COMFORT SYSTEMS USA

Quality People. Building Solutions.

Comfort Systems USA (Arkansas), Inc.
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Little Rock, AR 72231
Phone 501-834-3320
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Date: 8/4/2023
Return Request: 8/9/2023
Project: LRSD – Rockefeller Early Childhood
Supplier: Custom Metals
Manufacturer: Titus
Submittal: Air Terminal Unit Re-Submittal #1
Submittal Number: 23 36 00-01
Drawing # and Installation: Mechanical Drawings

ARCHITECT
WDD Architects
5050 Northshore Lane
N. Little Rock, AR 72118
501-376-6681

ENGINEER
Insight Engineering
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Little Rock, AR 72201
501-237-3077

GENERAL CONTRACTOR
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Little Rock, AR 72210
501-225-7606

MECHANICAL SUBCONTRACTOR
Comfort Systems USA (Arkansas), Inc.
9924 Landers Rd.
N. Little Rock, AR 72117
501-834-3320

Notes:

chowell@comfortar.com

KINCO CONSTRUCTORS
LITTLE ROCK, ARKANSAS

JOB NAME: LRSD ROCKEFELLER
JOB #: 23.1004
SUBMITTAL #: 23 36 00-2
VENDOR: COMFORT SYSTEMS
SPEC SECTION: 23 36 00
BY: ANDREW MCCARTY **DATE:** 8/7/23
COMMENTS:

Kinco's review indicates that general conformity to the contract drawings, specifications and addenda to the best of our technical knowledge has been met by the vendor. This review does not in any way relieve the vendor of its obligation to perform or supply their product in strict accordance with the aforementioned contract documents. This submittal is certiified to be in conformance with contract documents unless noted of herein.

CREATING CUSTOMERS FOR LIFE

POWERS

BUILDING HVAC, CONTROLS, & SERVICE

IOM

LRSD ROCKEFELLER EARLY CHILDHOOD

Powers of Arkansas
5440 Northshore Drive
North Little Rock, AR 72118

CREATING CUSTOMERS FOR LIFE

POWERS

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Powers of Arkansas
5440 Northshore Drive
North Little Rock, AR 72118

CREATING CUSTOMERS FOR LIFE

POWERS

IOM

PRODUCT	VAV BOXES W/ ELECTRIC RE-HEAT
MANUFACTURER	TITUS
JOB NAME	LRSD ROCKEFELLER EARLY CHILDHOOD
LOCATION	LITTLE ROCK
ENGINEER	INSIGHT
CONTRACTOR	CUSTOM METALS
DATE	5/15/2024
SUBMITTED BY	COURTNEY MICHAEL

5440 Northshore Drive - North Little Rock, Arkansas 72118 - Tel: 501.374.5420 Fax: 501.370.9298

INSTALLATION &
OPERATION MANUAL

SINGLE DUCT TERMINAL

IMPORTANT!
READ BEFORE PROCEEDING!

GENERAL SAFETY GUIDELINES

This equipment is a relatively complicated apparatus. During installation, operation maintenance or service, individuals may be exposed to certain components or conditions including, but not limited to: refrigerants, UV, materials under pressure, rotating components, and both high and low voltage. Each of these items has the potential, if misused or handled improperly, to cause bodily injury or death. It is the obligation and responsibility of operating/service personnel to identify and recognize these inherent hazards, protect themselves, and proceed safely in completing their tasks. Failure to comply with any of these requirements could result in serious damage to the equipment and the property in which it is situated, as well as severe personal injury or death to themselves and people at the site.

This document is intended for use by owner-authorized operating/service personnel. It is expected that these individuals possess independent training that will enable them to perform their assigned tasks properly and safely. It is essential that, prior to performing any task on this equipment, this individual shall have read and understood this document and any referenced materials. This individual shall also be familiar with and comply with all applicable governmental standards and regulations pertaining to the task in question.

Safety Symbols

The following symbols are used in this document to alert the reader to areas of potential hazard:

danger
indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

caution
identifies a hazard which could lead to damage to the machine, damage to other equipment and or environmental pollution. Usually an instruction will be given, together with a brief explanation.

warning
indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

note
is used to highlight additional information which may be helpful to you.

CHANGEABILITY OF THIS DOCUMENT

In complying with Titus' policy for continuous product improvement, the information contained in this document is subject to change without notice. Titus makes no commitment to update or provide current information automatically to the manual owner. Updated manuals, if applicable, can be obtained by contacting the nearest Titus office or accessing the Titus website.

Operating/service personnel maintain responsibility for the applicability of these documents to the equipment. If there is any question regarding the applicability of these documents, the technician should verify whether the equipment has been modified and if current literature is available from the owner of the equipment prior to performing any work on the unit.

CHANGE BARS

Revisions made to this document are indicated with a line along the left or right hand column in the area the revision was made. These revisions are to technical information and any other changes in spelling, grammar or formatting are not included.

Table of Contents

Figure(s)

Table(s)

Section 1

Receiving Inspection

After unpacking the terminal, check it for shipping damage. If any shipping damage is found, report it immediately to the delivering carrier. Store units in a clean, dry location prior to installation.
Also, inspect damper rotation of the unit by rotating the damper by hand to check for free movement, and ensure there is no damage or binding of the damper. If controls are connected to the damper, release the manual clutch (most controls are equipped with this) and rotate the damper by hand. If there is any restriction to the rotation of the damper, contact your Titus rep and inform them of this issue.

caution

Do not use the flow sensor, connecting tubing, or damper shaft linkage as a handle to lift or move assembly. Damage to the flow sensor or controls may result.

Supporting the Assembly

AssemblyMany basic single duct terminals are light enough to be supported by the duct work itself. Where heavier accessory modules, such as DDC controls, coils, attenuators, or multiple outlets are included, the terminal should be supported directly. Straps screwed directly into the side of the terminal, threaded rod through the optional hanger brackets (see Figure 1), or the method prescribed for the rectangular duct on the job specifications may be used.

Important: If equipped with pneumatic controls, the terminal must be mounted right side up. It must be level within+ or -10 degrees of horizontal, both parallel to the air flow and at the right angle of air flow. The control side of the terminal is labeled with an arrow indicating UP. The first letter of the model number (P) indicates pneumatic controls. Most electronic units (A-analog controls and D-digital controls) can be installed in any orientation. Check with the local TITUS representative for verification.

Duct Connections

Slip each inlet duct over the inlet collar of the terminal. Fasten and seal the connection by the method prescribed by the job specification.

The diameter of the inlet duct "D" in inches must be equal to the listed size of the terminal; e.g. a duct that actually measures 8 inches must be fitted to a size 8 terminal. The inlet collar of the terminal is made 1/8 inch smaller than listed size in order to fit inside the duct (see Figure 1).

note

Do not insert duct work inside the inlet collar of the assembly.Inlet duct should be installed in accordance with SMACNA guidelines.

The outlet end of the terminal is designed for use with slip and drive duct connections. A rectangular duct the size of the terminal outlet should be attached.

Inspect the Aerocross inlet flow sensor for shipping damage, and ensure that the high (green) and low (red) tubes are attached. Provide at least 1½times the inlet duct diameter of straight duct for optimum control accuracy. For more information on our Aerocross, see the Aerocross Flow Sensor Application Guide.

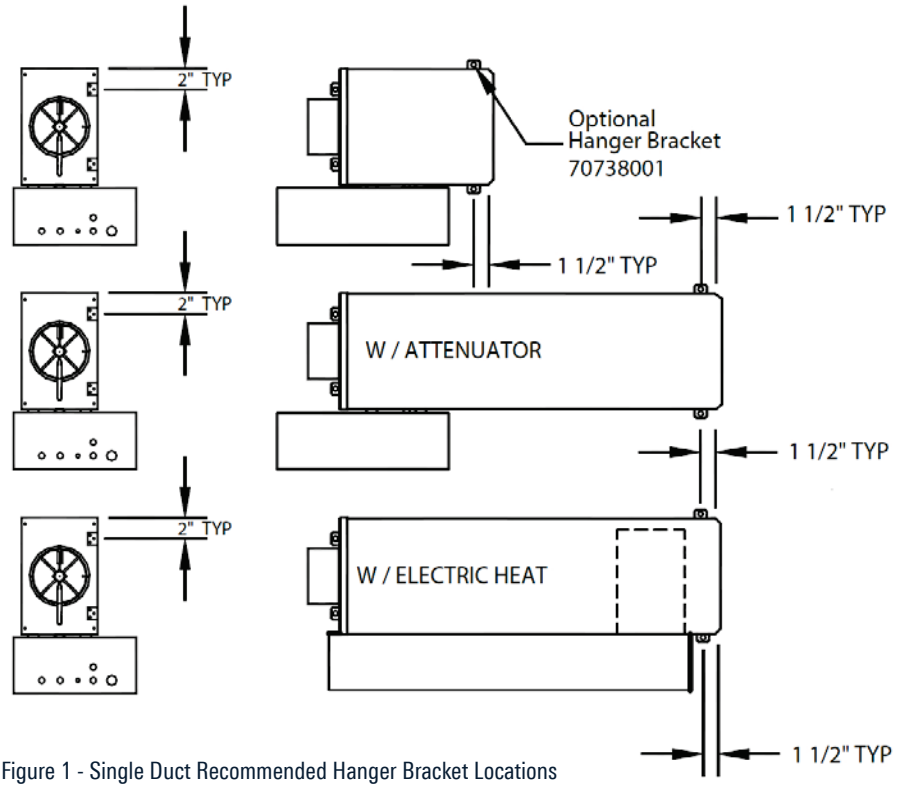


Figure 1 - Single Duct Recommended Hanger Bracket Locations

Section 1 - General Information

Field Wiring

All field wiring must comply with the local codes and with the National Electrical Code (ANSI/NFPA 70-1981). Electrical, control and piping diagrams are shown on the exterior labeling or on the diagram on the inside of control enclosure cover. All electric heaters if provided by TITUS are balanced by kW per stage. The installing electrician should rotate these heater stages by phase in order to help balance the building electric load.

Control Start-up, Operation

Detailed information regarding power, accessory and communications connections, start-up and operating procedures for the controls provided by TITUS are available from your local TITUS representative. For specific information on controls by other manufacturers, contact that manufacturer's local branch or dealer.

Important: Units with digital controllers may incorporate specific communication addresses based on Building Management Systems Architecture, and original engineering drawings. Installing the terminal in a different location than noted on unit label may result in excessive start-up labor.

Calibration Instructions

For Pneumatic Controls, see PNEU-IOM:
Operations Manual for Pneumatic Controls.

For Analog Controls: Titus TA1, see ANA-IOM:
Analog Controller Calibration.

For Digital Controls:
see control manufacturer's manualReplacement

Table 1 - Replacement Parts

Description	Part Number
Primary Damper Assembly	
Size 4-5-6"	31171301
Size 7"	31171302
Size 8"	31171303
Size 9"	31171304
Size 10"	31171305
Size 12"	31171306
Size 14"	31171307
Size 16"	31171308
Damper Shaft Extension	
Short Stub all sizes	70300301
Long Ext. Sz. 4-6, 14, 16	70300302
Long Ext. Sz. 7-12	70300303
Shaft Bearing - All	70324901
Control Tube	
Red Stripe 1/4" O.D.	61510035
Green Stripe 1/4" O.D.	61510234
Red Stripe 3/8" O.D.	61510279
Green Stripe 3/8" O.D.	61510280
Yellow Stripe 1/4" O.D.	61510260
White Stripe 1/4" O.D.	61510261
Blue Stripe 1/4" O.D.	61510262
Tees for sensor taps	
Plastic 1/4"	42150011
Plastic 3/8"	42150020
Plugs for tees	
1/4"	42160081
3/8"	10015601
AeroCross™ Multipoint Velocity Sensors	
Size 4"	3151520001
Size 5"	3151520001
Size 6"	3151520002
Size 7"	3151520003
Size 8"	3151520004
Size 9"	3151520005
Size 10"	3151520006
Size 12"	3151520007
Size 14"	3151520008
Size 16"	3151520009
Size 24" x 16"	3151520009

Notes

605 Shiloh Rd
Plano TX 75074
ofc: 972.212.4800
fax: 972.212.4884

Electric Coil

General Information

- All fan terminals with electric coils are ETL listed.
- All single duct electric coils are ETL listed.
- All electric coil control enclosures meet NEMA 1.
- Single point power connection.

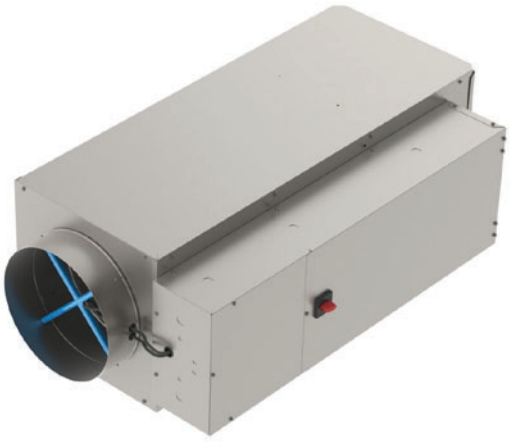
Installation

- All terminal units with electric coils are designed to be mounted in a horizontal plane with regard to the UP arrow marked on the product label.
- Always inspect electric coils for damage prior to applying power.
- Use copper conductors only.
- All field wiring must conform to NEC and local building codes.
- Phase rotation of the incoming power is recommended when connecting three phase electric coils to balance building loads.
- Always allow a minimum clearance of 36" in front of all electric coil enclosures.
- All terminal units must be properly grounded per NEC 424-14 and 250.
- Always check product label for voltage and current data to determine proper wire size and current protection.
- These recommendations are not meant to preclude NEC requirements or local building codes that may be applicable, which are the responsibility of the installing contractor.

CAUTION
ELECTRIC SHOCK MAY RESULT

1. DISCONNECT POWER BEFORE SERVICING UNIT.
2. DO NOT OPERATE UNIT WITHOUT CONTROL COVER INSTALLED.

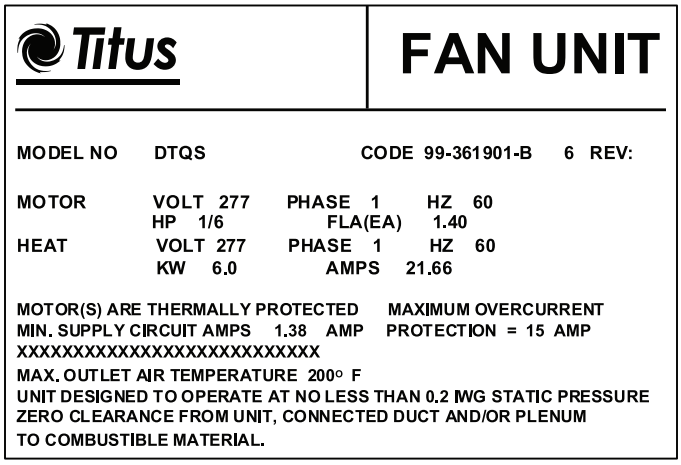
Fan Terminal Unit with Heater



Single Duct Terminal Unit with Heater

Data Label

All electric coils are provided with a product label affixed to the control enclosure cover. This label contains all necessary information regarding electrical power and circuit protection requirements, as specified by UL. See Figure 1.


Titus

FAN UNIT

MODEL NO DTQS CODE 99-361901-B 6 REV:

MOTOR VOLT 277 PHASE 1 HZ 60
HP 1/6 FLA(EA) 1.40
HEAT VOLT 277 PHASE 1 HZ 60
KW 6.0 AMPS 21.66

MOTOR(S) ARE THERMALLY PROTECTED MAXIMUM OVERCURRENT
MIN. SUPPLY CIRCUIT AMPS 1.38 AMP PROTECTION = 15 AMP
XXXXXXXXXXXXXXXXXXXXXXXXXX
MAX. OUTLET AIR TEMPERATURE 200° F
UNIT DESIGNED TO OPERATE AT NO LESS THAN 0.2 IWG STATIC PRESSURE
ZERO CLEARANCE FROM UNIT, CONNECTED DUCT AND/OR PLENUM
TO COMBUSTIBLE MATERIAL.

Figure 1

Heater Control Enclosure

Figure 2 shows the interior of a typical electric coil control enclosure. Various components contained within this enclosure are necessary for the safe operation of the product. An interlocking safety door disconnect switch is recommended, but not required. It prevents access to the enclosure until all ungrounded conductors are disconnected from the electric coil circuit. If an optional disconnect switch is not ordered, a terminal block will be provided for single point electrical hook-up. A ground lug is provided to insure proper grounding of the terminal unit housing and enclosure. Optional line fuses and fan motor fuses provide overcurrent protection, if permitted by local building codes. An air flow switch is always provided to lock-out the coil when there is no air flow across the elements. An automatic reset thermal cut-out is required to de-energize elements whenever discharge temperature is excessive. The coil will resume operation when discharge temperatures decrease. An optional manual reset thermal cut-out will protect the elements in the event of a thermal cut-out failure and prevent the coil from operating until qualified service personnel can make repairs. Fuse links are required on all single duct electric coils to provide safety in event of a thermal cut-out failure. Fuse links must be replaced as they cannot be reset. A control transformer is provided whenever a 24 V circuit is required. PE switches may be load bearing on small pneumatically-controlled electric coils, or pilot duty when current loads require magnetic contactors. Optional mercury contactors are available for extra long service life and / or silent operation. In addition to these components, fan powered terminals may include an SCR motor speed control and a fan relay.

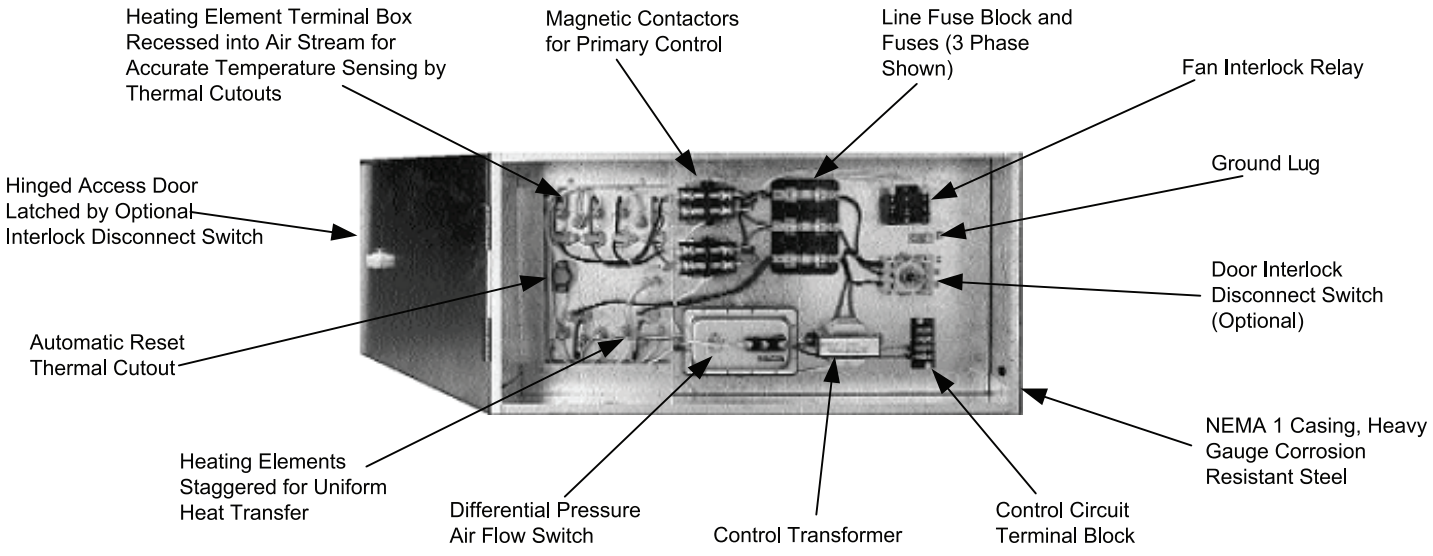


Figure 2

Wiring Diagrams

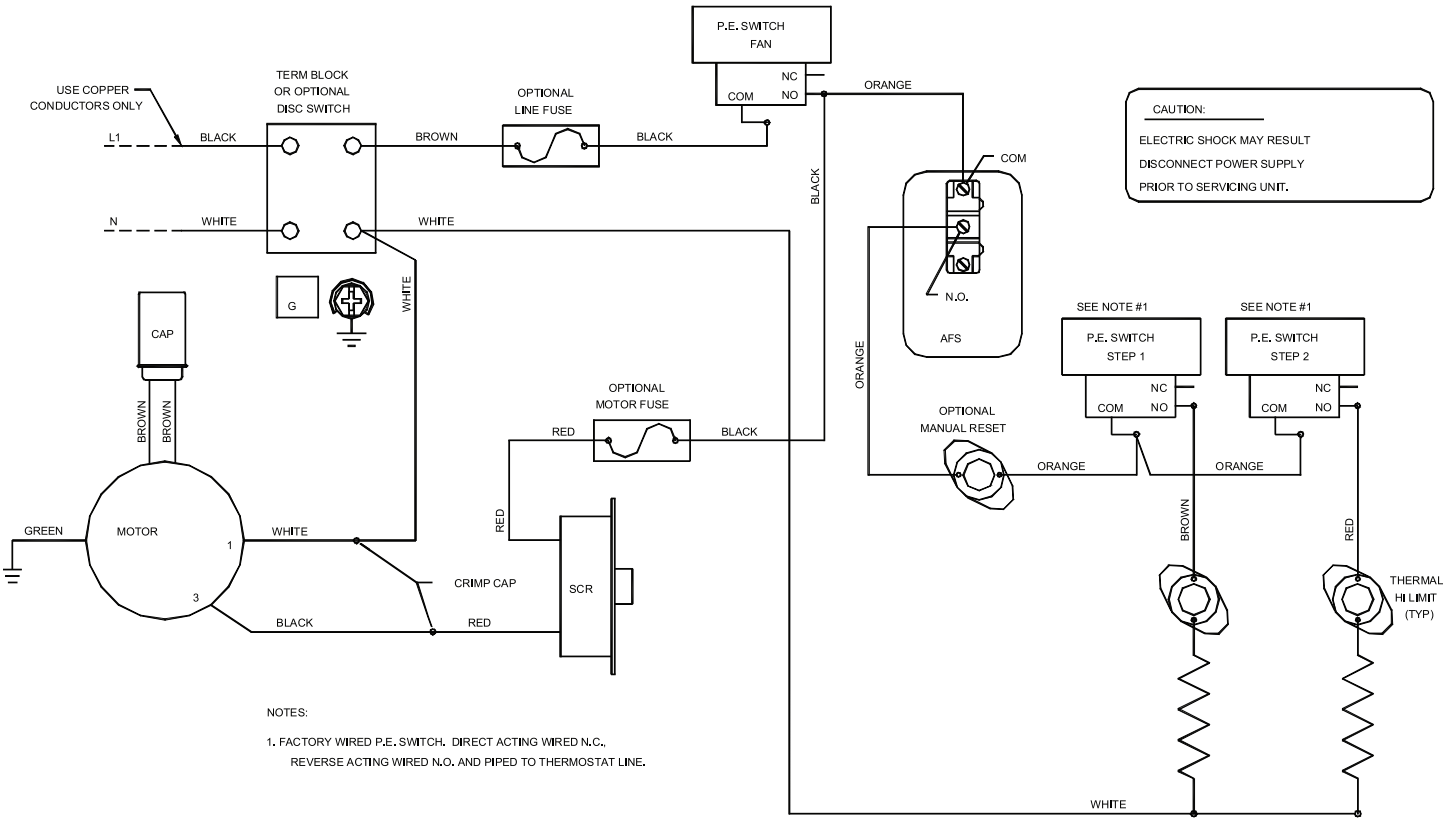


Figure 3
Pneumatic Parallel (Variable Volume) Fan Powered Terminal
Electric Reheat, 277V, 1, 2 Stage, 2 Element

Wiring Diagrams (continued)

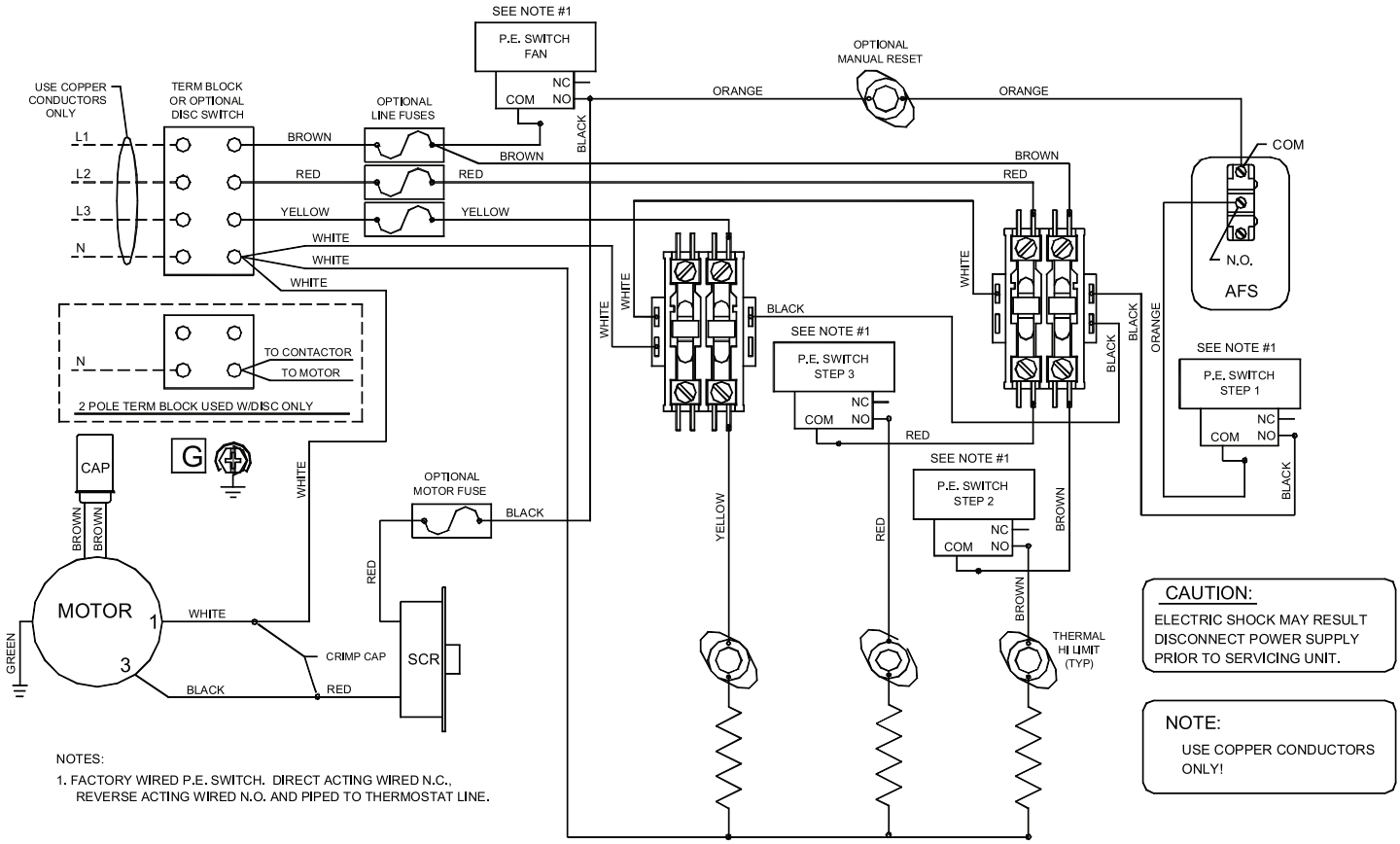


Figure 4
Pneumatic Parallel (Variable Volume) Fan Powered Terminal
Electric Reheat, 480V, 3, 3 Stage, 3 Element

Wiring Diagrams (continued)

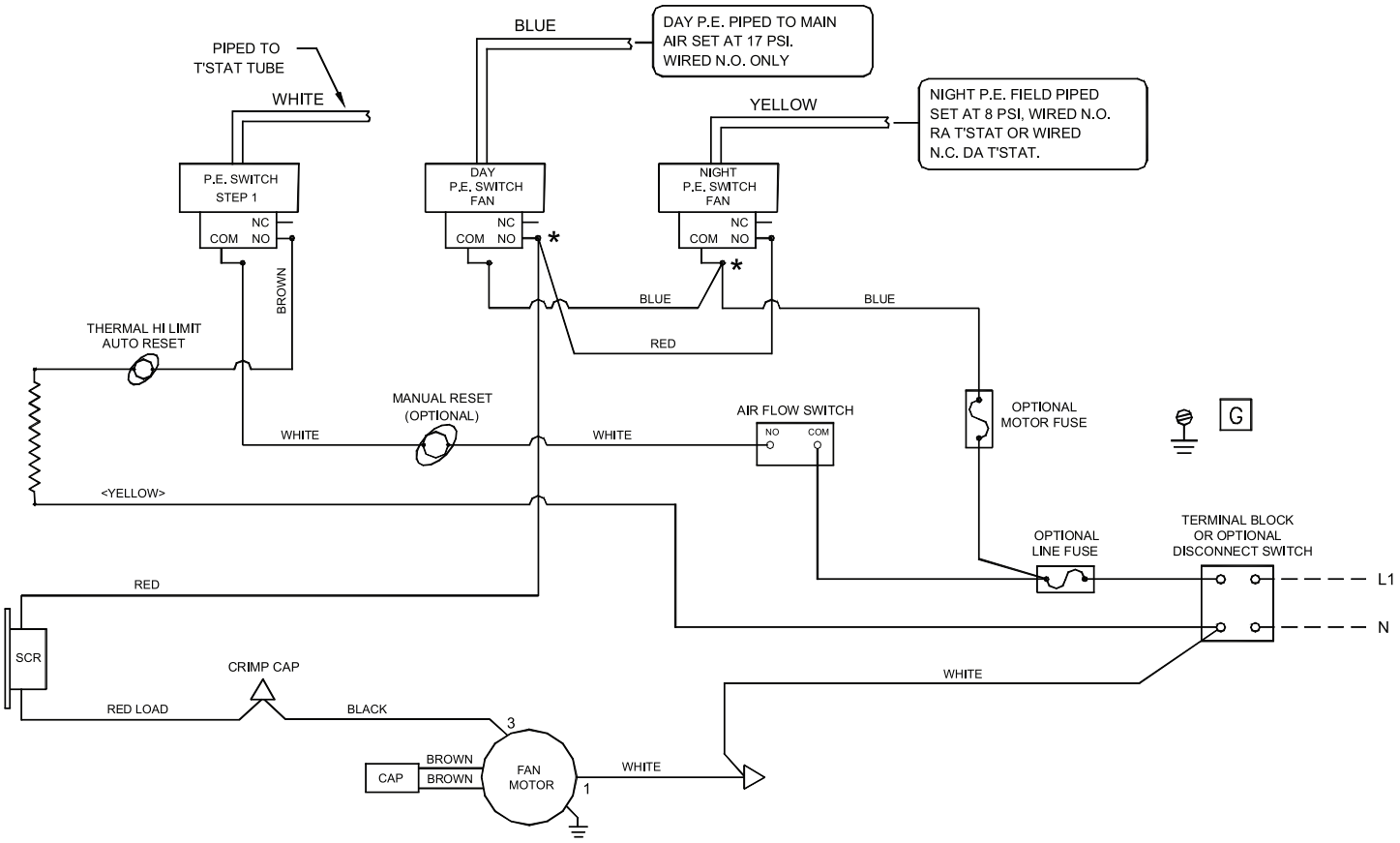


Figure 5
Pneumatic Series (Constant Volume) Fan Powered Terminal
Electric Reheat, 277V, 1, 1 Stage, 1 Element

Wiring Diagrams (continued)

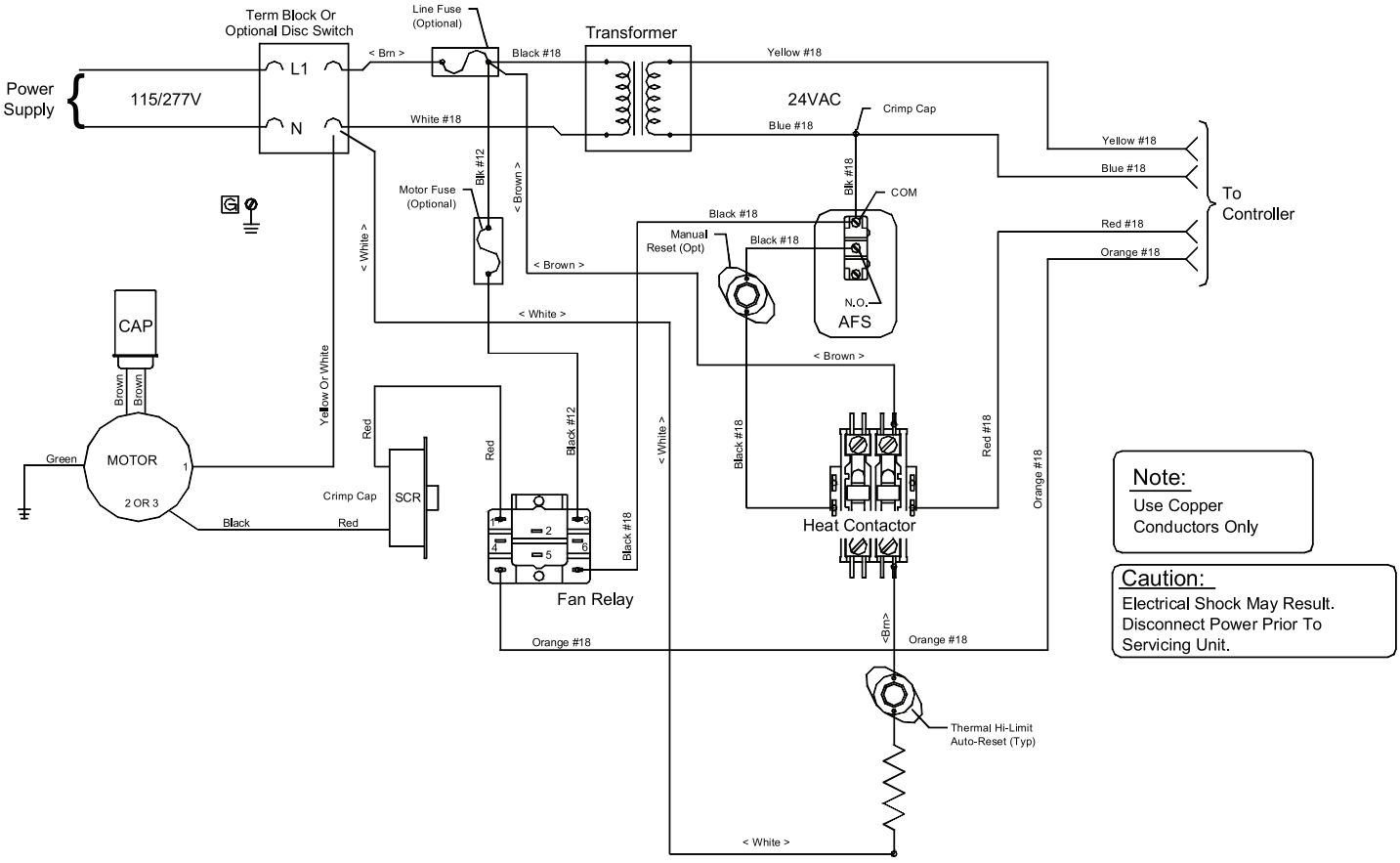


Figure 6
Typical Fan Powered Terminal, Factory Mounted Controls
Electric Reheat, 277V, 1, 1 Stage, 1 Element

Wiring Diagrams (continued)

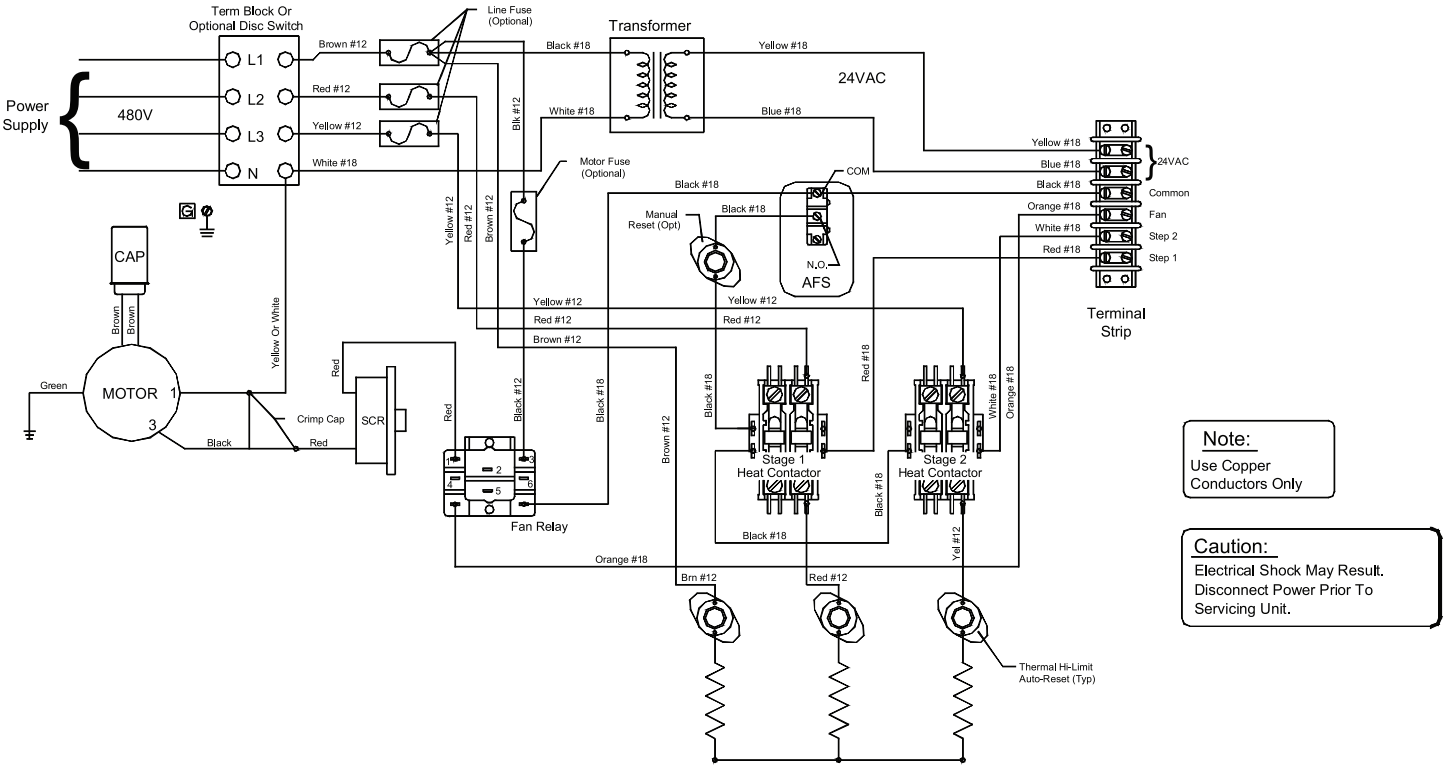


Figure 7
Typical Fan Powered Terminal, Field Mounted Controls
Electric Reheat, 480V, 3, 2 Stage, 3 Element

Wiring Diagrams (continued)

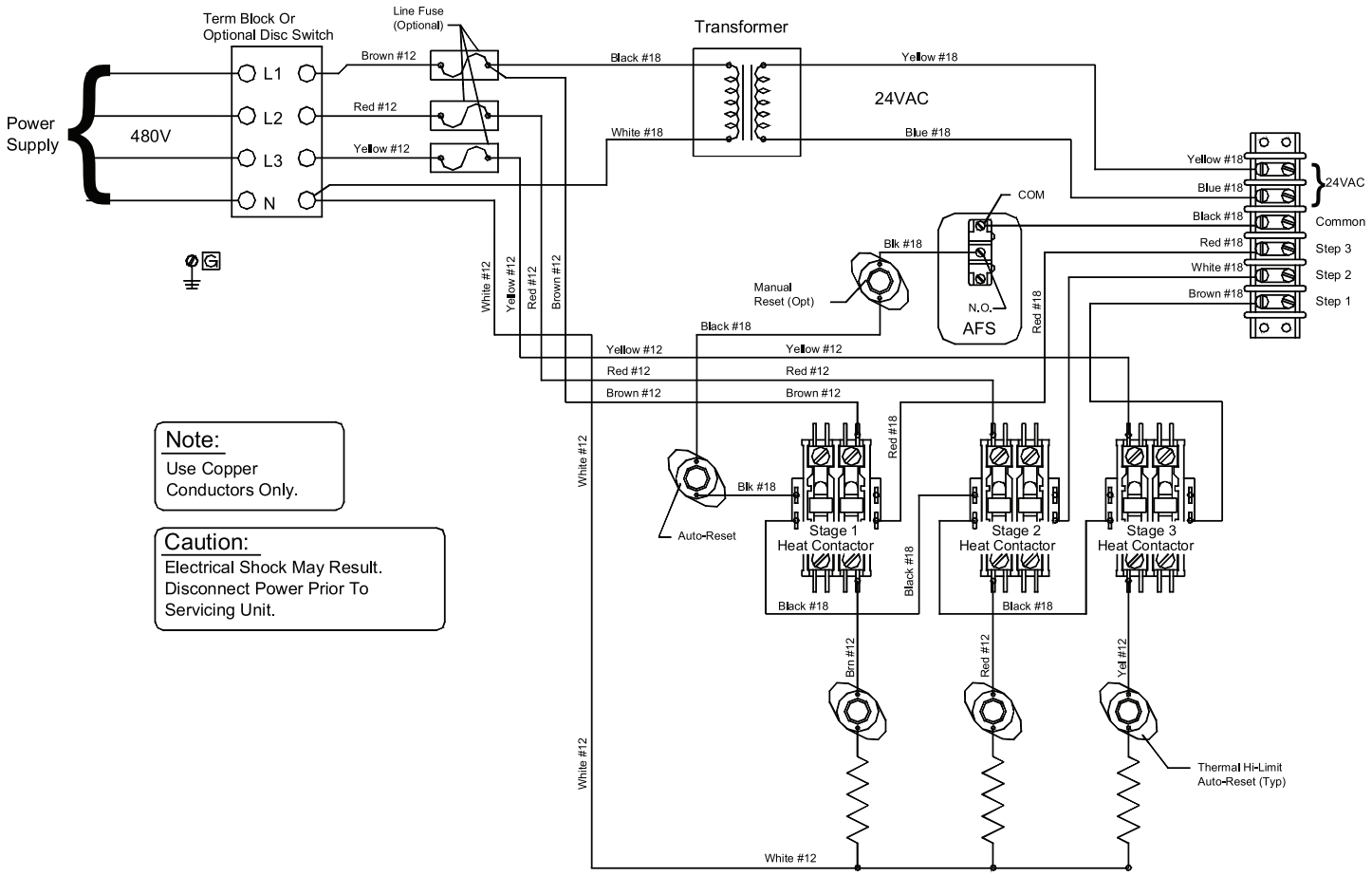


Figure 8
Typical Single Duct Terminal, Field Mounted Controls
Electric Reheat, 480V, 3, 3 Stage, 3 Element

Wiring Diagrams (continued)

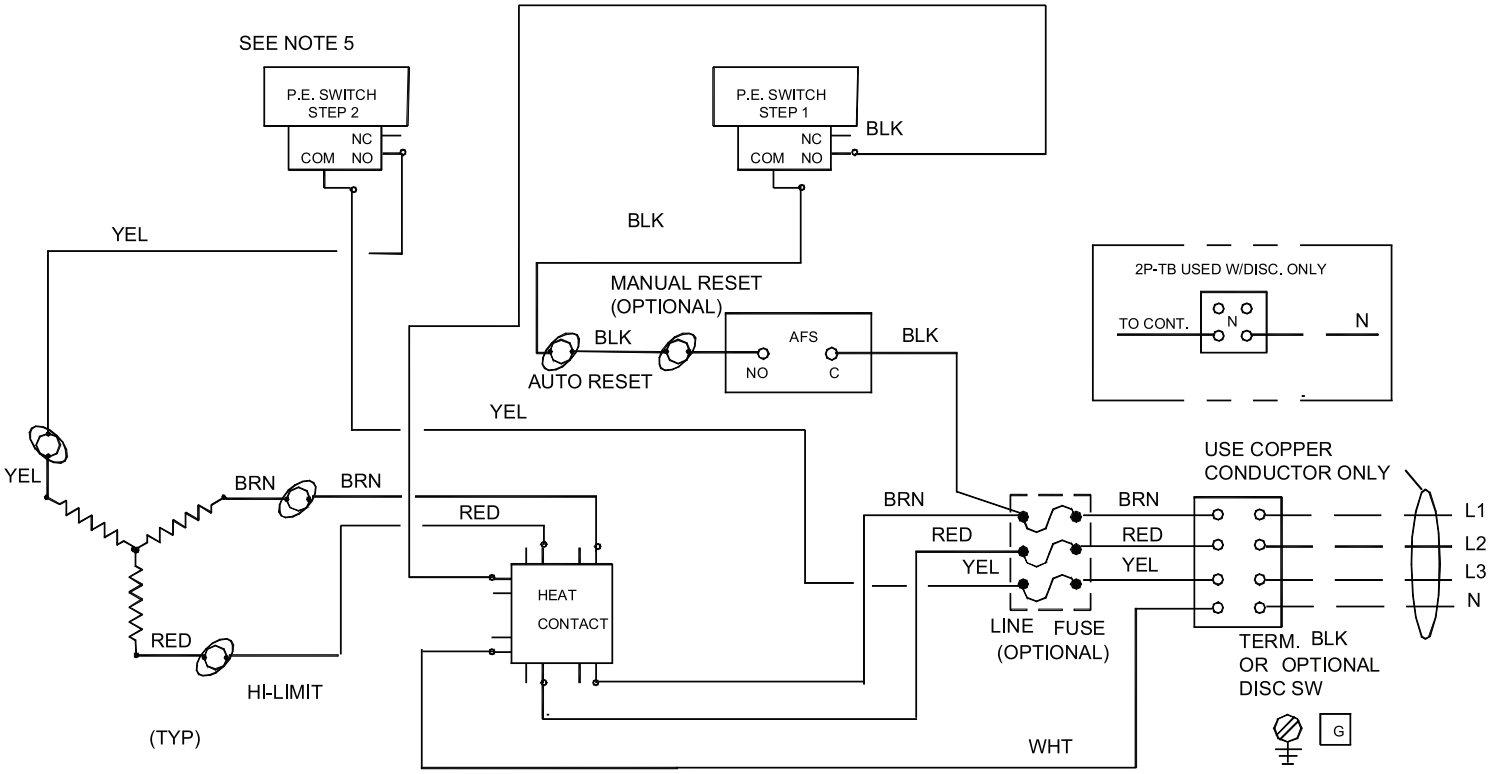
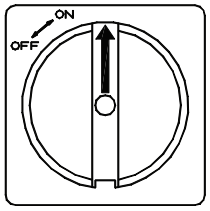
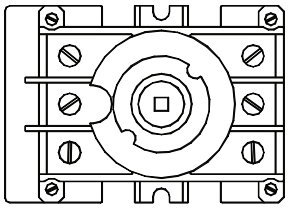
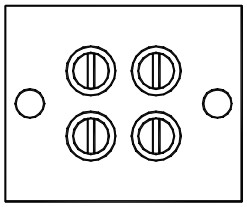
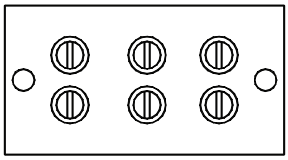
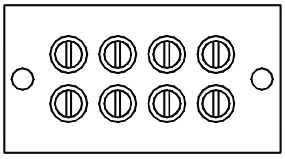
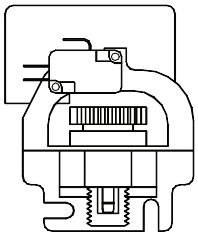
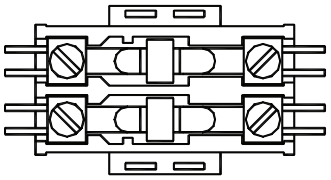
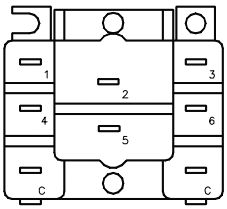
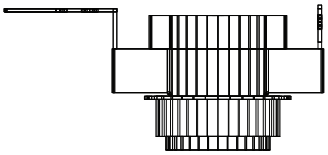
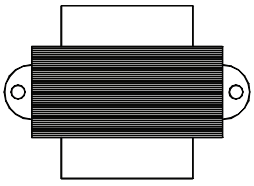
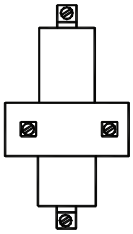
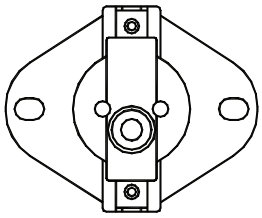
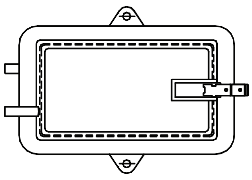
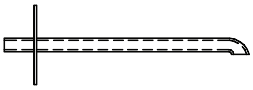


Figure 9
Pneumatic Single Duct Terminal
Electric Reheat, 480V, 3, 2 Stage, 3 Element

Electric Coil Components

Description	Vendor Model Number*	Part Number
Door Disconnect Handle	ABBOHB1AH1	10329301
Door Interlock Disconnect, 3 Pole, 40 Amp	ABBOT32ES	10329101
Door Interlock Disconnect, 3 Pole, 80 Amp	ABBOT63ES	10329201
Adapter Kit: Includes - Adapter plate, Interlocking Disconnect Switch, Selector Handle, Square Shaft, #8 x 1/2 TEK Screw		
3 Pole, 40 Amp		31489601
3 Pole, 80 Amp		31489602
Power Terminal Block, 2 Pole	1102, 55A or 9-85-2, 85A	10052301
Power Terminal Block, 3 Pole	1103, 85A or 9-85-3, 85A	10052401
Power Terminal Block, 4 Pole	1104, 55A or 9-85-4, 85A	10055001
PE Switch 1 Step	CCE-3011B or P658E1001	10000901
PE Switch 2 Step	CCE-3012B	10199801
PE Switch 3 Step	CCE-3013B	10199802
Magnetic Contactor, 24 Volt, 30 Amp, 2 pole	3100-20Q334 or R8242B1006	10054401
Magnetic Contactor, 208 / 240 Volt, 30 Amp, 2 Pole	3100-20U334 or R4242B1013	10054404
Magnetic Contactor, 277 Volt, 30 Amp, 2 Pole	3100-20V334 or R4242B1021	10054403
Relay, 24 Volt, Double Pole Double Throw	9100266Q34	10161801
Relay, 24 Volt, Single Pole Single Throw (Fan)	9100401Q34	10156901
Auto Reset Thermal Cutout (All Models)	60TX01 or 402-834	10052101
Manual Reset Thermal Cutout (All Models)	60T14L160F	10118801
Transformer 208 / 240 / 24 Volt, 50 VA	4000-09AW18AE34	10057501
Transformer 277 Volt / 24 Volt, 50 VA	4000-03AW18AE34	10006601
Transformer 480 / 24 Volt, 50 VA	4000-04AW04K34	10100301
Air Flow Switch	DFS221112 or RH1505-DO	10269501
Air Flow Switch Sensor, 4" Length	3000018 or 1729	10057201
Air Flow Switch Sensor, 6" Length	3000017 or 1729-22	10057202
Mercury Contactor, 24 Volt Holding Coil, 35 Amp, 1 Pole	35NO - 24A or 1035A24AC	10162001
Mercury Contactor, 24 Volt Holding Coil, 35 Amp, 2 Pole	235NO - 24A or 2035A24AC	10162002
Mercury Contactor, 24 Volt Holding Coil, 35 Amp, 3 Pole	335NO - 24A or 3035A24AC	10162003
Mercury Contactor, 208 / 240 Volt Holding coil, 35 Amp, 1 Pole	35NO - 220A or 1035A208ACDV	10162201
Mercury Contactor, 208 / 240 Volt Holding Coil, 35 Amp, 2 Pole	235NO - 220A or 2035A208ACDV	10162202
Mercury Contactor, 208 / 240 Volt Holding Coil, 35 Amp, 3 Pole	335NO - 220A or 3035A208ACDV	10162203
Mercury Contactor, 277 Volt Holding Coil, 35 Amp, 1 Pole	35NO - 277A or 1035A277AC	10162301
Mercury Contactor, 277 Volt Holding Coil, 35 Amp, 2 Pole	235NO - 277A or 2035A277AC	10162302
Mercury Contactor, 277 Volt Holding Coil, 35 Amp, 3 pole	335NO - 277A or 3035A277AC	10162303
Mercury Contactor, 24 Volt Holding Coil, 60 / 50 Amp, 1 Pole	60NO - 24A or 1050A24AC	10162004
Mercury Contactor, 24 Volt Holding Coil, 60 / 50 Amp, 2 Pole	260NO - 24A or 2050A24AC	10162005
Mercury Contactor, 24 Volt Holding Coil, 60 / 50 Amp, 3 Pole	360NO - 24A or 3050A24AC	10162006
Mercury Contactor, 208 / 240 Volt Holding Coil, 60 / 50 Amp, 1 Pole	60NO - 220A or 1050A208ACDV	10162204
Mercury Contactor, 208 / 240 Volt Holding Coil, 60 / 50 Amp, 2 Pole	260NO - 220A or 2050A208ACDV	10162205
Mercury Contactor, 208 / 240 Volt Holding Coil, 60 / 50 amp, 3 Pole	360NO - 220A or 3050A208ACDV	10162206
Mercury Contactor, 277 Volt Holding Coil, 60 / 50 Amp, 1 Pole	60NO - 277A or 1050A277AC	10162304
Mercury Contactor, 277 Volt Holding Coil, 60 / 50 Amp, 2 Pole	260NO - 277A or 2050A277AC	10162305
Mercury Contactor, 277 Voil Holding Coil, 60 / 50 Amp, 3 Pole	360NO - 277A or 3050A277AC	10162306

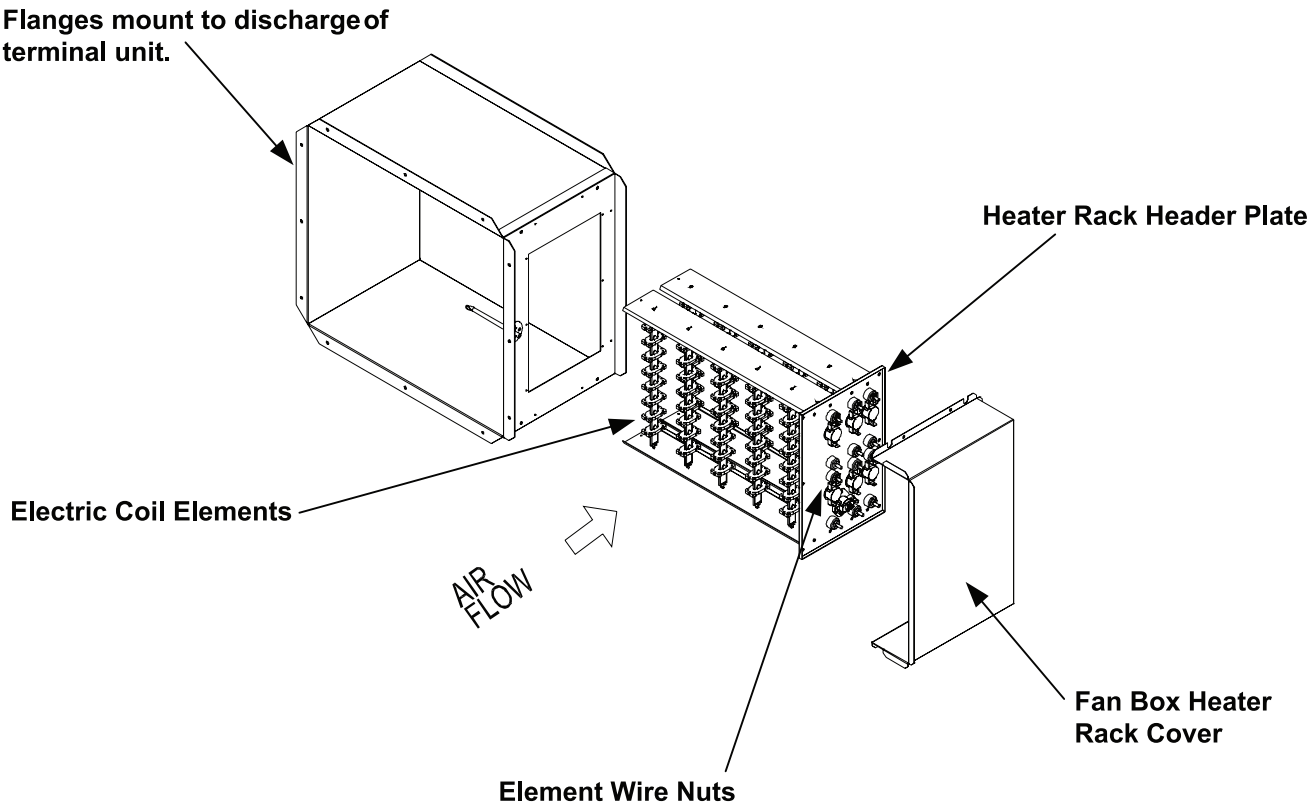
Electric Coil Components (continued)

 Door Disconnect Handle	 Door Disconnect Sub Base	 Terminal Block 2 Pole
 Terminal Block 3 Pole	 Terminal Block 4 Pole	 PE Switch
 Magnetic Heat Contactor	 Relay 24V SPST (Fan) Relay 24V DPDT	 Auto Reset Thermal Cutout (All Models)
 Transformer	 Mercury Contactor (1 Pole)	 Manual Reset Thermal Cutout
 Air Flow Switch	 Air Flow Sensor	

Heater Rack Replacement

On the fan powered terminals, the elements rack is located at the discharge end of the terminal under a metal heater rack cover held with screws. On the single duct terminals, the element rack is located inside the control enclosure on the side of the terminal.

1. Turn power off to the terminal unit before servicing.
2. Locate element rack header plate.
3. Before removing wires from the element rack header plate, mark the wires and where they are connected, to insure they are reconnected correctly on the new element rack.
4. Remove the wires and screws holding the header plate in the coil housing.
5. Insert the new element rack into the coil housing and replace the screws to secure the element rack.
6. Replace wires in the same locations as removed from old element rack.
7. Replace enclosure metal cover or door before turning on power to the electric coil.



Fan Powered Terminal Heater

Heater Rack Replacement

Problem	Possible Cause	Possible Solution
Heater will not operate or heat	Disconnect or circuit breaker	May be in off position
	Fuses	May be blown, wrong amp size; replace with new fuses of correct size
	Manual reset cutout	If opened, manually reset it
	Air switch	Insufficient air flow or tube is disconnected from air pickup probe to air switch
	Automatic reset thermal cutout	Opened circuit from over heating, increase airflow
	P E switch	Check if wired DA/NC or RA/NO terminal and common
	Electronic controller	Check to see if controller is setup for proper heat sequence
	Element wire burned out	Use ohm meter to check for resistance, no resistance, replace with new elements
	Transformer	Check to see if getting 24 volts on secondary side +/-2 volts or replace new
	Heat contactor	Won't close contacts with power to holding coil terminals; replace with new contactor
	Wiring problem	Check if correctly wired per wire diagram
Heater Cycles	Air switch opening and closing	Not sufficient air flow at times, increase airflow
	Transformer	Short on volt amps for full operation of equipment; need larger transformer
	Contactor chattering	Transformer under sized or air switch not staying closed; need larger transformer or more air for air switch
	Automatic reset thermal cutout	Increase air flow or look for insulation obstructing airflow over coil

605 Shiloh Rd
Plano TX 75074
ofc: 972.212.4800
fax: 972.212.4884

Titus Redefine your comfort zone.™	STANDARD LIMITED WARRANTY ENGINEERED SYSTEMS EQUIPMENT	
SERVICE POLICY	Supersedes:	Form AHU-Warranty-01

POLICY STATEMENT

Johnson Controls (JCI) warrants all equipment and associated factory supplied materials or start-up services performed by Johnson Controls in connection therewith, against defects in workmanship and material for a period of eighteen (18) months from date of shipment, or twelve (12) months from date of start up, whichever occurs first. Subject to the exclusions listed below, Johnson Controls, at its option, will repair or replace, FOB point of shipment, such products or components as it finds defective.

Except for reciprocating replacement compressors, which Johnson Controls warrants for a period of twelve (12) months from date of shipment, Johnson Controls warrants Johnson Controls reconditioned or replacement materials, or installation or start-up services performed by Johnson Controls in connection therewith, against defects in workmanship and material for a period of (90) days from date of shipment.

The above represents the minimum warranty policy Titus will extend to customers. Additional product specific coverage is provided as outlined in related warranty policies. No warranty repairs or replacements will be made until payment for all equipment, materials, or components has been received by Titus.

EXCLUSIONS:

Unless specifically agreed to in the contract documents, this warranty does not include the following costs and expenses:

1. Labor to remove or reinstall any equipment, materials or components.
2. Shipping, handling or transportation charges, including cranes, safety walks or other safety requirements specific to jobsites.
3. Cost of refrigerant.
4. Freight damage.
5. Field applied coatings added to any surface or heat exchanger.
6. Rental Chillers.

ALL WARRANTIES ARE VOID IF:

1. Equipment is used with refrigerants, oil, additives, or antifreeze agents other than those authorized by supplying factory.
2. Equipment is used with any material or any equipment such as evaporators, tubing, other low side equipment or refrigerant controls not approved by supplying factory.
3. Equipment has been damaged by freezing because it was not properly protected during cold weather or damaged by fire or any other conditions not ordinarily encountered.
4. Equipment is not installed, operated, maintained and serviced in accordance with instructions issued by Johnson Controls.
5. Equipment is damaged due to dirt, air, moisture, or other foreign matter entering the refrigerant system.
6. Equipment is not properly stored, protected, or inspected by the customer during the period from date of shipment to date of initial start-up.
7. Field coating of coil has occurred.
8. Equipment is damaged due to acts of god, abuse, including shipping damage, neglect, sabotage, or acts of terrorists.
9. Equipment has modifications carried out that have an effect on the original design of the product without such work being authorized by the factory. Any on site design changes or unit modification/replacement shall be authorized in advance by the factory.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES AND LIABILITIES, EXPRESS OR IMPLIED IN LAW OR IN FACT, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE WARRANTIES CONTAINED HEREIN SET FORTH BUYER'S SOLE AND EXCLUSIVE REMEDY IN THE EVENT OF A DEFECT IN WORKMANSHIP OR MATERIALS. IN NO EVENT SHALL JOHNSON CONTROLS' LIABILITY FOR DIRECT OR COMPENSATORY DAMAGES EXCEED THE PAYMENTS RECEIVED BY JOHNSON CONTROLS FROM BUYER FOR THE MATERIAL OR EQUIPMENT INVOLVED, NOR SHALL JOHNSON CONTROLS BE LIABLE FOR ANY SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES. THESE LIMITATIONS ON LIABILITY AND DAMAGES SHALL APPLY UNDER ALL THEORIES OF LIABILITY OR CAUSES OF ACTION, INCLUDING BUT NOT LIMITED TO, CONTRACT, WARRANTY, TORT, (INCLUDING NEGLIGENCE) OR STRICT LIABILITY. THE ABOVE LIMITATIONS SHALL INURE TO THE BENEFIT OF JOHNSON CONTROLS SUPPLIERS AND SUBCONTRACTORS.

605 Shiloh Rd. | Plano, Texas 75074 | ofc: 972.212.4800 | fax: 972.212.4884 | web: www.titus-hvac.com

LETTER OF TRANSMITTAL

TO: *Kinco Constructors*

RE: *LRSD Rockefeller EC Center*

DATE: August 10, 2023

JOB NO.: 22-046

ATTN: Mr. Casey Sowell/ Mr. Andrew McCarty

COPIES	DATE	NO.	DESCRIPTION
1 Emailed	08/07/23	23 36 00-2	Air Terminal Units VAV #39 & #41 Resubmittal

THESE ARE TRANSMITTED:

[ ]For Approval [ ]As Requested [XX] Reviewed for General Compliance [ ]Resubmit___copies for approval

[ ]For Your Use [ ]For Review and Comment [] Reviewed and Noted [ ]Submit ___copies for distribution

[ ]For Your Information [] Revise and Resubmit Comments [ ]Return___corrected prints

REMARKS:

COPY TO: Job File

BY: _____
JoAnn White, CIT
Contract Administrator

201 S Chester
Little Rock, AR 72201
501.237.3077

Submittal Comment Sheet

Project Name: Rockefeller Pre-K Renovation

Project Number:22-050
Date Received: 08/07/2023
Date Returned:08/10/2023
Reviewed By: K. Koch

1. VAV Units
    a. Approved

End of Comments

THE CONSULTANTS OF RECORD FOR THIS PROJECT HAVE REVIEWED THESE SHOP DRAWINGS. THE CONSULTANTS' COMMENTS AND REVIEW STAMP ARE APPLICABLE FOR THEIR PORTION OF THE WORK. THE REVIEW AND CHECKING OF THE REFERENCED SUBMITTED DOCUMENTS IS FOR GENERAL CONFORMANCE WITH THE DESIGN INTENT OF THE PROJECT AND GENERAL COMPLIANCE WITH THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS. ANY ACTION SHOWN IS SUBJECT TO THE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS. REVIEW IS NOT CONDUCTED FOR THE PURPOSE OF DETERMINING THE ACCURACY AND COMPLETENESS OF OTHER DETAILS, SUCH AS DIMENSIONS AND QUANTITIES, FOR SUBSTANTIATING INSTRUCTIONS FOR INSTALLATION OR PERFORMANCE OF EQUIPMENT OR SYSTEMS, OR FOR COORDINATION OF THE WORK OF ALL TRADES, ALL OF WHICH REMAIN THE RESPONSIBILITY OF THE CONTRACTOR AS REQUIRED BY THE CONTRACT DOCUMENTS. CONTRACTOR IS RESPONSIBLE FOR ALL QUANTITIES.

Submittal #23 36 00-2.0
23 36 00 - AIR TERMINAL UNITS

Central Arkansas
12600 Lawson Road
Little Rock, Arkansas 72210
Phone: (501) 225-7606
Fax: (501) 225-1028

Project: 23.1004 - 23.1004 LRSD Rockefeller Early Childhood Center (WDD #22-046)
700 East 17th Street
Little Rock, 72206

VAV #39 & #41 Resubmittal

SPEC SECTION:	23 36 00 - AIR TERMINAL UNITS	**SUBMITTAL MANAGER:**	Andrew McCarty **(Kinco Constructors, LLC)**
STATUS:	Open	**DATE CREATED:**	08/7/2023
ISSUE DATE:	08/7/2023	**REVISION:**	0
RESPONSIBLE CONTRACTOR:	Comfort Systems USA Arkansas, Inc.	**RECEIVED FROM:**	Matt Aldridge
RECEIVED DATE:		**SUBMIT BY:**	
FINAL DUE DATE:	08/21/2023	**LOCATION:**	
TYPE:		**COST CODE:**	
APPROVERS:	JoAnn White **(Wittenberg, Delony & Davidson, Inc)**		

BALL IN COURT:
JoAnn White **(Wittenberg, Delony & Davidson, Inc)**

DISTRIBUTION:

DESCRIPTION:
Resubmittal for VAV 39 & 41

ATTACHMENTS:
23 36 00-01 Air Terminal Units Re-Submittal #1.pdf

SUBMITTAL WORKFLOW

NAME	SUBMITTER/ APPROVER	SENT DATE	DUE DATE	RETURNED DATE	RESPONSE	ATTACHMENTS	COMMENTS
Andrew McCarty	Submitter		8/7/2023	8/7/2023	Submitted	23 36 00-2 Air Terminal Units.pdf	Kinco Reviewed
JoAnn White	Approver	8/7/2023	8/21/2023		Pending		

BY **DATE** **COPIES TO**

CUSTOM METALS
A DIVISION OF LEXICON, INC.
P.O. Box 16390, Little Rock, AR 72231
Telephone (501) 490-4400 Fax (501) 490-4422
www.lexicon-inc.com

Job: LRSD Rockefeller Early Childhood

Spec Section: 23 36 00 Air Terminal Units

Item: VAV Box Re-submittals

Submitted by:

Joe Minton Jr.

HVAC Project Manager

(501) 607-0043

07-28-2023

CREATING CUSTOMERS FOR LIFE

POWERS

RE-SUBMITTAL

PRODUCT	VAV BOXES W/ ELECTRIC RE-HEAT
MANUFACTURER	TITUS
JOB NAME	LRSD ROCKEFELLER EARLY CHILDHOOD
LOCATION	LITTLE ROCK
ENGINEER	INSIGHT
CONTRACTOR	CUSTOM METALS
DATE	7/27/2023
SUBMITTED BY	COURTNEY MICHAEL

VAV's 39 and 49 have been revised to match addendum schedule

5440 Northshore Drive - North Little Rock, Arkansas 72118 - Tel: 501.374.5420 Fax: 501.370.9298

VAV-34	DESV	05	12x8	350	105	1	0.25	0.06	200	2	480/3	7	55	94.5	3.8	15
VAV-35	DESV	08	12x10	750	225	1	0.25	0.05	375	5	480/3	17.1	55	97.1	7.5	15
VAV-36	DESV	05	12x8	300	90	1	0.25	0.04	200	2	480/3	7	55	94.5	3.8	15
VAV-37	DESV	05	12x8	300	90	1	0.25	0.04	200	2	480/3	7	55	94.5	3.8	15
VAV-38	DESV	12	16x15	1740	522	1	0.25	0.2	870	10	480/3	34.1	55	91.3	15.0	15
VAV-39	DESV	08	12x8	550	165	1	0.25	0.2	275	3.5	480/3	11.9	55	95.2	5.3	15
VAV-40	DESV	08	12x10	700	210	1	0.25	0.04	350	4	480/3	13.7	55	91.1	6.0	15
VAV-41	DESV	06	12x8	500	150	1	0.25	0.2	250	3	480/3	10	55	92.9	4.5	15
VAV-42	DESV	10	14x12.5	1350	405	1	0.25	0.24	675	8	480/3	27.3	55	92.5	12.0	15
VAV-43	DESV	05	12x8	300	90	1	0.25	0.04	200	2	480/3	7	55	94.5	3.8	15
VAV-44	DESV	10	14x12.5	1000	300	1	0.25	0.14	500	6	480/3	20.5	55	92.9	9.0	15
VAV-45	DESV	08	12x10	700	210	1	0.25	0.04	350	4	480/3	13.7	55	91.1	6.0	15
VAV-46	DESV	12	16x15	1600	480	1	0.25	0.17	800	9	480/3	30.7	55	90.6	13.5	15
VAV-47	DESV	12	16x15	1800	540	1	0.25	0.21	900	11	480/3	37.5	55	93.6	16.5	20
VAV-48	DESV	08	12x10	800	240	1	0.25	0.05	400	5	480/3	17.1	55	94.5	7.5	15
VAV-49	DESV	06	12x8	400	120	1	0.25	0.06	200	2.5	480/3	8	55	94.5	3.8	15
VAV-50	DESV	05	12x8	350	105	1	0.25	0.06	200	2	480/3	7	55	94.5	3.8	15
VAV-51	DESV	08	12x10	800	240	1	0.25	0.05	400	5	480/3	17.1	55	94.5	7.5	15
VAV-52	DESV	08	12x10	550	165	1	0.25	0.03	275	4	480/3	12.1	55	95.2	5.3	15
VAV-53	DESV	12	16x15	1725	518	1	0.25	0.2	863	10	480/3	34.1	55	91.6	15.0	15
VAV-54	DESV	12	16x15	1725	518	1	0.25	0.2	863	10	480/3	34.1	55	91.6	15.0	15
VAV-55	DESV	10	14x12.5	1350	405	1	0.25	0.24	675	8	480/3	27.3	55	92.5	12.0	15
VAV-56	DESV	12	16x15	1650	495	1	0.25	0.18	825	9	480/3	30.7	55	89.5	13.5	15
VAV-57	DESV	10	14x12.5	1400	420	1	0.25	0.26	700	8	480/3	27.3	55	91.1	12.0	15
VAV-58	DESV	12	16x15	1650	495	1	0.25	0.18	825	9	480/3	30.7	55	89.5	13.5	15
VAV-59	DESV	12	16x15	1600	480	1	0.25	0.17	800	9	480/3	30.7	55	90.6	13.5	15

1. Selections are based on Titus as Manufacturer.
2. All performance based on tests conducted in accordance with ASHRAE 130-2008 and
3. All NC levels determined using AHRI 885-2008 Appendix E.
4. All airflow, pressure losses and heating performance values have been corrected for
5. Units of measure: dimensions (in), airflow (cfm), water flow (gpm), air pressure (in wg),
6. In the "Steps" column, code "S" denotes a modulating SCR heater.
7. The minimum supply circuit ampacity (MCA) and maximum overcurrent protection

**VAV-48 and 51 are specified with an MBH of 31. At 5KW, 17.1 is the highest. Please verify this selection is correct.

zone sensors, air temp sensors and BACNET controllers provided by controls contractor

The results of this program are only an aid to the designer, and are not a substitute for professional design services.

Titus accepts no liability for the adequacy of any resulting design or installation.

6/28/2023

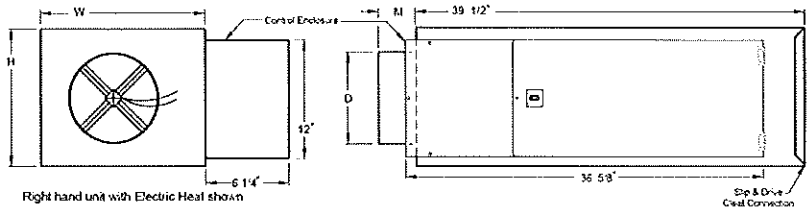
Project	LRSD Rockefeller Early Ch	**Date**	07/27/2023
Architect		**Office**	Powers of Arkansas
Engineer		**Preparer**	Courtney Michael
Contractor		**Version**	2014.0.548
Designation	VAV		

DESV

Single Duct Terminal Unit, Direct Digital Control, Pressure Independent

Main Product DESV-1

DESV



Air Inlet (D) is 1/8" smaller than its Nom. Inlet.
All dimensions are in inches.

Unit-Size	CFM Range	Nom. Inlet	H	W	Air Inlet Collar (M)
12	0 - 2000	12" Dia.	15"	16"	3 3/8"
10	0 - 1400	10" Dia.	12 1/2"	14"	3 3/8"
08	0 - 900	8" Dia.	10"	12"	3 3/8"
06	0 - 500	6" Dia.	8"	12"	3 3/8"
05	0 - 350	5" Dia.	8"	12"	5 3/8"

General Description DESV-1

- Heavy gauge steel housing. Mechanically sealed and gasketed, leak resistant construction. Less than 2% of nominal CFM at 1.5" sp wg.
- Dual density internal insulation, treated to resist air erosion. Meets requirements of NFPA 90A and UL 181.
- Rectangular discharge opening is designed for slip and drive cleat duct connection.
- Multipoint center averaging inlet velocity sensor.
- Digital control packages can be factory mounted by Titus.
- Choice of right hand or left hand control location.
- Model DESV can be installed horizontally, vertically, or at any angle. Operation is not affected by position.
- Gauge tees for CFM measurement.

Option Schedule **DESV-1**

ID	Quantity	Tag	UNIT SIZE	MAX PRIMARY CFM	MIN PRIMARY CFM
1	1	VAV-1	12	1700	510
9	1	VAV-3	12	1700	510
10	1	VAV-4	12	1700	510
12	1	VAV-6	12	1700	510
32	1	VAV-26	12	1700	510
34	1	VAV-28	12	1700	510
36	1	VAV-30	12	1700	510
37	1	VAV-31	12	1700	510
44	1	VAV-38	12	1740	522
59	1	VAV-53	12	1725	518
60	1	VAV-54	12	1725	518

SENSOR CODE 3 - AEROCROSS
UNIT CONFIG 3 -ELECT. HEAT UNIT
LINER OPTION 2 -STERILOC
CASING CONFIG 0R -STD 22GA RH
DIGITAL CONTROLLER 0000 -NONE
ACTUATOR TYPE 0000 -NONE
CONTROL ACC1 00 -NONE
CONTROL ACC2 00 -NONE
CONTROL ACC3 00 -NONE
UNIT ACC1 Z -24V W/ELECTRIC HEAT X-FORMER
UNIT ACC2 B -HANGER BRACKET
UNIT ACC3 0 -NONE
UNIT ACC4 0 -NONE
UNIT ACC5 0 -NONE
WATER COIL 000 -NONE
ELECTRIC HEAT TYPE L93-480V, 3 PH, 0-10V / 0-20MA, 4-WIRE
KW 10
ELEC COIL ACC1 0 -NONE
ELEC COIL ACC2 0 -NONE
ELEC COIL ACC3 0 -NONE
ELEC COIL ACC4 0 -NONE

ID	Quantity	Tag	UNIT SIZE	MAX PRIMARY CFM	MIN PRIMARY CFM
8	1	VAV-2	12	1800	540
11	1	VAV-5	12	1800	540
33	1	VAV-27	12	1800	540
35	1	VAV-29	12	1800	540
53	1	VAV-47	12	1800	540

SENSOR CODE 3 - AEROCROSS
UNIT CONFIG 3 -ELECT. HEAT UNIT
LINER OPTION 2 -STERILOC
CASING CONFIG 0R -STD 22GA RH
DIGITAL CONTROLLER 0000 -NONE
ACTUATOR TYPE 0000 -NONE
CONTROL ACC1 00 -NONE
CONTROL ACC2 00 -NONE
CONTROL ACC3 00 -NONE
UNIT ACC1 Z -24V W/ELECTRIC HEAT X-FORMER
UNIT ACC2 B -HANGER BRACKET
UNIT ACC3 0 -NONE
UNIT ACC4 0 -NONE
UNIT ACC5 0 -NONE
WATER COIL 000 -NONE
ELECTRIC HEAT TYPE L93-480V, 3 PH, 0-10V / 0-20MA, 4-WIRE
KW 11
ELEC COIL ACC1 0 -NONE
ELEC COIL ACC2 0 -NONE
ELEC COIL ACC3 0 -NONE
ELEC COIL ACC4 0 -NONE

Option Schedule (continued) DESV-1

ID	Quantity	Tag	UNIT SIZE	MAX PRIMARY CFM	MIN PRIMARY CFM
13	1	VAV-7	10	1400	420
16	1	VAV-10	10	1400	420
28	1	VAV-22	10	1400	420
31	1	VAV-25	10	1400	420
48	1	VAV-42	10	1350	405
61	1	VAV-55	10	1350	405
63	1	VAV-57	10	1400	420

SENSOR CODE 3 - AEROCROSS
UNIT CONFIG 3 -ELECT. HEAT UNIT
LINER OPTION 2 -STERILOC
CASING CONFIG 0R -STD 22GA RH
DIGITAL CONTROLLER 0000 -NONE
ACTUATOR TYPE 0000 -NONE
CONTROL ACC1 00 -NONE
CONTROL ACC2 00 -NONE
CONTROL ACC3 00 -NONE
UNIT ACC1 Z -24V W/ELECTRIC HEAT X-FORMER
UNIT ACC2 B -HANGER BRACKET
UNIT ACC3 0 -NONE
UNIT ACC4 0 -NONE
UNIT ACC5 0 -NONE
WATER COIL 000 -NONE
ELECTRIC HEAT TYPE L93-480V, 3 PH, 0-10V / 0-20MA, 4-WIRE
KW 8
ELEC COIL ACC1 0 -NONE
ELEC COIL ACC2 0 -NONE
ELEC COIL ACC3 0 -NONE
ELEC COIL ACC4 0 -NONE

ID	Quantity	Tag	UNIT SIZE	MAX PRIMARY CFM	MIN PRIMARY CFM
14	1	VAV-8	12	1600	480
15	1	VAV-9	12	1600	480
26	1	VAV-20	12	1600	480
27	1	VAV-21	12	1600	480
29	1	VAV-23	12	1600	480
30	1	VAV-24	12	1600	480
52	1	VAV-46	12	1600	480
62	1	VAV-56	12	1650	495
64	1	VAV-58	12	1650	495
65	1	VAV-59	12	1600	480

SENSOR CODE 3 - AEROCROSS
UNIT CONFIG 3 -ELECT. HEAT UNIT
LINER OPTION 2 -STERILOC
CASING CONFIG 0R -STD 22GA RH
DIGITAL CONTROLLER 0000 -NONE
ACTUATOR TYPE 0000 -NONE
CONTROL ACC1 00 -NONE
CONTROL ACC2 00 -NONE
CONTROL ACC3 00 -NONE
UNIT ACC1 Z -24V W/ELECTRIC HEAT X-FORMER
UNIT ACC2 B -HANGER BRACKET
UNIT ACC3 0 -NONE
UNIT ACC4 0 -NONE
UNIT ACC5 0 -NONE
WATER COIL 000 -NONE
ELECTRIC HEAT TYPE L93-480V, 3 PH, 0-10V / 0-20MA, 4-WIRE
KW 9
ELEC COIL ACC1 0 -NONE
ELEC COIL ACC2 0 -NONE
ELEC COIL ACC3 0 -NONE
ELEC COIL ACC4 0 -NONE

Option Schedule (continued) DESV-1

ID	Quantity	Tag	UNIT SIZE	MAX PRIMARY CFM	MIN PRIMARY CFM
17	1	VAV-11	08	700	210
18	1	VAV-12	08	575	173
21	1	VAV-15	08	650	195
46	1	VAV-40	08	700	210
51	1	VAV-45	08	700	210

SENSOR CODE 3 - AEROCROSS
UNIT CONFIG 3 -ELECT. HEAT UNIT
LINER OPTION 2 -STERILOC
CASING CONFIG 0R -STD 22GA RH
DIGITAL CONTROLLER 0000 -NONE
ACTUATOR TYPE 0000 -NONE
CONTROL ACC1 00 -NONE
CONTROL ACC2 00 -NONE
CONTROL ACC3 00 -NONE
UNIT ACC1 Z -24V W/ELECTRIC HEAT X-FORMER
UNIT ACC2 B -HANGER BRACKET
UNIT ACC3 0 -NONE
UNIT ACC4 0 -NONE
UNIT ACC5 0 -NONE
WATER COIL 000 -NONE
ELECTRIC HEAT TYPE L93-480V, 3 PH, 0-10V / 0-20MA, 4-WIRE
KW 4
ELEC COIL ACC1 0 -NONE
ELEC COIL ACC2 0 -NONE
ELEC COIL ACC3 0 -NONE
ELEC COIL ACC4 0 -NONE

ID	Quantity	Tag	UNIT SIZE	MAX PRIMARY CFM	MIN PRIMARY CFM
19	1	VAV-13	10	1200	360
20	1	VAV-14	10	1200	360
22	1	VAV-16	10	1150	345
23	1	VAV-17	10	1150	345
24	1	VAV-18	10	1150	345
25	1	VAV-19	10	1150	345

SENSOR CODE 3 - AEROCROSS
UNIT CONFIG 3 -ELECT. HEAT UNIT
LINER OPTION 2 -STERILOC
CASING CONFIG 0R -STD 22GA RH
DIGITAL CONTROLLER 0000 -NONE
ACTUATOR TYPE 0000 -NONE
CONTROL ACC1 00 -NONE
CONTROL ACC2 00 -NONE
CONTROL ACC3 00 -NONE
UNIT ACC1 Z -24V W/ELECTRIC HEAT X-FORMER
UNIT ACC2 B -HANGER BRACKET
UNIT ACC3 0 -NONE
UNIT ACC4 0 -NONE
UNIT ACC5 0 -NONE
WATER COIL 000 -NONE
ELECTRIC HEAT TYPE L93-480V, 3 PH, 0-10V / 0-20MA, 4-WIRE
KW 7
ELEC COIL ACC1 0 -NONE
ELEC COIL ACC2 0 -NONE
ELEC COIL ACC3 0 -NONE
ELEC COIL ACC4 0 -NONE

ID	Quantity	Tag	UNIT SIZE	MAX PRIMARY CFM	MIN PRIMARY CFM
38	1	VAV-32	06	375	113
47	1	VAV-41	06	500	150

Option Schedule (continued) DESV-1

SENSOR CODE	3 - AEROCROSS	UNIT ACC3	0 -NONE
UNIT CONFIG	3 -ELECT. HEAT UNIT	UNIT ACC4	0 -NONE
LINER OPTION	2 -STERILOC	UNIT ACC5	0 -NONE
CASING CONFIG	0R -STD 22GA RH	WATER COIL	000 -NONE
DIGITAL CONTROLLER	0000 -NONE	ELECTRIC HEAT TYPE	L93-480V, 3 PH, 0-10V / 0-20MA,
ACTUATOR TYPE	0000 -NONE		4-WIRE
CONTROL ACC1	00 -NONE	KW	3
CONTROL ACC2	00 -NONE	ELEC COIL ACC1	0 -NONE
CONTROL ACC3	00 -NONE	ELEC COIL ACC2	0 -NONE
UNIT ACC1	Z -24V W/ELECTRIC HEAT X-FORMER	ELEC COIL ACC3	0 -NONE
UNIT ACC2	B -HANGER BRACKET	ELEC COIL ACC4	0 -NONE

ID	Quantity	Tag	UNIT SIZE	MAX PRIMARY CFM	MIN PRIMARY CFM
39	1	VAV-33	06	250	75
40	1	VAV-34	05	350	105
42	1	VAV-36	05	300	90
43	1	VAV-37	05	300	90
49	1	VAV-43	05	300	90
55	1	VAV-49	06	400	120
56	1	VAV-50	05	350	105

SENSOR CODE	3 - AEROCROSS	UNIT ACC3	0 -NONE
UNIT CONFIG	3 -ELECT. HEAT UNIT	UNIT ACC4	0 -NONE
LINER OPTION	2 -STERILOC	UNIT ACC5	0 -NONE
CASING CONFIG	0R -STD 22GA RH	WATER COIL	000 -NONE
DIGITAL CONTROLLER	0000 -NONE	ELECTRIC HEAT TYPE	L93-480V, 3 PH, 0-10V / 0-20MA,
ACTUATOR TYPE	0000 -NONE		4-WIRE
CONTROL ACC1	00 -NONE	KW	2.5
CONTROL ACC2	00 -NONE	ELEC COIL ACC1	0 -NONE
CONTROL ACC3	00 -NONE	ELEC COIL ACC2	0 -NONE
UNIT ACC1	Z -24V W/ELECTRIC HEAT X-FORMER	ELEC COIL ACC3	0 -NONE
UNIT ACC2	B -HANGER BRACKET	ELEC COIL ACC4	0 -NONE

ID	Quantity	Tag	UNIT SIZE	MAX PRIMARY CFM	MIN PRIMARY CFM
41	1	VAV-35	08	750	225
54	1	VAV-48	08	800	240
57	1	VAV-51	08	800	240

Option Schedule (continued) DESV-1

SENSOR CODE 3 - AEROCROSS
UNIT CONFIG 3 -ELECT. HEAT UNIT
LINER OPTION 2 -STERILOC
CASING CONFIG 0R -STD 22GA RH
DIGITAL CONTROLLER 0000 -NONE
ACTUATOR TYPE 0000 -NONE
CONTROL ACC1 00 -NONE
CONTROL ACC2 00 -NONE
CONTROL ACC3 00 -NONE
UNIT ACC1 Z -24V W/ELECTRIC HEAT X-FORMER
UNIT ACC2 B -HANGER BRACKET
UNIT ACC3 0 -NONE
UNIT ACC4 0 -NONE
UNIT ACC5 0 -NONE
WATER COIL 000 -NONE
ELECTRIC HEAT TYPE L93-480V, 3 PH, 0-10V / 0-20MA, 4-WIRE
KW 5
ELEC COIL ACC1 0 -NONE
ELEC COIL ACC2 0 -NONE
ELEC COIL ACC3 0 -NONE
ELEC COIL ACC4 0 -NONE

ID	Quantity	Tag	UNIT SIZE	MAX PRIMARY CFM	MIN PRIMARY CFM
45	1	VAV-39	08	550	165
58	1	VAV-52	08	550	165

SENSOR CODE 3 - AEROCROSS
UNIT CONFIG 3 -ELECT. HEAT UNIT
LINER OPTION 2 -STERILOC
CASING CONFIG 0R -STD 22GA RH
DIGITAL CONTROLLER 0000 -NONE
ACTUATOR TYPE 0000 -NONE
CONTROL ACC1 00 -NONE
CONTROL ACC2 00 -NONE
CONTROL ACC3 00 -NONE
UNIT ACC1 Z -24V W/ELECTRIC HEAT X-FORMER
UNIT ACC2 B -HANGER BRACKET
UNIT ACC3 0 -NONE
UNIT ACC4 0 -NONE
UNIT ACC5 0 -NONE
WATER COIL 000 -NONE
ELECTRIC HEAT TYPE L93-480V, 3 PH, 0-10V / 0-20MA, 4-WIRE
KW 3.5
ELEC COIL ACC1 0 -NONE
ELEC COIL ACC2 0 -NONE
ELEC COIL ACC3 0 -NONE
ELEC COIL ACC4 0 -NONE

ID	Quantity	Tag	UNIT SIZE	MAX PRIMARY CFM	MIN PRIMARY CFM
50	1	VAV-44	10	1000	300

SENSOR CODE 3 - AEROCROSS
UNIT CONFIG 3 -ELECT. HEAT UNIT
LINER OPTION 2 -STERILOC
CASING CONFIG 0R -STD 22GA RH
DIGITAL CONTROLLER 0000 -NONE
ACTUATOR TYPE 0000 -NONE
CONTROL ACC1 00 -NONE
CONTROL ACC2 00 -NONE
CONTROL ACC3 00 -NONE
UNIT ACC1 Z -24V W/ELECTRIC HEAT X-FORMER
UNIT ACC2 B -HANGER BRACKET
UNIT ACC3 0 -NONE
UNIT ACC4 0 -NONE
UNIT ACC5 0 -NONE
WATER COIL 000 -NONE
ELECTRIC HEAT TYPE L93-480V, 3 PH, 0-10V / 0-20MA, 4-WIRE
KW 6
ELEC COIL ACC1 0 -NONE
ELEC COIL ACC2 0 -NONE
ELEC COIL ACC3 0 -NONE
ELEC COIL ACC4 0 -NONE

Accessories	DESV-1

Lynergy SCR Electric Heater

The Lynergy Comfort Control SCR electric heater is an electronic, time proportional electric heater, which utilizes silent, rapid responding solid-state relays. The solid-state relays are controlled by the Lynergy Comfort Controller. The Lynergy Comfort Controller accepts one of several input signal types to provide superior control and flexibility. The order code determines the input signal jumper position the Lynergy heater will be set to when shipped. Jumpers can be changed in the field.

Selected Insulation: SteriLoc

Insulation Characteristics:

Material: SteriLoc
Thickness: 13/16 inch
R-Value: 3.5 ft2 °F h/Btu @ 75°F
Density: 4.0 lbs/ft3 with 4.0 lbs/ft3 face
Flame Spread: less than 25
Smoke Density: less than 50
Mold Growth: None

Code Compliances:
UL 723 (NFPA 90A & 90B) - Flame / Smoke Spread (25/50)
UL 181 - Air Erosion
UL 181 - Mold Growth and Humidity
ASTM C 665 – Corrosiveness
ASTM 1338 - Fungi Resistance
ASTM G 21 - Fungi Resistance
ASTM G 22 - Bacteria Resistance