



Submittal

Prepared For:
Superior Mechanical
Attn: Ben Wyke

Date: October 10, 2022

Engineer:
US Army Corps of Engineers
Joel Rutledge, P.E.

Job Name:
MATOC SRM 81st Readiness Div NC009 HVAC Reset
500 Wilshire Avenue SW
Concord, NC 28025

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

Product Summary

Qty Product

1 Performance Climate Changer (UCCA)

Notes:

1. This submittal is based on specifications and mechanical drawings sealed 7-13-2022.
2. The mechanical contractor shall verify / confirm piping locations, clearance requirements and access door locations and note any discrepancies / changes on the returned submittal.
3. The fan motor is compatible with VFD and shall be provided with shaft grounding ring. All unit controls (space and unit sensors, unit controller, damper actuators, etc...) shall be provided and installed by others.
4. The preheat entering air temperature is less than tube-side liquid freeze point. In the event of a pump failure or during idol periods the heating coil does not have adequate freeze protection.
5. All electrical requirements shall be coordinated / confirmed with the electrical contractor prior to ordering equipment.
6. The following items are not included unless otherwise noted:
 - Chilled or hot water valves*
 - Electrical disconnects*
 - Mounting pads*
 - Seismic restraints*

Jeff Auten
Trane U.S. Inc.
4501 South Tryon Street
Charlotte, NC 28217
Office Phone: (704) 525-9600

The attached information describes the equipment we propose to furnish for this project and is submitted for your approval.
Submittal acceptance and return is a critical step, so please ensure submittals are returned with approval to release to production within 14 days of submittal date.

Table of Contents

Product Summary	1
Performance Climate Changer (UCCA) (Item A1)	3
Tag Data	3
Product Data.....	3
Performance Data.....	4
Mechanical Specifications	5
Dimensional Drawings	8
Fan Curve	16
Accessory	17
Field Wiring.....	20

Tag Data - Performance Climate Changer (UCCA) (Qty: 1)

Item	Tag(s)	Qty	Description	Model Number
A1	DOAS-01	1	Performance Climate Changer (UCCA)	UCCA06A0F0FBL92000000DD888FD0000020B000

Product Data - Performance Climate Changer (UCCA)

Item: A1 Qty: 1 Tag(s): DOAS-01

Performance climate changer indoor unit (UCCA)

Horizontal direct drive fan with top front discharge

Unit size 6

200-208 volts, 60 hertz, 3 phase

Stainless steel drain pan, left hand coil / left hand motor & drive location

1 row preheat hydronic coil with 12 fins per inch

6 row hydronic cooling coil with 9 fins per inch

Aluminum fins, galvanized coil casing, 3/8" coils; with extended drain and vent

Terminal block plus starter or disconnect

3 horsepower motor per fan (supply)

Direct drive plenum fan w/VFD and shaft grounding

88 Hz / 2614 RPM

2" / 4" combo filter mixing section

2" MERV 8 / 4" MERV 13 filters

Access section with coil

Performance Data - Performance Climate Changer (UCCA)

Tags	DOAS-01
Design airflow (cfm)	1975
Total cooling capacity (MBh)	145.50
Sensible capacity (MBh)	57.51
Main coil system type	Hydronic
Fluid type	Water
Fluid volume (gal)	3.02
Preheat fluid volume (gal)	0.98
Cooling EDB (F)	81.40
Cooling EWB (F)	76.11
Cooling LDB (F)	55.32
Cooling LWB (F)	55.02
Cooling ent fluid temp (F)	44.00
Cooling lvg fluid temp (F)	56.43
Cooling flow rate (gpm)	23.34
Cooling fluid PD (ft fluid)	5.43
Cooling face velocity (ft/min)	359
Fluid freeze pt (F)	32.00
Heating ent fluid temp (F)	120.00
Preheat fluid type	Water
Total preheat capacity (MBh)	71.54
Preheat coil performance airflow (cfm)	1975
Preheat EAT (F)	21.60
Preheat LAT (F)	55.00
Preheat ent fluid temp (F)	120.00
Preheat lvg fluid temp (F)	100.63
Preheat flow rate (gpm)	7.40
Preheat fluid PD (ft fluid)	0.82
Preheat coil face velocity (ft/min)	359
Preheat fluid freeze pt (F)	32.00
Supply fan ESP (in H2O)	2.200
Supply fan TSP (in H2O)	4.177
Supply fan quantity (Each)	1.00
Supply total brake hp per fan (hp)	2.240
Supply fan speed (rpm)	2622
Cooling APD (in H2O)	0.464
Preheat APD (in H2O)	0.068
Filter/Mixing section APD (in H2O)	1.313
Outlet velocity (ft/min)	1030
Unit full load amps (A)	15.70
Unit max fuse size (A)	30.00
Unit min circuit ampacity (A)	19.50
Supply VFD panel amps (A)	15.20
Installed weight (lb)	1046.3
Rigging weight (lb)	1012.8
Cooling fluid velocity (ft/s)	3.18
Preheat fluid velocity (ft/s)	2.02
Reynolds number preheat coil (Each)	9714.09
Reynolds number cooling coil (Each)	7060.08

Mechanical Specifications - Performance Climate Changer (UCCA)

Item: A1 Qty: 1 Tag(s): DOAS-01

GENERAL**Lifting Instructions**

Performance Climate Changer air handlers must be rigged, lifted, and installed in strict accordance with the Installation, Operation, and Maintenance manual (CLCH-SVX009A-EN) for UCCA air handlers. The units are also to be installed in strict accordance with the specifications.

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

Installing contractor is responsible for long term storage in accordance with the Installation, Operation, and Maintenance manual (CLCH-SVX009A-EN). Unit shall be UL and C-UL Listed.

Where applicable air-handling performance data shall be certified in accordance with AHRI Standard 430. For units with housed fans or single direct drive plenum fans, fans shall be certified as complying with AHRI Standard 430. Air handling units with multiple direct drive plenum fans, or direct drive plenum fans incorporated with ECM style motors are outside the scope of AHRI 430. These fans however are rated in accordance with AHRI 430.

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

Casing Construction

All unit panels shall be 2-inch solid, double-wall construction to facilitate cleaning of unit interior. All exterior and interior AHU panels will be made of galvanized steel. Motor and drive locations can be on the same side as the unit coil connections or on the opposite side. The casing shall be able to withstand up to 6" w.g. positive or negative static pressure. The unit panels shall not exceed .005 inch deflection per inch of panel span at 6" w.g. positive or negative static pressure.

Floor Construction

The unit floor shall be of sufficient strength to support a 300.0 lb load during maintenance activities and shall deflect no more than .005 inch per inch of panel span when sitting on a support structure.

Insulation

Panel insulation shall provide a minimum thermal resistance (R) value of 13 ft²*h*°F/Btu throughout the entire unit. Insulation shall completely fill the panel cavities in all directions so that no voids exist and settling of insulation is prevented. Panel insulation shall comply with NFPA 90A.

Drain Pan

All units shall be provided with an insulated assembly of polymer material or stainless steel. 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 connections shall be visible external to the unit.

Access Door Construction

Access doors shall be 2-inch double-wall construction. Interior and exterior door panels shall be of the same construction as the interior and exterior wall panels, respectively. Surface-mounted handles shall be provided to allow quick access to the interior of the unit. Handle hardware shall be designed to prevent unintended closure. Access doors shall be hinged and removable for quick, easy access. Door handle hardware shall be adjustable and visually indicate locking position of door latch external to the section.

Mixing Section

A mixing section shall be provided capable of supporting the damper assembly for outside air, return air, or both air paths. See plans for required damper(s).

Dampers

Factory supplied damper(s) shall be fully modulating. The damper(s) shall be of double-skin airfoil design with metal, compressible jamb seals and flexible blade-edge seals on all blades. The blades shall rotate on stainless-steel sleeve

bearings. The damper(s) shall be rated for a maximum leakage rate of 3 cfm/ft² at 1 in. w.g. complying with ASHRAE 90.1 maximum damper leakage. All leakage testing and pressure ratings shall be based on AMCA Standard 500-D. Dampers may be arranged in a parallel 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.

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 manufacturer shall supply a side access filter rack capable of holding 4 inch high efficiency filters.

The 4 inch high efficiency filters shall have a MERV 13 rating when tested in accordance with the ANSI/ASHRAE Standard 52.2.

Coil Section

The coil section shall be provided complete with coil and coil holding frame. The coils shall be installed such that headers and return bends are enclosed by unit casings. The drainpan 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

Hydronic coils have W round seamless copper tubes mechanically bonded to coil fins. Coil fins are aluminum with full fin collars that provide maximum fin-tube contact and accurate spacing. Coils are available with 9, 12, and 14 fins per inch. Manufacturer shall not allow selections where moisture carryover could occur at design conditions. For hydronic coils used in a two-pipe system, the unit manufacturer shall provide performance data in both the cooling and heating mode.

Hydronic coils used as heating only will be available in one or two-row configurations. Hydronic coils used as cooling only will be available in four, six, or eight-row configurations. Multi-row hydronic coils have continuous tube circuits arranged for counterflow (water flow counter to the direction of unit airflow). The coil casing may be galvanized or stainless steel. Coils have round seamless copper pipe headers with NPT external thread steel pipe connections. Coils have one vent and one drain connection consisting of 3/8" NPT internal thread copper adapter with steel square head pipe plug. Supply and return connections are located outside the unit casing (on the same side of the unit) and are clearly labeled to facilitate field piping. Coils are proof-tested to 450 psig and leak-tested under water to 300 psig. Maximum standard operating conditions are 300 psig and 200F. 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.

Access Section with Coil

Unit(s) shall include a separate section housing a coil section and access section as one assembly. Refer to drawings to determine which unit(s) include the additional section. Section shall include a stainless steel drainpan and an access door of sufficient size to allow for visual inspection of the leaving face of the first coil in the airstream (if ordered) and entering face of the second coil in the airstream (if ordered). Access door shall be of the same construction as all other doors on the unit.

Fans selected with shaft grounding shall have a maintenance free grounding assembly installed on the fan motor to discharge both static and induced shaft currents to ground.

Direct Drive Plenum Fan Section

The fan shall be a single-width, single-inlet, 10-bladed direct-drive plenum fan. The fan shall consist of a backward-curved, welded steel wheel. Motor bearing life of the direct-drive plenum fan shall be not less than L-10 250,000 hrs. Units containing multiple fans shall be controlled using a common control signal, such as the duct static control signal, to modulate the fan speed.

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.*

Fan Isolation

Belt driven housed fans and direct drive plenum fans with integral frame motors shall be internally isolated to inhibit noise and vibration through the ductwork and building structure. A flexible connection shall be installed between the fan and unit casing to ensure complete isolation. Fan and motor shall be internally isolated with spring isolators. Flexible connection shall comply with NFPA 90A and UL 181 requirements.

VFD

A Variable Frequency Drive (VFD) shall be provided when variable air volume control is required for fan operation. Whether for single fan, or dual fan applications, a single VFD shall be provide to ensure proper operation and to optimize operating life. Each VFD shall be properly sized, factory mounted, wired to the fan motor, and commissioned to facilitate temporary heating, cooling, ventilation, and/or timely completion of the project. The VFD package shall also include:

- a) Electronic manual speed control
- b) Inlet fuses to provide maximum protection against inlet short circuit
- c) Current limited stall prevention
- d) Auto restart after momentary power loss
- e) Speed search for starting into rotating motor
- f) Anti-windmill w/DC injection before start
- g) Phase-to-phase short circuit protection
- h) Ground fault protection

Units with factory-mounted controls shall include power wiring from the VFD panel to the control system, binary output on/off wiring, analog output-speed-signal wiring, binary fault signal wiring and all interfacing wiring between the VFD and the direct control interface.

The VFD shall be covered by UL1995 Standards.

Control Interface

A control interface is available that includes:

- Fan motor disconnect switch
- Transformer(s)
- Customer terminal strip for field-provided controls
- For a control interface without a VFD, it will also include a starter with a motor overload and a motor contactor.
- For a control interface with a VFD, it will not include a starter.

Also, various end device options are available with the control interface wired to a terminal strip. Binary end device options include:

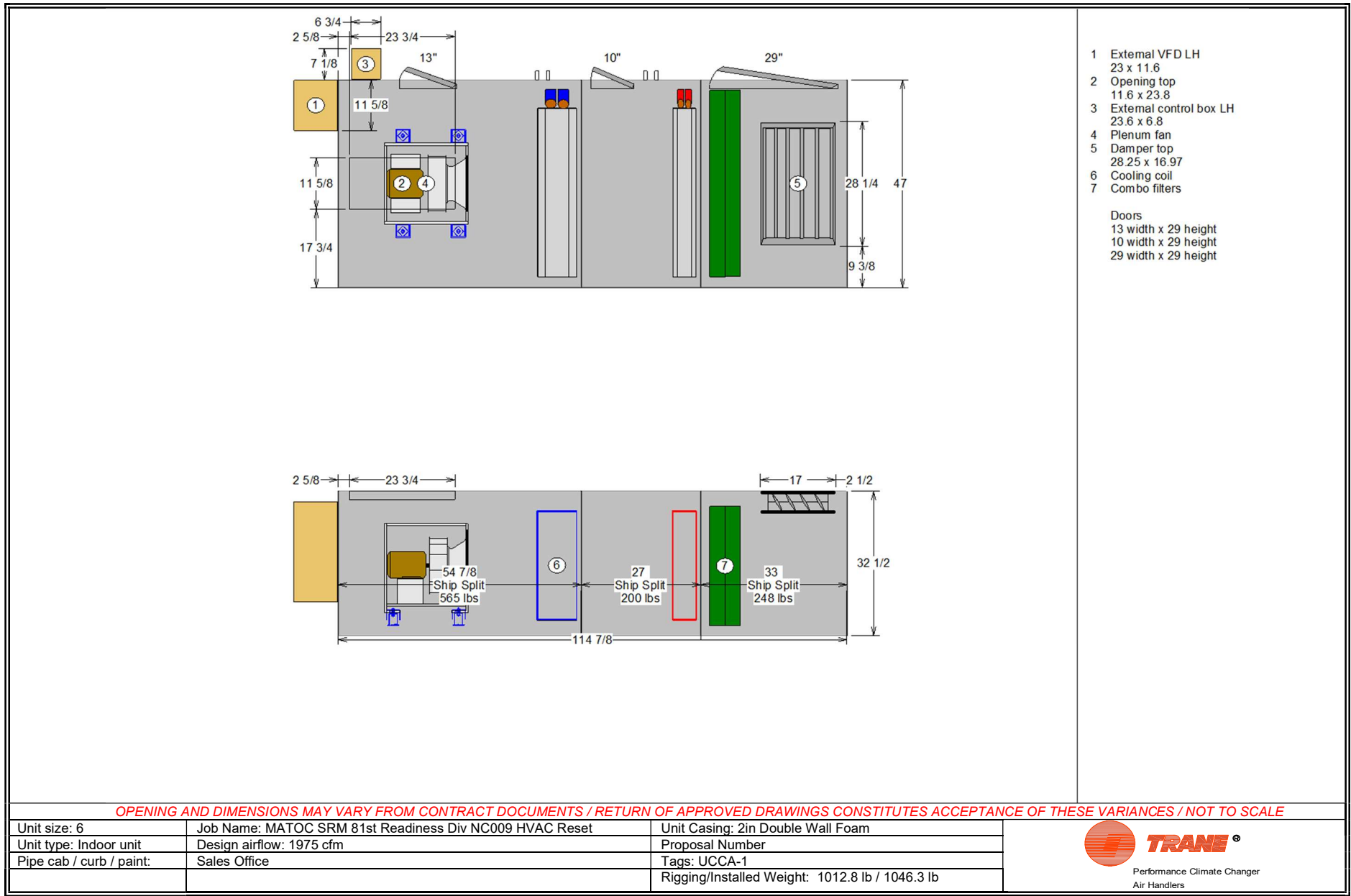
- Low limit protection
- Condensate overflow switch
- Fan status switch
- Filter status switch

Analog end device options are:

- Discharge air sensor
- Mixed air sensor
- Return air sensor
- Damper actuator

Dimensional Drawings - Performance Climate Changer (UCCA)

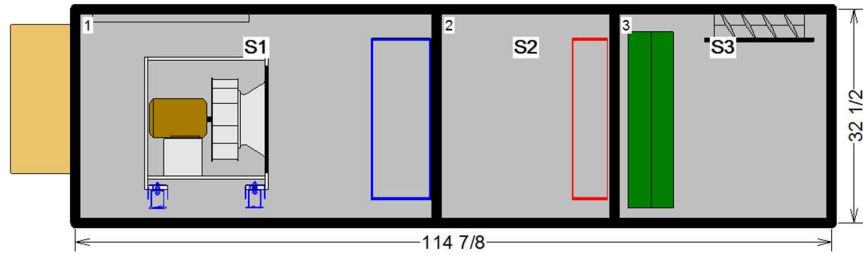
Item: A1 Qty: 1 Tag(s): DOAS-01



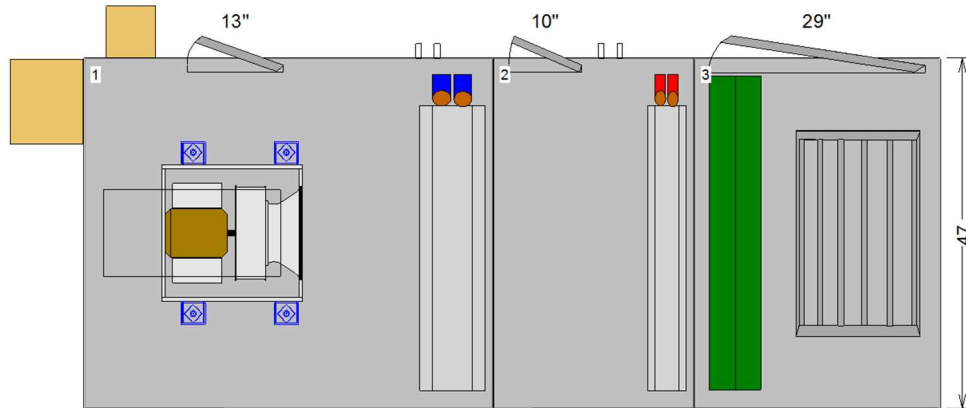
- 1 External VFD LH
23 x 11.6
 - 2 Opening top
11.6 x 23.8
 - 3 External control box LH
23.6 x 6.8
 - 4 Plenum fan
 - 5 Damper top
28.25 x 16.97
 - 6 Cooling coil
 - 7 Combo filters
- Doors
 13 width x 29 height
 10 width x 29 height
 29 width x 29 height

Dimensional Drawings - Performance Climate Changer (UCCA)

Item: A1 Qty: 1 Tag(s): DOAS-01



Pos #	Module	Length	Weight
1	Base Unit	54 7/8	565.30
2	Coil Access Section	27	199.80
3	Filter / mixing / econ section	33	247.70
		Installed Unit Weight 1012.80 lbs	



Basic Overall Plan View: Top - Measurements in inches

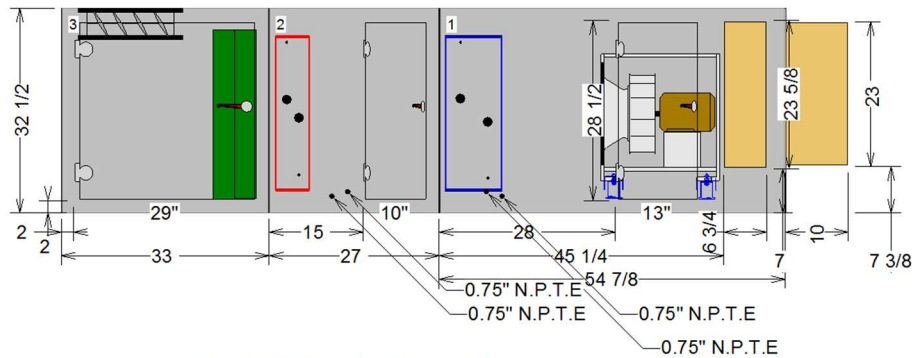
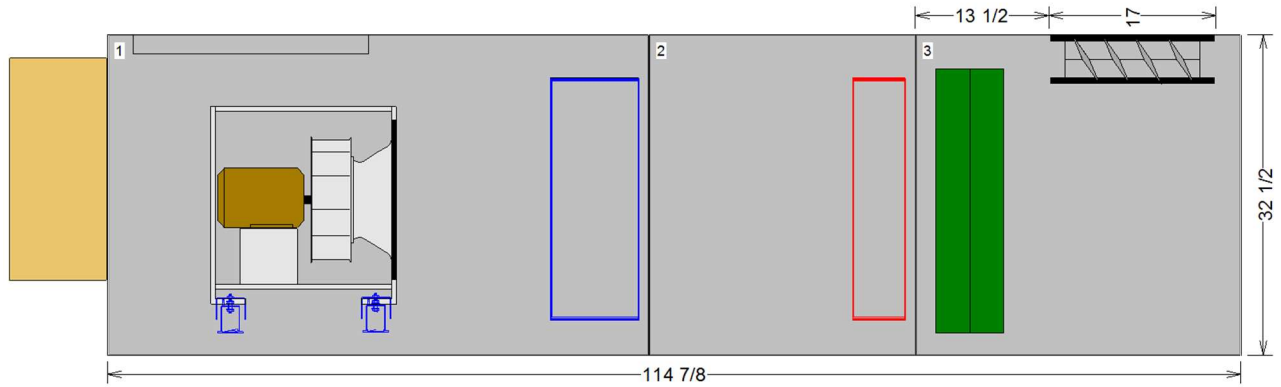
OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size: 6	Job Name: MATOC SRM 81st Readiness Div NC009 HVAC Reset	Unit Casing: 2in Double Wall Foam
Unit type: Indoor unit	Design airflow: 1975 cfm	Proposal Number
Pipe cab / curb / paint:	Sales Office	Tags: UCCA-1
		Rigging/Installed Weight: 1012.8 lb / 1046.3 lb



Dimensional Drawings - Performance Climate Changer (UCCA)

Item: A1 Qty: 1 Tag(s): DOAS-01



Detailed Elevation View: Left - Measurements in inches

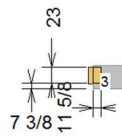
OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size: 6	Job Name: MATOC SRM 81st Readiness Div NC009 HVAC Reset	Unit Casing: 2in Double Wall Foam
Unit type: Indoor unit	Design airflow: 1975 cfm	Proposal Number
Pipe cab / curb / paint:	Sales Office	Tags: UCCA-1
		Rigging/Installed Weight: 1012.8 lb / 1046.3 lb

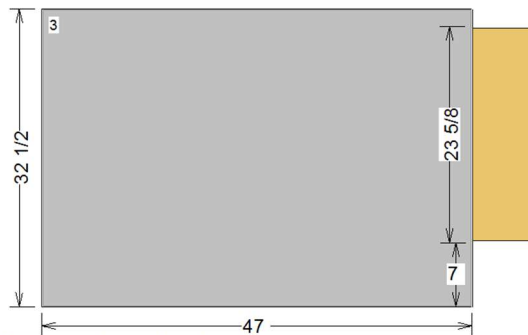


Dimensional Drawings - Performance Climate Changer (UCCA)

Item: A1 Qty: 1 Tag(s): DOAS-01



Detailed Elevation View: Front - Measurements in inches



Detailed Elevation View: Back - Measurements in inches

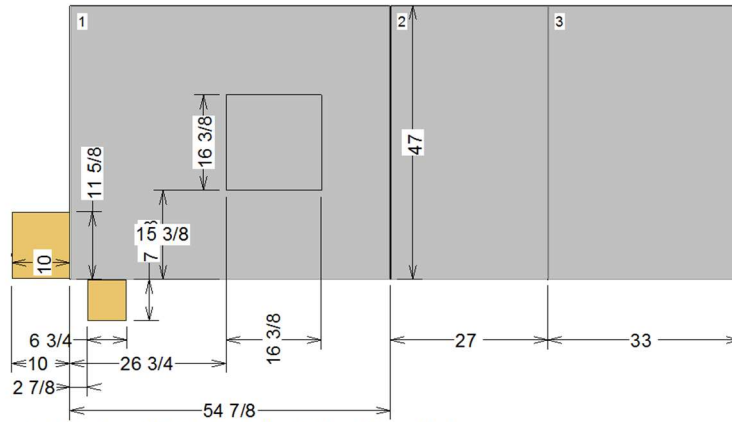
OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size: 6	Job Name: MATOC SRM 81st Readiness Div NC009 HVAC Reset	Unit Casing: 2in Double Wall Foam
Unit type: Indoor unit	Design airflow: 1975 cfm	Proposal Number
Pipe cab / curb / paint:	Sales Office	Tags: UCCA-1
		Rigging/Installed Weight: 1012.8 lb / 1046.3 lb

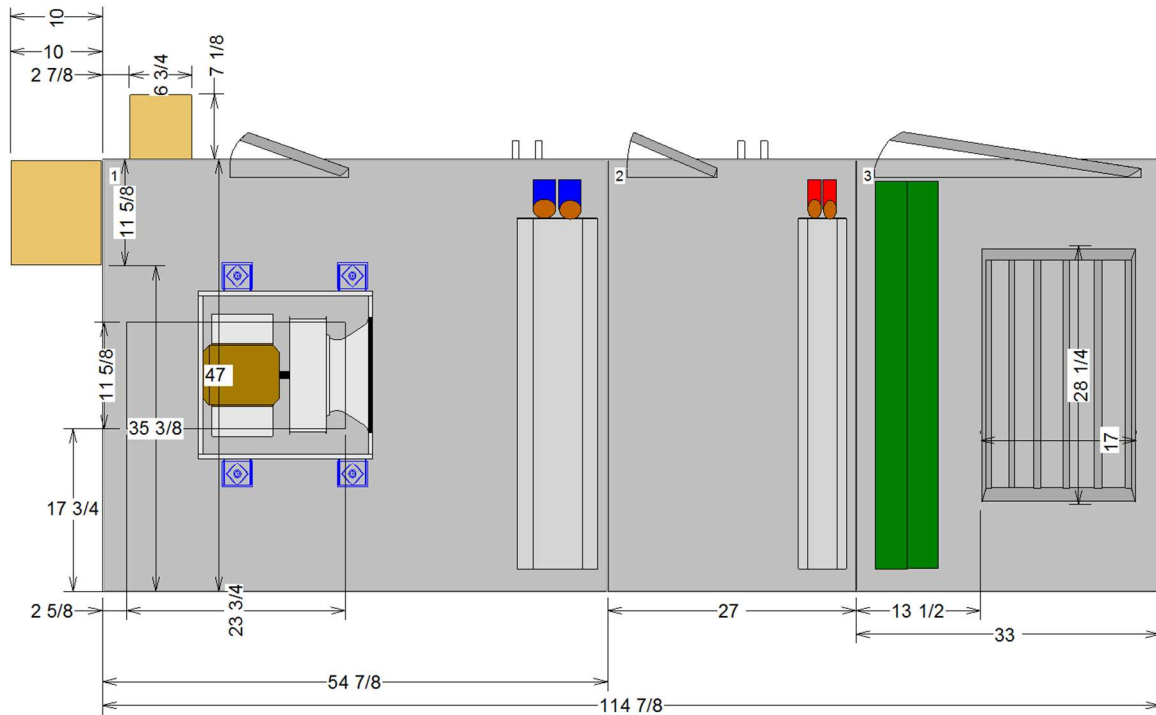


Dimensional Drawings - Performance Climate Changer (UCCA)

Item: A1 Qty: 1 Tag(s): DOAS-01



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



Right Side of Unit

Detailed Plan View: Top - Measurements in inches

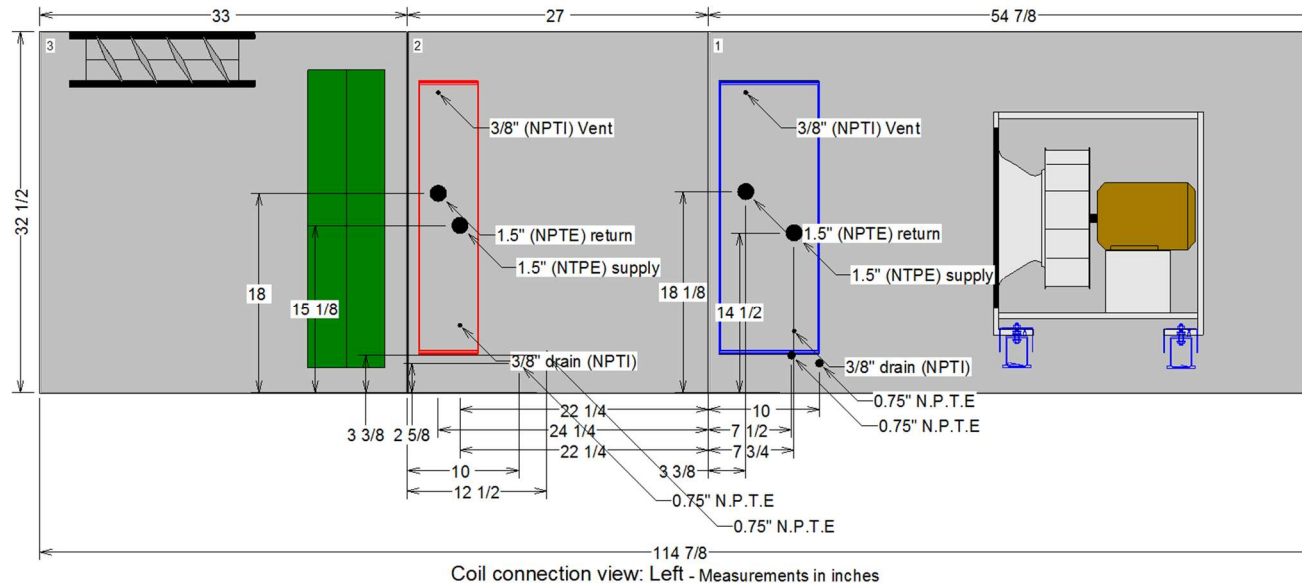
OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size: 6	Job Name: MATOC SRM 81st Readiness Div NC009 HVAC Reset	Unit Casing: 2in Double Wall Foam
Unit type: Indoor unit	Design airflow: 1975 cfm	Proposal Number
Pipe cab / curb / paint:	Sales Office	Tags: UCCA-1
		Rigging/Installed Weight: 1012.8 lb / 1046.3 lb



Dimensional Drawings - Performance Climate Changer (UCCA)

Item: A1 Qty: 1 Tag(s): DOAS-01



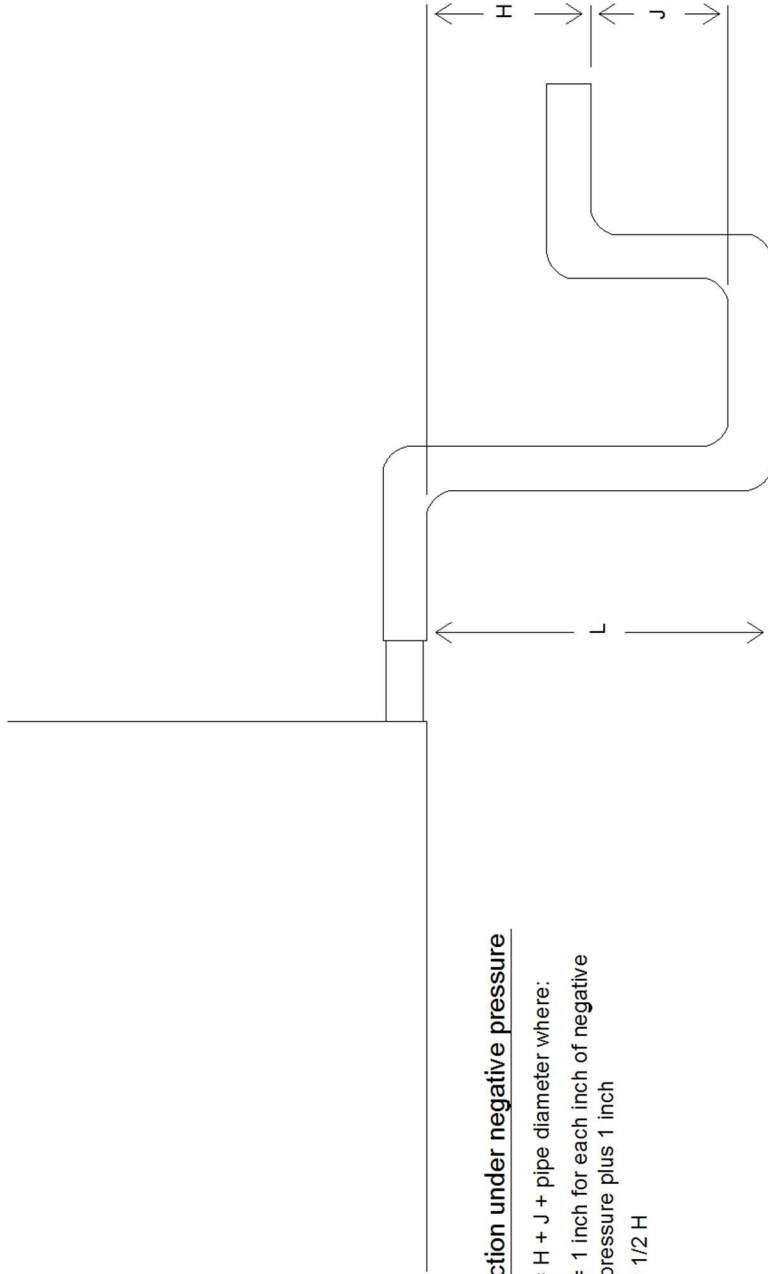
OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size: 6	Job Name: MATOC SRM 81st Readiness Div NC009 HVAC Reset	Unit Casing: 2in Double Wall Foam
Unit type: Indoor unit	Design airflow: 1975 cfm	Proposal Number
Pipe cab / curb / paint:	Sales Office	Tags: UCCA-1
		Rigging/Installed Weight: 1012.8 lb / 1046.3 lb



Dimensional Drawings - Performance Climate Changer (UCCA)
 Item: A1 Qty: 1 Tag(s): DOAS-01

Drain pan trapping for negative pressure applications



Section under negative pressure

- L = H + J + pipe diameter where:
- H = 1 inch for each inch of negative pressure plus 1 inch
- J = 1/2 H

Recommended Trap Dimensions		Connection Size
H	J	3/4"
4.786 in	2.388 in	
L		7.944 in

To ensure proper condensate trapping the field installed housekeeping pad height is the responsibility of the contractor.
 The external static pressure used for fan selection was assumed to be divided 50% to entering duct external static pressure and 50% discharge external static pressure.

Dimensional Drawings - Performance Climate Changer (UCCA)
 Item: A1 Qty: 1 Tag(s): DOAS-01

UCCA Indoor Service Clearances

Component		UNIT SIZE									
		3	6	8	10	12	14	17	21	25	30
Filter	A	40.0	44.0	42.0	42.0	40.0	45.0	45.0	45.0	51.0	51.0
Coil Pull	B	49.0	62.0	66.0	78.0	86.0	86.0	94.0	94.0	96.0	109.0
Fan Access, horizontal unit (motor side)	C	48.0	48.0	48.0	51.0	54.0	58.0	61.0	61.0	66.0	66.0
Fan Access, vertical unit (motor side)	C	48.0	48.0	48.0	51.0	54.0	58.0	61.0	61.0		
Fan Access, vert unit with MI fan (motor side)	C	48.0	48.0	48.0	51.0	54.0	58.0	61.0	61.0	66.0	66.0
Fan Access, return section (motor side)	C	48.0	48.0	48.0	51.0	54.0	58.0	61.0	61.0	66.0	66.0
Control Box	D	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0
VFD	E	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0
EH	F	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0
Access Door - Access Section	G	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0

Note(s):

At a minimum, the above clearance dimensions are recommended on one side of the unit for regular service and maintenance.

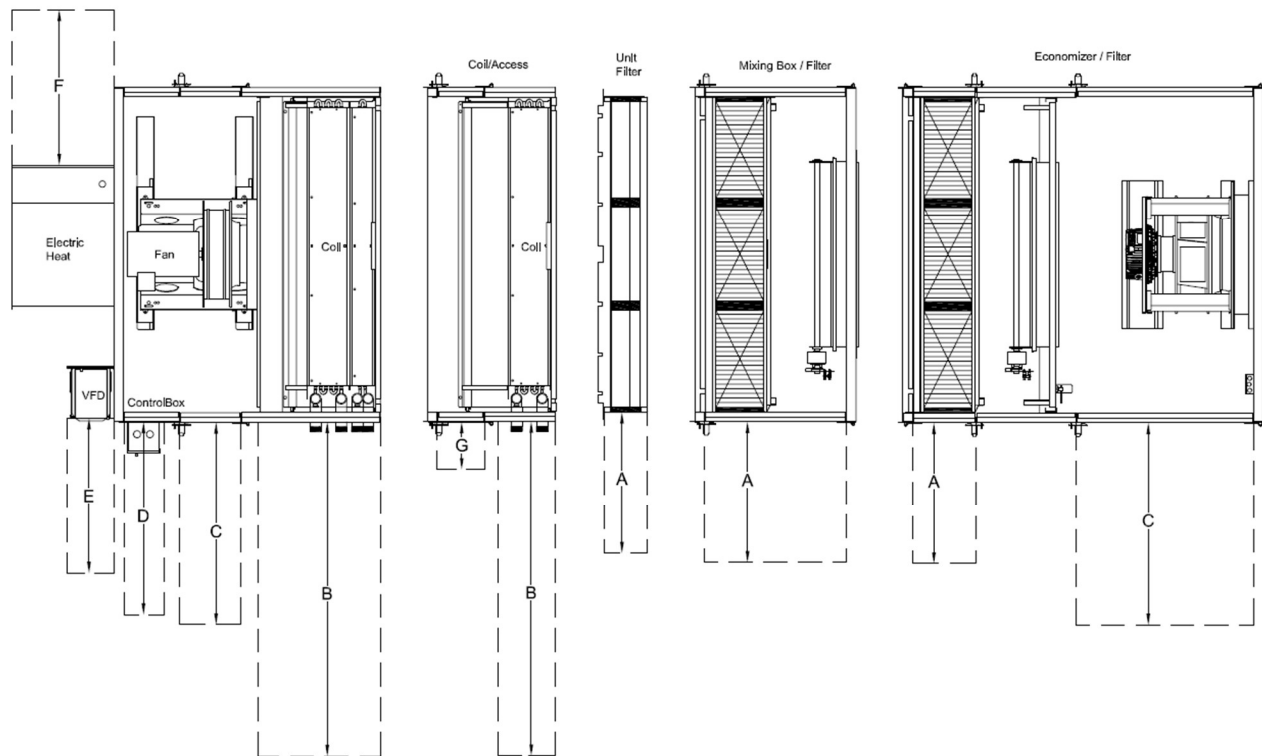
Clearances are mirrored to other side for units with doors both sides.

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 access panels, plug panels, or section-to-section attachment brackets

Clearance for starters, VFD's, or other high-voltage devices must be provided per NEC requirements.

Service Clearances



Fan Curve - Performance Climate Changer (UCCA)
 Item: A1 Qty: 1 Tag(s): DOAS-01

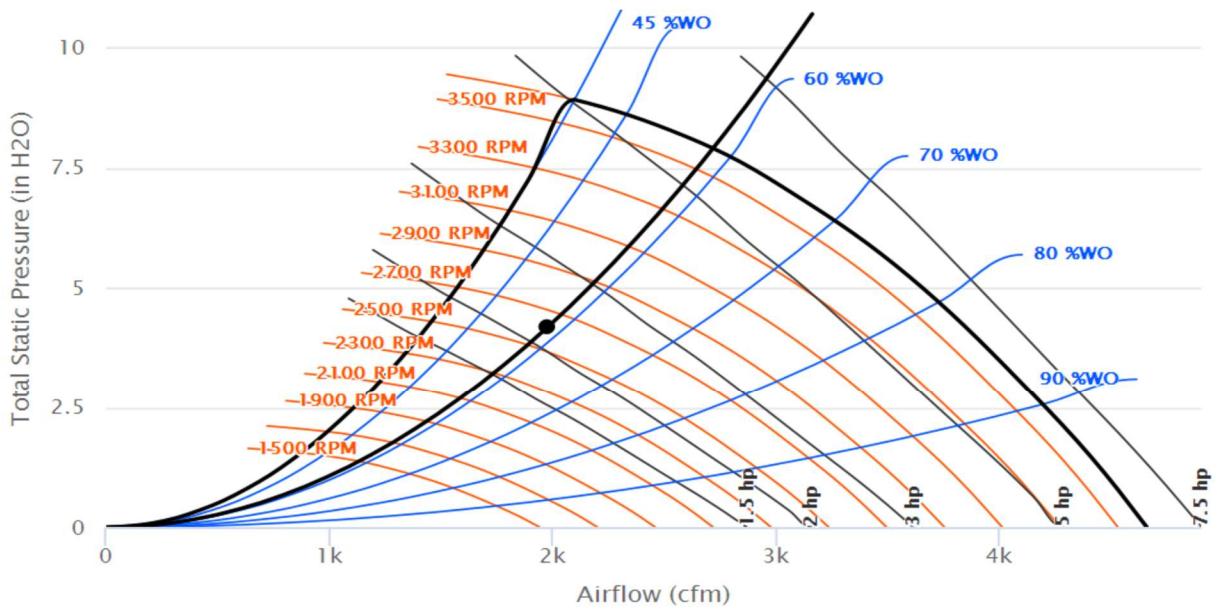
Fan Details

Unit Size	6	Operating Brake Power	2.240 hp
Operating Airflow	1,975 cfm	Altitude	0.00 ft
Operating Static Pressure	4.177 in H2O	Design Temp.	81.40 F
Operating RPM	2,622 rpm		

5 % drive loss applied to BHP for motor selection.

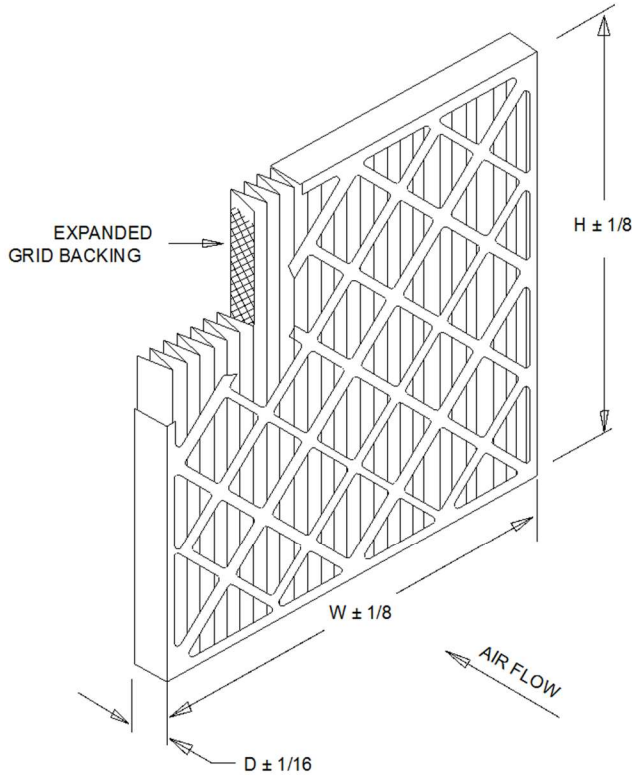
Size 6 DDP Top Front Discharge – Single Fan.

Size 6 DDP Top Front Discharge – Single Fan.



Accessory - Performance Climate Changer (UCCA)

Item: A1 Qty: 1 Tag(s): DOAS-01



STANDARD CONSTRUCTION

1. 100 % Synthetic White Un-Dyed Media
2. 10.0 Pleats Per Foot
3. Expanded Metal Pleat Supports
4. Moisture Resistant Beverage Board Frame
5. Double Wall Frame

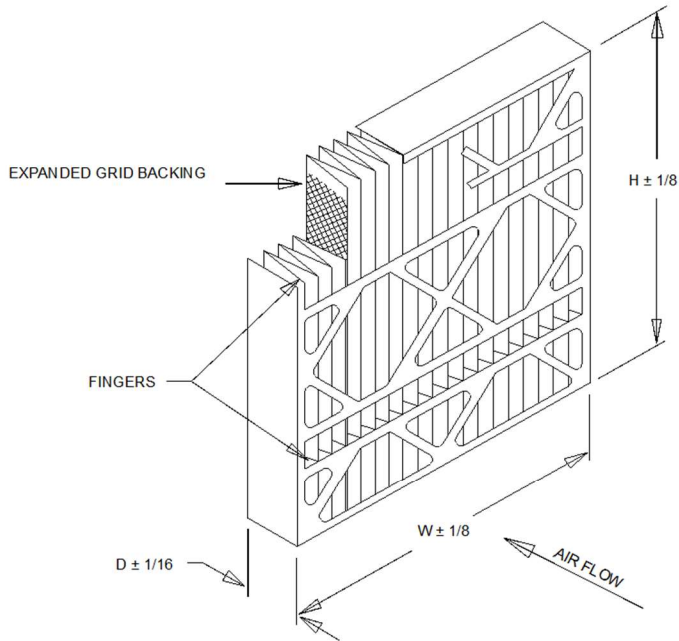
NOTES

1. MERV 8-A Per ASHRAE 52.2-2007 Appendix J.
2. Final Resistance: 1/0" W.G.
3. Rated Velocity: 500 FPM
4. Class 2 Filter Per U.L. Standard 900
5. Maximum Operating Temperature: 225 DEG. F

MODEL NUMBER	NOMINAL SIZE IN. W X H X D	ACTUAL SIZE IN. W X H X D	RATED AIR FLOW CFM	INITIAL RESISTANCE IN. W.G.	MEDIA AREA SQ. FT.
MX40-STD2-217	10 X 20 X 2	9-1/2 X 19-1/2 X 1-3/4	700	0.29	4.7
MX40-STD2-220	12 X 20 X 2	11-1/2 X 19-1/2 X 1-3/4	840	0.29	5.5
MX40-STD2-210	12 X 24 X 2	11-3/8 X 23-3/8 X 1-3/4	1000	0.29	6.2
MX40-STD2-239	14 X 20 X 2	13-1/2 X 19-1/2 X 1-3/4	980	0.29	5.7
MX40-2TD2-241	14 X 25 X 2	13-1/2 X 24-1/2 X 1-3/4	1220	0.29	7.1
MX40-STD2-245	15 X 20 X 2	14-1/2 X 19-1/2 X 1-3/4	1050	0.29	6.2
MX40-STD2-201	16 X 20 X 2	15-1/2 X 19-1/2 X 1-3/4	1120	0.29	6.7
MX40-STD2-216	16 X 24 X 2	15-3/8 X 23-3/8 X 1-3/4	1340	0.29	8.0
MX40-STD2-202	16 X 24 X 2	15-1/2 X 24-1/2 X 1-3/4	1400	0.29	8.0
MX40-STD2-280	15 X 20 X 2	17-1/2 X 19-1/2 X 1-3/4	1250	0.29	7.8
MX40-STD2-212	18 X 24 X 2	17-3/8 X 23-3/8 X 1-3/4	1500	0.29	9.3
MX40-STD2-285	18 X 25 X 2	17-1/2 X 24-1/2 X 1-3/4	1570	0.29	9.7
MX40-STD2-203	20 X 20 X 2	19-1/2 X 19-1/2 X 1-3/4	1400	0.29	8.3
MX40-STD2-211	20 X 24 X 2	19-3/8 X 23-3/8 X 1-3/4	1670	0.29	9.9
MX40-STD2-204	20 X 25 X 2	19-1/2 X 24-1/2 X 1-3/4	1750	0.29	10.3
MX40-STD2-205	24 X 24 X 2	23-3/8 X 23-3/8 X 1-3/4	2000	0.29	11.7
MX40-STD2-225	25 X 25 X 2	24-1/2 X 24-1/2 X 1-3/4	2170	0.29	13.6

Accessory - Performance Climate Changer (UCCA)

Item: A1 Qty: 1 Tag(s): DOAS-01



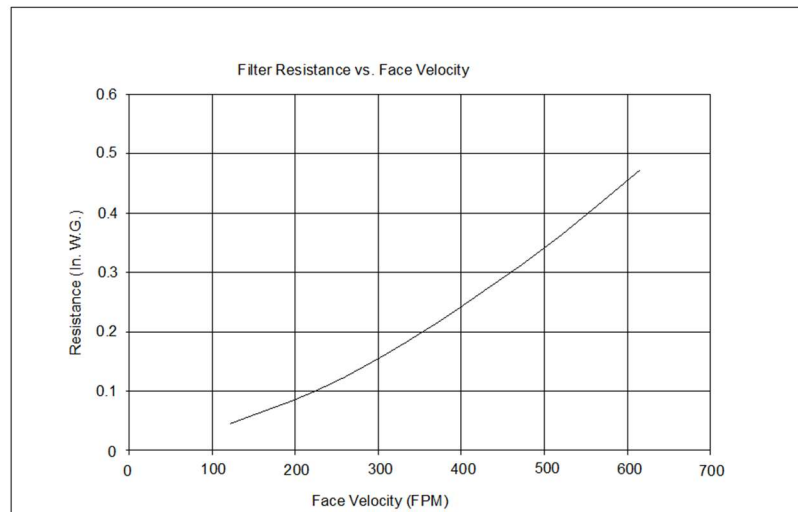
STANDARD CONSTRUCTION

1. 100 % Synthetic Un-Dyed Media
2. 11 Pleats Per Foot
3. Expanded Metal Pleat Supports
4. Moisture Resistant Beverage Board Frame
5. Double Wall Frame
6. (2) Rows of Fingers on Air Entering Side

NOTES

1. MERV 13 per ASHRAE 52.2-2012
Tested at 492 FPM on 24x24x4 Nominal Size
2. Final Resistance: 1.0" W.G.
3. Rated Velocity: 500 FPM
4. Classified Per U.L. Standard 900 for Flammability
5. Maximum Operating Temperature: 200 deg. F

NOMINAL SIZE (WxHxD)	ACTUAL SIZE (WxHxD)	RATED AIR FLOW (IN. W.G.)	INITIAL RESISTANCE (IN. W.G.)	MEDIA AREA (SQUARE FEET)	FILTER UNIT WEIGHT (LBS)
12x24x4	11-3/8 x 23-3/8 x 3-3/4	1000	0.34	12.4	1.7
16x20x4	15-1/2 x 19-1/2 x 3-3/4	1120	0.34	14.6	1.7
16x25x4	15-1/2 x 24-1/2 x 3-3/4	1400	0.34	18.3	2.1
20x20x4	19-1/2 x 19-1/2 x 3-3/4	1400	0.34	18.8	2.1
20x24x4	19-3/8 x 23-3/8 x 3-3/4	1670	0.34	22.4	2.5
20x25x4	19-1/2 x 24-1/2 x 3-3/4	1750	0.34	23.5	2.6
24x24x4	23-3/8 x 23-3/8 x 3-3/4	2000	0.34	27.4	3.0



Accessory - Performance Climate Changer (UCCA)**Filter Schedule****Item: A1 Qty: 1 Tag(s): DOAS-01**

Unit Tag(s)	Unit Size	Filter Arrangement	Filter Type \ MERV Rating	Filter Quantity	Filter Size
UCCA-1	Unit Size 6 Square Feet of Coil	2"/4" combo filter mixing section	2" MERV 8 / 4" MERV 13	0 0 0 2	16 in. x 20 in. 16 in. x 25 in. 20 in. x 20 in. 20 in. x 25 in.

Field Wiring - Performance Climate Changer (UCCA)**MCA - MOP Schedule****Item: A1 Qty: 1 Tag(s): DOAS-01**

Unit Tag(s)	Circuit	Circuit Description	Voltage/Phase/Hz	MCA (A)	MOP (A)
UCCA-1	1	Supply Motor(s) + HV + CONT	200-208/60/3	19.50	30.00

Field Wiring - Performance Climate Changer (UCCA)

Item: A1 Qty: 1 Tag(s): DOAS-01

POWER SCHEMATIC PAGE 1 OF 2

DEVICE	DESCRIPTION	ZONE
1Q1	UNIT DISCONNECT SWITCH	15
1T1	CONTROL TRANSFORMER	31
1X1	POWER DISTRIBUTION BLOCK	20
2M1	MOTOR 1	43
9F1	VFD FUSE	20
9F2	VFD FUSE	22
9F3	VFD FUSE	24
9T1	VFD	20

WARNING
 HAZARDOUS VOLTAGE!
 DISCONNECT ALL ELECTRIC POWER BEFORE WORKING ON THIS UNIT. FOLLOW LOCK OUT AND TAG PROCEDURES BEFORE SERVING. INSURE THAT ALL STAGED VOLTAGE UNITS WITH VARIABLE SPEED DRIVE REFER TO DRIVE DISCHARGE. SERVICING COULD RESULT IN DEATH OR SERIOUS INJURY.

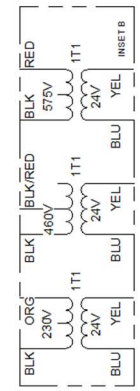
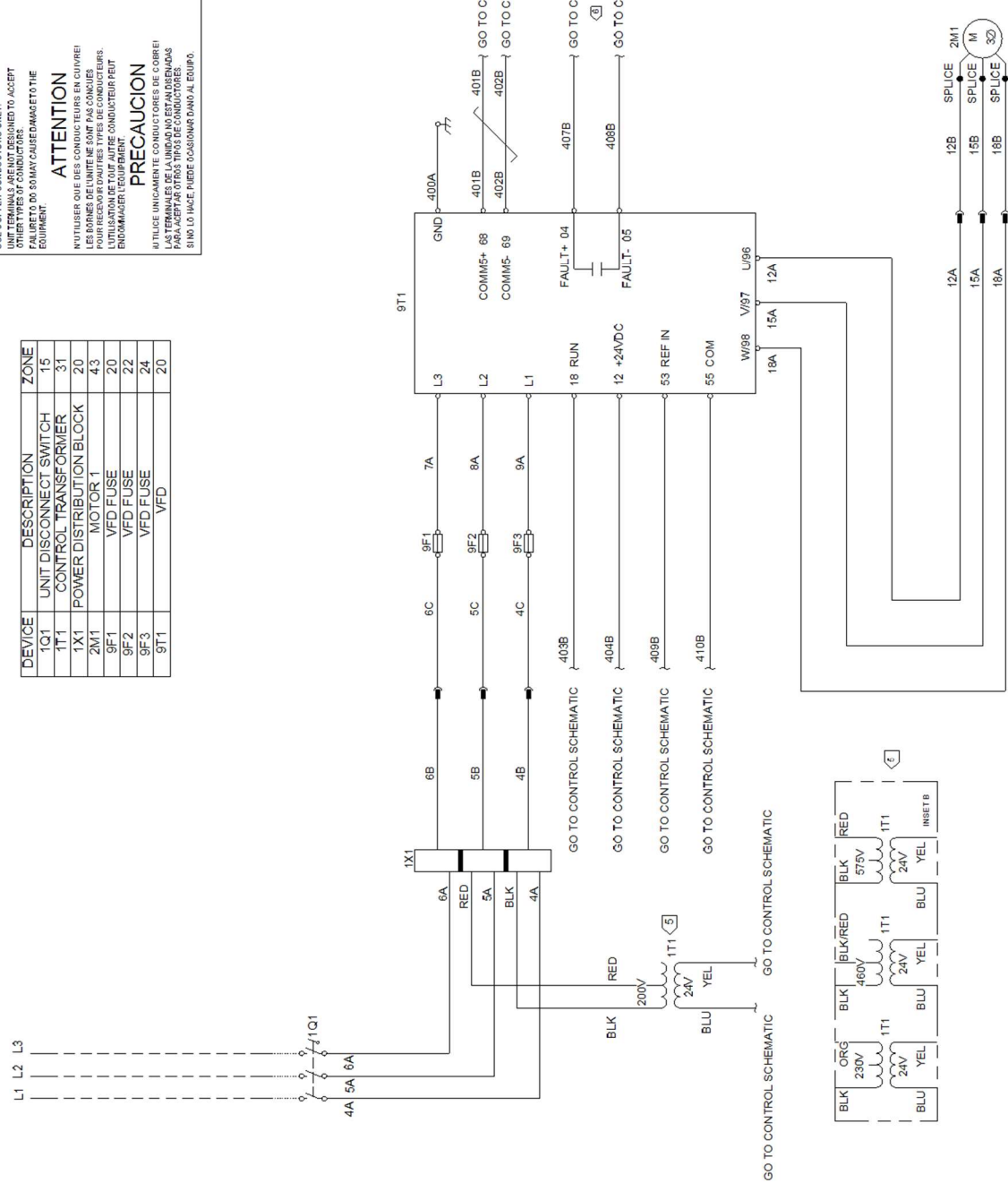
AVERTISSEMENT
 TENSION DANGEREUSE!
 COUPEZ TOUTES LES TENSIONS ET DÉBRANCHEZ L'UNITÉ AVANT DE TRAVAILLER. SUIVEZ LES PROCÉDURES DE VERROUILLAGE ET DES ÉTIQUETTES AVANT DE COMMENCER LE TRAVAIL. LE SERVICER D'UNITE À VITESSE VARIABLE PEUT CAUSER LA MORT. LE TRAVAIL SUR L'UNITÉ PEUT CAUSER DE GRAVES BLESSURES.

ADVERTENCIA
 ¡VOLTAJE PELIGROSO!
 INCLUIR LAS DESCONEXIONES REMOVIENDO TODOS LOS PROCEDIMIENTOS DE CERRERÍA Y SERVICIO. ASEGURARSE DE QUE TODOS LOS SERVICIOS SE REALICEN DESPUÉS DE LA DESCARGA DEL VENTILADOR PARA LAS UNIDADES CON ELE. DE CARRILAS. CONSULTAR LAS INSTRUCCIONES PARA LA DESCARGA DEL CONDENSADOR. EL NO REALIZARLO ANTERIORMENTE PUEDEN CAUSAR LESIONES O LA MUERTE.

CAUTION
 USE COPPER CONDUCTORS ONLY!
 UNIT TERMINALS ARE NOT DESIGNED TO ACCEPT OTHER TYPES OF CONDUCTORS.
 THE USE OF SO MANY CAUSE DAMAGE TO THE EQUIPMENT.

ATTENTION
 UTILISER DES CÂBLES EN COUPEUR!
 LES TERMINAUX DE L'UNITÉ NE SONT PAS CONÇUS POUR RECEVOIR D'AUTRES TYPES DE CONDUCTEURS.
 L'UTILISATION DE TOUT AUTRE CONDUCTEUR PEUT ENDOMMAGER L'ÉQUIPEMENT.

PRECAUCION
 ¡UTILICE ÚNICAMENTE CONDUCTORES DE COBRE!
 LAS TERMINALES DE LA UNIDAD NO ESTÁN DISEÑADAS PARA ACEPTAR OTROS TIPOS DE CONDUCTORES.
 SI NO LO HACE, PUEDE OCASIONAR DAÑO AL EQUIPO.



Field Wiring - Performance Climate Changer (UCCA)
Item: A1 Qty: 1 Tag(s): DOAS-01

POWER SCHEMAIC PAGE 2 OF 2

NOTES:

1. UNLESS OTHERWISE NOTED ALL SWITCHES ARE SHOWN AT 25 C (77 F), AT ATMOSPHERIC PRESSURE, AT 50 PERCENT RELATIVE HUMIDITY, WITH ALL UTILITIES TURNED OFF, AND AFTER A NORMAL SHUTDOWN HAS OCCURED.
2. DASHED LINES INDICATE RECOMMENDED FIELD WIRING BY OTHERS. DASHED LINE ENCLOSURES AND/OR DASHED DEVICE OUTLINES INDICATE COMPONENTS PROVIDED BY THE FIELD. PHANTOM LINE ENCLOSURES INDICATE ALTERNATE CIRCUITRY OR AVAILABLE SALES OPTIONS. SOLID LINES INDICATE WIRING BY TRANE.
3. NUMBERS ALONG THE RIGHT SIDE OF THE SCHEMATIC DESIGNATE THE LOCATION OF CONTACTS BY LINE NUMBER. AN UNDERLINED NUMBER INDICATES A NORMALLY CLOSED CONTACT. AN OPEN ARROWHEAD BELOW THE LINE NUMBER POINTING UPWARD INDICATES A TIMED CONTACT WHICH BEGINS TIMING WHEN ENERGIZED.
4. ALL FIELD WIRING MUST BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, STATE, AND LOCAL REQUIREMENTS. OTHER COUNTRIES APPLICABLE NATIONAL AND/OR LOCAL REQUIREMENTS SHALL APPLY. FIELD CONDUCTORS SHALL HAVE INSULATION RATING NOT LESS THAN 600V COPPER CONDUCTORS ONLY.
5. CONTROL TRANSFORMER SHOWN FOR 200V PRIMARY. FOR 230V, 460V, OR 575V PRIMARY REFER TO INSET "B".
6. FAULT RELAY CONTACTS STATE SHOWN WITH DRIVE CONTROLLER DE-ENERGIZED OR FAULTED.

VFD FUSE - 9F1, 9F2, 9F3			
VOLTAGE	MOTOR HP	FUSE	CLASS
200/230	1	LP-CC-10	CC
200/230	1.5, 2	LP-CC-10	CC
200/230	3	LP-CC-25	CC
200/230	5	JUN-50	T
200/230	7.5	JUN-50	T
200/230	10	JUN-80	T
200/230	15	JUN-100	T
460	1	LP-CC-10	CC
460	1.5, 2	LP-CC-10	CC
460	3	LP-CC-15	CC
460	5	LP-CC-15	CC
460	7.5	LP-CC-25	CC
460	10	LP-CC-25	CC
460	15	JUN-50	T
575	1, 1.5, 2, 3	LP-CC-20	CC
575	5	LP-CC-20	CC
575	7.5	LP-CC-20	CC
575	10	LP-CC-20	CC
575	15	LP-CC-30	CC

AREA	DEVICE PREFIX	LOCATION CODE
1		LOCATION
2		MAIN CONTROL PANEL
3		SUPPLY FAN & COIL SECTION
4		ELECTRIC HEAT CONTROL BOX
5		FILTER SECTION
6		MIXING BOX SECTION
7		COIL ACCESS SECTION
8		FIELD INSTALLED DEVICE
9		VFD CONTROL PANEL

⚠ WARNING
HAZARDOUS VOLTAGE!
 DISCONNECT ALL ELECTRIC POWER INCLUDING REMOTE DISCONNECTS AND FOLLOW LOCKOUT AND TAG PROCEDURES BEFORE WORKING ON THIS EQUIPMENT. METAL CAPACITORS MAY BE DISCHARGED STORED VOLTAGE. UNITS WITH VARIABLE SPEED DRIVE. REFER TO DRIVE INSTRUCTIONS FOR CAPACITOR DISCHARGE FAILURE TO DO THE ABOVE BEFORE SERVICING COULD RESULT IN DEATH OR SERIOUS INJURY.

⚠ AVERTISSEMENT
TENSION DANGEREUSE!
 COUPER TOUTES LES TENSIONS ET OUVRIRE LES SECTIONNEURS A DISTANCE. PLUS SUIVRE LES PROCEDURES DE VERROUILLAGE ET DES ETIQUETTES AVANT TOUTE INTERVENTION. VERTIFIER QUE TOUTES LES CAPACITATEURS METALLIQUES SONT DECHARGES. DANS LE CAS D'UNITES COMPORTANT DES ENTRAINEMENTS A VITESSE VARIABLE, SE REPORTER AUX INSTRUCTIONS DE L'ENTRAINEMENT POUR DECHARGER LES CONDENSATEURS. NE PAS RESPECTER CES MESURES DE PRECAUTION PEUT ENTRAÎNER DES BLESSURES GRAVES POUVANT ETRE MORTELLES.

⚠ ADVERTENCIA
VOLTAJE PELIGROSO!
 DESCONECTE TODA LA ENERGIA ELECTRICA, INCLUSO LAS DESCONEXIONES REMOTAS Y SIGA LAS PROCEDURAS DE BLOQUEO Y ETIQUETADO ANTES DE PROCEDER AL SERVICIO. ASEGURESE DE QUE TODOS LOS CAPACITORES DEL MOTOR HAYAN DESCARGADO EL VOLTAJE ALMACENADO. PARA LAS UNIDADES CON VELOCIDAD VARIABLE CONSULTAR LAS INSTRUCCIONES PARA LA DESCARGA DEL CONDENSADOR. EL NO REALIZAR LO ANTERIORMENTE INDICADO, PODRIA OCASIONAR LA MUERTE O SERIAS LESIONES PERSONALES.

CAUTION
 USE COPPER CONDUCTORS ONLY!
 UNIT TERMINALS ARE NOT DESIGNED TO ACCEPT OTHER TYPES OF CONDUCTORS.
 FAILURE TO DO SO MAY CAUSE DAMAGE TO THE EQUIPMENT.

ATTENTION
 N'UTILISER QUE DES CONDUCTEURS EN CUIVRE!
 LES BORNES DE L'UNITE NE SONT PAS CONÇUES POUR RECEVOIR D'AUTRES TYPES DE CONDUCTEURS.
 L'UTILISATION DE TOUT AUTRE CONDUCTEUR PEUT ENDOMMAGER L'EQUIPEMENT.

PRECAUCION
 UTILICE UNICAMENTE CONDUCTORES DE COBRE!
 LAS TERMINALES DE LA UNIDAD NO ESTAN DISEÑADAS PARA ACEPTAR OTROS TIPOS DE CONDUCTORES.
 SI NO LO HACE, PUEDE OCASIONAR DAÑO AL EQUIPO.

Field Wiring - Performance Climate Changer (UCCA)

Item: A1 Qty: 1 Tag(s): DOAS-01

WARNING
HAZARDOUS VOLTAGE!
DISCONNECT ALL ELECTRIC POWER INCLUDING REMOTE DISCONNECTS AND FOLLOW LOCK-OUT AND TAG PROCEDURES BEFORE SERVICING. INSURE THAT ALL MOTOR CAPACITORS HAVE DISCHARGED STORED VOLTAGE. UNITS WITH VARIABLE SPEED DRIVE, REFER TO DRIVE INSTRUCTIONS FOR CAPACITOR DISCHARGE. FAILURE TO DO THE ABOVE BEFORE SERVICING COULD RESULT IN DEATH OR SERIOUS INJURY.

AVERTISSEMENT
TENSION DANGEREUSE!
COUPER TOUTES LES TENSIONS ET OUVRIRE LES SECTIONS A DISTANCE. PLUS SUIVRE LES PROCEDURES DE VERROUILLAGE ET DES ETIQUETTES AVANT TOUTE INTERVENTION. VERIFIER QUE TOUTS LES CONDENSATEURS DES MOTEURS SONT DECHARGES. DANS LE CAS D'UNITES COMPORTANT DES ENTRAÎNEMENTS A VITESSE VARIABLE, SE REPORTER AUX INSTRUCTIONS DE L'ENTRAÎNEMENT POUR DECHARGER LES CONDENSATEURS. NE PAS RESPECTER CES MESURES DE PRECAUTION PEUT ENTRAÎNER DES BLESSURES GRAVES POUVANT ETRE MORTELLES.

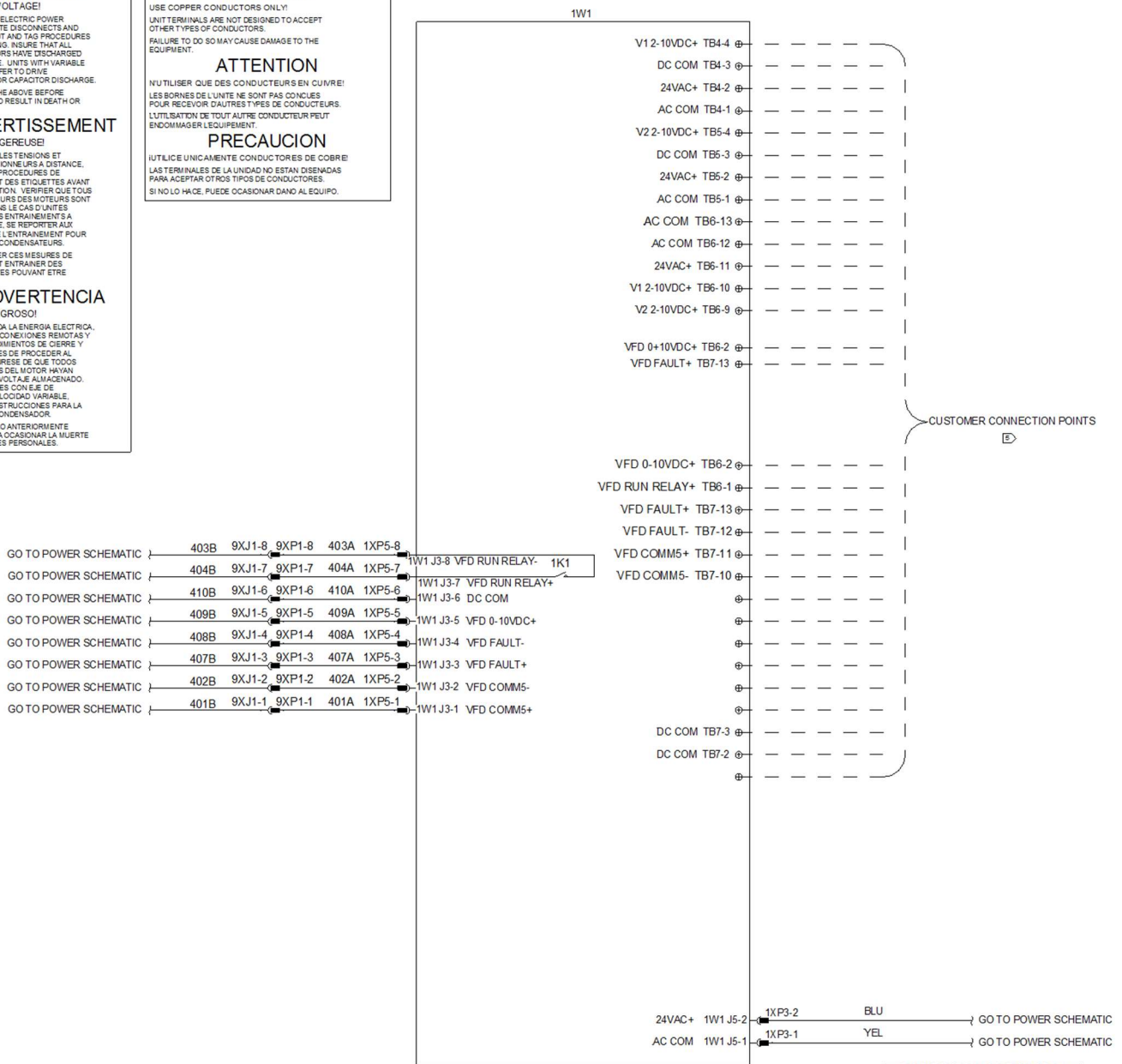
ADVERTENCIA
¡ALTA TENSÍON PELIGROSA!
DESCONECTE TODA LA ENERGÍA ELÉCTRICA, INCLUIDO LAS DESCONEXIONES REMOTAS Y ETIQUETADO ANTES DE PROCEDER AL SERVICIO. ASEGURESE DE QUE TODOS LOS CAPACITORES DEL MOTOR HAYAN DESCARGADO EL VOLTAJE ALMACENADO. PARA LAS UNIDADES CON EJE DE DIRECCION DE VELOCIDAD VARIABLE, CONSULTE LAS INSTRUCCIONES PARA LA DESCARGA DEL CONDENSADOR. EL NO REALIZAR LO ANTERIORMENTE INDICADO, PODRIA OCASIONAR LA MUERTE O SERIAS LESIONES PERSONALES.

CAUTION
USE COPPER CONDUCTORS ONLY!
UNIT TERMINALS ARE NOT DESIGNED TO ACCEPT OTHER TYPES OF CONDUCTORS.
FAILURE TO DO SO MAY CAUSE DAMAGE TO THE EQUIPMENT.

ATTENTION
N'UTILISER QUE DES CONDUCTEURS EN CUIVRE!
LES BORNES DE L'UNITE NE SONT PAS CONÇUES POUR RECEVOIR D'AUTRES TIPIES DE CONDUCTEURS.
L'UTILISATION DE TOUT AUTRE CONDUCTEUR PEUT ENDOMMAGER L'EQUIPEMENT.

PRECAUCION
¡UTILICE ÚNICAMENTE CONDUCTORES DE COBRE!
LAS TERMINALES DE LA UNIDAD NO ESTAN DISEÑADAS PARA ACEPTAR OTROS TIPOS DE CONDUCTORES.
SI NO LO HACE, PUEDE OCASIONAR DAÑO AL EQUIPO.

CONTROL SCHEMATIC



NOTES:

- UNLESS OTHERWISE NOTED ALL SWITCHES ARE SHOWN AT 25 C (77 F), AT ATMOSPHERIC PRESSURE, AT 50 PERCENT RELATIVE HUMIDITY, WITH ALL UTILITIES TURNED OFF, AND AFTER A NORMAL SHUTDOWN HAS OCCURED.
- DASHED LINES INDICATE RECOMMENDED FIELD WIRING BY OTHERS. DASHED LINE ENCLOSURES AND/OR DASHED DEVICE OUTLINES INDICATE COMPONENTS PROVIDED BY THE FIELD. PHANTOM LINE ENCLOSURES INDICATE ALTERNATE CIRCUITRY OR AVAILABLE SALES OPTIONS. SOLID LINES INDICATE WIRING BY TRANE.

- NUMBERS ALONG THE RIGHT SIDE OF THE SCHEMATIC DESIGNATE THE LOCATION OF CONTACTS BY LINE NUMBER. AN UNDERLINED NUMBER INDICATES A NORMALLY CLOSED CONTACT. AN OPEN ARROWHEAD BELOW THE LINE NUMBER POINTING UPWARD INDICATES A TIMED CONTACT WHICH BEGINS TIMING WHEN ENERGIZED.
- ALL FIELD WIRING MUST BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, STATE, AND LOCAL REQUIREMENTS. OTHER COUNTRIES APPLICABLE NATIONAL AND/OR LOCAL REQUIREMENTS SHALL APPLY. FIELD CONDUCTORS SHALL HAVE INSULATION RATING NOT LESS THAN 600V COPPER CONDUCTORS ONLY.

- USE CLASS 2 WIRING.
- ALL AVAILABLE END DEVICES SHOWN. SEE UNIT CONFIGURATION FOR END DEVICES ON UNIT.

AREA	LOCATION	DEVICE PREFIX LOCATION CODE
1	MAIN CONTROL PANEL	
2	SUPPLY FAN & COIL SECTION	
3	ELECTRIC HEAT CONTROL BOX	
4	FILTER SECTION	
5	MIXING BOX SECTION	
6	COIL ACCESS SECTION	
7	EXTERNAL PIPING	
8	FIELD INSTALLED DEVICE	
9	VFD CONTROL PANEL	

DEVICE	DESCRIPTION	ZONE
1K1	RELAY: VFD RUN	40
1W1	ADAPTER BOARD	34
2R1	MIXED AIR SENSOR	51
2R2	DISCHARGE AIR SENSOR	53
2S1	LOW LIMIT SWITCH	55
2S2	CONDENSATE OVERFLOW SWITCH	57
2S3	FAN STATUS SWITCH	59
2S4	FILTER STATUS SWITCH	61
5M1	DAMPER ACTUATOR	47