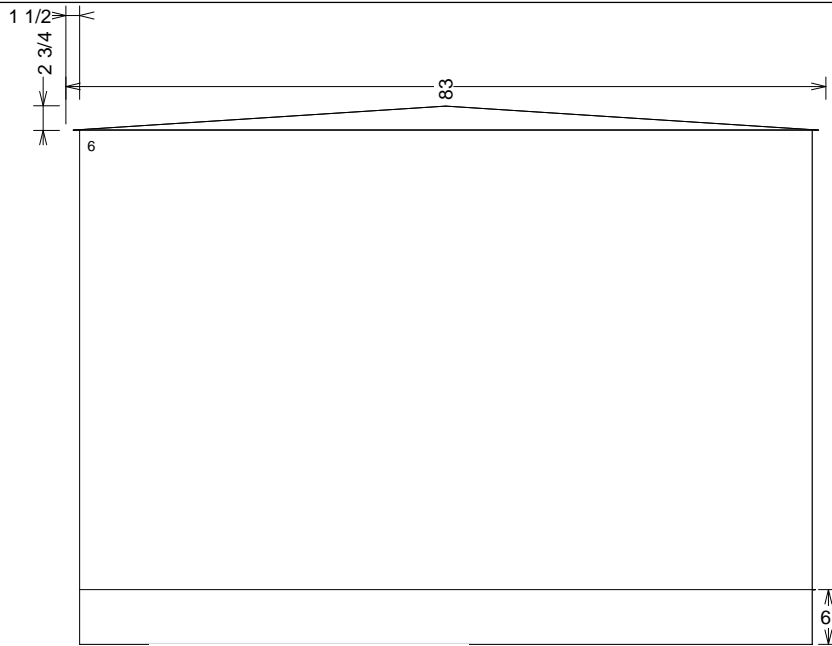
Detailed Elevation View: Left - Measurements in inches

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

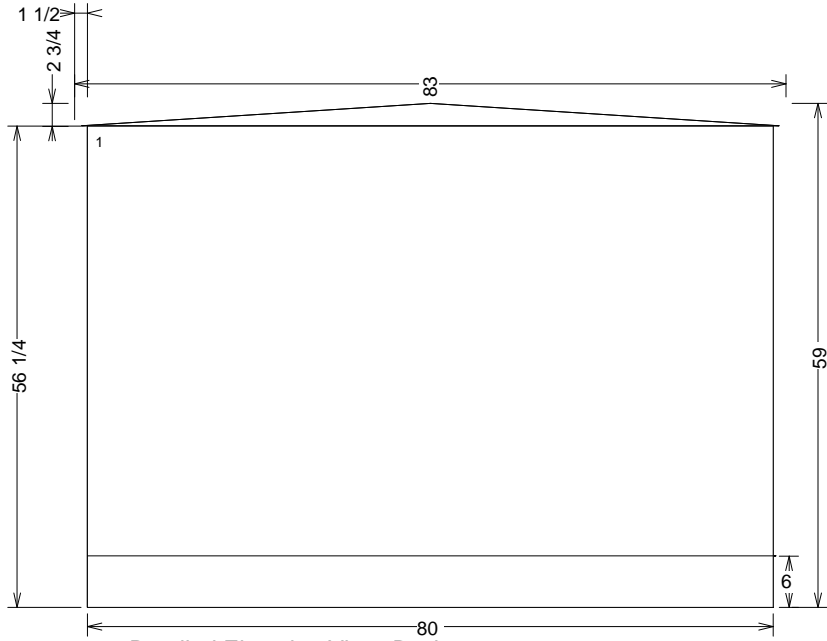
Unit size: 21	Job Name:	Unit Casing: 2in Double Wall	 <b>TRANE</b> Performance Climate Changer™ Air Handlers
Product group: Outdoor unit	Actual airflow: 10000 cfm	Proposal Number:	
Integral base frame: 6in. integral base frame	Sales Office:	Rigging/Installed Weight: 3000.0 lb/ 3383.4 lb	
Paint: Factory painted - slate gray			

**As-Built - CSOA021 Performance Climate Changer™ Rooftop Air Handling Unit**

Qty: 1 Tag(s): RTAH-3



Detailed Elevation View: Front - Measurements in inches



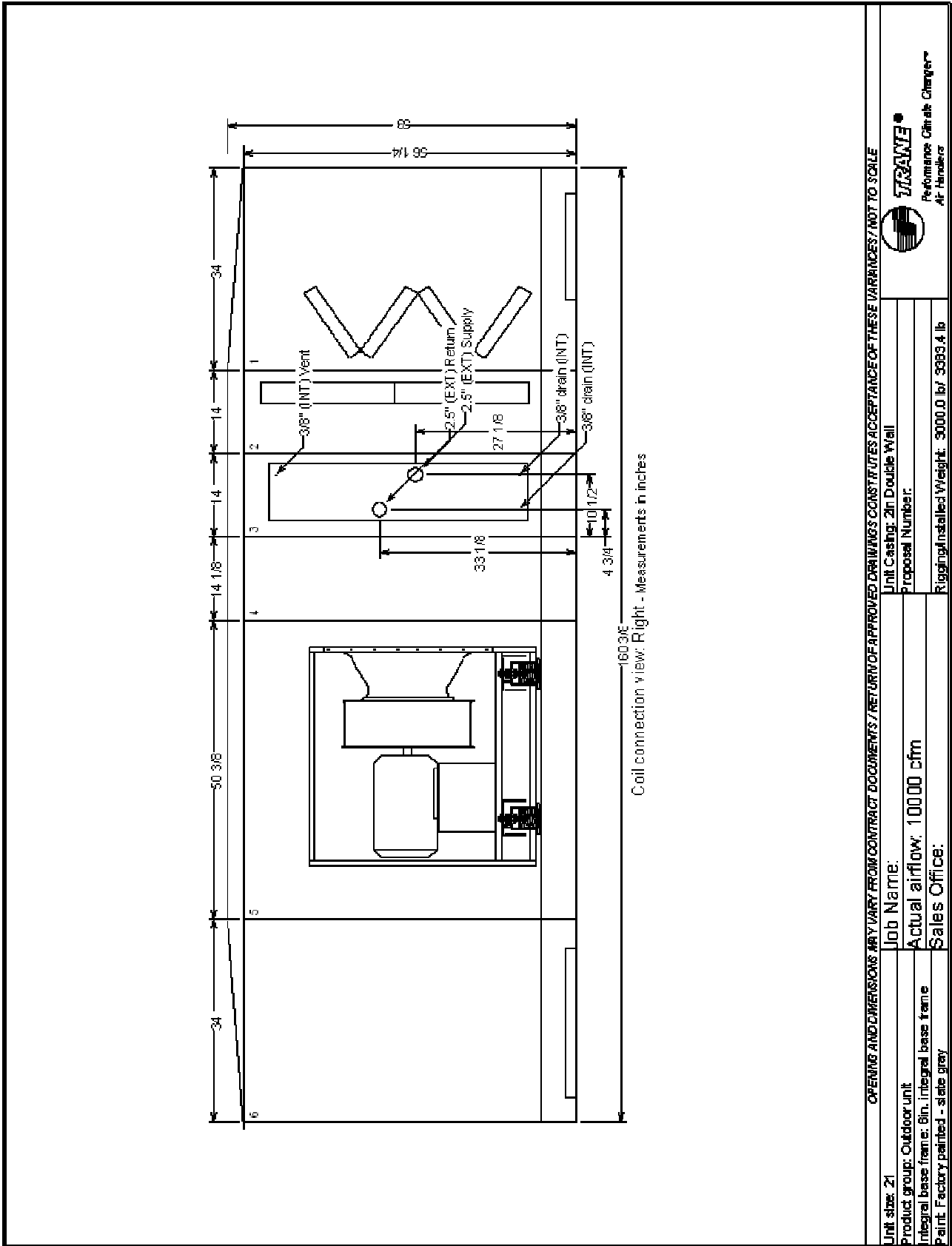
Detailed Elevation View: Back - Measurements in inches

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

Unit size: 21	Job Name:	Unit Casing: 2in Double Wall	 <b>TRANE</b> Performance Climate Changer™ Air Handlers
Product group: Outdoor unit	Actual airflow: 10000 cfm	Proposal Number:	
Integral base frame: 6in. integral base frame	Sales Office:	Rigging/Installed Weight: 3000.0 lb/ 3383.4 lb	
Paint: Factory painted - slate gray			

As-Built - CSOA021 Performance Climate Changer™ Rooftop Air Handling Unit

Qty: 1 Tag(s): RTAH-3



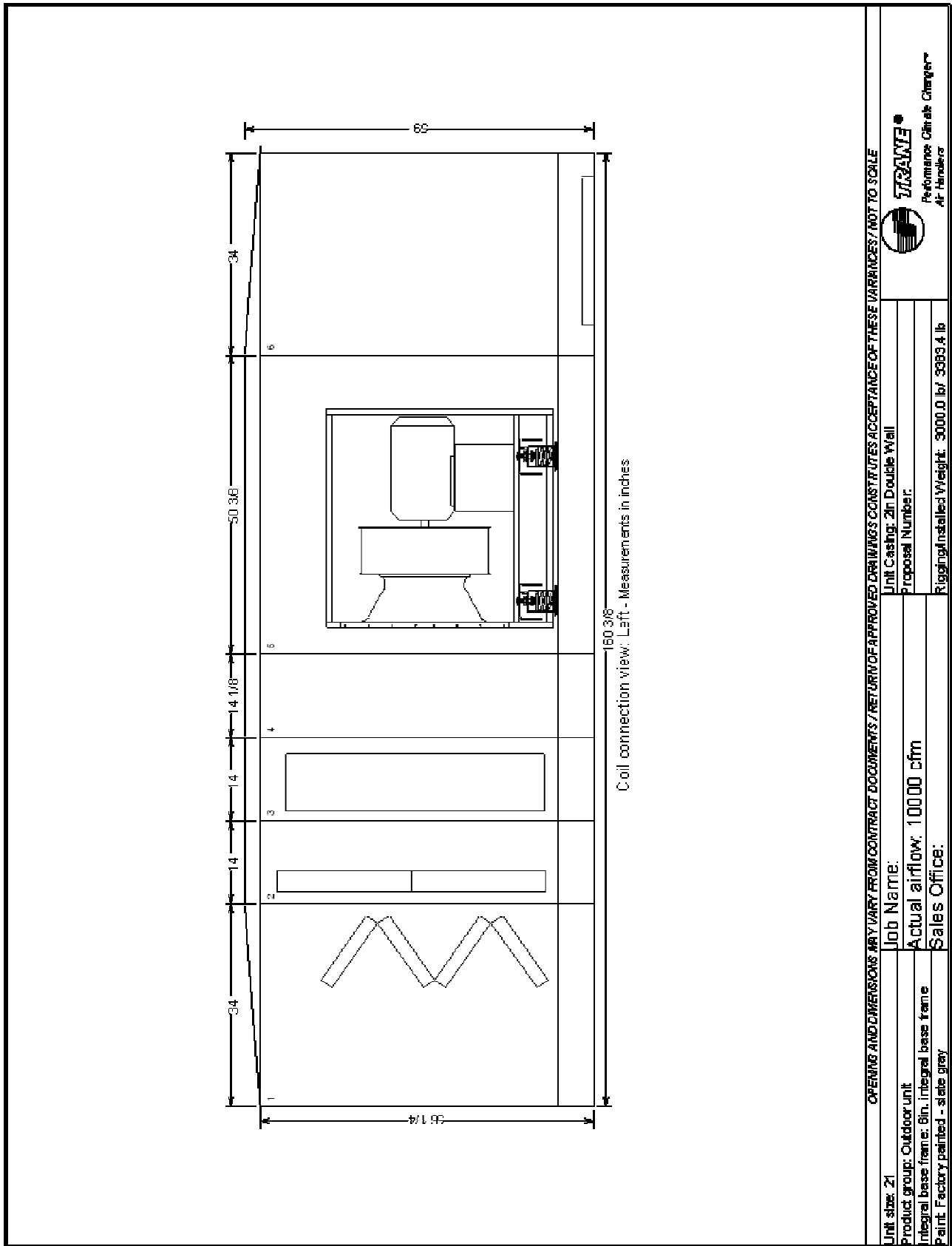
OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size: 21	Job Name:	Unit Casing: 2in Double Wall	
Product group: Outdoor unit	Proposed Number:		
Integral base frame: Bin, Integral base frame	Actual airflow: 10000 cfm	Rigging/Installed Weight: 3000.0 lbr 3993.4 lb	
Paint: Factory painted - slate gray	Sales Office:		




As-Built - CSOA021 Performance Climate Changer™ Rooftop Air Handling Unit

Qty: 1 Tag(s): RTAH-3

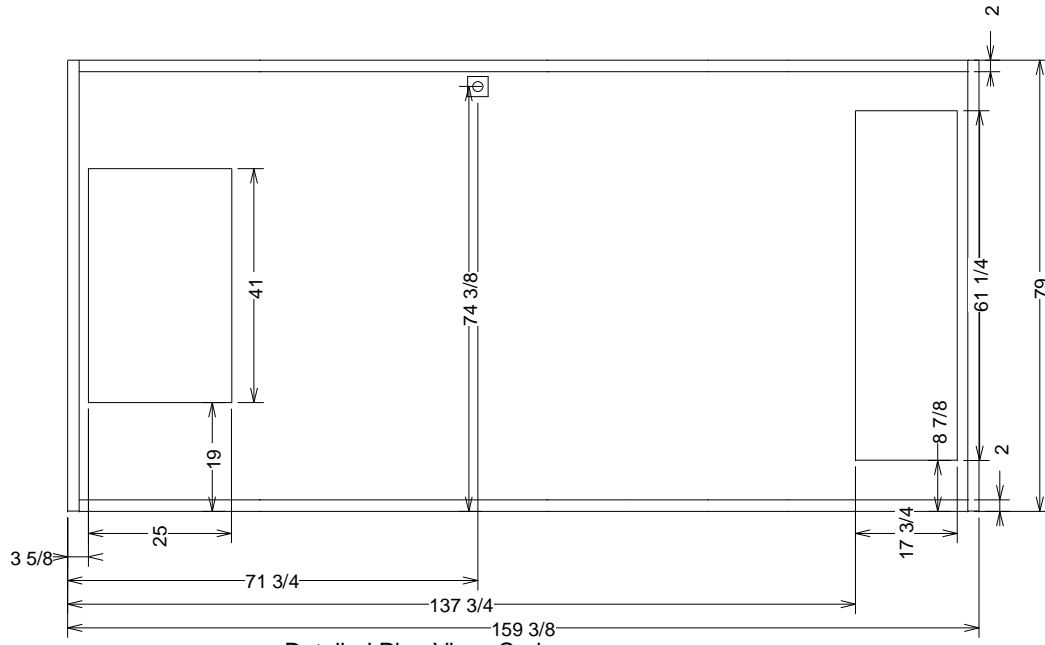
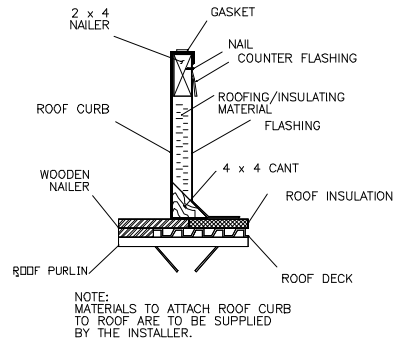
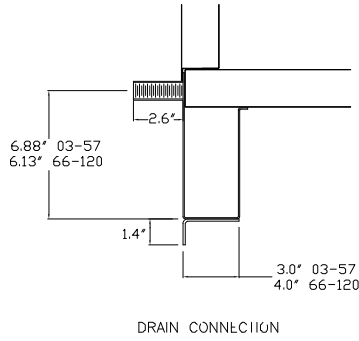
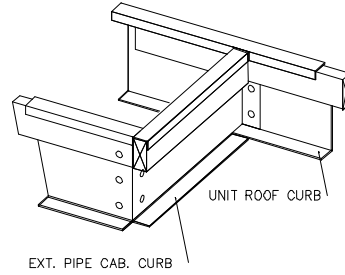
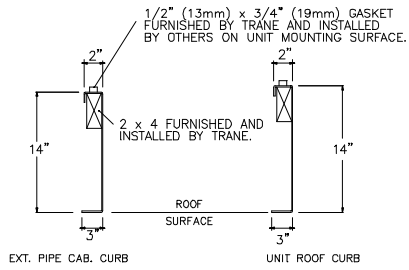


OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size: 21	Job Name:	Unit Casing: 2in Double Wall	 Performance Climate Changer™ Air Handlers
Product group: Outdoor unit	Actual airflow: 10000 cfm	Proposed Number:	
Integral base frame: Bin. Integral base frame	Sales Office:	Rigging/Installed Weight: 3000.0 lbs/ 3093.4 lb	
Paint: Factory painted - slate gray			

**As-Built - CSOA021 Performance Climate Changer™ Rooftop Air Handling Unit**

Qty: 1 Tag(s): RTAH-3



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

Unit size: 21	Job Name:	Unit Casing: 2in Double Wall	<p>Performance Climate Changer™ Air Handlers</p>
Product group: Outdoor unit	Actual airflow: 10000 cfm	Proposal Number:	
Integral base frame: 6in. integral base frame	Sales Office:	Rigging/Installed Weight: 3000.0 lb/ 3383.4 lb	
Paint: Factory painted - slate gray			

# Performance Climate Changer



**Job Name** Hannafood Supermarket - Forest Ave Portland  
**User Name** (B16)Daniel Broderick  
**Address** Portland ME  
 J:\PM\Hannaford - Forest Ave.psd

Performance Climate Changer OAU-1  
**Quantity** 1  
**Job Comments**

**Unit level options**

**Module Position:** 0

Actual airflow	5000 cfm	Circuit number 1	Supply fan motor(s)
Unit elevation	0.00 ft	MCA circuit 1	13.75 A
Unit size	10	MOP circuit 1	24.75 A
Integral base frame	6in. integral base frame	Supply or return/exhaust fan starter/VFD	No VFD/starter in sup or ret/exh fan
Modified coil - min face velocity	250 ft/min	Supply fan motor horsepower	7.5 HP
Modified coil - max face velocity	600 ft/min	Marine LED lights in unit	No marine LED lights in unit
HEPA filter - min face velocity	0 ft/min	FLA circuit 2	13.04 A
HEPA filter - max face velocity	600 ft/min	MCA circuit 2	16.30 A
UL listed unit	UL listed unit	MOP circuit 2	29.34 A
High voltage location	Right	Fuse size circuit 2	25.00 A
Length	197.750 in	FLA circuit 3	8.00 A
Width	61.500 in	MCA circuit 3	10.00 A
Installed weight	3538.9 lb	MOP circuit 3	18.00 A
Rigging weight	3208.7 lb	Fuse size circuit 3	15.00 A
Shipping split type	Factory splits	Roof curb type	Standard roof curb
Door handle type - unit level	Single metal handle - ganged	Curb height	14 in.
FLA circuit 1	11.00 A	Paint	Factory painted - slate gray
Fuse size circuit 1	20.00 A		

**Controls and VFD/starter**

**Module Position:** 0

Factory controls package	No factory mount	Total number of control points	0 control points
Automatic Selection	No auto selection	NEMA SF	Field provided VFD
Controller mounting	No mount	VFD/Starter location supply fan	No mounting
Controller type	No controller	Fan wheel balance SF	Inverter balance
LCD screen and keypad	No LCD	NEMA RF/EF	No NEMA
Design Sequence	B	VFD/Starter location ret/exh fan	No mounting
Prepackaged solution option used	MP common configuration not used		

Coil performance data is certified in accordance with AHRI standard 410. Propylene glycol and calcium chloride, or mixtures thereof, are not covered under the scope of AHRI 410.

Air-handling performance data is certified in accordance with AHRI standard 430. Air handlers with plenum fans and vertical draw-thru air handlers where the coil is mounted immediately below the fan section are not covered under the scope of AHRI 430.

All weights and dimensions are approximate. Certified prints on request.

# Performance Climate Changer

**Air mixing section**

**Module Position:**

**1**

Section type	Air mixing section	Design sequence	B
Unit size	10	Filter condition	Mid-life
Mixing section type	with filter	Filter airflow	5000 cfm
Filter frame	2"	Opening 1 back - airflow	5000 cfm
Filter type	Pleated media - MERV 8	Opening 1 front - airflow	5000 cfm
Access door location	Right	Opening 1 back total pressure drop	0.321 in H2O
Back opening type	Parallel blade damper	Greatest entry PD	0.446 in H2O
Back air path	Entering	Opening 1 back - area	4.16 sq ft
Back air path type	Outside	Opening 1 back - face velocity	1203 ft/min
Back inlet type	Unducted	Opening 1 back - pressure drop	0.321 in H2O
Front opening type	Full face opening	Opening 1 front - area	12.48 sq ft
Front air path	Leaving	Filter area	13.89 sq ft
Top opening type	No opening	Filter face velocity	360 ft/min
Bottom opening type	No opening	Filter pressure drop	0.595 in H2O
Right side opening type	No opening	Access door	Yes
Left side opening type	No opening	Total mixing section pressure drop	1.042 in H2O

**Filter section**

**Module Position:**

**2**

Section type	Filter	Filter condition	Mid-life
Unit size	10	Filter area	9.72 sq ft
Filter type	Flat filter	Filter face velocity	514 ft/min
Filter frame	4in. filter frame	Filter pressure drop	0.825 in H2O
Access door location	Right	Filter section pressure drop	0.825 in H2O
Primary filter type 1	4in. cartridge - 95% eff - MERV 14	Section length	14.000 in
Prefilter filter type	No prefilter	Section weight	173.9 lb
Design sequence	B	Access door	Yes
Filter airflow	5000 cfm		

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Air-handling performance data is certified in accordance with AHRI standard 430. Air handlers with plenum fans and vertical draw-thru air handlers where the coil is mounted immediately below the fan section are not covered under the scope of AHRI 430.

All weights and dimensions are approximate. Certified prints on request.

# Performance Climate Changer

Coil section		Module Position: 3	
<b>Coil se [3]-1</b>			
Section type	Horizontal coil	Suction temperature	39.00 F
Unit size	10	Coil type	UF
Section size	Medium	Rows	4 rows
Coil application	Cooling coil	Fin type	Delta flo E (energy efficient)
Changeover coil	No	Fin material	Aluminum fins
System type	Refrigerant	Tube diameter	1/2in. tube diameter (12.7 mm)
Coil supply/cabinet side	Left	Tube matl/wall thickness	.016" (0.406mm) int enh copper tubes
Coil casing	Galvanized	Corrosion resistant coating	None
Coil height	Unit coil height	Circuiting type	Intertwined circuits
Drain pan	Stainless steel	Coil face velocity	501 ft/min
Drain connection location	Left	Air pressure drop	0.585 in H2O
Design sequence	B	J trap dimension	2.228 in
Apply AHRI ranges	Yes	H trap dimension	4.456 in
Coil performance airflow	5000 cfm	Fluid volume	4.54 gal
Coil elevation	0.00 ft	Distributor tube	3/16" (5mm) diameter
Entering dry bulb	87.00 F	DX circuits	Full circuiting
Entering wet bulb	71.00 F	Number of distr - coil #1	2.00 Each
Leaving dry bulb	50.00 F	Total cap coil #1	332.80 MBh
Leaving wet bulb	49.45 F	Coil face area	9.98 sq ft
Sensible capacity	202.52 MBh	Coil rigging weight	124.9 lb
Total capacity	332.80 MBh	Coil section pressure drop	0.585 in H2O
Fin spacing	164 Per Foot	Section length	14.000 in
Refrigerant	R-410A	Section weight	290.8 lb
Liquid temperature	115.00 F	Access door	No

Access section		Module Position: 4	
Section type	Access/blank/turning	Back opening	Full Face
Unit size	10	Design sequence	B
Section size	Medium	Section length	14.000 in
Access door location	Right	Section weight	117.9 lb
Door swing direction	Outward swing	Access door	Yes
Front opening	Full Face		

Coil performance data is certified in accordance with AHRI standard 410. Propylene glycol and calcium chloride, or mixtures thereof, are not covered under the scope of AHRI 410.

Air-handling performance data is certified in accordance with AHRI standard 430. Air handlers with plenum fans and vertical draw-thru air handlers where the coil is mounted immediately below the fan section are not covered under the scope of AHRI 430.

# Performance Climate Changer

Coil section

Module Position:

5

<b>Coil se [7]-1</b>			
Section type	Horizontal coil	Coil fluid percentage	45.00 %
Unit size	10	Coil type	UW
Section size	Small	Rows	4 rows
Coil application	Heating coil	Fin type	Delta flo E (energy efficient)
Changeover coil	No	Fin material	Aluminum fins
System type	Hot water	Tube diameter	1/2in. tube diameter (12.7 mm)
Coil supply/cabinet side	Left	Tube matl/wall thickness	.016" (0.406mm) copper tubes
Coil casing	Galvanized	Corrosion resistant coating	None
Coil height	Unit coil height	Coil face velocity	501 ft/min
Drain pan	Galvanized	Air pressure drop	0.314 in H2O
Drain connection location	Left	J trap dimension	2.385 in
Design sequence	B	H trap dimension	4.770 in
Apply AHRI ranges	No	Leaving fluid temperature	90.00 F
Coil performance airflow	5000 cfm	Fluid pressure drop	15.48 ft H2O
Coil elevation	0.00 ft	Fluid volume	4.72 gal
Entering dry bulb	0.00 F	Fluid velocity	6.22 ft/s
Leaving dry bulb	65.00 F	Total cap coil #1	352.46 MBh
Total capacity	352.46 MBh	Coil face area	9.98 sq ft
Fin spacing	112 Per Foot	Coil rigging weight	118.0 lb
Entering fluid temperature	100.00 F	Coil installed weight	157.4 lb
Fluid temperature drop	10.00 F	Coil section pressure drop	0.314 in H2O
Standard fluid flow rate	79.74 gpm	Section length	10.000 in
Coil fouling factor	0.00050 hr-sq ft-deg F/Btu	Section weight	307.8 lb
Fluid type	Propylene glycol	Access door	No

Coil performance data is certified in accordance with AHRI standard 410. Propylene glycol and calcium chloride, or mixtures thereof, are not covered under the scope of AHRI 410.

Air-handling performance data is certified in accordance with AHRI standard 430. Air handlers with plenum fans and vertical draw-thru air handlers where the coil is mounted immediately below the fan section are not covered under the scope of AHRI 430.

# Performance Climate Changer

Fan section		Module Position:	6
<b>Fan sec [9]-1</b>			
Section type	Fan	Minimum temperature	40.00 F
Fan application	Supply fan	Design temperature	70.00 F
Unit size	10	Fan size and type	15in. diameter AF, class 1
Inlet location	Back inlet	Total brake horsepower	5.311 hp
Fan orientation	Front-bottom discharge	Total brake horsepower at min temp	5.630 hp
Fan discharge	Front bottom	Total static pressure	4.063 in H2O
Access door location	Right	Speed	2184 rpm
Drive location	Right side drive	Outlet area	2.05 sq ft
Design sequence	D	Fan outlet velocity	2435 ft/min
Motor horsepower per fan	7.5 hp	Fan module pressure drop	0.450 in H2O
Motor class	NEMA premium compliant ODP	Fan discharge loss pressure drop	0.000 in H2O
Motor voltage	460/3	Section length	42.500 in
Cycle	60 cycles/sec	Section weight	791.0 lb
Drive service factor	1.5 fixed drive	Static pressure origin	Program calculated
Motor RPM	1800	Access door	Yes
Fan airflow	5000 cfm	Fan type	Housed
Overall ESP	0.450 in H2O	Starter/VFD - factory mounted & wired	Field provided VFD
Unit entering ESP	0.225 in H2O	Fan wheel balance	Inverter balance
Unit discharge ESP	0.225 in H2O	Motor slip	1.00 %
Elevation	0.00 ft	Flow meter	Flow meter

Gas heat		Module Position:	7
<b>Gas hea [7]-1</b>			
Section type	Gas heat module	Exchanger type	Drum and tube - indirect
Unit size	10	Burner turndown ratio	10:1 Burner turndown ratio
Discharge location	Bottom-front	Section height	41.250 in
Design sequence	D	Section width	61.500 in
Agency specification	UL/Factory Mutal	Section length	67.000 in
Fuel type	Natural gas	Section weight	1178.0 lb
Gas heat vestibule side	Right	Output capacity	360.00 MBh
Vestibule door location	Right hand door	Input capacity	450.00 MBh
Gas heat voltage	115/60/1	Air temperature rise	65.45 F
Gas heat performance airflow	5000 cfm	Gas heat compnent PD	0.848 in H2O
Unit airflow	5000 cfm	Gas heat module PD	0.848 in H2O
Section elevation	30.00 ft	Minimum gas inlet pressure	7.000 in H2O
Entering dry bulb	0.00 F	Maximum gas inlet pressure	14.000 in H2O
Leaving dry bulb	65.45 F	Minimum gas manifold pressure	0.080 in H2O
High heat value of gas	1000.0 Btu/cu ft	Maximum gas manifold pressure	3.600 in H2O
Gas heat output - nominal	360 MBH output		

Coil performance data is certified in accordance with AHRI standard 410. Propylene glycol and calcium chloride, or mixtures thereof, are not covered under the scope of AHRI 410.

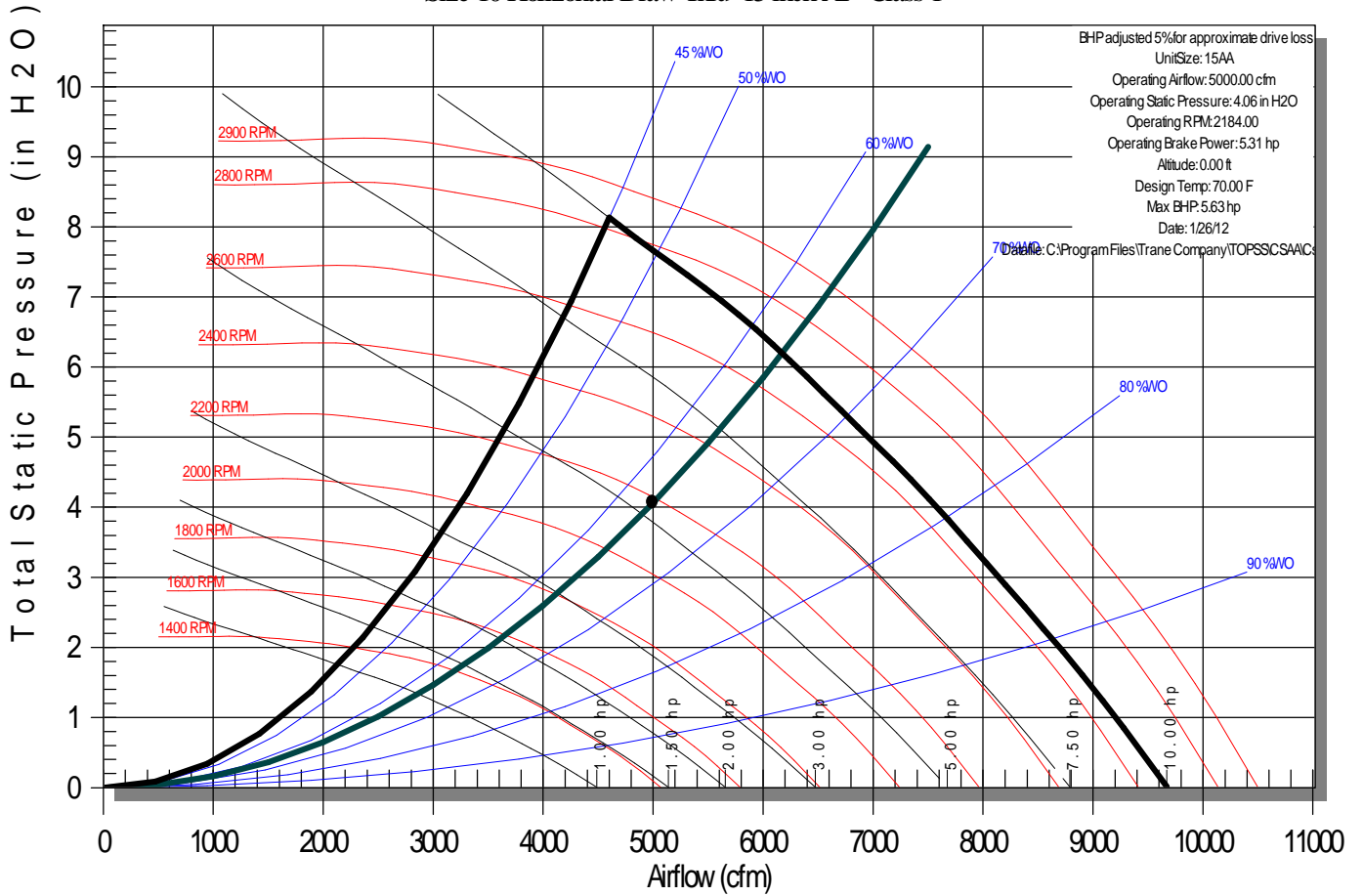
Air-handling performance data is certified in accordance with AHRI standard 430. Air handlers with plenum fans and vertical draw-thru air handlers where the coil is mounted immediately below the fan section are not covered under the scope of AHRI 430.

Fan Curve - CSOA010 Performance Climate Changer™ Rooftop Air Handling Unit

Qty: 1 Tag(s): OAU-1

# Supply

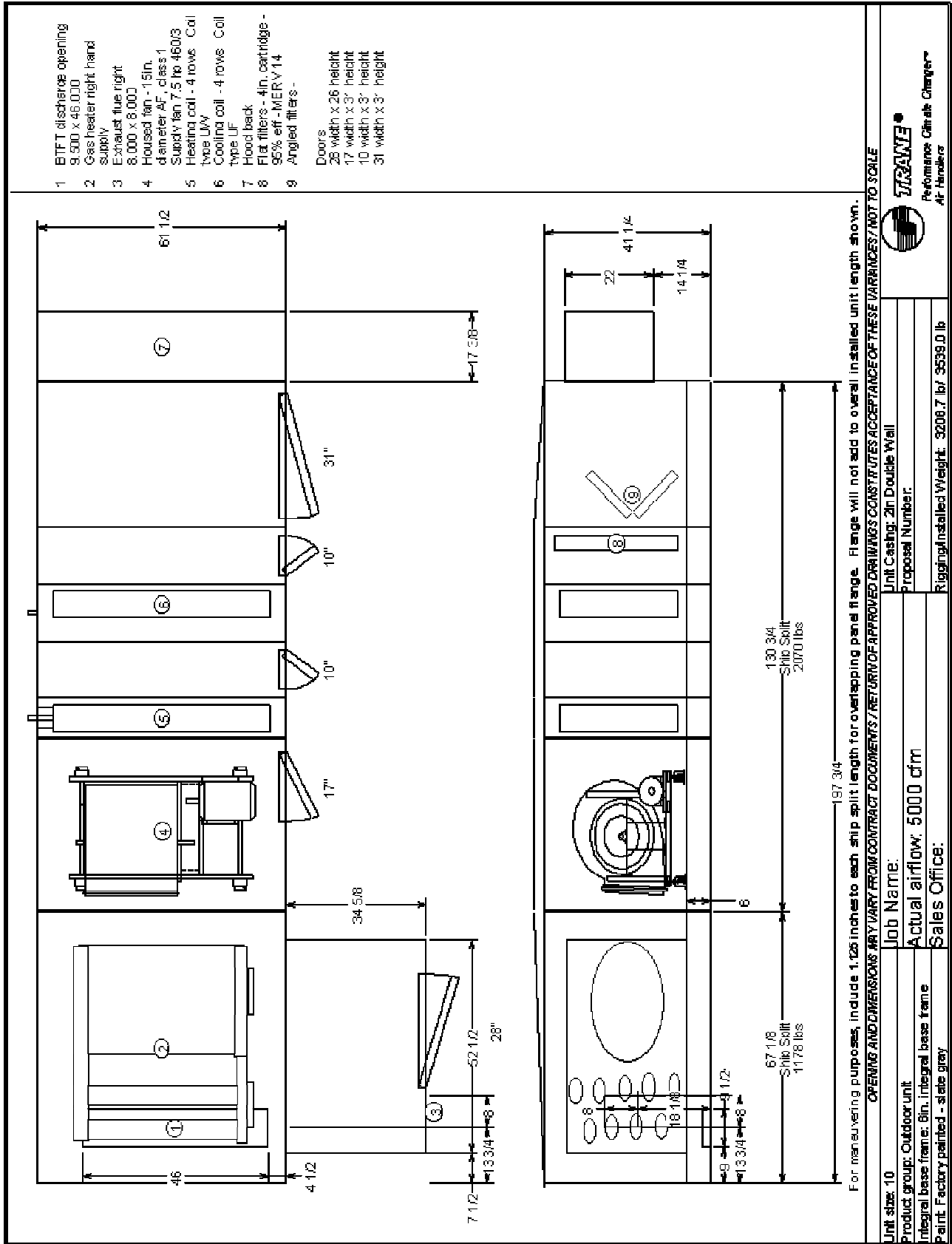
## Size 10 Horizontal Draw-Thru 15 inch AF Class 1





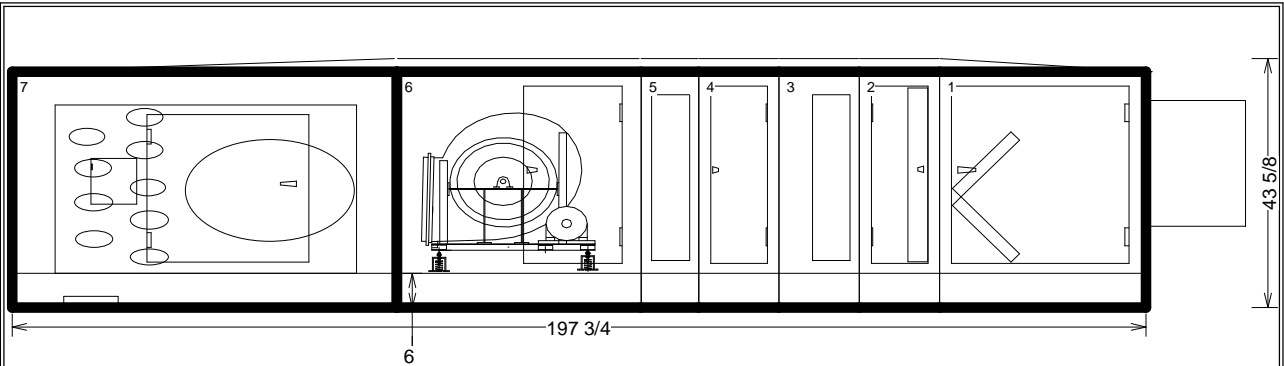
As-Built - CSOA010 Performance Climate Changer™ Rooftop Air Handling Unit

Qty: 1 Tag(s): OAU-1



**As-Built - CSOA010 Performance Climate Changer™ Rooftop Air Handling Unit**

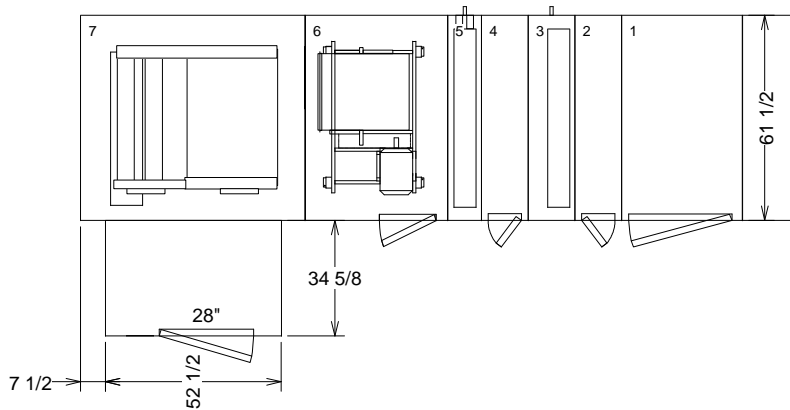
Qty: 1 Tag(s): OAU-1



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


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.

Pos #	Module	Length	Weight
1	Air mixing section	36	388.65
2	Filter section	14	173.90
3	Coil section	14	290.80
4	Access section	14	117.90
5	Coil section	10 1/8	307.88
6	Fan section	42 5/8	791.01
7	Gas heat	67 1/8	1177.97
		Installed Unit Weight 3248.11 lbs	



Basic Overall Plan View: Top - Measurements in inches

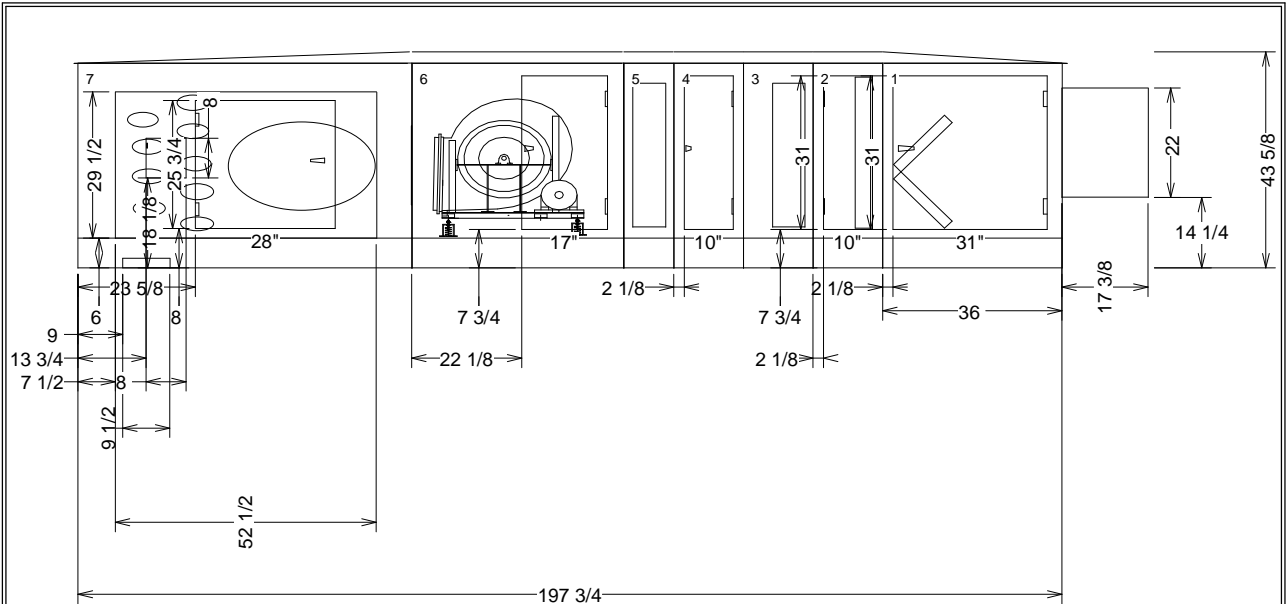
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Unit size: 10	Job Name:	Unit Casing: 2in Double Wall	 <b>TRANE</b> Performance Climate Changer™ Air Handlers
Product group: Outdoor unit	Actual airflow: 5000 cfm	Proposal Number:	
Integral base frame: 6in. integral base frame	Sales Office:	Rigging/Installed Weight: 3208.7 lb/ 3539.0 lb	
Paint: Factory painted - slate gray			

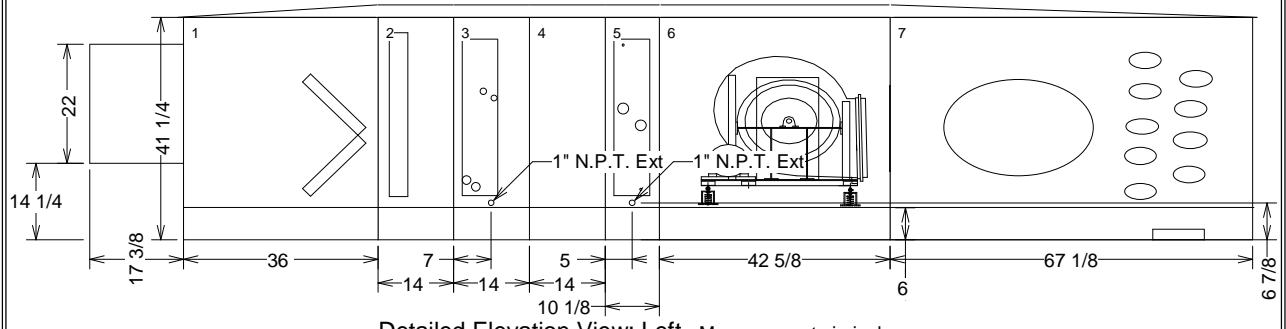


**As-Built - CSOA010 Performance Climate Changer™ Rooftop Air Handling Unit**

Qty: 1 Tag(s): OAU-1




Detailed Elevation View: Right - Measurements in inches



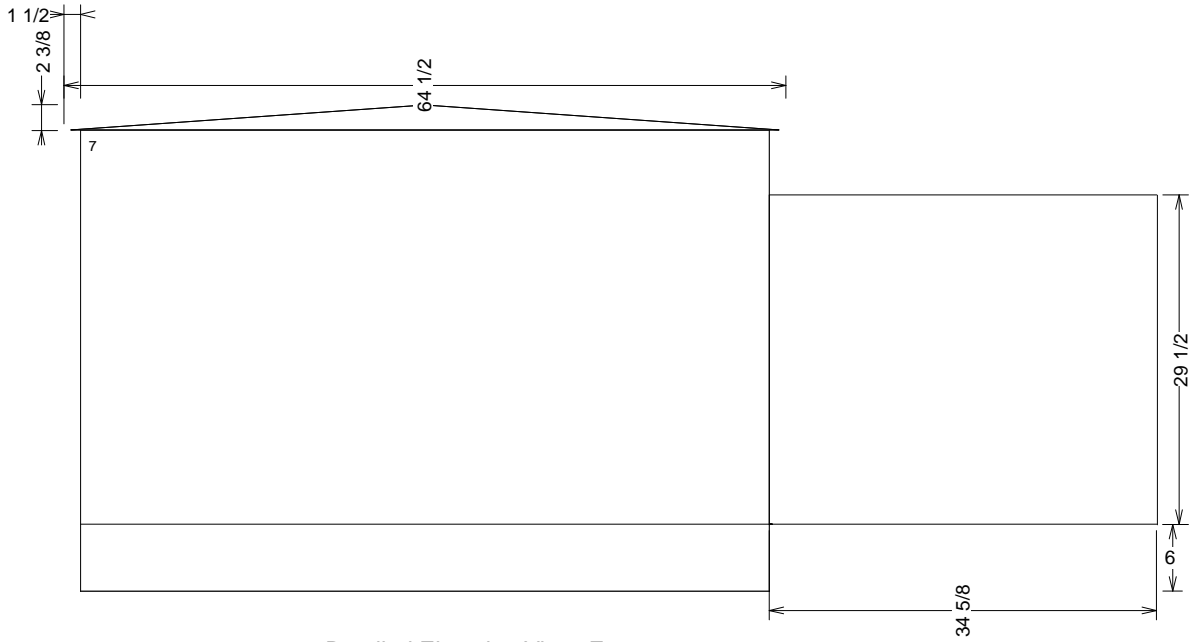
Detailed Elevation View: Left - Measurements in inches

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

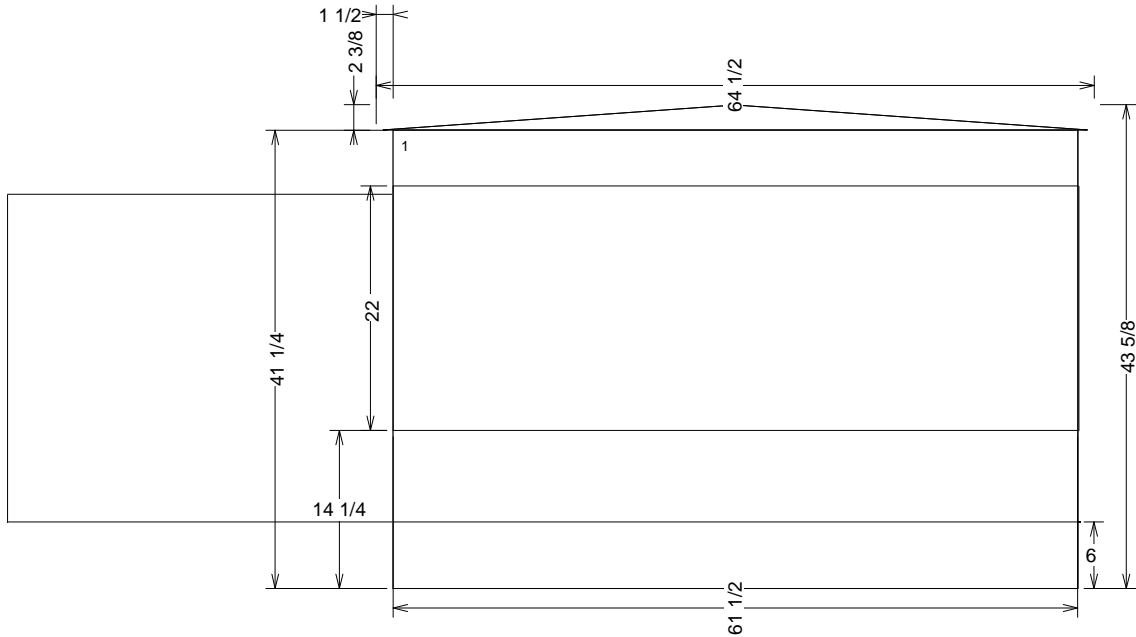
Unit size: 10	Job Name:	Unit Casing: 2in Double Wall	 <b>TRANE</b> Performance Climate Changer™ Air Handlers
Product group: Outdoor unit	Actual airflow: 5000 cfm	Proposal Number:	
Integral base frame: 6in. integral base frame	Sales Office:	Rigging/Installed Weight: 3208.7 lb/ 3539.0 lb	
Paint: Factory painted - slate gray			

**As-Built - CSOA010 Performance Climate Changer™ Rooftop Air Handling Unit**

Qty: 1 Tag(s): OAU-1



Detailed Elevation View: Front - Measurements in inches



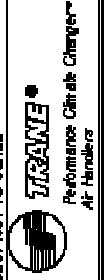
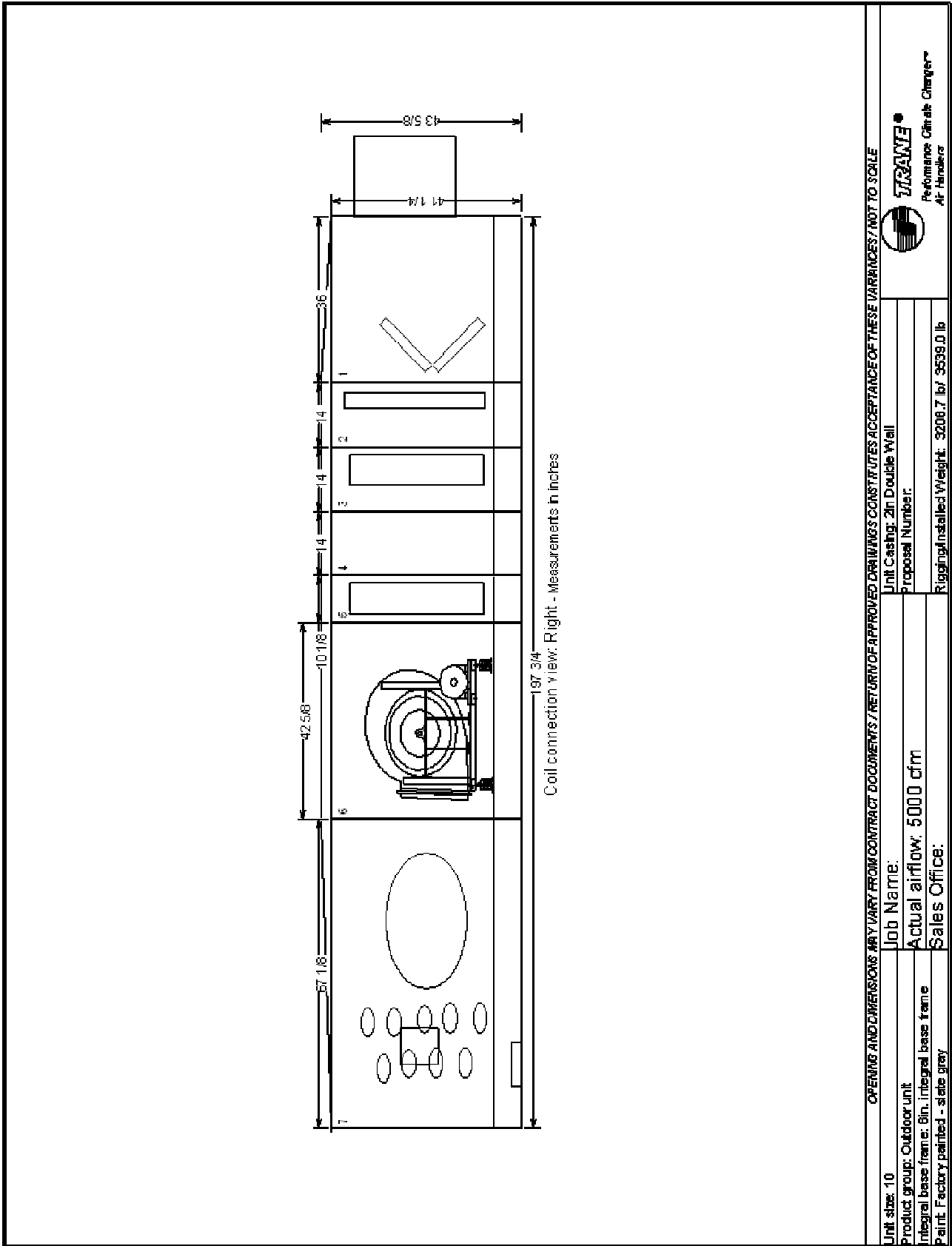
Detailed Elevation View: Back - Measurements in inches

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Unit size: 10	Job Name:	Unit Casing: 2in Double Wall	 <b>TRANE</b> Performance Climate Changer™ Air Handlers
Product group: Outdoor unit	Actual airflow: 5000 cfm	Proposal Number:	
Integral base frame: 6in. integral base frame	Sales Office:	Rigging/Installed Weight: 3208.7 lb/ 3539.0 lb	
Paint: Factory painted - slate gray			

As-Built - CSOA010 Performance Climate Changer™ Rooftop Air Handling Unit

Qty: 1 Tag(s): OAU-1

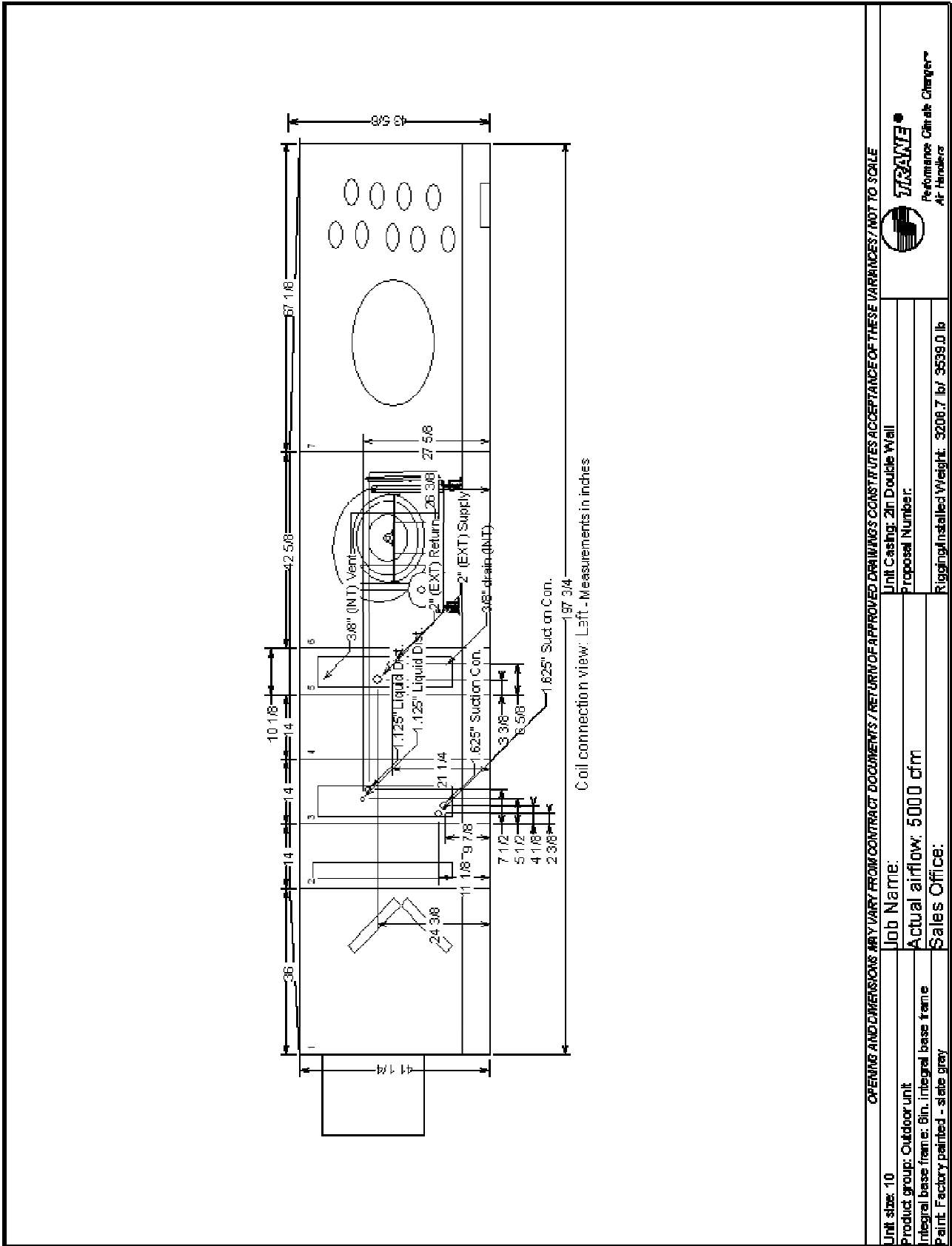


Unit Name:	Unit Casing: 2in Double Wall
Proposed Number:	
Rigging/Installed Weight:	3206.7 lbs/ 3539.0 lb


Unit size: 10	
Product group: Outdoor unit	
Integral base frame: 6in. Integral base frame	
Paint: Factory painted - slate gray	
Job Name:	Actual airflow: 5000 cfm
Sales Office:	

As-Built - CSOA010 Performance Climate Changer™ Rooftop Air Handling Unit

Qty: 1 Tag(s): OAU-1

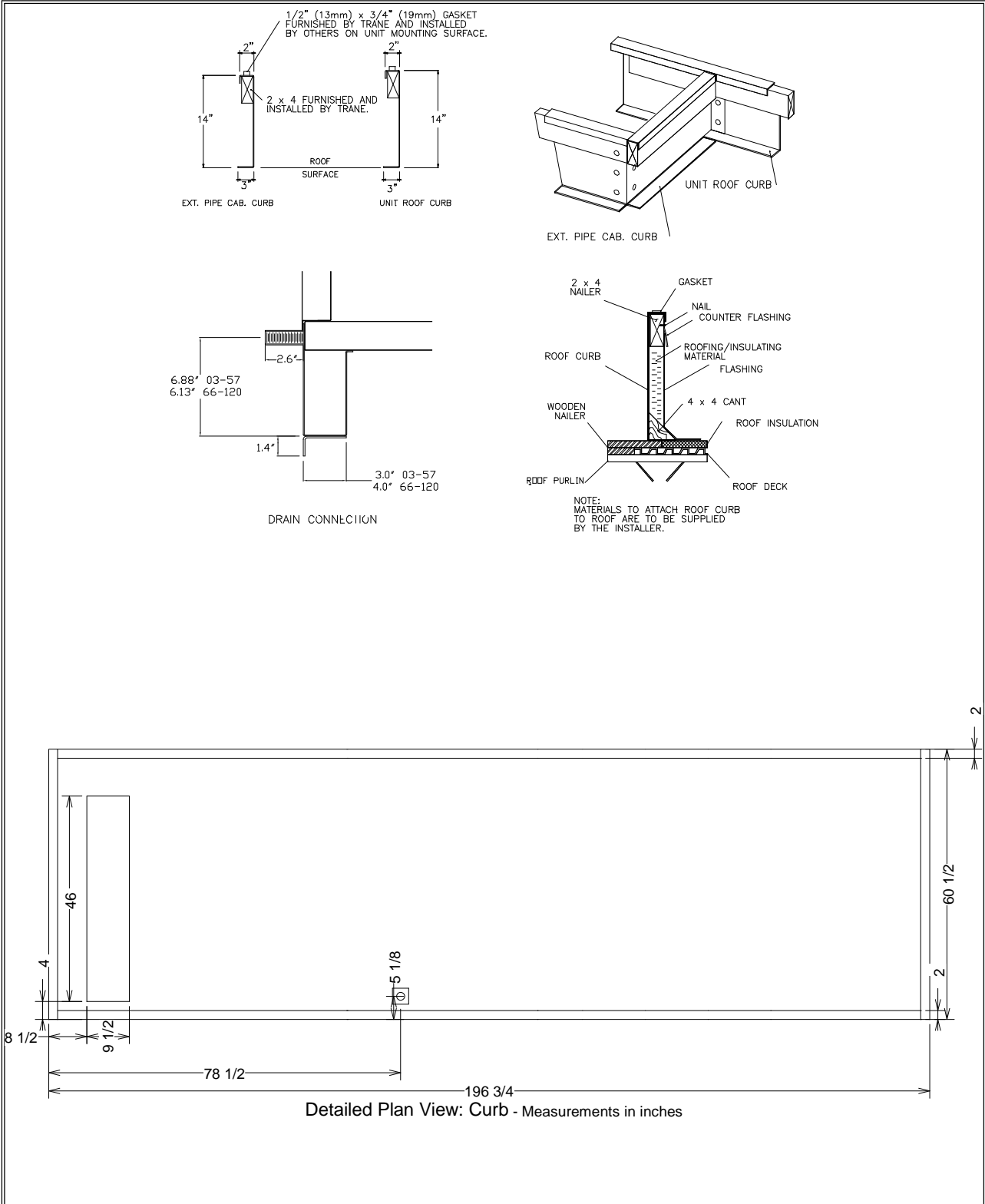


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Unit size: 10	Job Name:	Unit Casing: 2in Double Wall	 Performance Climate Changer™ Air Handlers
Product group: Outdoor unit	Proposed Number:		
Integral base frame: Bln. Integral base frame	Actual airflow: 5000 cfm		
Paint: Factory painted - slate gray	Sales Office:	Rigging/Installed Weight: 3206.7 lbs/ 3539.0 lb	

**As-Built - CSOA010 Performance Climate Changer™ Rooftop Air Handling Unit**

Qty: 1 Tag(s): OAU-1



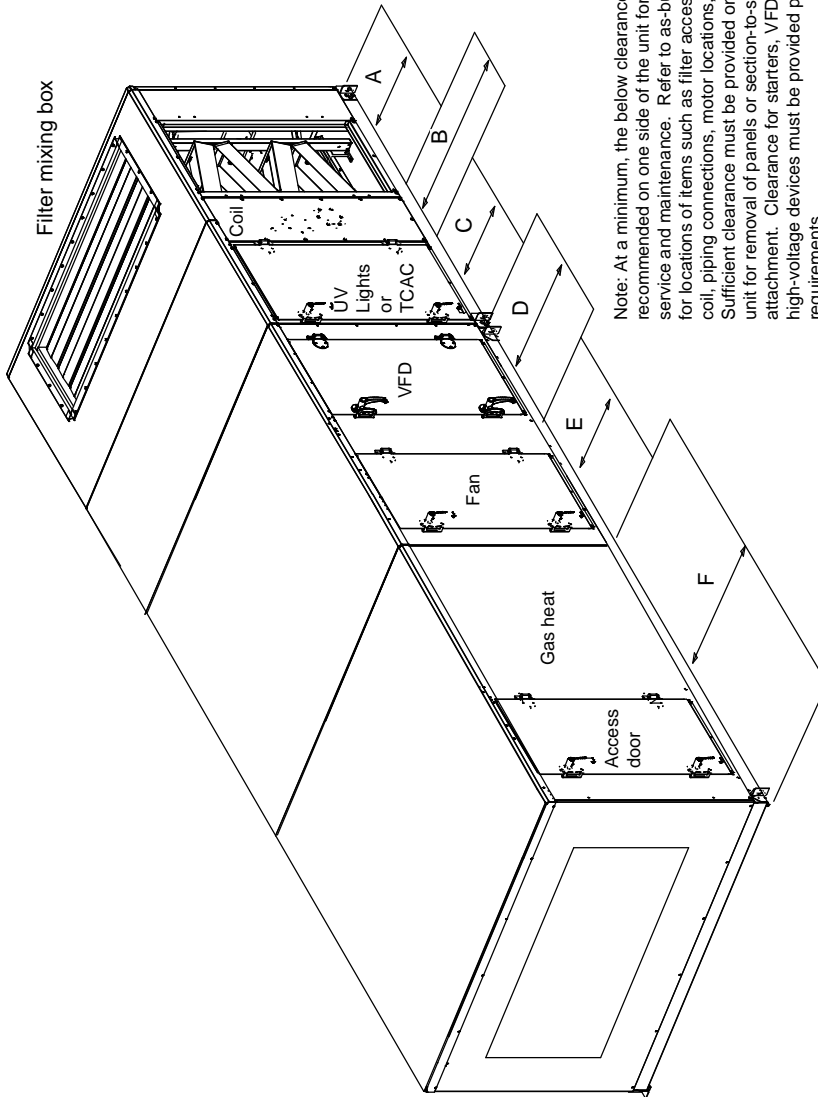
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Product group: Outdoor unit	Actual airflow: 5000 cfm	Proposal Number:	
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Paint: Factory painted - slate gray			



Typical Clearances - CSOA Performance Climate Changer™ Rooftop Air Handling Units

Qty: 4 Tag(s): RTAH-1, RTAH-2, RTAH-3, OAU-1



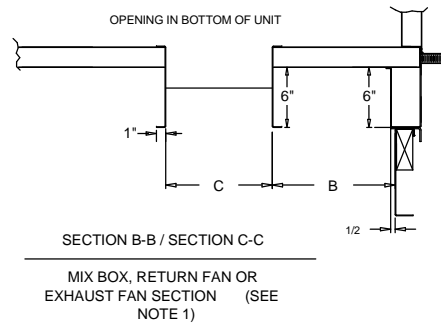
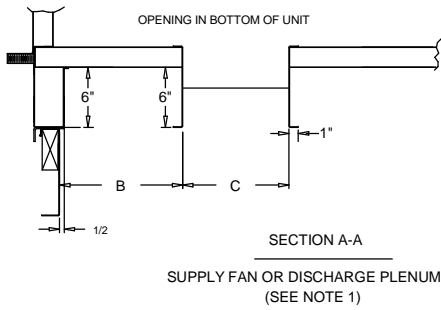
Note: At a minimum, the below clearance dimensions are recommended on one side of the unit for regular service and maintenance. Refer to as-built submittal for locations of items such as filter access doors, coil, piping connections, motor locations, etc. Sufficient clearance must be provided on all 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	35	40	50	57	66	80	100	120
A (filter, gas heat)	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
C (UV Lights)	45	57	57	45	45	57	57	57	57	57	57	57	57	57	57	57	57	57	57
C (TCAC)	43	59	59	63	75	81	83	83	58	58	83	75	83	83	83	83	83	75	83
D (External Starter or VFD - shown)	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

Typical detail - CSOA Performance Climate Changer™ Rooftop Air Handling Units

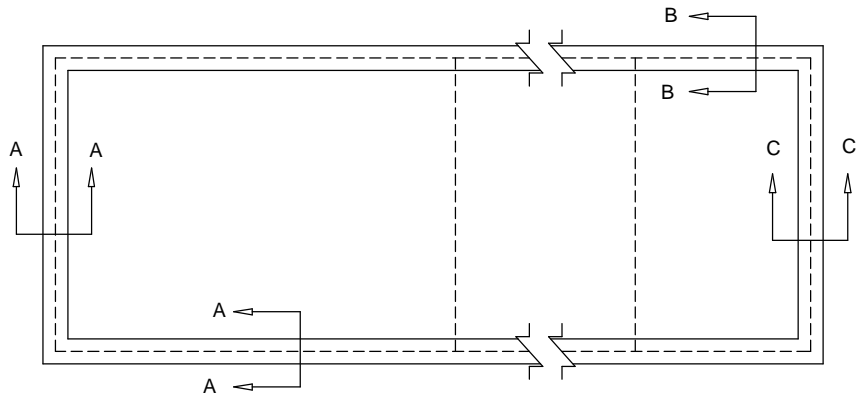
Qty: 4 Tag(s): RTAH-1, RTAH-2, RTAH-3, OAU-1

RELATIONSHIP OF CURB TO UNIT AS-BUILT



NOTE:

1. B and C are representative of dimensions on the accessory as-built used to locate opening(s) in the roof surface.

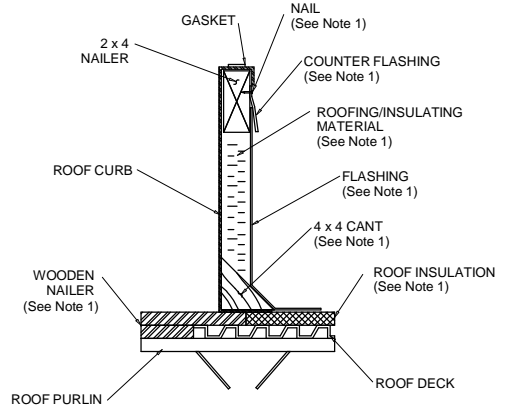
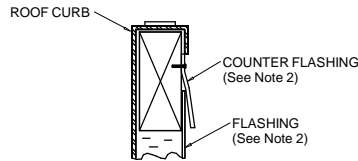
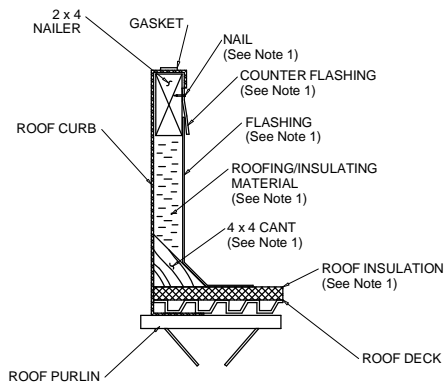


**Typical Detail - CSOA Performance Climate Changer™ Rooftop Air Handling Units**

Qty: 4 Tag(s): RTAH-1, RTAH-2, RTAH-3, OAU-1

**Recommendation for Roof Curb Installation**

Refer to Performance IOM for specific installation instructions

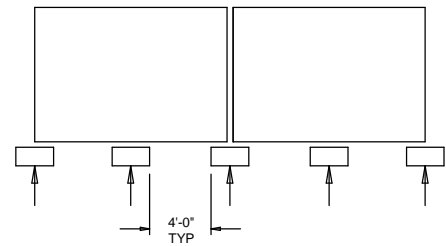
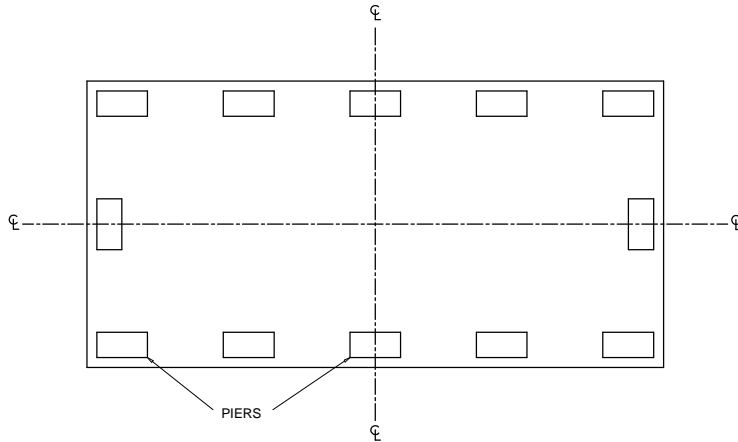


Note:

1. Materials to attach roof curb to roof are to be supplied by the installer.
2. Flashing or counter flashing should not come to or over top of curb.
3. Roof curb must be mechanically fastened to roof surface.

**Recommendation for Pier Mounting**

Refer to Performance IOM for specific installation instructions

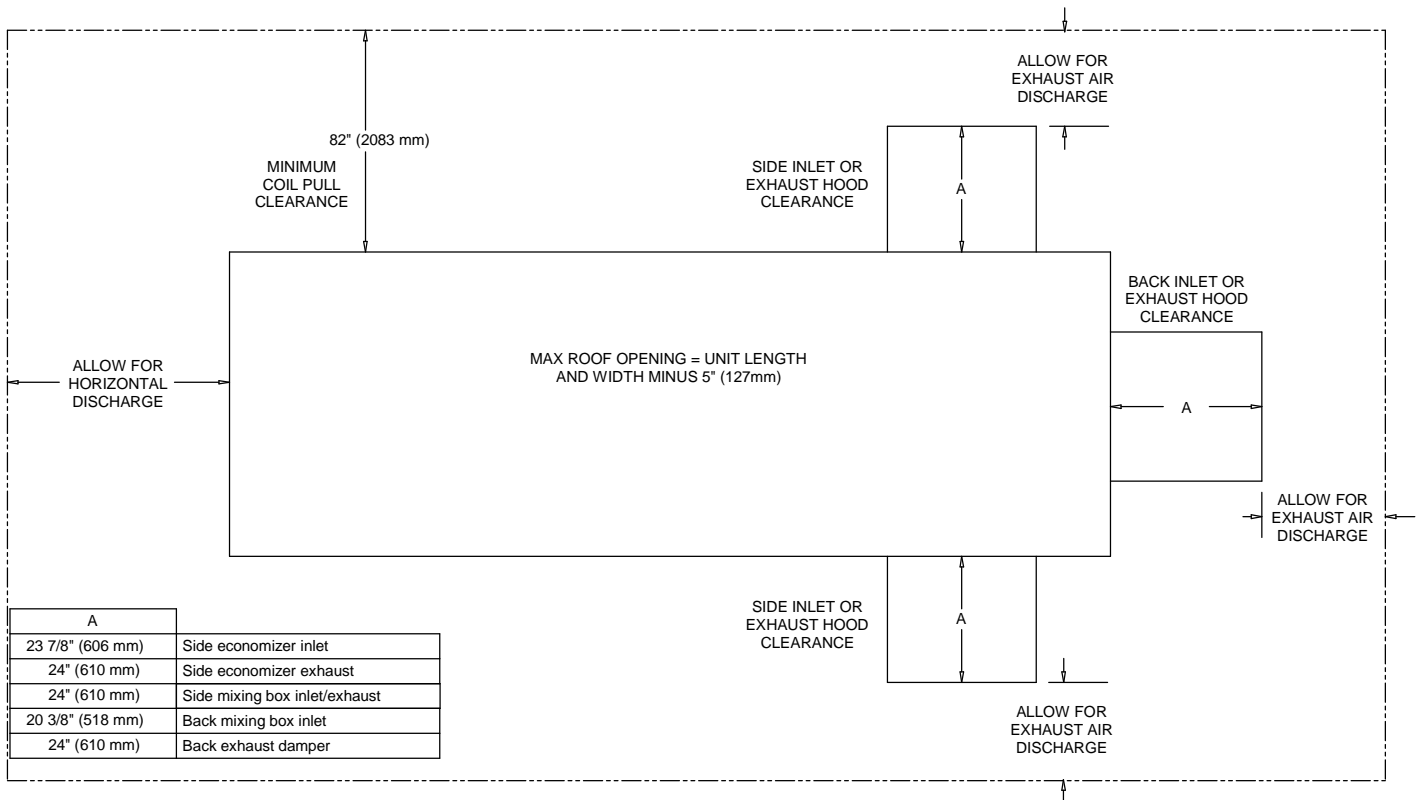


Note:

1. Pier supports should be inside 3" (3 - 50) or 4" (57 - 120) flat of unit base. Unit cannot be supported by unit base drip leg.
2. Pier supports should be no wider than 2 3/4", due to supports perpendicular to airflow.
3. Piers beneath shipping splits must be structurally sound to support the weight of the unit.

Typical Clearances - CSOA012 Performance Climate Changer™ Rooftop Air Handling Unit

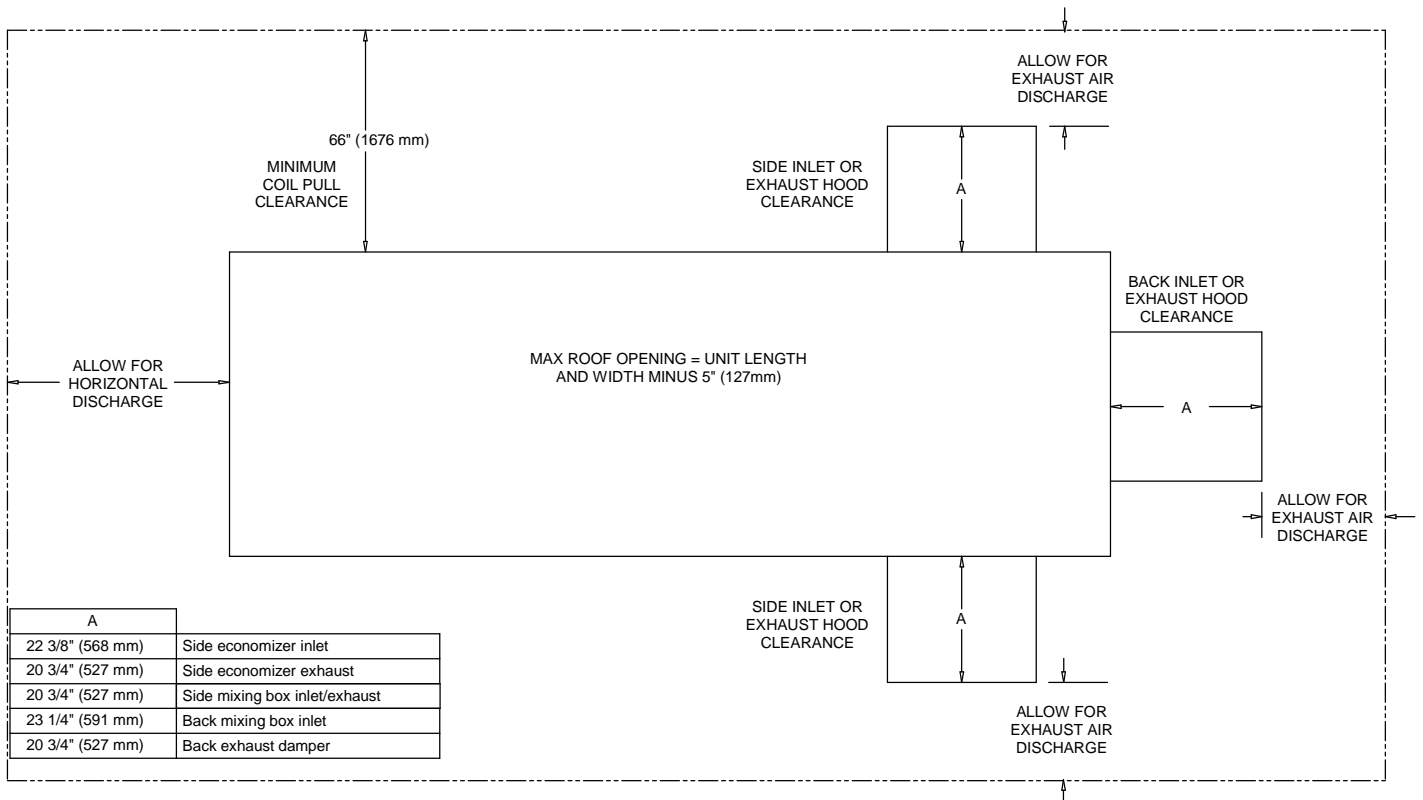
Qty: 1 Tag(s): RTAH-1



A	
23 7/8" (606 mm)	Side economizer inlet
24" (610 mm)	Side economizer exhaust
24" (610 mm)	Side mixing box inlet/exhaust
20 3/8" (518 mm)	Back mixing box inlet
24" (610 mm)	Back exhaust damper

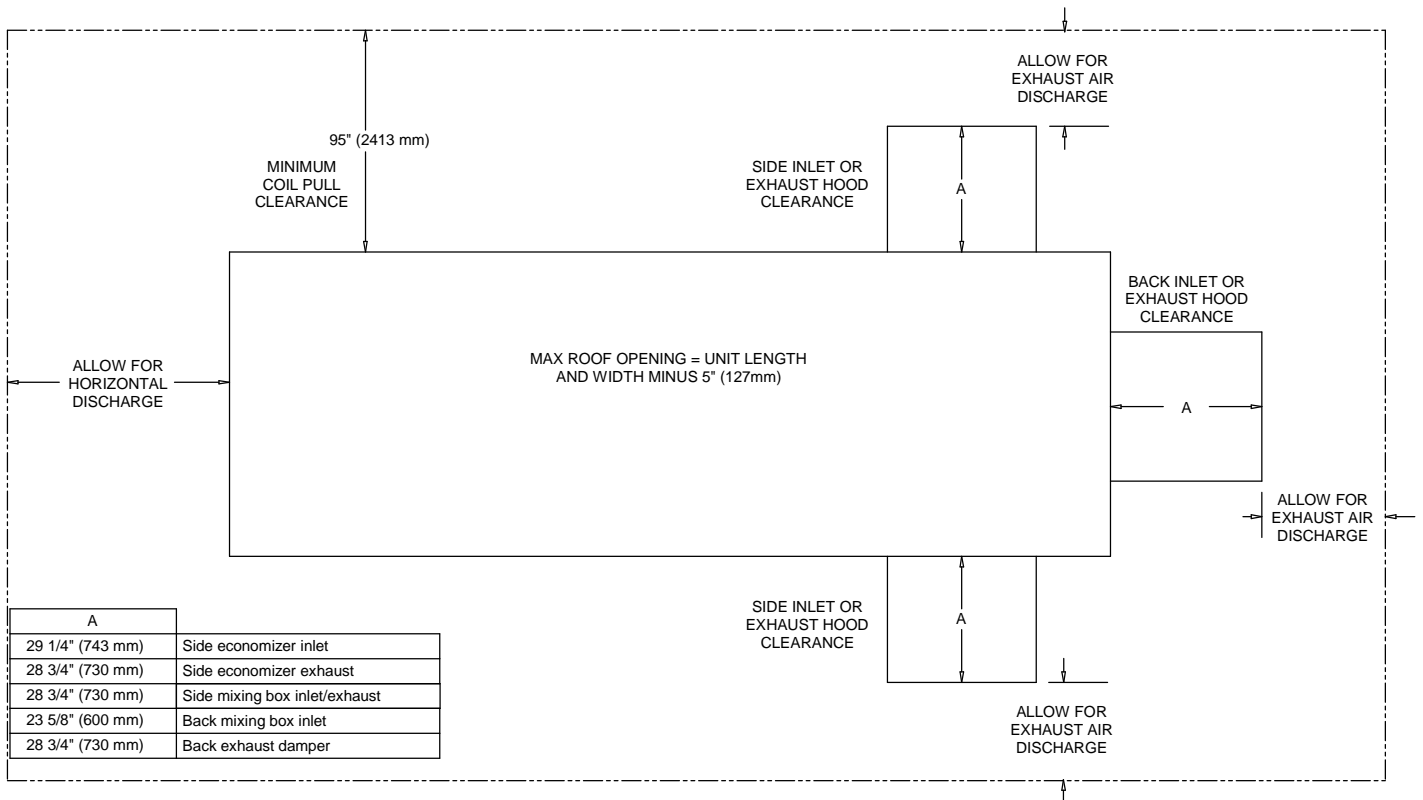
Typical Clearances - CSOA008 Performance Climate Changer™ Rooftop Air Handling Unit

Qty: 1 Tag(s): RTAH-2



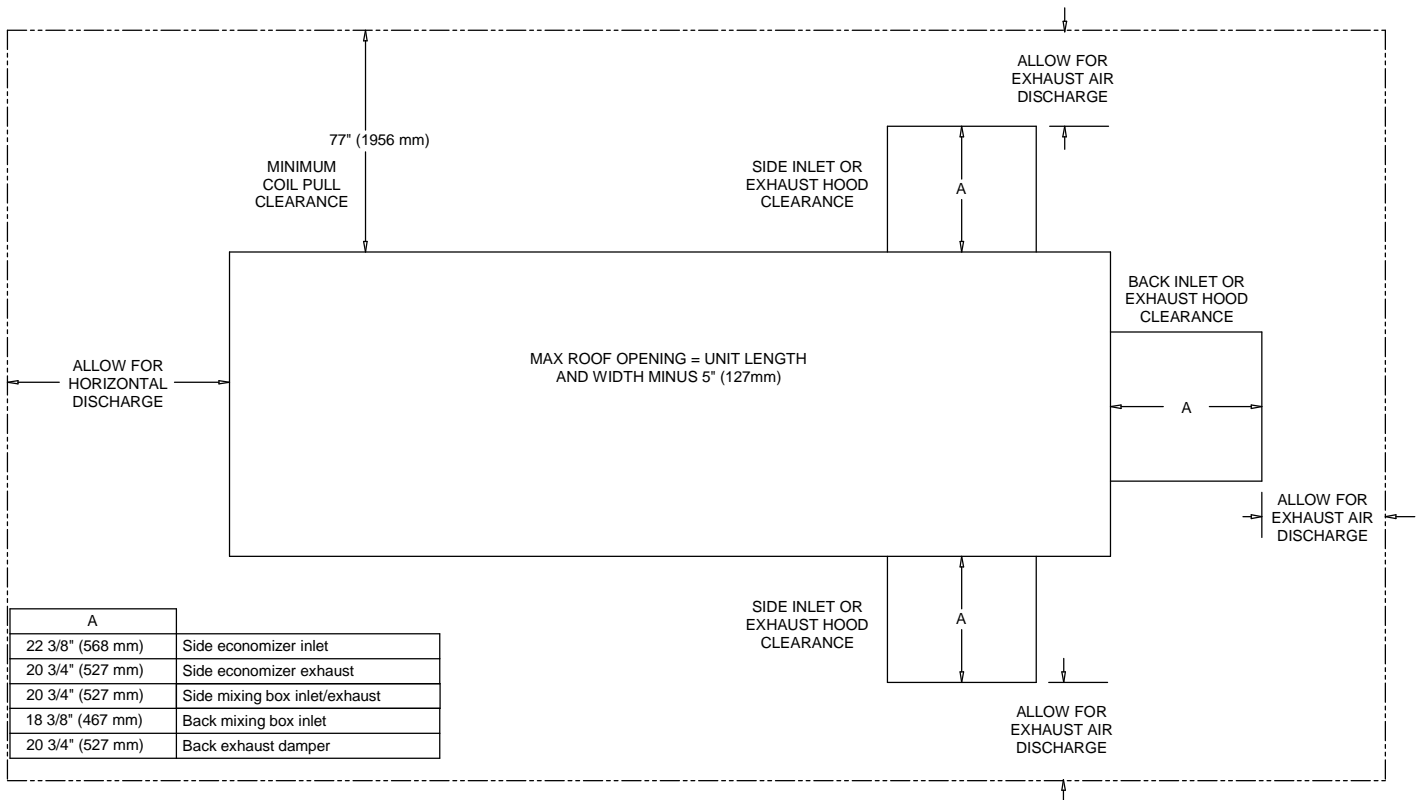
Typical Clearances - CSOA021 Performance Climate Changer™ Rooftop Air Handling Unit

Qty: 1 Tag(s): RTAH-3



Typical Clearances - CSOA010 Performance Climate Changer™ Rooftop Air Handling Unit

Qty: 1 Tag(s): OAU-1



A	
22 3/8" (568 mm)	Side economizer inlet
20 3/4" (527 mm)	Side economizer exhaust
20 3/4" (527 mm)	Side mixing box inlet/exhaust
18 3/8" (467 mm)	Back mixing box inlet
20 3/4" (527 mm)	Back exhaust damper

**Accessory - CSOA Performance Climate Changer™ Rooftop Air Handling Units**

**Filter Schedule**

**Qty: 4 Tag(s): RTAH-1, RTAH-2, RTAH-3, OAU-1**

Unit Tag(s)	Unit Size	Filter Location	Filter Arrangement	Filter Depth	Filter Type	MERV Rating	Filter Quantity	Filter Size
RTAH-1	Unit size 12	Air mixing section [1]	-	2in. filter frame	Pleated media - run set	MERV 8	6	20in.x20in.
		Filter section [2]	Flat filter	4in. filter frame	No prefilter 4in. cartridge-95% eff	- MERV 14	- 6	- 16in.x20in.
RTAH-2	Unit size 8	Air mixing section [1]	-	2in. filter frame	Pleated media - run set	MERV 8	4	20in.x20in.
		Filter section [2]	Flat filter	4in. filter frame	No prefilter 4in. cartridge-95% eff	- MERV 14	- 1 1	- 20in.x24in. 24in.x24in.
RTAH-3	Unit size 21	Air mixing section [1]	-	2in. filter frame	Pleated media - run set	MERV 8	12	16in.x25in.
		Filter section [2]	Flat filter	4in. filter frame	No prefilter 4in. cartridge-95% eff	- MERV 14	- 4 3	- 16in.x25in. 20in.x25in.
OAU-1	Unit size 10	Air mixing section [1]	-	2in. filter frame	Pleated media - run set	MERV 8	4	20in.x25in.
		Filter section [2]	Flat filter	4in. filter frame	No prefilter 4in. cartridge-95% eff	- MERV 14	- 1 2	- 16in.x25in. 20in.x25in.



**Field Wiring - CSOA Performance Climate Changer™ Rooftop Air Handling Units****MCA MOP Schedule****Qty: 4 Tag(s): RTAH-1, RTAH-2, RTAH-3, OAU-1**

Unit Tag(s)	Circuit	Circuit Description	Voltage/Phase/Hz	MCA (A)	MOP (A)
RTAH-1, RTAH-2	1	Supply fan motor(s)	460/3/60	9.50	17.10
	2	Gas heat	115/1/60	16.30	29.34
	3	Receptacle	115/1/60	10.00	18.00
RTAH-3	1	Supply fan motor(s)	460/3/60	19.00	34.20
	2	Receptacle	115/1/60	10.00	18.00
OAU-1	1	Supply fan motor(s)	460/3/60	13.75	24.75
	2	Gas heat	115/1/60	16.30	29.34
	3	Receptacle	115/1/60	10.00	18.00