Submittal

Prepared For:
Superior Mechanical
Attn: Ben Wyke

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

Date: *October 10, 2022*

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
5 -	Variable Air Volume Single Duct Terminal Units

Notes:

1. This submittal is based on mechanical specifications and drawings sealed 7-13-2022.

2. Trane VAV single duct boxes are "universal" and can be rotated (flipped) 180 degrees in order to obtain right or left hand controls without affecting the operation of box. Note: The HW coils can also be rotated but the piping connections will remain the same.

3. All controls shall be provided and installed by others. The boxes will be provided with shaft and control enclosures only.

4. Mechanical contractor shall confirm all unit counts and electrical requirements prior to ordering equipment.

5. The following items are not included unless otherwise noted:

Sound attenuators
External isolators
Startup or labor warranty
Hot water control valves
Seismic restraints

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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

Tag Data - Variable Air Volume Single Duct Terminal Units (Qty: 5)

Item	Tag(s)	Qty	Description	Model Number
A1	VAV-01	1	Variable Air Volume Single Duct Terminal	VCWF06-- *M0****F**0*1L1WW000000***0000000
A2	VAV-02	1	Variable Air Volume Single Duct Terminal	VCWF06-- *M0****F**0*1L1WW000000***0000000
A3	VAV-03	1	Variable Air Volume Single Duct Terminal	VCWF08-- *M0****F**0*1L1WW000000***0000000
A4	VAV-04	1	Variable Air Volume Single Duct Terminal	VCWF08-- *M0****F**0*1L1WW000000***0000000
A5	VAV-05	1	Variable Air Volume Single Duct Terminal	VCWF08-- *M0****F**0*1L1WW000000***0000000

Product Data - Variable Air Volume Single Duct Terminal Units
All Units

Single duct with hot water heat
Dual wall with 1" matte insulation
Shaft only - with control enclosure
Left hand & same side connection (controls & hot water coil)
Standard air leakage
1 row hot water coil
120/24 volt transformer
Disconnect switch
Power fuse

Item: A1, A2 Qty: 2 Tag(s): VAV-01, VAV-02

6" inlet size

Item: A3, A4, A5 Qty: 3 Tag(s): VAV-03, VAV-04, VAV-05

8" inlet size

Performance Data - Variable Air Volume Single Duct Terminal Units (SINGLE)

Tags	VAV-01	VAV-02	VAV-03	VAV-04	VAV-05
Cooling inlet diameter	6"	6"	8"	8"	8"
Design cooling airflow (cfm)	250	250	500	525	450
Min cooling airflow (cfm)	60	250	200	525	450
Cooling inlet velocity (ft/min)	1273	1273	1432	1504	1289
APD @ cooling airflow (in H2O)	0.120	0.120	0.150	0.170	0.130
Operating weight (lb)	23.0	23.0	25.0	25.0	25.0
Discharge valve - NC	16	16	16	16	<15
Radiated valve - NC	<15	<15	<15	<15	<15
Downstream SP (in H2O)	0.250	0.250	0.250	0.250	0.250
Valve heating airflow (cfm)	250	250	500	525	450
Coil heating capacity (MBh)	4.47	4.47	7.05	7.40	6.40
Primary EDB (F)	55.00	55.00	55.00	55.00	55.00
Unit LAT (F)	71.50	71.50	68.00	68.00	68.12
Heating ent fluid temp (F)	120.00	120.00	120.00	120.00	120.00
Heating lvg fluid temp (F)	102.06	102.06	95.58	96.35	94.31
Fluid type	Water	Water	Water	Water	Water
Heating Cv (Number)	0.25	0.25	0.29	0.31	0.25
Heating flow rate (gpm)	0.50	0.50	0.58	0.63	0.50
Coil fluid PD (ft H2O)	0.54	0.54	0.94	1.08	0.73
Main coil rows	1 Row	1 Row	1 Row	1 Row	1 Row

Mechanical Specifications - Variable Air Volume Single Duct Terminal Units
Item: A1 - A5 Qty: 5 Tag(s): VAV-01, VAV-02, VAV-03, VAV-04, VAV-05

General Unit Information
The unit casing is comprised of 22-gauge galvanized steel. Outlet connection is slip and drive. Agency Listing - The unit is UL listed as a room air terminal unit. UL Control # 9N65. All Trane terminal units are AHRI 880 - 98 certified.

General Unit Clearance
Allow adequate clearance on control box side of unit to meet NEC. A minimum of one and one half duct diameters of straight duct work, upstream of the air inlet connection, must be present for optimum airflow measurement performance. Upstream duct work should be the same diameter as the primary inlet connection.

Dual Wall Insulation
1" Double-wall Insulation - The interior surface of the unit casing is acoustically and thermally lined with a 1", 1.0 lb composite density glass fiber with high density facing. The insulation R-value is 3.8. The insulation is UL listed and meets NFPA-90A and UL 181 standards. The insulation is covered by an interior liner made of 26-gage galvanized steel. All wire penetrations are covered by grommets. There are no exposed edges of insulation (complete metal encapsulation).

Air Valve Round
The air inlet connection is an 18-gauge galvanized steel cylinder sized to fit standard round duct. A multiple point, averaging flow sensing ring is provided with balancing taps for measuring within +/- 5% of unit cataloged airflow. An airflow versus pressure differential calibration chart is provided. The damper blade is constructed of a closed cell foam seal mechanically locked between two 22-gauge galvanized steel disks. The damper blade assembly is connected through a cast zinc stub axle and shaft supported by self-lubricating bearings. The shaft is cast with a damper position indicator. The valve assembly includes a mechanical stop to prevent over stroking. At 4.0" w.g. air valve leakage does not exceed 1% of cataloged airflow.

1 Row Water Coil
Factory flange connected on unit casing outlet. The coil has 144 fpf aluminum fins. Full fin collars provided for accurate fin spacing and maximum fin-tube contact. The seamless copper tubes are mechanically expanded into the fin collars and casing sides. Coils are proof tested at 450 psi and leak tested at 300 psi air pressure under water. Coil connections are sweat type. Coils provided with removable top and bottom access panels.

Slip & Drive Connection
A slip and drive connection has two straight flanges on the top and bottom, and two drive connections on the left and right sides. This is a standard option on all VAV single duct terminal units.

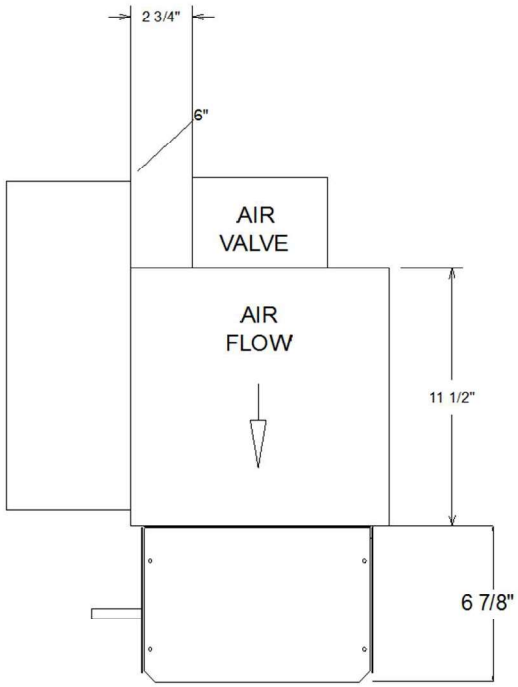
Toggle Disconnect Switch (for VCCF & VCWF)
A switch, installed in a unit mounted controls enclosure, which breaks both power legs within the control box.

Control Fuse
Replaceable fuse on primary voltage hot line.

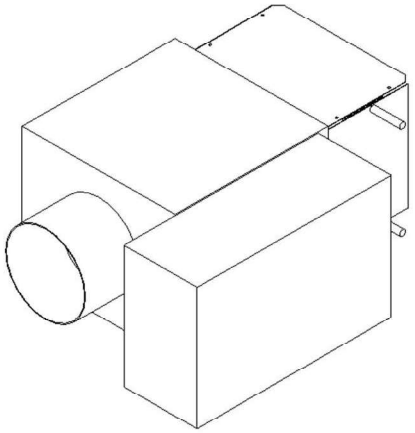
Line Fuse - VCCF and VCWF
For VCCF and VCWF units, optional fusing breaks all energized lines of incoming power.

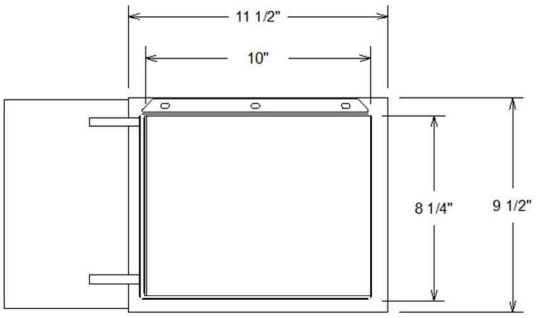
Control Transformer
The 50 VA transformer is factory mounted in a unit mounted controls enclosure with 7/8" knockouts to provide 24 VAC for controls.

Dimensional Drawings - Variable Air Volume Single Duct Terminal Units
Item: A1, A2 Qty: 2 Tag(s): VAV-01, VAV-02



TOP VIEW





BACK VIEW

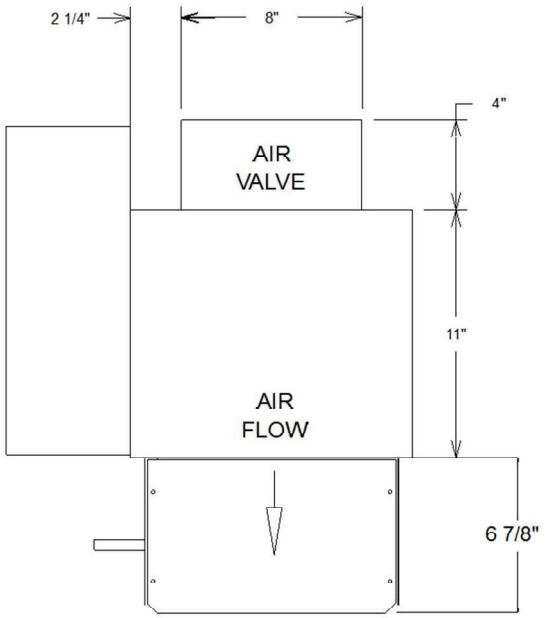
Customer Notes

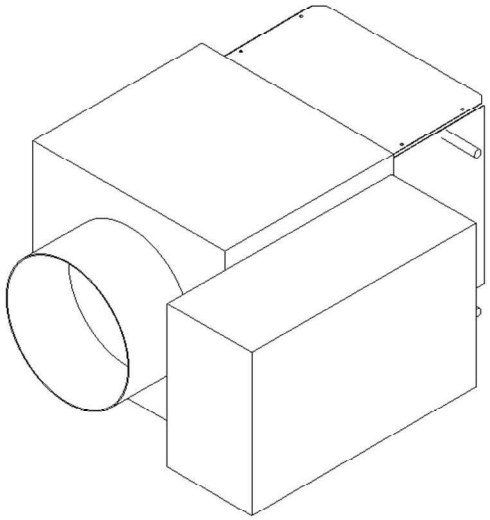
1. Air Inlet is centered in unit front panel
2. Minimum of 1.5 duct diameters of straight duct required at inlet for proper flow reading.
3. Allow 36" on control side for servicing.
4. Unit is field convertible from a left hand connection (shown) to right-hand by rotating unit. Use port at the bottom for inlet and top for outlet on single row coils. For multi-row coils, always plumb in counter flow orientation. Water inlet always on the air flow downstream side of the hot water coil. Water outlet always on the upstream side of the hot water coil. Opposite side (coil and control) connections are available for VCWT only.
5. Coil furnished with stub sweat connections.
6. Coils are provided without internal insulation. If the unit is to be installed in a location with high humidity, external insulation around the heating coil should be installed as required.
7. Unit and hot water coil are standard slip & drive field connection.
8. Detailed dimensions for the water coils can be found on the Accessory drawing.

Approximate Dry Weight	23.0 lb

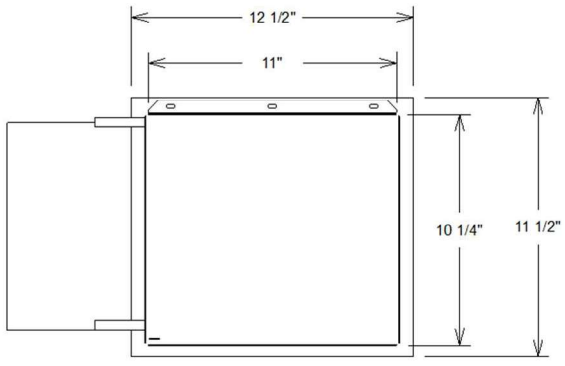
Weights reflected may vary ±5.0 lb based upon options selected.

Dimensional Drawings - Variable Air Volume Single Duct Terminal Units
Item: A3 - A5 Qty: 3 Tag(s): VAV-03, VAV-04, VAV-05





TOP VIEW



Customer Notes

1. Air Inlet is centered in unit front panel
2. Minimum of 1.5 duct diameters of straight duct required at inlet for proper flow reading.
3. Allow 36" on control side for servicing.
4. Unit is field-convertible from a left-hand connection (shown) to right-hand by rotating unit. Use port at the bottom for inlet and top for outlet on single row coils. For multi-row coils, always plumb in counter flow orientation. Water inlet always on the air flow downstream side of the hot water coil. Water outlet always on the upstream side of the hot water coil. Opposite side (coil and control) connections are available for VCWF only.
5. Coil furnished with stub sweat connections.
6. Coils are provided without internal insulation. If the unit is to be installed in a location with high humidity, external insulation around the heating coil should be installed as required.
7. Unit and hot water coil are standard slip & drive field connection.
8. Detailed dimensions for the water coils can be found on the Accessory drawing.

Approximate Dry Weight	25.0 lb

Weights reflected may vary ±5.0 lb based upon options selected.

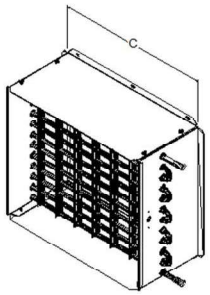
BACK VIEW

Accessory - Variable Air Volume Single Duct Terminal Units
Item: A1 - A5 Qty: 5 Tag(s): VAV-01, VAV-02, VAV-03, VAV-04, VAV-05

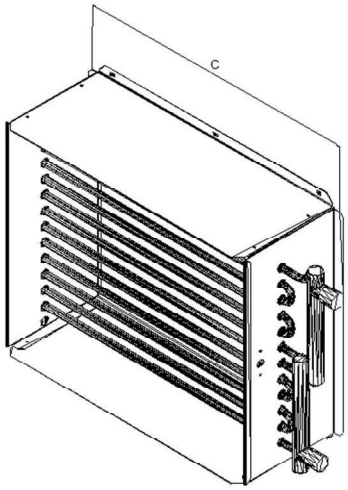
COIL INFORMATION FOR 1 ROW COIL ASSY									
VALV	CFM	LITERS per SECOND	COIL CONNECTION		A	B	C	D	E
04	225	106	3/8" [10mm] O.D.	SEE (FIG 1)	7" [178mm]	7/8" [22mm]	10 1/4" [261mm]	8 1/4" [210mm]	3/8" [10mm]
05	350	165	3/8" [10mm] O.D.		7" [178mm]	7/8" [22mm]	10 1/4" [261mm]	8 1/4" [210mm]	3/8" [10mm]
06	500	236	3/8" [10mm] O.D.		7" [178mm]	7/8" [22mm]	10 1/4" [261mm]	8 1/4" [210mm]	3/8" [10mm]
08	900	425	3/8" [10mm] O.D.		9" [229mm]	7/8" [23mm]	11 1/4" [286mm]	10 1/4" [261mm]	3/8" [10mm]
10	1400	661	3/8" [10mm] O.D.		11" [279mm]	7/8" [23mm]	14 1/4" [362mm]	12 1/4" [312mm]	3/8" [10mm]
12	2000	994	7/8" [22mm] O.D.	SEE (FIG 2)	9 3/4" [247mm]	2 1/2" [64mm]	17 1/4" [439mm]	14 1/4" [363mm]	2 1/32" [52mm]
14	3000	1416	7/8" [22mm] O.D.		15 3/4" [399mm]	1 1/2" [39mm]	19 1/4" [489mm]	18 1/4" [464mm]	1 1/32" [26mm]
16	4000	1888	7/8" [22mm] O.D.		15 3/4" [399mm]	1 1/2" [39mm]	23 1/4" [591mm]	18 1/4" [464mm]	1 1/32" [26mm]
16x24	8000	3776	7/8" [22mm] O.D.		16 3/4" [425mm]	1 1/2" [39mm]	27 1/4" [693mm]	18 1/4" [464mm]	1 1/32" [26mm]

CUSTOMER NOTES:

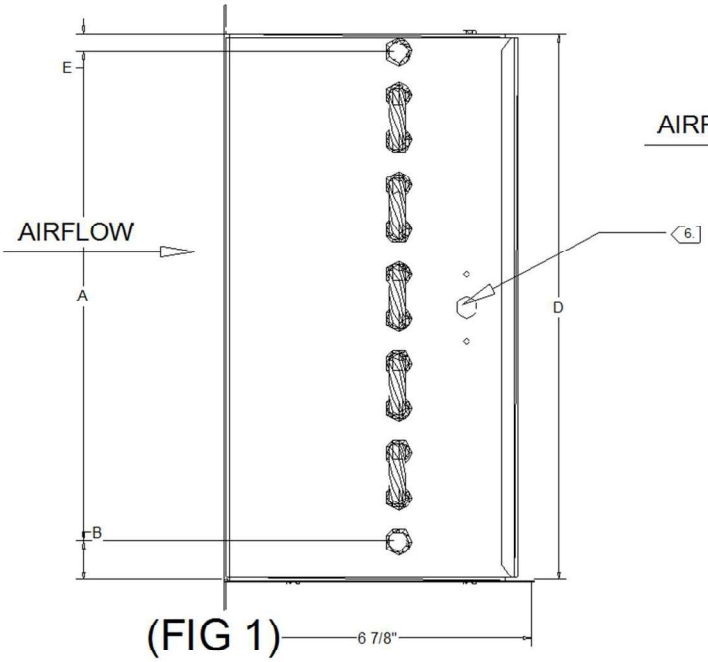
1. Location of coil connections is determined by facing air stream. L.H. Coil connections shown, R.H. opposite.
2. Coil furnished with stub sweat connections.
3. Use port at bottom for inlet and port at top for outlet on single row coils. Coil is rotated to achieve opposite hand connection.
4. Coil height and width is dependent upon unit height and width.
5. Top and bottom coil panel removable for access
6. OPTIONAL: Factory installed Duct Temperature Sensor.



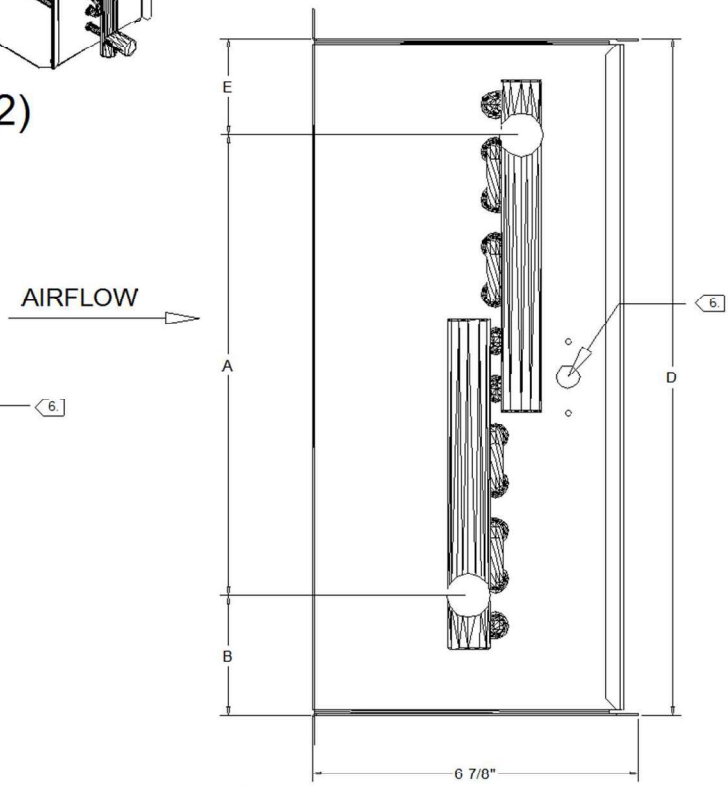
(FIG 1)



(FIG 2)

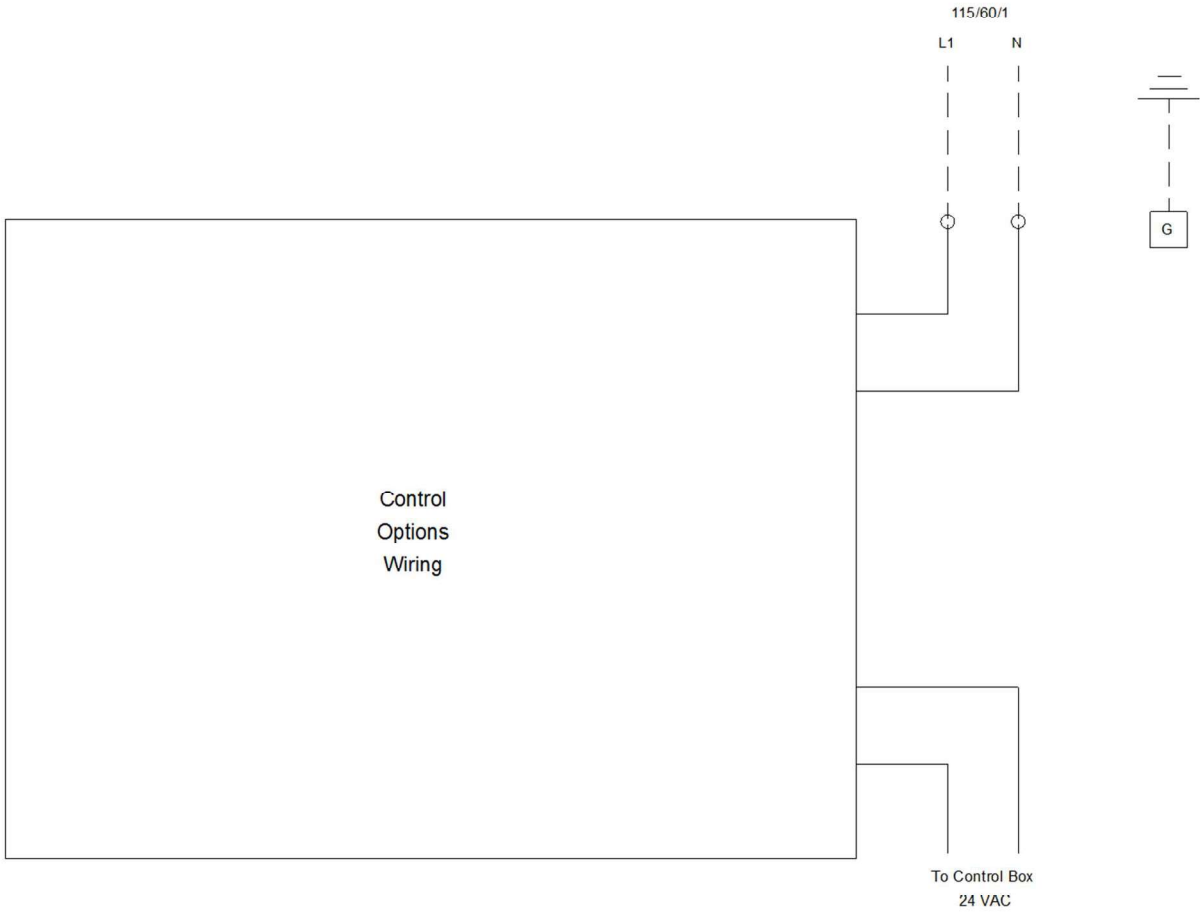


(FIG 1)



(FIG 2)

Field Wiring - Variable Air Volume Single Duct Terminal Units
Item: A1 - A5 Qty: 5 Tag(s): VAV-01, VAV-02, VAV-03, VAV-04, VAV-05



⚠ WARNING

HAZARDOUS VOLTAGE!

DISCONNECT ALL ELECTRIC POWER INCLUDING REMOTE DISCONNECTS BEFORE SERVICING.

FAILURE TO DISCONNECT POWER BEFORE SERVICING CAN CAUSE SEVERE PERSONAL INJURY OR DEATH

⚠ 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.

Customer Notes:

1. ———— Factory installed.
   — — — — Optional or installed by others.