

Installation, Start-Up and Service Instructions

TABLE OF CONTENTS

SAFETY CONSIDERATIONS	1
INTRODUCTION	2
PHYSICAL DATA	2
PRE-INSTALLATION	4
Unpack and Inspect Units	4
Protect Units From Damage	4
Prepare Jobsite for Unit Installation	4
Identify and Prepare Units	4
INSTALLATION	33
Step 1 — Place Units in Position	33
• 42C UNITS	
• 42V UNITS	
• 42D UNITS	
Step 2 — Make Piping Connections	34
• VALVE PACKAGES	
• DRAIN CONNECTIONS	
• WATER SUPPLY/RETURN CONNECTIONS	
• STEAM CONNECTIONS	
• DIRECT EXPANSION (DX) REFRIGERANT PIPING	
• TEST AND INSULATE	
Step 3 — Make Electrical Connections	46
• FACTORY-INSTALLED OPTIONS	
• STANDARD WIRING PACKAGES	
Step 4 — Make Duct Connections	47
Step 5 — Frame and Finish Unit	47
Step 6 — Cut Out Openings for Grilles and Thermostats	48
Step 7 — Make Final Preparations	48
START-UP	49
Cooling/Heating System	49
Air System Balancing	49
Water System Balancing	49
Water Treatment	50
Controls Operation	50
SERVICE	50
Excessive Condensation on Unit	50
To Clean Coil	50
Drain	50
Check Drain	50

Fan Motor Bearings	51
Clean Fan Wheel	51
Clean Electric Heater	51
Filters	51
Clean or Replace Air Filters	51
Electrical Wiring and Controls	51
Valves and Piping	52
Warranty	52
APPENDIX A — POTENTIOMETER ADJUSTMENT	53
APPENDIX B — EVO/ECM 4-SPEED ADJUSTMENT	54
APPENDIX C — 42CE/DC RETURN MODIFICATION	55
START-UP CHECKLIST FOR 42C,D,V SERIES FAN COIL AIR CONDITIONERS	CL-1

SAFETY CONSIDERATIONS

Installation of this unit can be hazardous due to electrical components and equipment location (such as a ceiling or elevated structure). Only trained, qualified installers and service mechanics should install and service this equipment.

When installing this unit, observe precautions in the literature, labels attached to the equipment, and any other safety precautions that apply.

- Follow all safety codes.
- Wear safety glasses and work gloves. Never wear bulky or loose fitting clothing when working on any mechanical equipment. Gloves should be worn for proper protection against heat and other possible injuries. Safety glasses or goggles should always be worn when drilling, cutting, or working with chemicals such as refrigerants or lubricants.
- Use care in handling and installing this unit.
- Never pressurize any equipment beyond specified test pressures. Always pressure-test with an inert fluid or gas such as clear water or dry nitrogen to avoid possible damage or injury in the event of a leak or component failure during testing. Always protect adjacent flammable material when welding or soldering. Use a suitable heat-shield material to contain sparks or drops of solder. Have a fire extinguisher readily available.

WARNING

ELECTRIC SHOCK HAZARD. To avoid the possibility of electrical shock, open and tag all service switches before installing this equipment.

See Fig. 1 for Proposition 65 warning label.



Fig. 1 — Proposition 65 Warning Label

INTRODUCTION

Carrier fan coil units represent a prudent investment offering trouble-free operation and long service with proper installation, operation, and regular maintenance. Your equipment is initially protected under the manufacturer's standard warranty; however, this warranty is provided under the condition that the steps outlined in this manual for initial inspection, proper installation, regular periodic maintenance, and every-day operation of the equipment be followed in detail. This manual should be fully reviewed in advance before initial installation, start-up, and any maintenance. Should any questions arise, please contact your local sales representative or the factory BEFORE proceeding.

This document contains general installation instructions for the 42C,D,V unit fan coils. Refer to the unit wiring diagram installed on the blower housing or specific manufacturer literature for any other type of factory-mounted controls.

See drawings for unit configurations, dimensions, clearances, and pipe connections. Refer to unit wiring label for all electrical connections; follow NEC (National Electrical Code) and local codes.

PHYSICAL DATA

Component weight data, shipping weights, and filter data of the 42C,D,V units are provided in Tables 1-3.

Table 1 — Physical Data — 42C Series Units

UNIT SIZE 42C	02	03	04	06	08	10	12
NOMINAL AIRFLOW (cfm)	200	300	400	600	800	1000	1200
SHIPPING WEIGHT (lb)*							
42CA	36	39	49	59	64	95	107
42CE	55	60	70	82	95	135	154
42CG	98	118	126	168	176	215	245
42CK	115	120	135	150	155	227	241
COIL WATER WEIGHT (Approx lb per row of coil) 42CA, CE, CG, CK	0.7	0.8	1.0	1.4	1.7	2.3	2.7
COILS							
FPI	10 fins/inch						
Coil Face Area (sq ft)	0.8	1.1	1.4	1.9	2.3	3.2	3.7
MOTOR (qty) 42C Series	1	1	1	1	1	2	2
BLOWER (qty) 42CA, CE, CG, CK	1	1	2	2	2	4	4
FILTERS							
Nominal Size (in.) (1-in. thick)							
42CA	NA	NA	NA	NA	NA	NA	NA
42CE†	10 x 18	10 x 22	10 x 28	10 x 33	10 x 40	10 x 54	10 x 62
42CG							
Bottom Return	10 x 23½	10 x 28	10 x 32½	10 x 37	10 x 41	10 x 54½	10 x 63
Rear Return	8 x 23½	8 x 28	8 x 32½	8 x 37	8 x 41	8 x 54½	8 x 63
42CK							
Bottom Return	10 x 28	10 x 28	10 x 33	10 x 45	10 x 45	10 x 62	10 x 62
Rear Return	7 x 21	7 x 21	7 x 27	7 x 38	7 x 38	7 x 52	7 x 52
Qty	1	1	1	1	1	1	1
SUPPLY DUCT COLLAR	1-in.						
PIPING CONNECTIONS (Sweat) (in. OD)							
Coil Outlet and Inlet	5/8						
Drain Connection	7/8						
Tell-Tale Drain	5/8						

*Calculate Operating Weight of Unit: Shipping Weight + Coil Water Weight x Number of Coil Rows.

†Filter size if located in return-air plenum.

Table 2 — Physical Data — 42V Series Units

UNIT SIZE 42V	01	02	03	04	06	08	10	12
NOMINAL AIRFLOW (cfm)	150	200	300	400	600	800	1000	1200
SHIPPING WEIGHT (lb)*								
42VA	—	42	47	57	77	79	108	127
42VB	—	63	68	82	99	101	133	154
42VC	—	50	60	72	110	—	—	—
42VE	—	72	100	108	154	—	—	—
42VF	—	64	69	83	100	102	135	156
42VG	40	—	74	—	—	—	—	—
COIL WATER WEIGHT (Approx lb per row of coil)								
42VA, VB, VC†, VF	—	0.7	0.8	1.0	1.4	1.7	2.3	2.7
42VE	—	0.9	1.2	1.6	2.3	—	—	—
42VG	0.4	—	1.0	—	—	—	—	—
COILS								
FPI (42VA, VB, VF)					12 fins/inch			
FPI (42VC, VE, VG)					10 fins/inch			
Coil Face Area (sq ft)	0.8	0.8	1.1	1.4	1.9	2.3	3.2	3.7
MOTOR (qty)								
42VA, VB, VF	—	1	1	1	1	1	2	2
42VC, VE	—	1	1	1	2	—	—	—
42VG	1	—	2	—	—	—	—	—
BLOWER (qty)								
42VA, VB, VF	—	1	1	2	2	2	4	4
42VC, VE	—	2	2	2	4	—	—	—
42VG	1	—	2	—	—	—	—	—
FILTERS								
Nominal Size (in.) (1-in. thick)								
42VA, VB, VF	—	7 ³ / ₄ x 21 ³ / ₄	7 ³ / ₄ x 21 ³ / ₄	7 ³ / ₄ x 31 ³ / ₄	7 ³ / ₄ x 41 ³ / ₄	7 ³ / ₄ x 43 ³ / ₄	7 ³ / ₄ x 57 ³ / ₄	7 ³ / ₄ x 65 ³ / ₄
42VC, VE	—	7 x 21 ³ / ₄	7 x 26 ³ / ₄	7 x 34 ³ / ₄	7 x 48 ³ / ₄	—	—	—
42VG	10 x 14 ¹ / ₂	—	10 x 28	—	—	—	—	—
Qty	1	1	1	1	1	1	1	1
SUPPLY DUCT COLLAR	1-in.							
PIPING CONNECTIONS (Sweat) (in.)								
Coil Outlet and Inlet	5/8 OD							
Drain Connection	3/4 MPT							

*Calculate Operating Weight of Unit: Shipping Weight + Coil Water Weight x Number Of Coil Rows.

†Available in sizes 02-06.

Table 3 — Physical Data — 42D Series Units

UNIT SIZE 42D	06	08	10	12	14	16	18	20
NOMINAL AIRFLOW (cfm)	600	800	1000	1200	1400	1600	1800	2000
SHIPPING WEIGHT (lb)*								
42DA	64	79	90	108	119	124	141	151
42DC	94	107	150	169	174	178	195	220
42DD	135	145	155	180	190	200	215	230
42DE	150	160	170	195	205	215	230	235
42DF	157	167	177	202	215	225	240	255
COIL WATER WEIGHT (Approx lb per row of coil)	1.3	1.6	1.9	2.3	2.7	3.0	3.4	3.7
COILS								
FPI					10 fins/inch			
Coil Face Area (sq ft)	1.6	2.1	2.5	3.0	3.5	4.1	4.6	5.0
MOTOR (qty)	1	1	1	2	2	2	2	2
BLOWER (qty)	1	1	1	2	2	2	2	2
FILTERS								
Nominal Size (in.) (1-in. thick)								
42DA					NA			
42DC	14 x 21	14 x 26	14 x 30	14 x 35	14 x 40	14 x 45	14 x 50	14 x 54
42DD								
(Front Return)	12 ³ / ₄ x 21	12 ³ / ₄ x 26	12 ³ / ₄ x 30	12 ³ / ₄ x 35	12 ³ / ₄ x 40	12 ³ / ₄ x 45	12 ³ / ₄ x 50	12 ³ / ₄ x 54
(Bottom Return)	12 ³ / ₄ x 20	12 ³ / ₄ x 25	12 ³ / ₄ x 29	12 ³ / ₄ x 34	12 ³ / ₄ x 39	12 ³ / ₄ x 44	12 ³ / ₄ x 49	12 ³ / ₄ x 53
42DE	14 x 14 ³ / ₄	14 x 19 ³ / ₄	14 x 23 ³ / ₄	14 x 28 ³ / ₄	14 x 33 ³ / ₄	14 x 38 ³ / ₄	14 x 43 ³ / ₄	14 x 47 ³ / ₄
42DF	14 x 14	14 x 20	14 x 24	14 x 28	14 x 34	14 x 38	14 x 44	14 x 48
Qty					1			
SUPPLY DUCT COLLAR	1-in.							
PIPING CONNECTIONS								
Coil Inlet/Outlet (in. OD)								
1 and 2 Row	5/8	5/8	5/8	5/8	5/8	5/8	5/8	5/8
3 Row	5/8	5/8	7/8	7/8	7/8	7/8	7/8	7/8
4 Row	7/8	7/8	7/8	7/8	7/8	1 ¹ / ₈	1 ¹ / ₈	1 ¹ / ₈
5 Row	7/8	7/8	7/8	7/8	1 ¹ / ₈	1 ¹ / ₈	1 ¹ / ₈	1 ¹ / ₈
6 Row	7/8	7/8	7/8	7/8	1 ¹ / ₈	1 ¹ / ₈	1 ¹ / ₈	1 ¹ / ₈
8 Row	1 ¹ / ₈	1 ¹ / ₈	1 ¹ / ₈	1 ¹ / ₈	1 ⁵ / ₈	1 ⁵ / ₈	1 ⁵ / ₈	1 ⁵ / ₈

*Calculate Operating Weight of Unit: Shipping Weight + Coil Water Weight x Number of Coil Rows.

PRE-INSTALLATION

Unpack and Inspect Units

All units are carefully inspected at the factory throughout the manufacturing process under a strict detailed quality assurance program, and, where possible, ALL major components and sub-assemblies are carefully tested for proper operation and verified for full compliance with factory standards. Operational testing of some customer-furnished components such as electronic control valves and digital controllers may be a possible exception.

Each unit is carefully packaged for shipment to avoid damage during normal transit and handling. Equipment should always be stored in a dry place, and in the proper orientation as marked on the carton. All shipments are made F.O.B. factory and are the responsibility of the receiving party to inspect the equipment upon arrival. Any obvious damage to the carton and/or its contents should be recorded on the bill of lading, a claim should be filed with the transportation company, and Carrier should be advised. After determining the condition of the carton exterior, carefully remove each unit from the carton and inspect for hidden damage. At this time, check to make sure that “furnished only” items such as thermostats, grilles etc. are accounted for whether packaged separately or shipped at a later date. Any hidden damage should be recorded and immediately reported to the transportation company, a claim should be filed with the transportation company, and Carrier should be notified. In the event a claim for shipping damage is filed, the unit, shipping carton, and all packing must be retained for physical inspection by the transportation company. All equipment should be stored in the factory shipping carton with internal packing in place until installation.

At the time of receipt, the equipment type and arrangement should be verified against the order documents. Should any discrepancy be found, the local sales representative should be notified immediately so that proper action may be taken. Should any questions arise concerning warranty repairs, the factory must be notified BEFORE any corrective action is taken. Where local repairs or alterations can be accomplished, the factory must be fully informed of the extent and expected cost of those repairs before work is begun. Where factory operations are required, the factory must be contacted for authorization to return equipment and a Return Authorization Number will be issued. Unauthorized return shipments of equipment and shipments not marked with an authorization number will be refused. In addition, any claims for unauthorized expenses will not be accepted by the manufacturer.

Protect Units from Damage

All equipment is designed and fabricated with robust materials and presents a rugged appearance. Still, great care must be taken to assure that no force or pressure is applied to the coil, piping, or drain stub-outs during handling. Depending on the options and accessories, some units may contain delicate

components that may be damaged by improper handling. All units shall be handled by the chassis or as close as possible to the unit mounting point locations. In the case of a full cabinet unit, the unit must be handled by the exterior casing. This is acceptable provided the unit is maintained in an upright position, and no force is applied that may damage internal components or painted surfaces.

The equipment must always be properly supported. Temporary supports used during installation or service must be adequate to hold the equipment securely. Equipment should always be stored in the proper orientation as marked on the carton. To maintain warranty, protect units against hostile environment (such as rain, snow, or extreme temperatures), theft, vandalism, and debris on jobsite. Equipment covered in this manual is not suitable for outdoor installations. Do not allow foreign material to fall into drain pan. Prevent dust and debris from being deposited on motor, fan wheels and cooling/heating coils. Failure to do so may have serious adverse effects on unit operation, and in the case of the motor and blower assembly, may result in immediate or premature failure. Manufacturer's warranty is void if foreign material is allowed to be deposited on the motor or blower wheels of any unit. Some units and/or job conditions may require some form of temporary covering during construction.

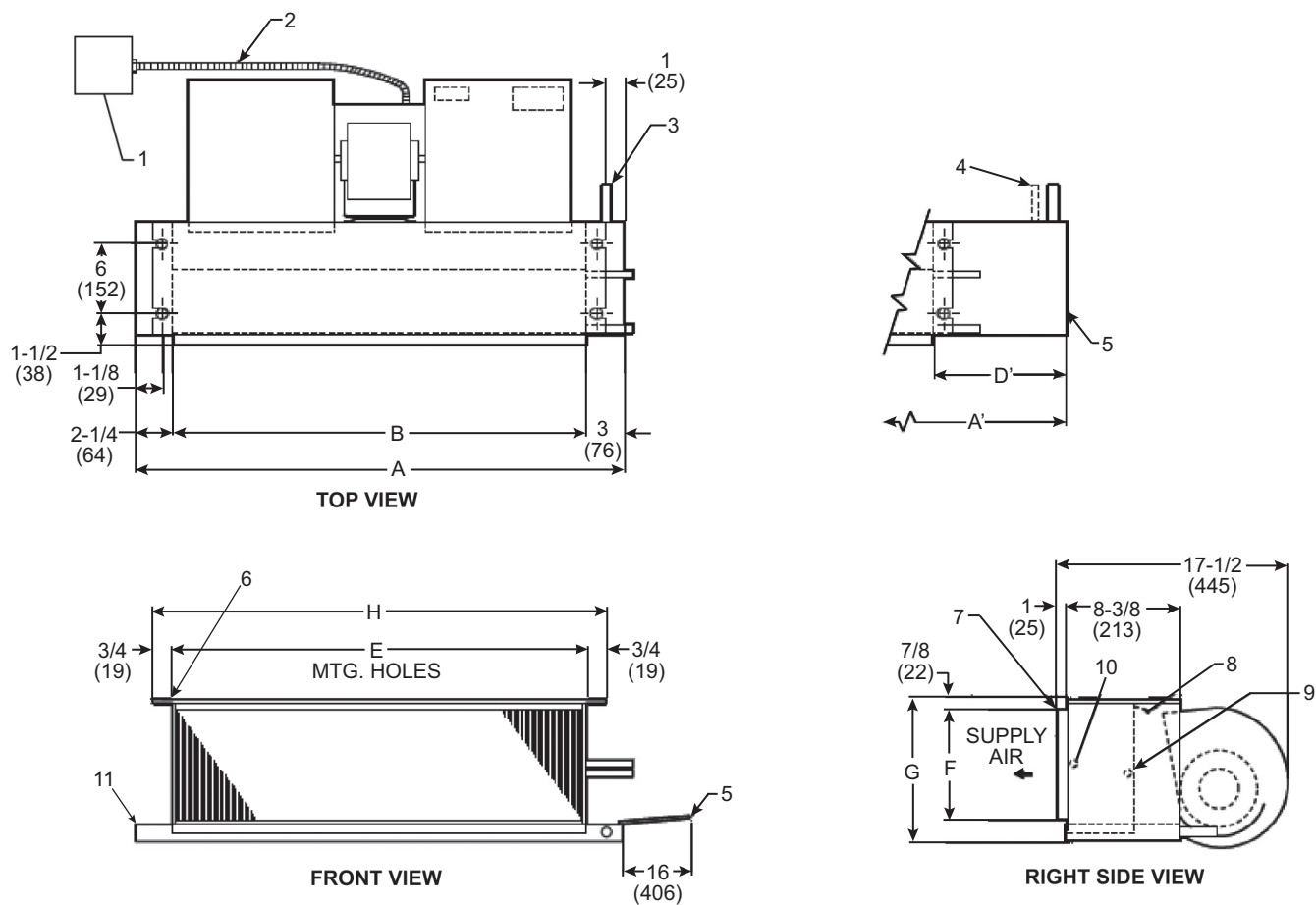
Prepare Jobsite for Unit Installation

To save time and to reduce the possibility of costly errors, set up a complete sample installation in a typical room at jobsite. Check all critical dimensions such as pipe, wire, and duct connection requirements. Refer to job drawings and product dimension drawings as required (see Fig. 2-29). Instruct all trades in their part of the installation.

Identify and Prepare Units

Be sure power requirements match available power source. Refer to unit nameplate and wiring diagram.

1. Check all tags on unit to determine if shipping screws are to be removed. Remove screws as directed.
2. Rotate the fan wheel by hand to ensure that the fan is unrestricted and can rotate freely. Check for shipping damage and fan obstructions. Adjust blower motor as required.
3. Perform a “dry fit” of valve assembly that may be shipped unattached to unit coil assembly. Should any questions arise on fit-up, please contact your local representative.
4. Horizontal plenum type 42CE units may be shipped with a bottom return-air inlet. These units may be converted to rear return as outlined in Appendix C.
5. High-performance plenum-type 42DC units may be shipped with a bottom return-air inlet. These units may be converted to rear return as outlined in Appendix C.



LEGEND

- 1 — Junction Box (remote mount)
- 2 — Flexible Metal Conduit
- 3 — Drain Conn, 7/8-in. OD
- 4 — Tell-Tale Drain Conn, 5/8-in. OD (optional)
- 5 — Drip Lip (optional, shipped loose)
- 6 — Hanger Slots (4), Rubber Grommet has 3/8-in. Diameter Hole
- 7 — Supply Duct Collar, 1-in.
- 8 — Air Vent, 1/8-in. MPT
- 9 — Return Conn, 5/8-in. OD
- 10 — Supply Conn, 5/8-in. OD
- 11 — Drain Pan

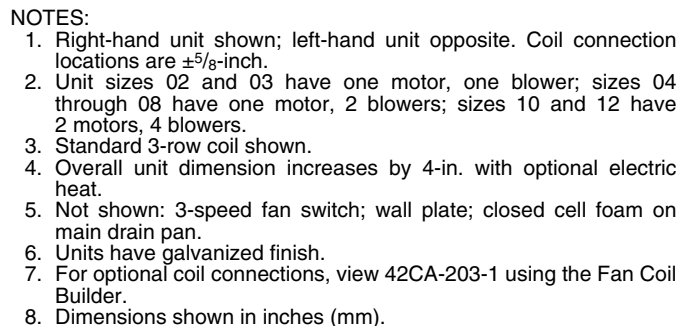
NOTES:

1. Right-hand unit shown; left-hand unit opposite. Coil connection locations are $\pm 5/8$ -inch.
2. Unit sizes 02 and 03 have one motor, one blower; sizes 04 through 08 have one motor, 2 blowers; sizes 10 and 12 have 2 motors, 4 blowers.
3. Standard 3-row coil shown.
4. Overall unit dimension increases by 4-in. with optional electric heat.
5. Not shown: 3-speed fan switch; wall plate; closed cell foam on main drain pan.
6. Units have galvanized finish.
7. For optional coil connections, view 42CA-203-1 using the Fan Coil Builder.
8. Dimensions shown in inches (mm).

UNIT SIZE	NOM AIRFLOW (cfm)	DIMENSIONS (in.)								QTY/UNIT		FACE AREA (sq ft)	UNIT WEIGHT* (lb)
		A	A'	B	D'	E	F	G	H	Blower	Motor		
02	200	21 ¹ / ₄	31 ¹ / ₄	16	13	18 ¹ / ₄	6 ¹ / ₄	8 ³ / ₄	19 ³ / ₄	1	1	0.83	36
03	300	25 ¹ / ₄	36 ¹ / ₄	20	14	22 ¹ / ₄	6 ¹ / ₄	8 ³ / ₄	23 ³ / ₄	1	1	1.08	39
04	400	31 ¹ / ₄	43 ¹ / ₄	26	15	28 ¹ / ₄	6 ¹ / ₄	8 ³ / ₄	29 ³ / ₄	2	1	1.35	49
06	600	36 ¹ / ₄	43 ¹ / ₄	31	10	33 ¹ / ₄	7 ¹ / ₂	10	34 ³ / ₄	2	1	1.88	59
08	800	43 ¹ / ₄	57 ¹ / ₄	38	17	40 ¹ / ₄	7 ¹ / ₂	10	41 ³ / ₄	2	1	2.31	64
10	1000	57 ¹ / ₄	65 ¹ / ₄	52	11	54 ¹ / ₄	7 ¹ / ₂	10	55 ³ / ₄	4	2	3.16	95
12	1200	65 ¹ / ₄	75 ¹ / ₄	60	13	62 ¹ / ₄	7 ¹ / ₂	10	63 ³ / ₄	4	2	3.65	107

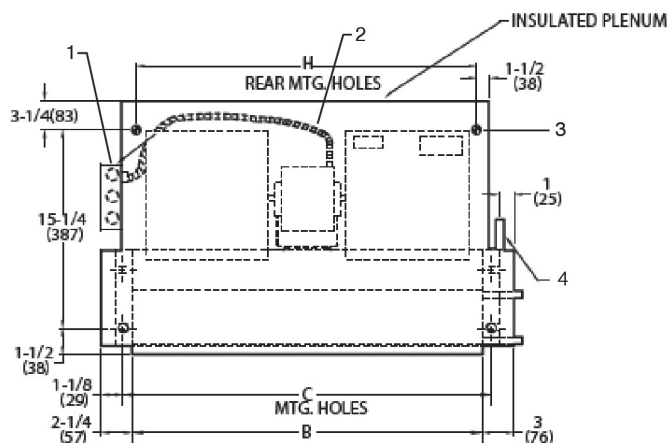
*Unit weights are based on dry coils and minimum rows. Weights exclude packaging, valves, and other components.

Fig. 2 — 42CA Furred-In Horizontal Unit Dimensions

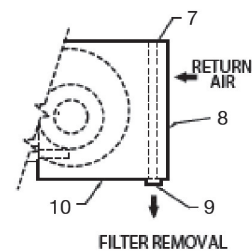
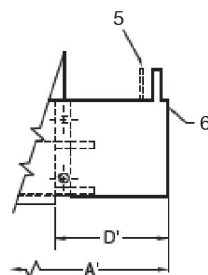


*Unit weights are based on dry coils and minimum rows. Weights exclude packaging, valves, and other components.

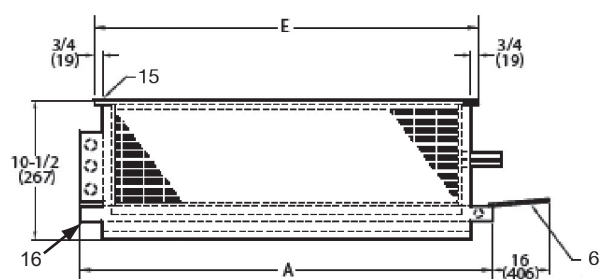
Fig. 3 — 42CA Furred-In Horizontal Unit with Electric Heat Dimensions



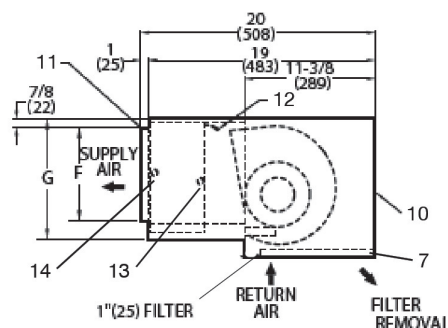
TOP VIEW



OPTIONAL REAR RETURN



FRONT VIEW



RIGHT SIDE VIEW

LEGEND

- 1 — Junction Box, 4-in. x 4-in.
- 2 — Flexible Metal Conduit
- 3 — Mounting Bracket
- 4 — Drain Conn, 7/8-in. OD
- 5 — Tell-Tale Drain Conn, 5/8-in. OD (optional)
- 6 — Drip Lip (optional, shipped loose)
- 7 — Filter
- 8 — Return Duct Collar, 1-in.
- 9 — Filter Access Panel
- 10 — Access Panel
- 11 — Supply Duct Collar, 1-in.
- 12 — Air Vent, 1/8-in. MPT
- 13 — Return Conn, 5/8-in. OD
- 14 — Supply Conn, 5/8-in. OD
- 15 — Hanger Slots (4), Rubber Grommet has 3/8-in. Diameter Hole
- 16 — Drain Pan

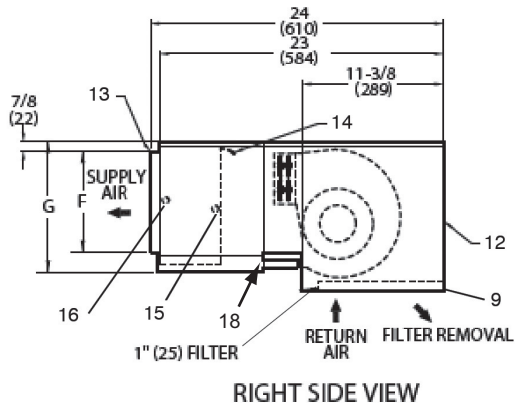
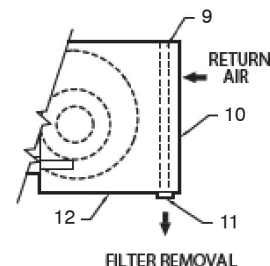
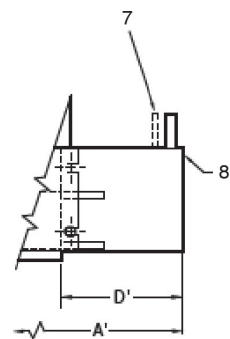
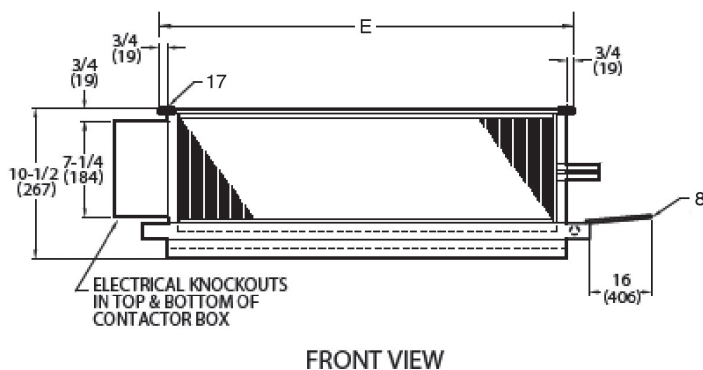
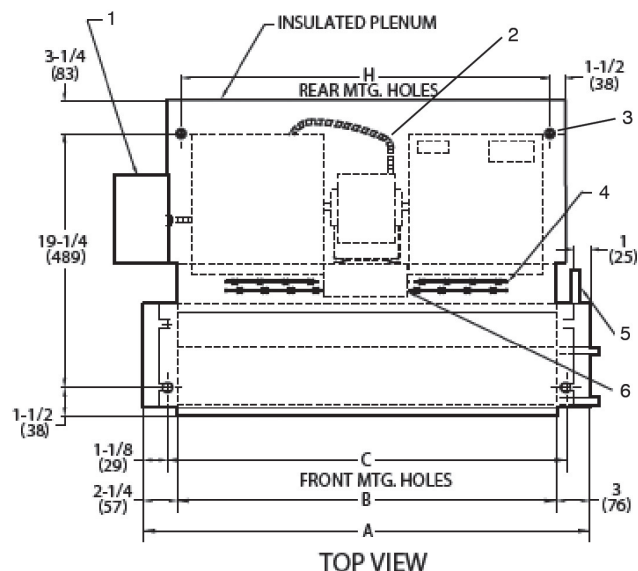
NOTES:

1. Right-hand unit with standard 3-row coil shown; left-hand unit opposite. Coil connection locations are $\pm 5/8$ -inch.
2. Unit sizes 02 and 03 have one motor, one blower; sizes 04 through 08 have one motor, 2 blowers; sizes 10 and 12 have 2 motors, 4 blowers.
3. Standard 3-row coil shown.
4. Unit available with bottom or rear return air.
5. Overall dimension increases by 4 in. with optional electric heat.
6. Not shown: 3-speed fan switch; wall plate; 1/2-in. fiberglass insulation on inside of plenum, closed cell foam on main drain pan.
7. Units have galvanized finish.
8. For optional coil connections, view 42CA-203-1 using the Fan Coil Builder.
9. Dimensions shown in inches (mm).

UNIT SIZE	NOM AIRFLOW (cfm)	DIMENSIONS (in.)									QTY/UNIT		FACE AREA (sq ft)	UNIT WEIGHT* (lb)
		A	A'	B	C	D'	E	F	G	H	Blower	Motor		
02	200	21 ¹ / ₄	31 ¹ / ₄	16	18 ¹ / ₄	13	19 ³ / ₄	6 ¹ / ₄	8 ³ / ₄	15 ³ / ₈	1	1	0.83	55
03	300	25 ¹ / ₄	36 ¹ / ₄	20	22 ¹ / ₄	14	23 ³ / ₄	6 ¹ / ₄	8 ³ / ₄	19 ³ / ₈	1	1	1.08	60
04	400	31 ¹ / ₄	43 ¹ / ₄	26	28 ¹ / ₄	15	29 ³ / ₄	6 ¹ / ₄	8 ³ / ₄	25 ³ / ₈	2	1	1.35	70
06	600	36 ¹ / ₄	43 ¹ / ₄	31	33 ¹ / ₄	10	34 ³ / ₄	7 ¹ / ₂	10	30 ³ / ₈	2	1	1.88	82
08	800	43 ¹ / ₄	57 ¹ / ₄	38	40 ¹ / ₄	17	41 ³ / ₄	7 ¹ / ₂	10	37 ³ / ₈	2	1	2.31	95
10	1000	57 ¹ / ₄	65 ¹ / ₄	52	54 ¹ / ₄	11	55 ³ / ₄	7 ¹ / ₂	10	51 ³ / ₈	4	2	3.16	135
12	1200	65 ¹ / ₄	75 ¹ / ₄	60	62 ¹ / ₄	13	63 ³ / ₄	7 ¹ / ₂	10	59 ³ / ₈	4	2	3.65	154

*Unit weights are based on dry coils and minimum rows. Weights exclude packaging, valves, and other components.

Fig. 4 — 42CE Furred-In Horizontal Unit with Plenum Dimensions



LEGEND

- 1 — Junction Box, 4-in. x 4-in.
- 2 — Flexible Metal Conduit
- 3 — Mounting Bracket
- 4 — Electric Strip Heater Element
- 5 — Drain Conn, 7/8-in. OD
- 6 — Strip Heater High Limit
- 7 — Tell-Tale Drain Conn, 5/8-in. OD (optional)
- 8 — Drip Lip (optional, shipped loose)
- 9 — Filter
- 10 — Return Duct Collar, 1-in.
- 11 — Filter Access Panel
- 12 — Access Panel
- 13 — Supply Duct Collar, 1-in.
- 14 — Air Vent, 1/8-in. MPT
- 15 — Return Conn, 5/8-in. OD
- 16 — Supply Conn, 5/8-in. OD
- 17 — Hanger Slots (4), Rubber Grommet has 3/8-in. Diameter Hole
- 18 — Drain Pan

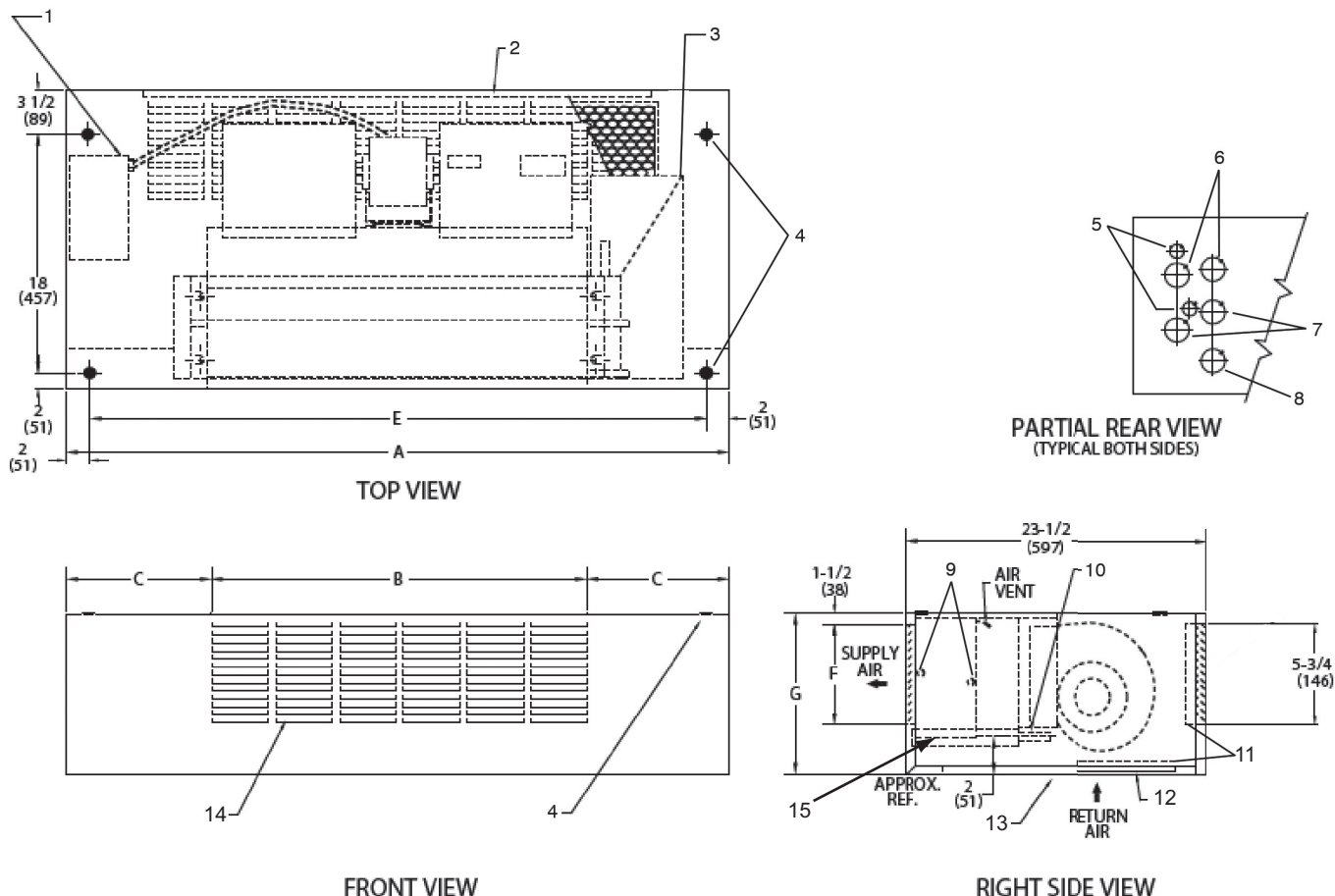
NOTES:

1. Right-hand unit with standard 3-row coil shown; left-hand unit opposite. Coil connection locations are $\pm 5/8$ -inch.
2. Unit sizes 02 and 03 have one motor, one blower; sizes 04 through 08 have one motor, 2 blowers; sizes 10 and 12 have 2 motors, 4 blowers.
3. Standard 3-row coil shown.
4. Unit available with bottom or rear return air.
5. Overall dimension increases by 4 in. with optional electric heat.
6. Not shown: 3-speed fan switch; wall plate; 1/2-in. fiberglass insulation on inside of plenum, closed cell foam on main drain pan.
7. Units have galvanized finish.
8. For optional coil connections, view 42CA-203-1 using the Fan Coil Builder.
9. Dimensions shown in inches (mm).

UNIT SIZE	NOM AIRFLOW (cfm)	DIMENSIONS (in.)									QTY/UNIT		FACE AREA (sq ft)	UNIT WEIGHT* (lb)
		A	A'	B	C	D'	E	F	G	H	Blower	Motor		
02	200	21 ¹ / ₄	31 ¹ / ₄	16	18 ¹ / ₄	13	19 ³ / ₄	6 ¹ / ₄	8 ³ / ₄	15 ³ / ₈	1	1	0.83	57
03	300	25 ¹ / ₄	36 ¹ / ₄	20	22 ¹ / ₄	14	23 ³ / ₄	6 ¹ / ₄	8 ³ / ₄	19 ³ / ₈	1	1	1.08	62
04	400	31 ¹ / ₄	43 ¹ / ₄	26	28 ¹ / ₄	15	29 ³ / ₄	6 ¹ / ₄	8 ³ / ₄	25 ³ / ₈	2	1	1.35	72
06	600	36 ¹ / ₄	43 ¹ / ₄	31	33 ¹ / ₄	10	34 ³ / ₄	7 ¹ / ₂	10	30 ³ / ₈	2	1	1.88	84
08	800	43 ¹ / ₄	57 ¹ / ₄	38	40 ¹ / ₄	17	41 ³ / ₄	7 ¹ / ₂	10	37 ³ / ₈	2	1	2.31	97
10	1000	57 ¹ / ₄	65 ¹ / ₄	52	54 ¹ / ₄	11	55 ³ / ₄	7 ¹ / ₂	10	51 ³ / ₈	4	2	3.16	137
12	1200	65 ¹ / ₄	75 ¹ / ₄	60	62 ¹ / ₄	13	63 ³ / ₄	7 ¹ / ₂	10	59 ³ / ₈	4	2	3.65	156

*Unit weights are based on dry coils and minimum rows. Weights exclude packaging, valves, and other components.

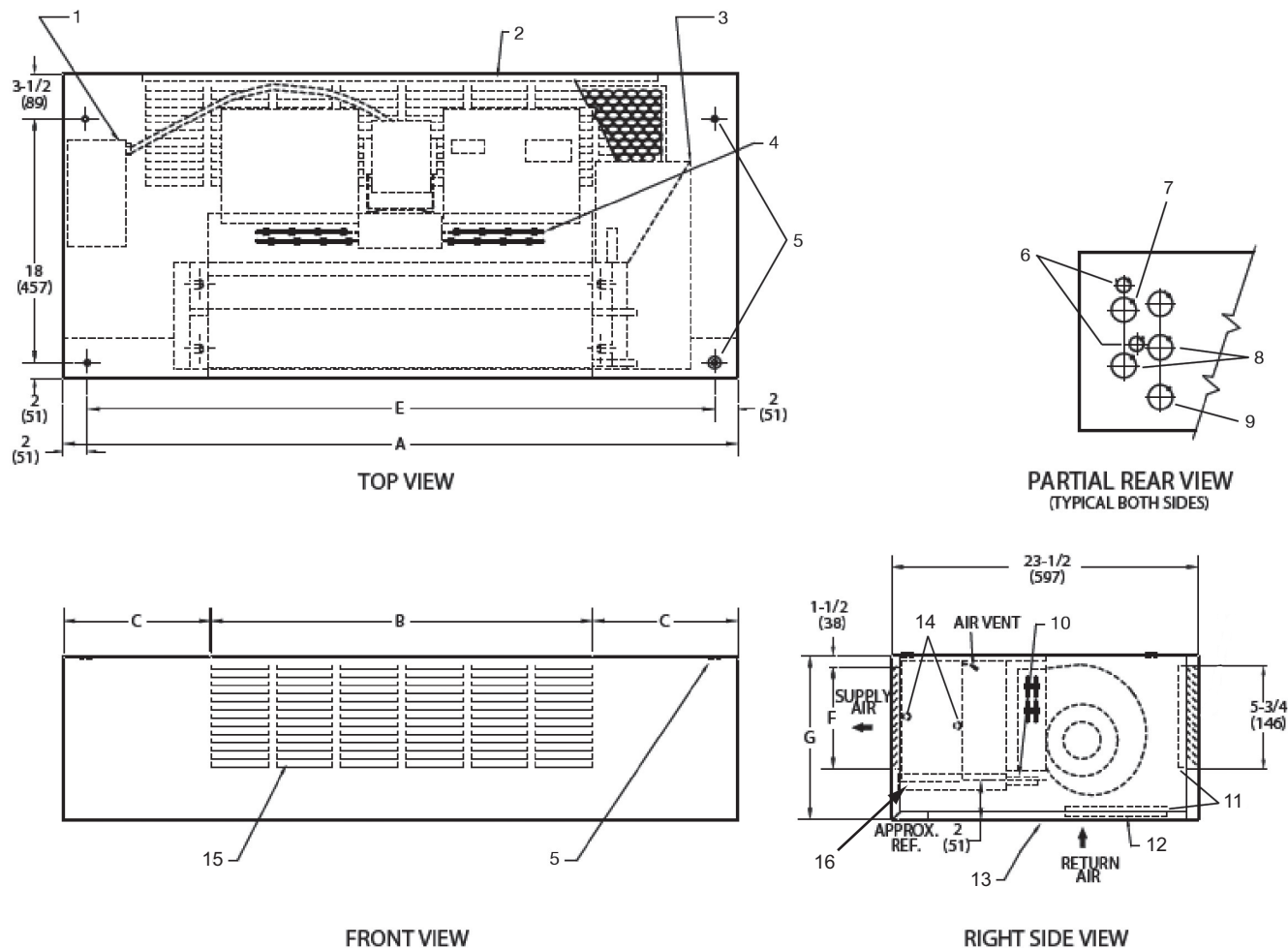
Fig. 5 — 42CE Furred-In Horizontal Unit with Plenum and Electric Heat Dimensions



UNIT SIZE	NOM AIRFLOW (cfm)	DIMENSIONS (in.)						QTY/UNIT		FACE AREA (sq ft)	UNIT WEIGHT* (lb)
		A	B	C	E	F	G	Blower	Motor		
02	200	38	17 1/8	10 7/16	34	5 3/4	11	1	1	0.83	98
03	300	42	21 1/2	10 1/4	38	5 3/4	11	1	1	1.08	118
04	400	48	25 7/8	11 1/16	44	5 3/4	11	2	1	1.35	126
06	600	53	34 5/8	9 3/16	49	6 3/4	12	2	1	1.88	168
08	800	60	39	10 1/2	56	6 3/4	12	2	1	2.31	176
10	1000	74	52 1/8	10 15/16	70	6 3/4	12	4	2	3.16	215
12	1200	82	60 7/8	10 9/16	78	6 3/4	12	4	2	3.65	245

*Unit weights are based on dry coils and minimum rows. Weights exclude packaging, valves, and other components.

Fig. 6 — 42CG Horizontal Cabinet Unit Dimensions



LEGEND

- 1 — Junction Box, 4-in. x 4-in.
- 2 — Optional Stamped Rear Return Grille
- 3 — Drip Lip (optional, shipped loose)
- 4 — Electric Strip Heater Element
- 5 — Mounting Holes (4), Rubber Grommets have $\frac{3}{8}$ -in. Diameter Hole
- 6 — Electrical Knockout, $\frac{7}{8}$ -in. Diameter
- 7 — Return Knockout, 1-in. Diameter
- 8 — Supply Knockout, $1\frac{1}{2}$ -in. Diameter
- 9 — Drain Knockout, $1\frac{1}{2}$ -in. Diameter
- 10 — Drain Connection, $\frac{7}{8}$ -in. OD
- 11 — Filter
- 12 — Standard Stamped-Return Air Grille
- 13 — Removable Hinged Access Panel
- 14 — Supply, Return Connections, $\frac{5}{8}$ -in. OD
- 15 — Supply Grille, Stamped, Standard
- 16 — Drain Pan

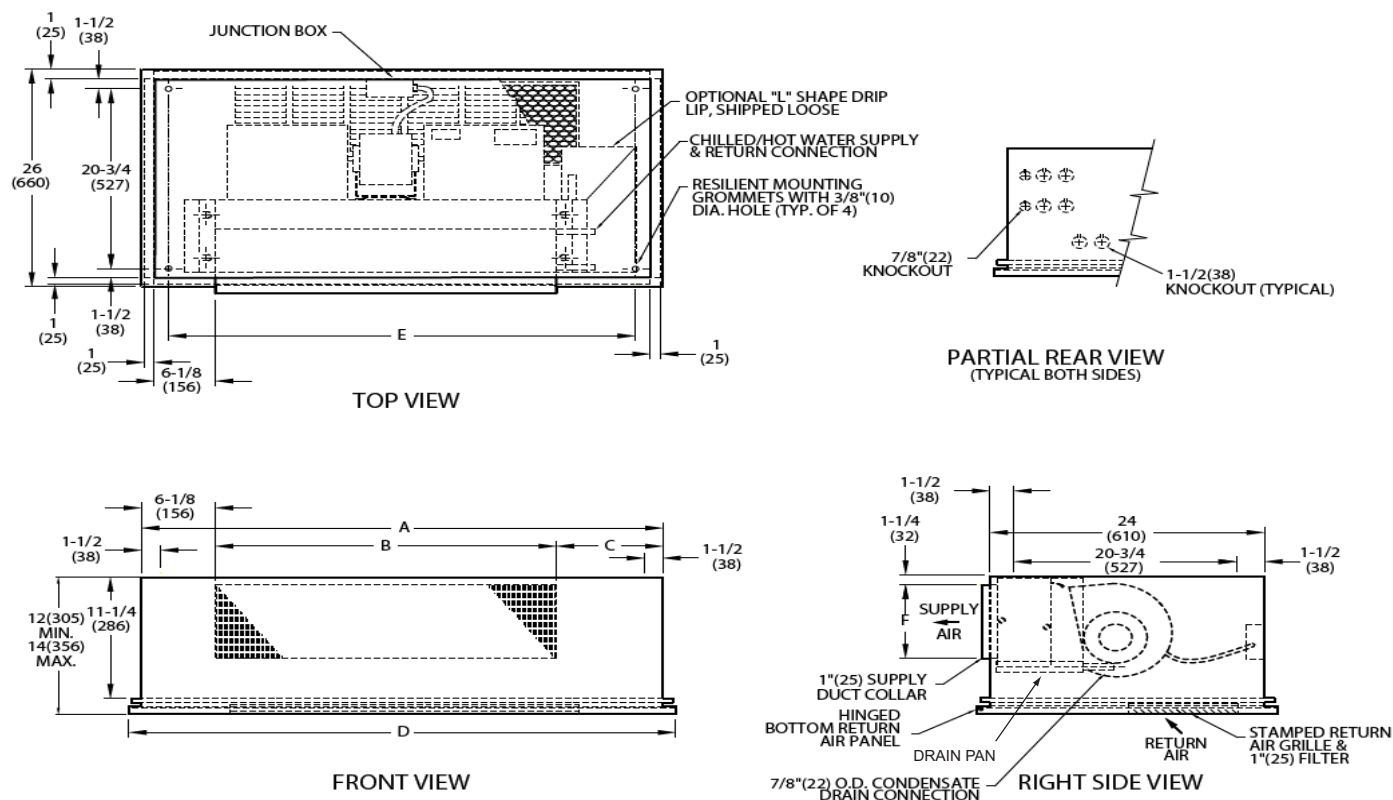
NOTES:

1. Right-hand unit shown; left-hand unit opposite. Coil connection locations are $\pm\frac{5}{8}$ -inch.
2. Unit sizes 02 and 03 have one motor, one blower; sizes 04 through 08 have one motor, 2 blowers; sizes 10 and 12 have 2 motors, 4 blowers.
3. Cabinet has an Arctic White baked finish.
4. Refer to supply and return connections above for coil stub-out locations.
5. Not shown: 3-speed fan switch; wall plate; $\frac{1}{2}$ -in. fiberglass insulation on inside of casing, closed cell foam on main drain pan.
6. For optional coil connections, view 42CA-203-1 using the Fan Coil Builder.
7. Dimensions shown in inches (mm).

UNIT SIZE	NOM AIRFLOW (cfm)	DIMENSIONS (in.)						QTY/UNIT		FACE AREA (sq ft)	UNIT WEIGHT* (lb)
		A	B	C	E	F	G	Blower	Motor		
02	200	38	17 $\frac{1}{8}$	10 $\frac{7}{16}$	34	5 $\frac{3}{4}$	11	1	1	0.83	98
03	300	42	21 $\frac{1}{2}$	10 $\frac{1}{4}$	38	5 $\frac{3}{4}$	11	1	1	1.08	118
04	400	48	25 $\frac{7}{8}$	11 $\frac{1}{16}$	44	5 $\frac{3}{4}$	11	2	1	1.35	126
06	600	53	34 $\frac{5}{8}$	9 $\frac{3}{16}$	49	6 $\frac{3}{4}$	12	2	1	1.88	168
08	800	60	39	10 $\frac{1}{2}$	56	6 $\frac{3}{4}$	12	2	1	2.31	176
10	1000	74	52 $\frac{1}{8}$	10 $\frac{15}{16}$	70	6 $\frac{3}{4}$	12	4	2	3.16	215
12	1200	82	60 $\frac{7}{8}$	10 $\frac{9}{16}$	78	6 $\frac{3}{4}$	12	4	2	3.65	245

*Unit weights are based on dry coils and minimum rows. Weights exclude packaging, valves, and other components.

Fig. 7 — 42CG Horizontal Cabinet with Electric Heat Dimensions



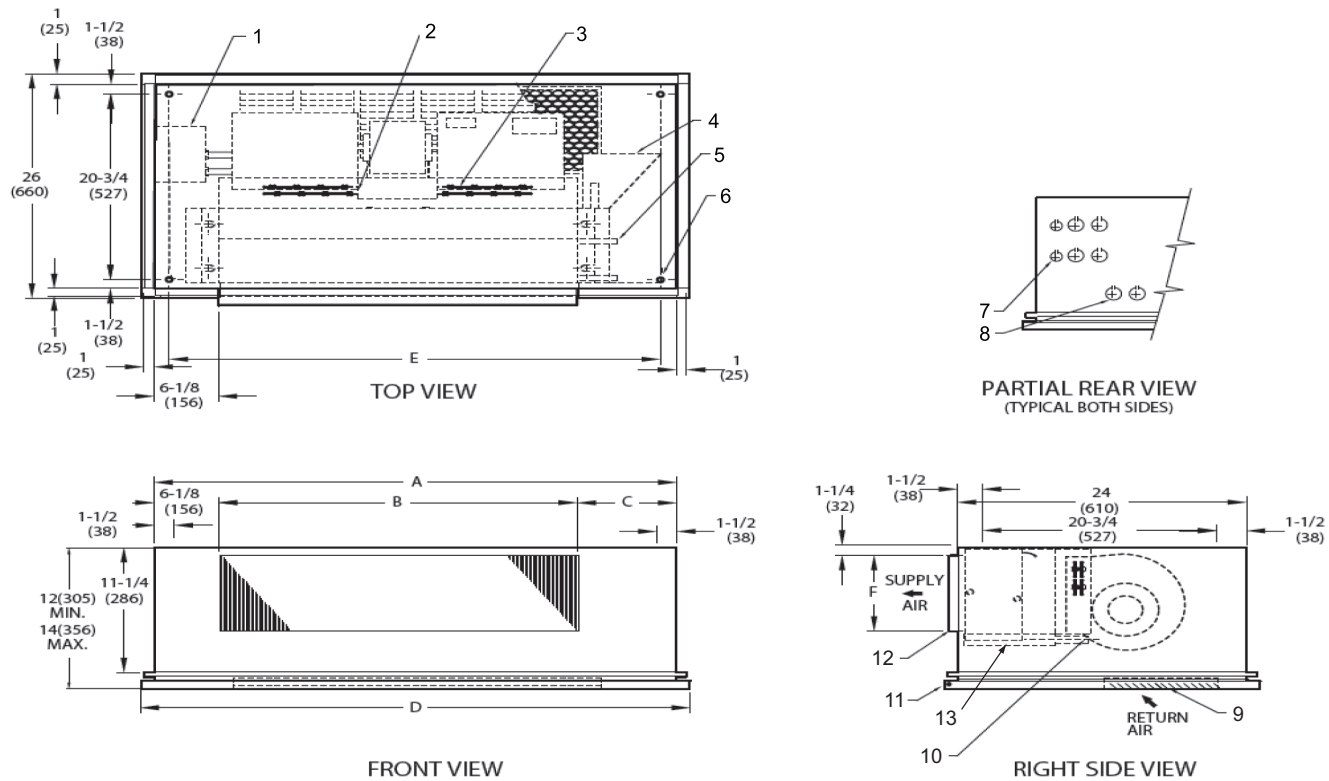
NOTES:

1. Right-hand unit shown; left-hand unit opposite.
2. Internal factory valve package and drains may not align with cabinet knockouts.
3. Dimensions shown in inches (mm). All dimensions are $\pm 1/4$ inches.
4. Bottom panel is Arctic White polyester powder coat paint.

UNIT SIZE	NOM AIRFLOW (cfm)	DIMENSIONS (in.)						QTY/UNIT		BOTTOM RETURN FILTER SIZE (in.)	UNIT WEIGHT* (lb)
		A	B	C	D	E	F	Blower	Motor		
02	200	35	16	12 ³ / ₄	37	32	6	1	1	10 x 23 ¹ / ₂	115
03	300	35	20	8 ³ / ₄	37	32	6	1	1	10 x 28	120
04	400	41	26	8 ³ / ₄	43	38	6	2	1	10 x 32 ¹ / ₂	135
06	600	53	31	15 ³ / ₄	55	50	7	2	1	10 x 37	150
08	800	53	38	8 ³ / ₄	55	50	7	2	1	10 x 41	155
10	1000	75	52	16 ³ / ₄	77	72	7	4	2	10 x 54 ¹ / ₂	227
12	1200	75	60	8 ³ / ₄	77	72	7	4	2	10 x 63	241

*Unit weights are based on dry coils and minimum rows. Weights exclude packaging, valves, and other components.

Fig. 8 — 42CK Horizontal Cabinet Unit with Telescopic Access Panel, Front Supply, and Bottom Return Dimensions



LEGEND

- 1 — Contactor Box
- 2 — Strip Heater High Limit
- 3 — Electric Strip Heater Element
- 4 — L-shape Drip Lip (optional, shipped loose)
- 5 — Chilled/Hot Water Supply and Return Connection
- 6 — Resilient Mounting Grommets with $\frac{3}{8}$ -in. Diameter Hole (typically 4)
- 7 — Electrical Knockout, $\frac{7}{8}$ -in. Diameter
- 8 — Drain Knockout, $1\frac{1}{2}$ -in. Diameter
- 9 — Stamped Return Air Grille and 1-in. Filter
- 10 — Condensate Drain Connection, $\frac{7}{8}$ -in. OD
- 11 — Hinged Bottom Return Air Panel
- 12 — Supply Duct Collar, 1-in. OD
- 13 — Drain Pan

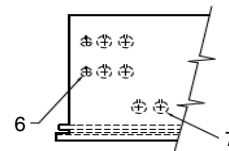
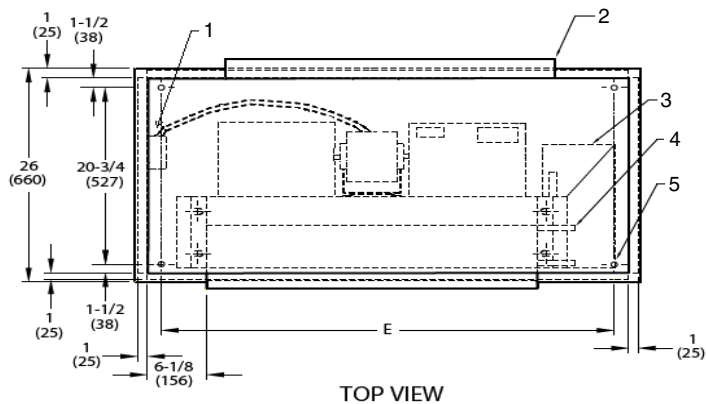
NOTES:

1. Right-hand unit shown; left-hand unit opposite.
2. Internal factory valve package and drains may not align with cabinet knockouts.
3. Dimensions shown in inches (mm). All dimensions are $\pm \frac{1}{4}$ inches.
4. Bottom panel is Arctic White polyester powder coat paint.

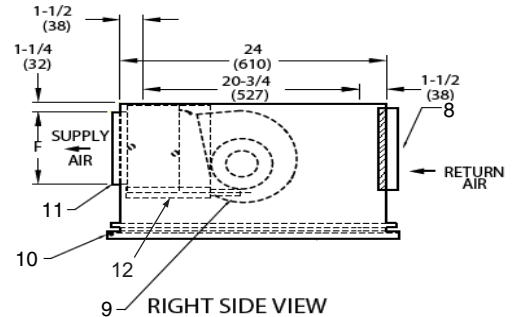
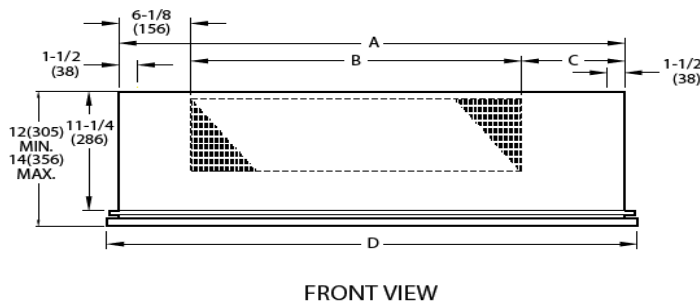
UNIT SIZE	NOM AIRFLOW (cfm)	DIMENSIONS (in.)						QTY/UNIT		BOTTOM RETURN FILTER SIZE (in.)	UNIT WEIGHT* (lb)
		A	B	C	D	E	F	Blower	Motor		
02	200	35	16	12 $\frac{3}{4}$	37	32	6	1	1	10 x 23 $\frac{1}{2}$	117
03	300	35	20	8 $\frac{3}{4}$	37	32	6	1	1	10 x 28	122
04	400	41	26	8 $\frac{3}{4}$	43	38	6	2	1	10 x 32 $\frac{1}{2}$	137
06	600	53	31	15 $\frac{3}{4}$	55	50	7	2	1	10 x 37	152
08	800	53	38	8 $\frac{3}{4}$	55	50	7	2	1	10 x 41	157
10	1000	75	52	16 $\frac{3}{4}$	77	72	7	4	2	10 x 54 $\frac{1}{2}$	229
12	1200	75	60	8 $\frac{3}{4}$	77	72	7	4	2	10 x 63	243

*Unit weights are based on dry coils and minimum rows. Weights exclude packaging, valves, and other components.

Fig. 9 — 42CK Horizontal Cabinet Unit with Telescopic Access Panel, Front Supply, Bottom Return, and Heater Dimensions



PARTIAL REAR VIEW
(TYPICAL BOTH SIDES)



LEGEND

- 1 — Junction Box
- 2 — 1-in. Ducted Rear Return and 1-in. Filter
- 3 — L-shape Drip Lip (optional, shipped loose)
- 4 — Chilled/Hot Water Supply and Return Connection
- 5 — Resilient Mounting Grommets with $\frac{3}{8}$ -in. Diameter Hole (typically 4)
- 6 — Electrical Knockout, $\frac{7}{8}$ -in. Diameter
- 7 — Drain Knockout, $1\frac{1}{2}$ -in. Diameter
- 8 — 1-in. Ducted Rear Return and 1-in. Filter
- 9 — Condensate Drain Connection, $\frac{7}{8}$ -in. OD
- 10 — Hinged Bottom Return Air Panel
- 11 — Supply Duct Collar, 1-in. OD
- 12 — Drain Pan

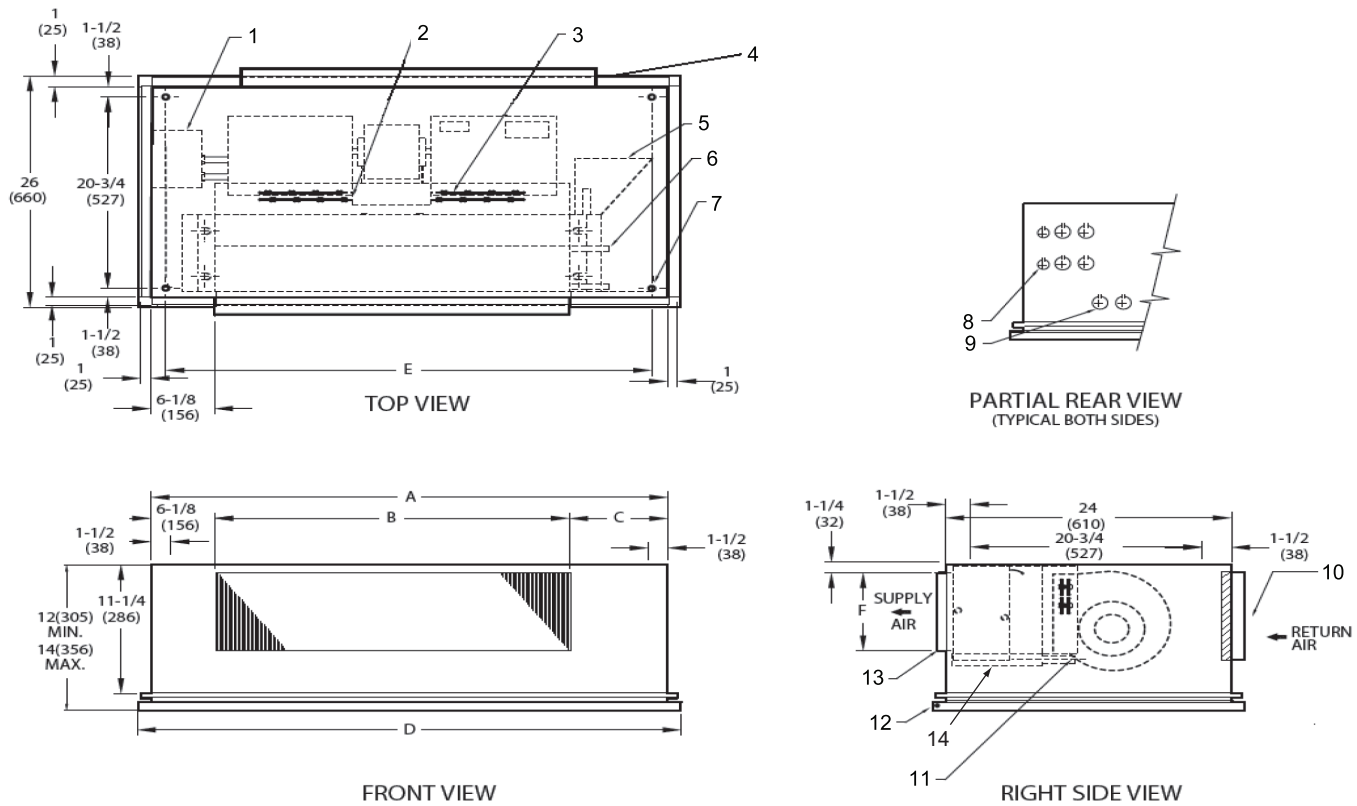
NOTES:

1. Right-hand unit shown; left-hand unit opposite.
2. Internal factory valve package and drains may not align with cabinet knockouts.
3. Dimensions shown in inches (mm). All dimensions are $\pm\frac{1}{4}$ inches.
4. Bottom panel is Arctic White polyester powder coat paint.

UNIT SIZE	NOM AIRFLOW (cfm)	DIMENSIONS (in.)						QTY/UNIT		REAR RETURN FILTER SIZE (in.)	UNIT WEIGHT* (lb)
		A	B	C	D	E	F	Blower	Motor		
02	200	35	16	12 $\frac{3}{4}$	37	32	6	1	1	7 x 21	115
03	300	35	20	8 $\frac{3}{4}$	37	32	6	1	1	7 x 21	120
04	400	41	26	8 $\frac{3}{4}$	43	38	6	2	1	7 x 27	135
06	600	53	31	15 $\frac{3}{4}$	55	50	7	2	1	7 x 38	150
08	800	53	38	8 $\frac{3}{4}$	55	50	7	2	1	7 x 38	155
10	1000	75	52	16 $\frac{3}{4}$	77	72	7	4	2	7 x 52	227
12	1200	75	60	8 $\frac{3}{4}$	77	72	7	4	2	7 x 52	241

*Unit weights are based on dry coils and minimum rows. Weights exclude packaging, valves, and other components.

Fig. 10 — 42CK Horizontal Cabinet Unit with Telescopic Access Panel, Front Supply, and Rear Return Dimensions



LEGEND

- 1 — Contactor Box
- 2 — Strip Heater High Limit
- 3 — Electric Strip Heater Element
- 4 — 1-in. Ducted Rear Return and 1-in. Filter
- 5 — L-shape Drip Lip (optional, shipped loose)
- 6 — Chilled/Hot Water Supply and Return Connection
- 7 — Resilient Mounting Grommets with $\frac{3}{8}$ -in. Diameter Hole (typically 4)
- 8 — Electrical Knockout, $\frac{7}{8}$ -in. Diameter
- 9 — Drain Knockout, $1\frac{1}{2}$ -in. Diameter
- 10 — 1-in. Ducted Rear Return and 1-in. Filter
- 11 — Condensate Drain Connection, $\frac{7}{8}$ -in. OD
- 12 — Hinged Bottom Return Air Panel
- 13 — Supply Duct Collar, 1-in. OD
- 14 — Drain Pan

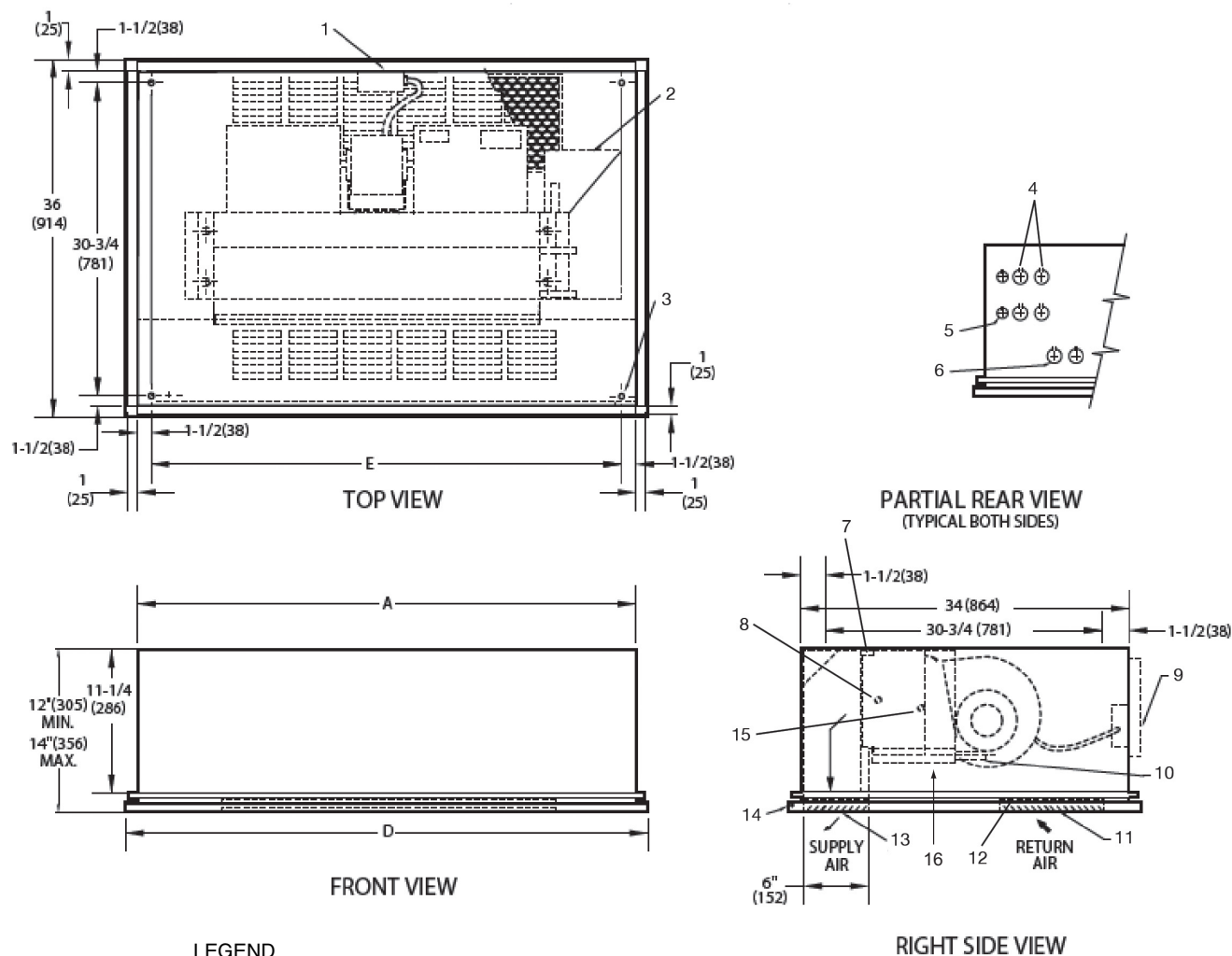
NOTES:

- 1. Right-hand unit shown; left-hand unit opposite.
- 2. Internal factory valve package and drains may not align with cabinet knockouts.
- 3. Dimensions shown in inches (mm). All dimensions are $\pm\frac{1}{4}$ inches.
- 4. Bottom panel is Arctic White polyester powder coat paint.

UNIT SIZE	NOM AIRFLOW (cfm)	DIMENSIONS (in.)						QTY/UNIT		REAR RETURN FILTER SIZE (in.)	UNIT WEIGHT* (lb)
		A	B	C	D	E	F	Blower	Motor		
02	200	35	16	12 $\frac{3}{4}$	37	32	6	1	1	7 x 21	117
03	300	35	20	8 $\frac{3}{4}$	37	32	6	1	1	7 x 21	122
04	400	41	26	8 $\frac{3}{4}$	43	38	6	2	1	7 x 27	137
06	600	53	31	15 $\frac{3}{4}$	55	50	7	2	1	7 x 38	152
08	800	53	38	8 $\frac{3}{4}$	55	50	7	2	1	7 x 38	157
10	1000	75	52	16 $\frac{3}{4}$	77	72	7	4	2	7 x 52	229
12	1200	75	60	8 $\frac{3}{4}$	77	72	7	4	2	7 x 52	243

*Unit weights are based on dry coils and minimum rows. Weights exclude packaging, valves, and other components.

Fig. 11 — 42CK Horizontal Cabinet Unit with Telescopic Access Panel, Front Supply, Rear Return, and Heater Dimensions



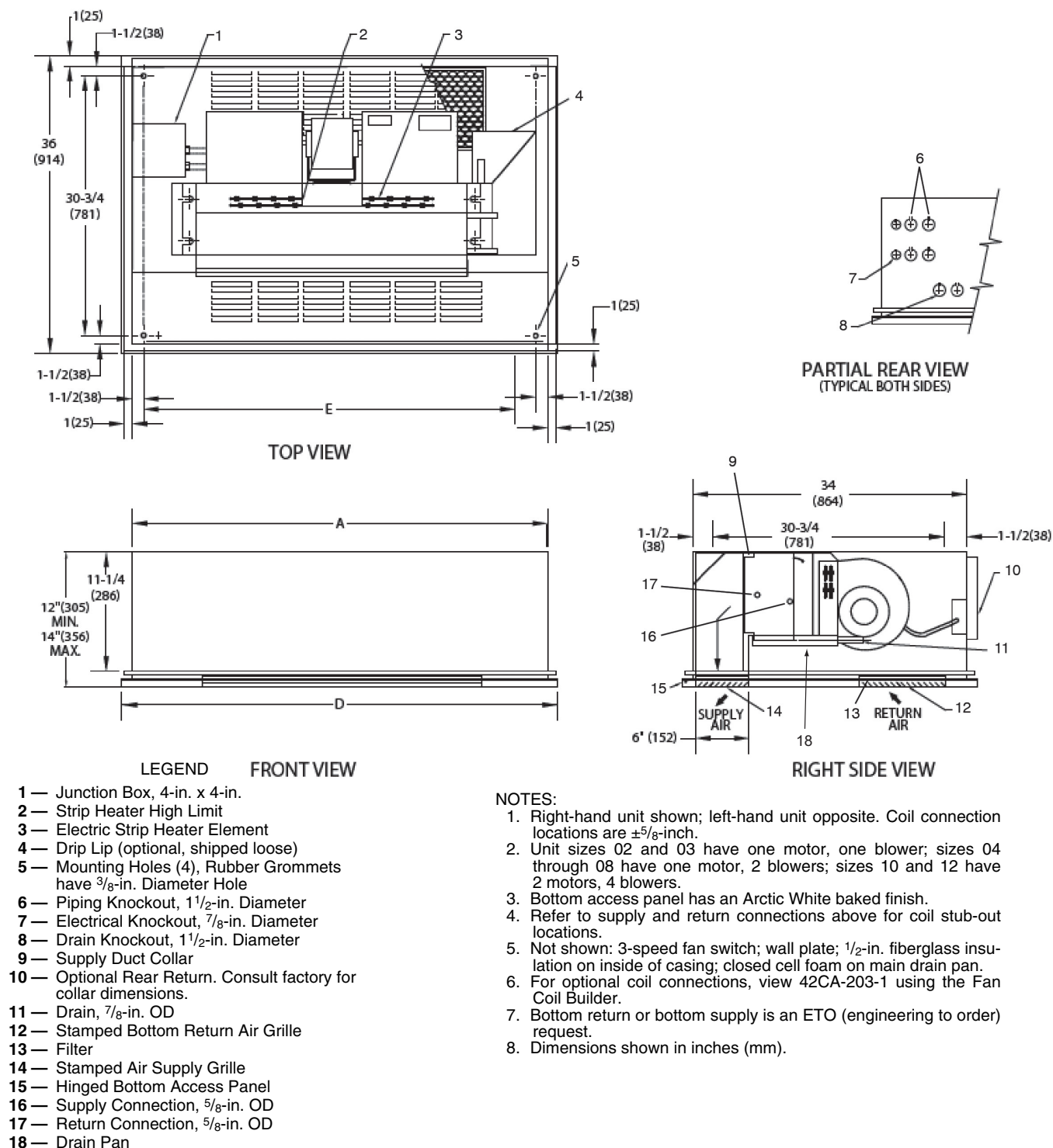
- LEGEND**
- 1 — Junction Box, 4-in. x 4-in.
 - 2 — Drip Lip (optional, shipped loose)
 - 3 — Mounting Holes (4), Rubber Grommets have $\frac{3}{8}$ -in. Diameter Hole
 - 4 — Piping Knockout, $1\frac{1}{2}$ -in. Diameter
 - 5 — Electrical Knockout, $\frac{7}{8}$ -in. Diameter
 - 6 — Drain Knockout, $1\frac{1}{2}$ -in. Diameter
 - 7 — Supply Duct Collar
 - 8 — Return Connection, $\frac{5}{8}$ -in. OD
 - 9 — Optional Rear Return. Consult factory for collar dimensions
 - 10 — Drain, $\frac{7}{8}$ -in. OD
 - 11 — Stamped Bottom Return Air Grille
 - 12 — Filter
 - 13 — Stamped Air Supply Grille
 - 14 — Hinged Bottom Access Panel
 - 15 — Supply Connection, $\frac{5}{8}$ -in. OD
 - 16 — Drain Pan

- NOTES:**
1. Right-hand unit shown; left-hand unit opposite. Coil connection locations are $\pm\frac{5}{8}$ -inch.
 2. Unit sizes 02 and 03 have one motor, one blower; sizes 04 through 08 have one motor, 2 blowers; sizes 10 and 12 have 2 motors, 4 blowers.
 3. Bottom access panel has an Arctic White baked finish.
 4. Refer to supply and return connections above for coil stub-out locations.
 5. Not shown: 3-speed fan switch; wall plate; $\frac{1}{2}$ -in. fiberglass insulation on inside of casing, closed cell foam on main drain pan.
 6. For optional coil connections, view 42CA-203-1 using the Fan Coil Builder.
 7. Dimensions shown in inches (mm).

UNIT SIZE	NOM AIRFLOW (cfm)	DIMENSIONS (in.)			QTY/UNIT		FACE AREA (sq ft)	UNIT WEIGHT* (lb)
		A	D	E	Blower	Motor		
02	200	35	37	32	1	1	0.83	115
03	300	35	37	32	1	1	1.08	120
04	400	41	43	38	2	1	1.35	135
06	600	53	55	50	2	1	1.88	150
08	800	53	55	50	2	1	2.31	155
10	1000	75	77	72	4	2	3.16	227
12	1200	75	77	72	4	2	3.65	241

*Unit weights are based on dry coils and minimum rows. Weights exclude packaging, valves, and other components.

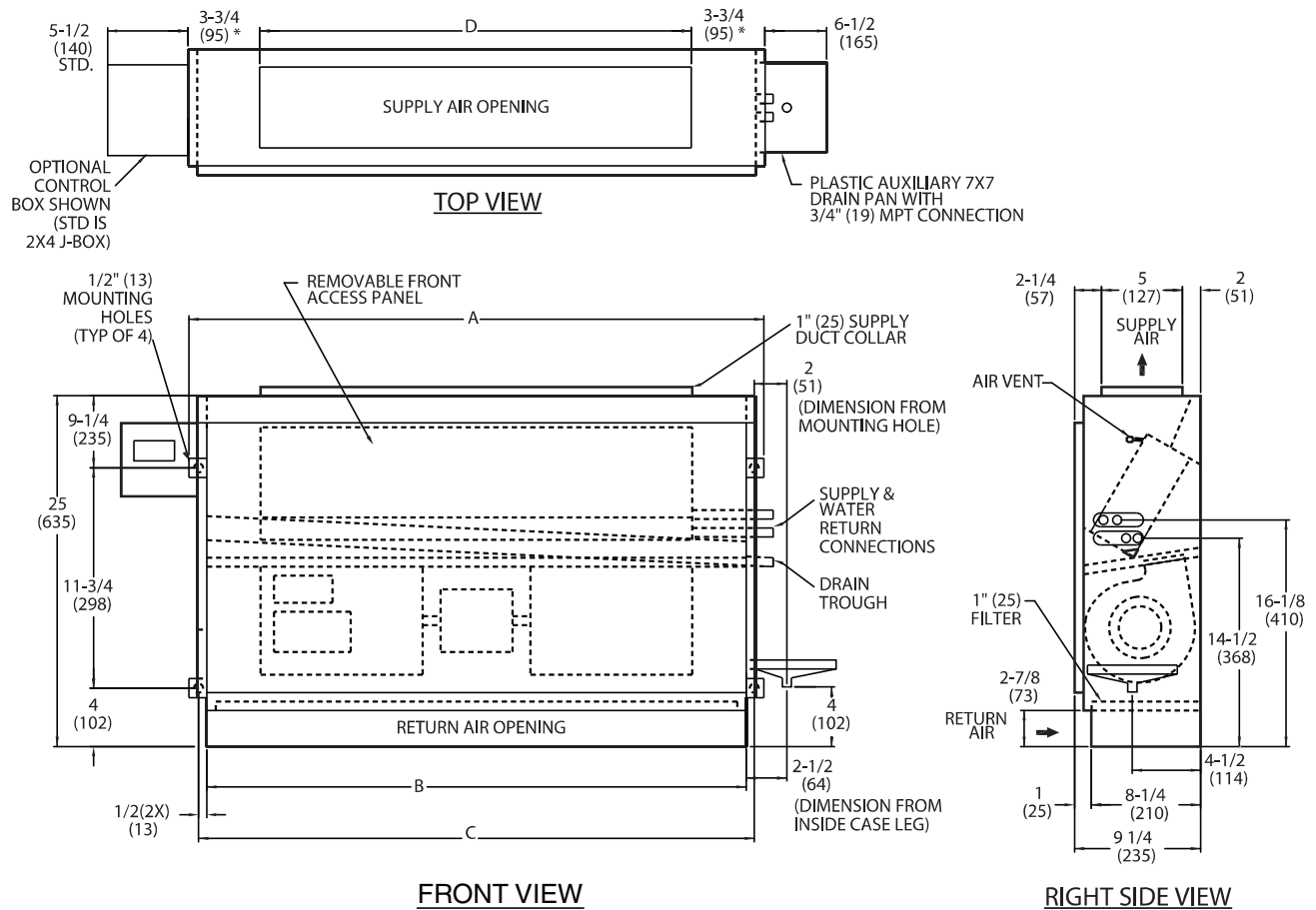
Fig. 12 — 42CK Horizontal Cabinet Unit with Bottom Supply and Return and Telescopic Access Panel Dimensions



UNIT SIZE	NOM AIRFLOW (cfm)	DIMENSIONS (in.)			QTY/UNIT		FACE AREA (sq ft)	UNIT WEIGHT* (lb)
		A	D	E	Blower	Motor		
02	200	35	37	32	1	1	0.83	117
03	300	35	37	32	1	1	1.08	122
04	400	41	43	38	2	1	1.35	137
06	600	53	55	50	2	1	1.88	152
08	800	53	55	50	2	1	2.31	157
10	1000	75	77	72	4	2	3.16	229
12	1200	75	77	72	4	2	3.65	243

*Unit weights are based on dry coils and minimum rows. Weights exclude packaging, valves, and other components.

Fig. 13 — 42CK Horizontal Cabinet with Bottom Supply and Return and Telescopic Access Panel and Electric Heat Dimensions



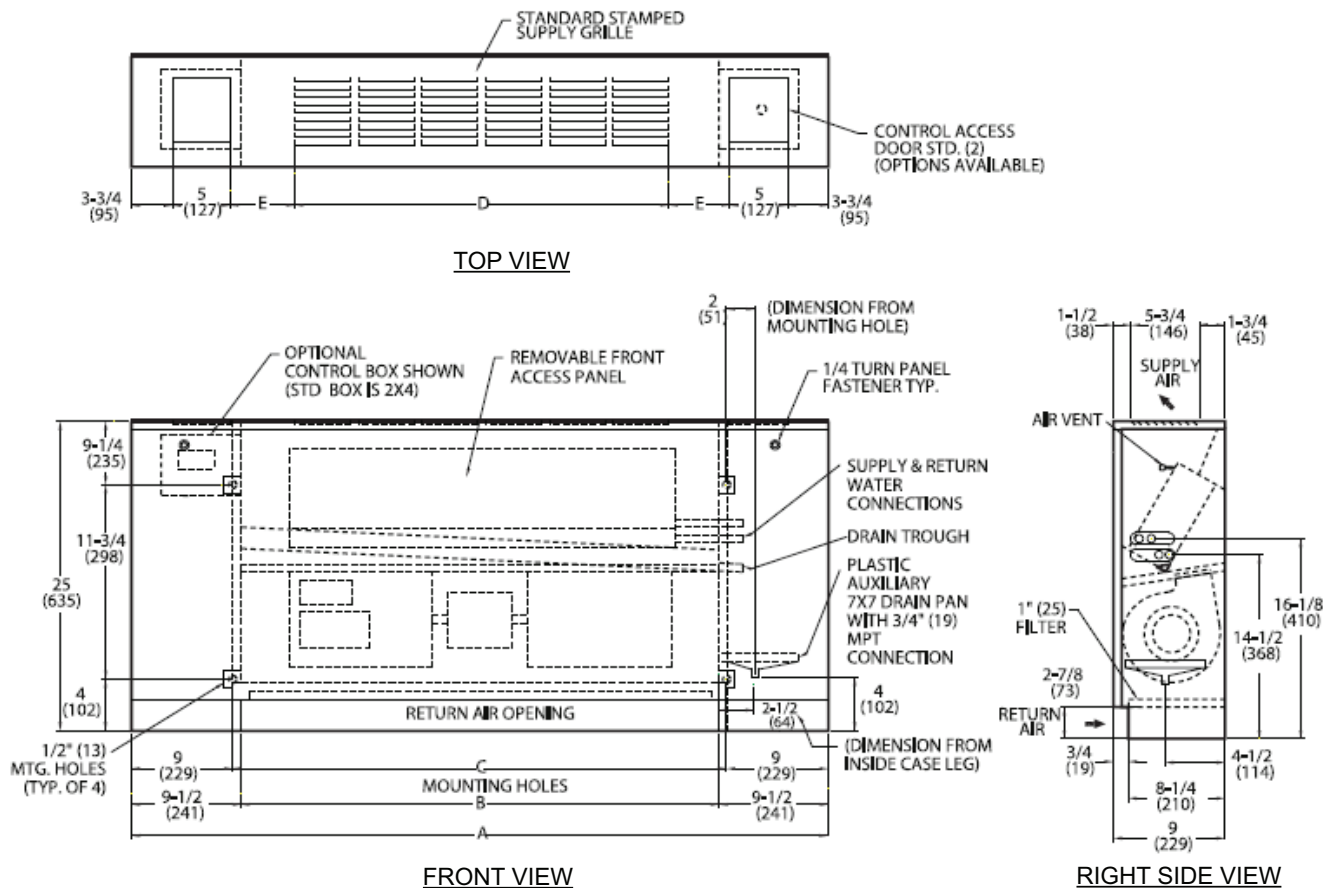
NOTES:

1. Right-hand unit shown; left-hand unit opposite.
2. Dimensions shown in inches (mm). All dimensions are $\pm 1/4$ inches.

UNIT SIZE	DIMENSIONS (in.)				QTY/UNIT		UNIT WEIGHT* (lb)
	A	B	C	D	Blower	Motor	
02	24 ³ / ₁₆	22	23	16	1	1	42
03	24 ³ / ₁₆	22	23	18	1	1	47
04	34 ³ / ₁₆	32	33	26	2	1	57
06	44 ³ / ₁₆	42	43	36	2	1	77
08	46 ³ / ₁₆	44	45	38	2	1	79
10	60 ³ / ₁₆	58	59	52	4	2	108
12	68 ³ / ₁₆	66	67	60	4	2	127

*Unit weights are based on dry coils and minimum rows. Weights exclude packaging, valves, and other components.

Fig. 14 — 42VA Furred-In Vertical Unit Dimensions



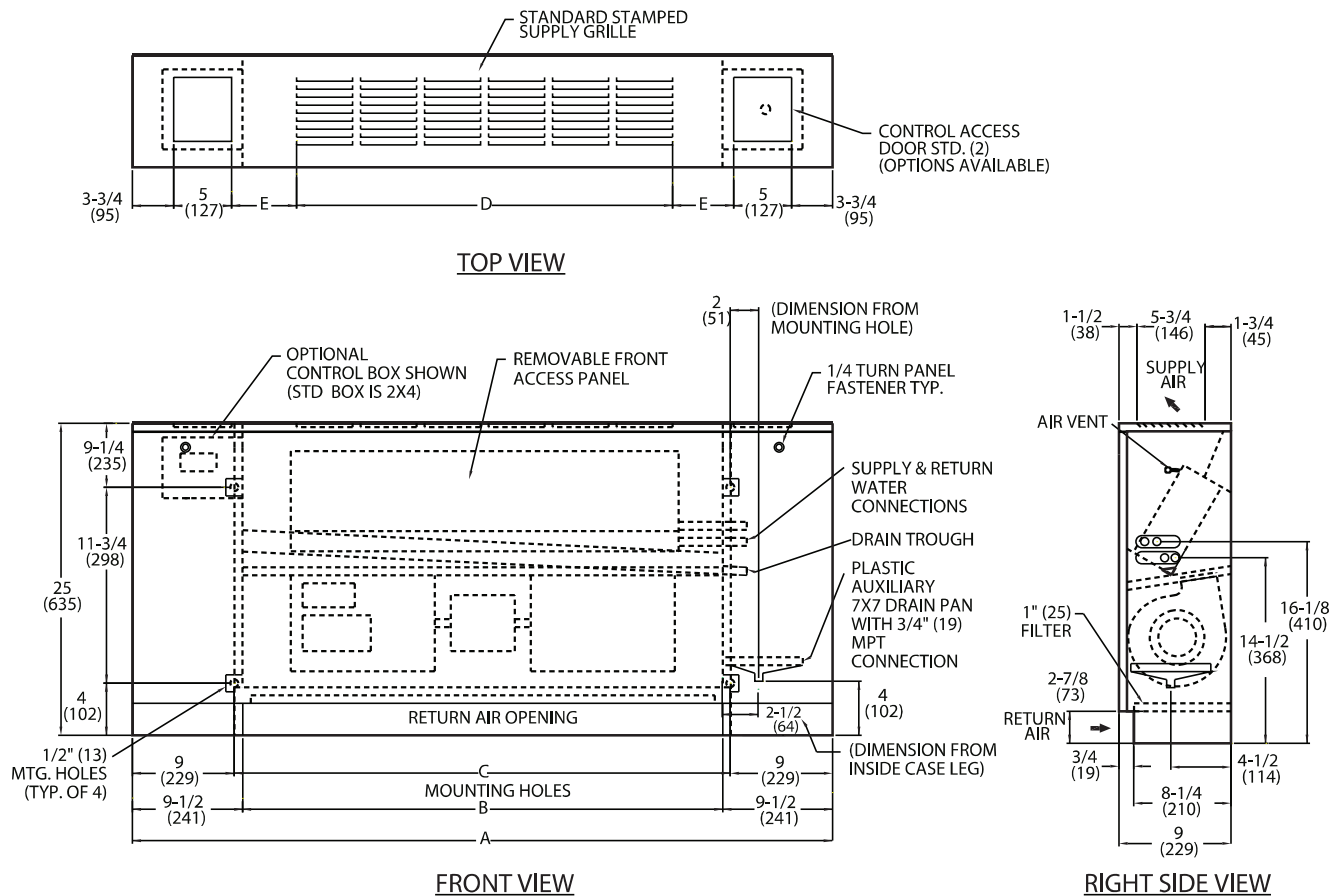
NOTES:

1. Right-hand unit shown; left-hand unit opposite.
2. Dimensions shown in inches (mm). All dimensions are $\pm 1/4$ inches.

UNIT SIZE	DIMENSIONS (in.)				QTY/UNIT		UNIT WEIGHT* (lb)
	A	B	C	D	Blower	Motor	
02	24 ³ / ₁₆	22	23	16	1	1	42
03	24 ³ / ₁₆	22	23	18	1	1	47
04	34 ³ / ₁₆	32	33	26	2	1	57
06	44 ³ / ₁₆	42	43	36	2	1	77
08	46 ³ / ₁₆	44	45	38	2	1	79
10	60 ³ / ₁₆	58	59	52	4	2	108
12	68 ³ / ₁₆	66	67	60	4	2	127

*Unit weights are based on dry coils and minimum rows. Weights exclude packaging, valves, and other components.

Fig. 15 — 42VA Furred-In Unit with Electric Heat Dimensions

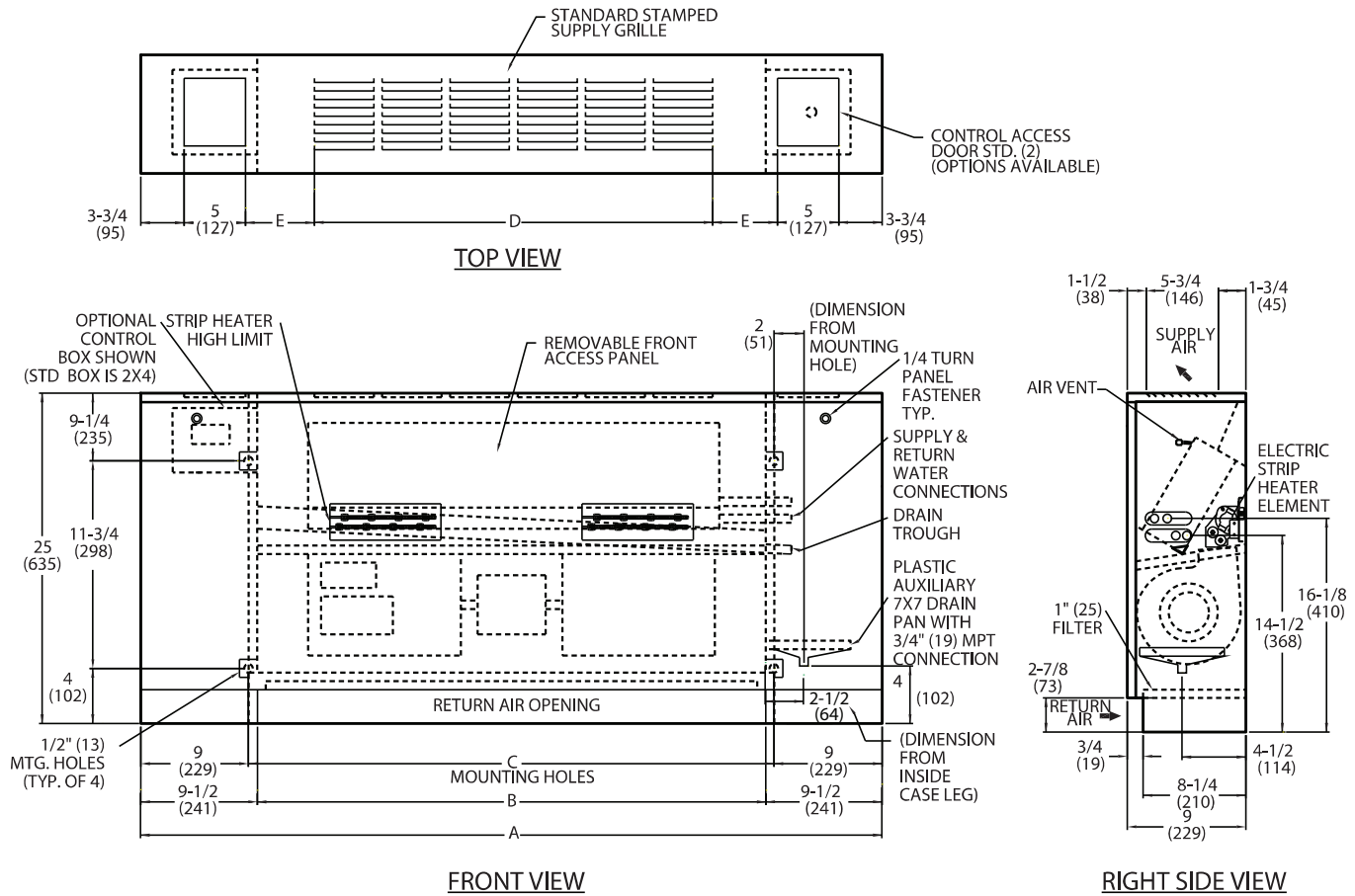


- NOTES:
1. Right-hand unit shown; left-hand unit opposite.
 2. Dimensions shown in inches (mm). All dimensions are $\pm 1/4$ inches.

UNIT SIZE	DIMENSIONS (in.)					QTY/UNIT		UNIT WEIGHT* (lb)
	A	B	C	D	E	Blower	Motor	
02	41	22	23	17 ¹ / ₄	3 ¹ / ₈	1	1	63
03	41	22	23	17 ¹ / ₄	3 ¹ / ₈	1	1	68
04	51	32	33	26	3 ³ / ₄	2	1	82
06	61	42	43	39	2 ¹ / ₄	2	1	99
08	63	44	45	39	3 ¹ / ₄	2	1	101
10	77	58	59	52 ¹ / ₈	3 ⁵ / ₈	4	2	133
12	85	66	67	61	3 ¹ / ₄	4	2	154

*Unit weights are based on dry coils and minimum rows. Weights exclude packaging, valves, and other components.

Fig. 16 — 42VB Vertical Cabinet Unit Dimensions



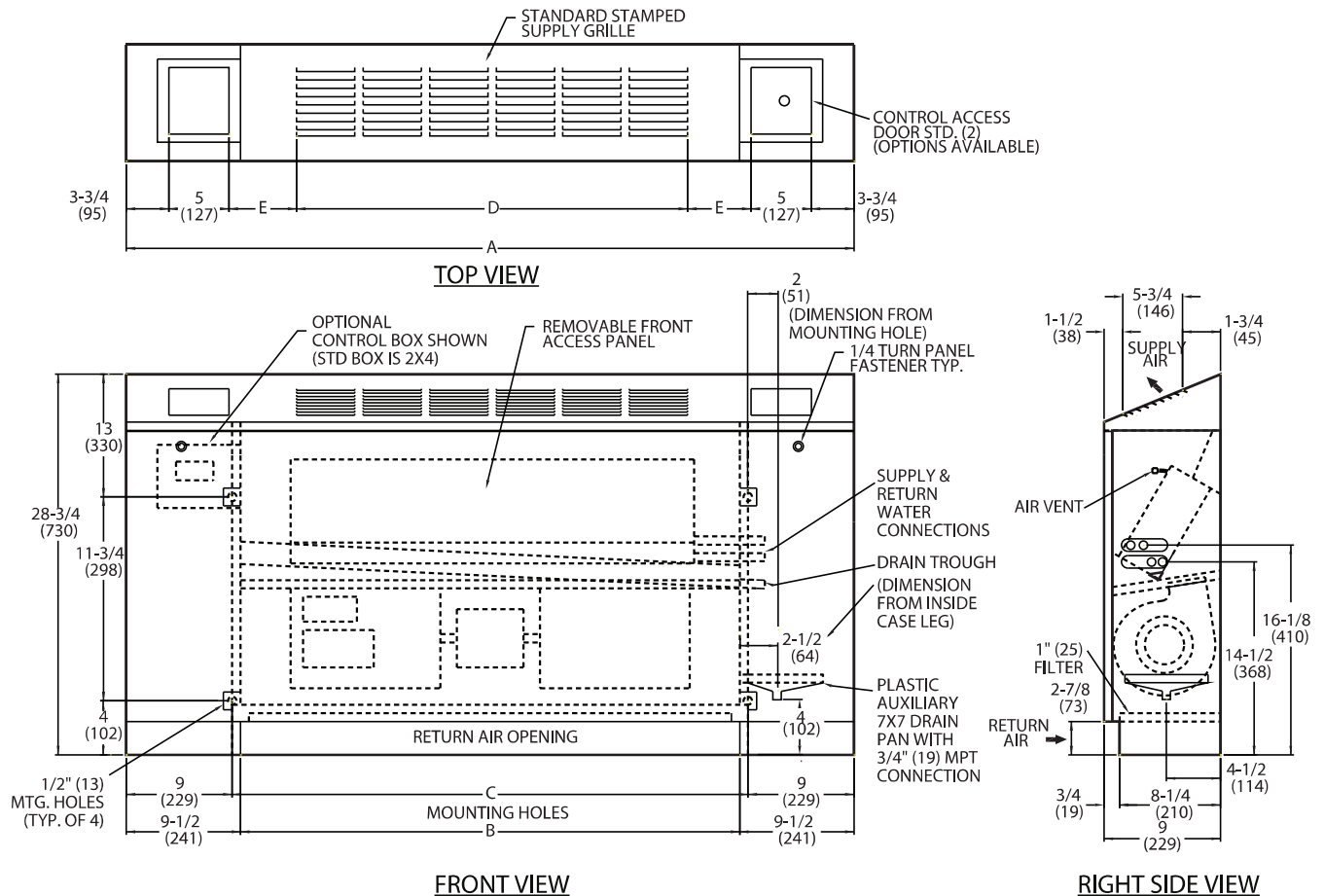
NOTES:

1. Right-hand unit shown; left-hand unit opposite.
2. Dimensions shown in inches (mm). All dimensions are $\pm 1/4$ inches.

UNIT SIZE	DIMENSIONS (in.)					QTY/UNIT		UNIT WEIGHT* (lb)
	A	B	C	D	E	Blower	Motor	
02	41	22	23	17 ¹ / ₄	3 ¹ / ₈	1	1	63
03	41	22	23	17 ¹ / ₄	3 ¹ / ₈	1	1	68
04	51	32	33	26	3 ³ / ₄	2	1	82
06	61	42	43	39	2 ¹ / ₄	2	1	99
08	63	44	45	39	3 ¹ / ₄	2	1	101
10	77	58	59	52 ¹ / ₈	3 ⁵ / ₈	4	2	133
12	85	66	67	61	3 ¹ / ₄	4	2	154

*Unit weights are based on dry coils and minimum rows. Weights exclude packaging, valves, and other components.

Fig. 17 — 42VB Vertical Cabinet Unit with Electric Heater Dimensions

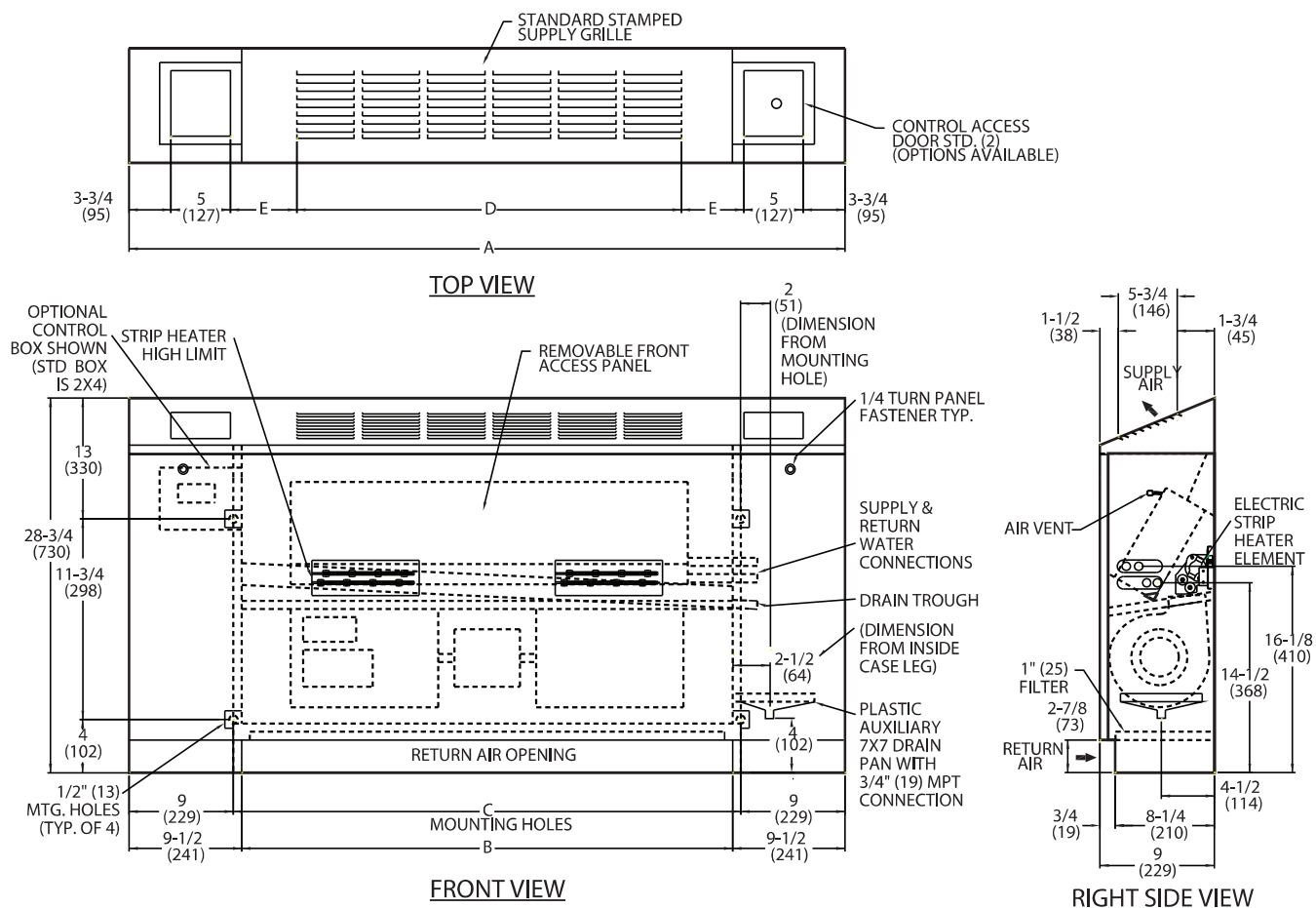


- NOTES:
1. Right-hand unit shown; left-hand unit opposite.
 2. Dimensions shown in inches (mm). All dimensions are $\pm 1/4$ inches.

UNIT SIZE	DIMENSIONS (in.)					QTY/UNIT		UNIT WEIGHT* (lb)
	A	B	C	D	E	Blower	Motor	
02	41	22	23	17 ¹ / ₄	3 ¹ / ₈	1	1	64
03	41	22	23	17 ¹ / ₄	3 ¹ / ₈	1	1	69
04	51	32	33	26	3 ³ / ₄	2	1	83
06	61	42	43	39	2 ¹ / ₄	2	1	100
08	63	44	45	39	3 ¹ / ₄	2	1	102
10	77	58	59	52 ¹ / ₈	3 ⁵ / ₈	4	2	135
12	85	66	67	61	3 ¹ / ₄	4	2	156

*Unit weights are based on dry coils and minimum rows. Weights exclude packaging, valves, and other components.

Fig. 18 — 42VF Vertical Cabinet Unit with Slant Top Dimensions



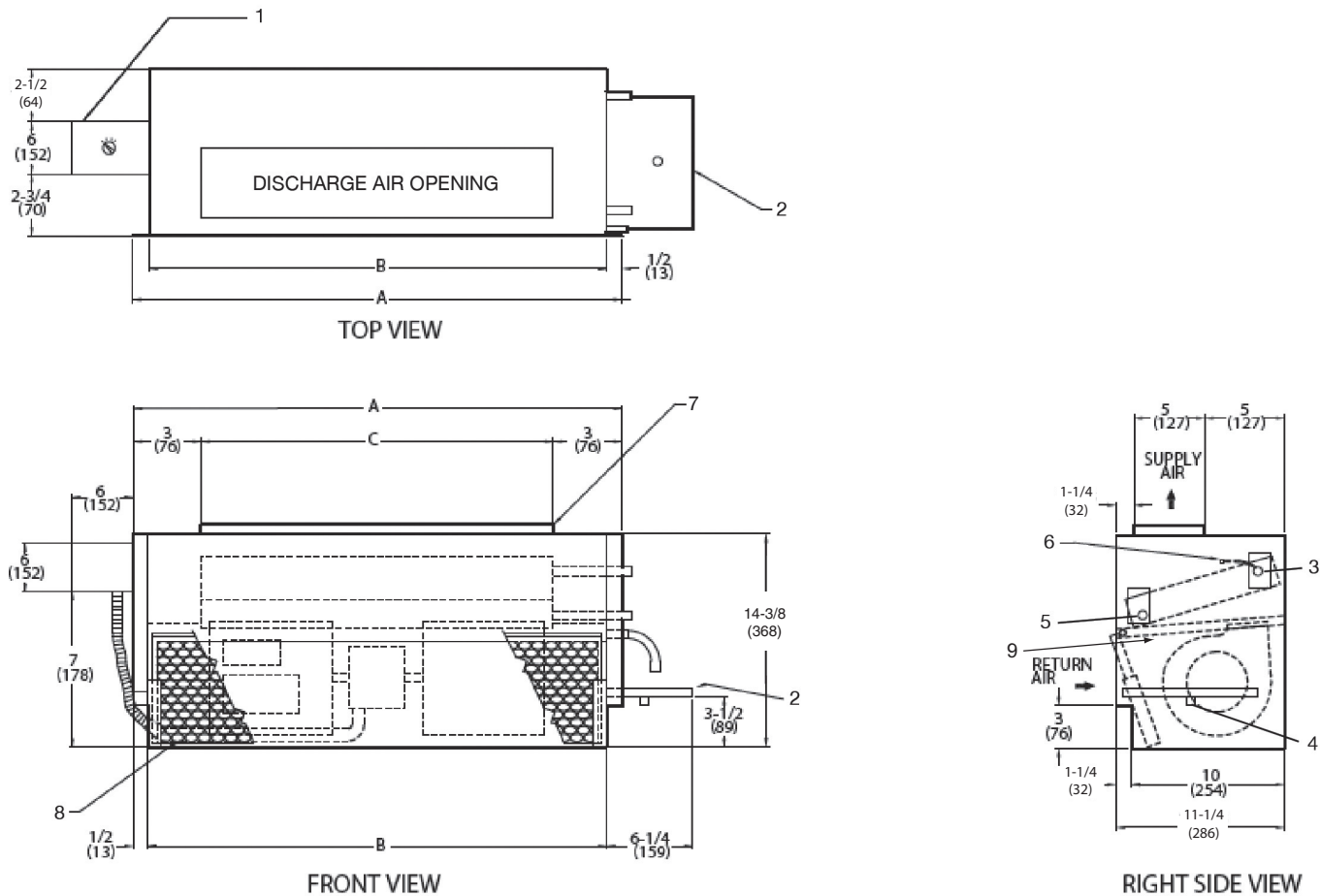
NOTES:

1. Right-hand unit shown; left-hand unit opposite.
2. Dimensions shown in inches (mm). All dimensions are $\pm 1/4$ inches.

UNIT SIZE	DIMENSIONS (in.)					QTY/UNIT		UNIT WEIGHT* (lb)
	A	B	C	D	E	Blower	Motor	
02	41	22	23	17 ¹ / ₄	3 ¹ / ₈	1	1	64
03	41	22	23	17 ¹ / ₄	3 ¹ / ₈	1	1	69
04	51	32	33	26	3 ³ / ₄	2	1	83
06	61	42	43	39	2 ¹ / ₄	2	1	100
08	63	44	45	39	3 ¹ / ₄	2	1	102
10	77	58	59	52 ¹ / ₈	3 ⁵ / ₈	4	2	135
12	85	66	67	61	3 ¹ / ₄	4	2	156

*Unit weights are based on dry coils and minimum rows. Weights exclude packaging, valves, and other components.

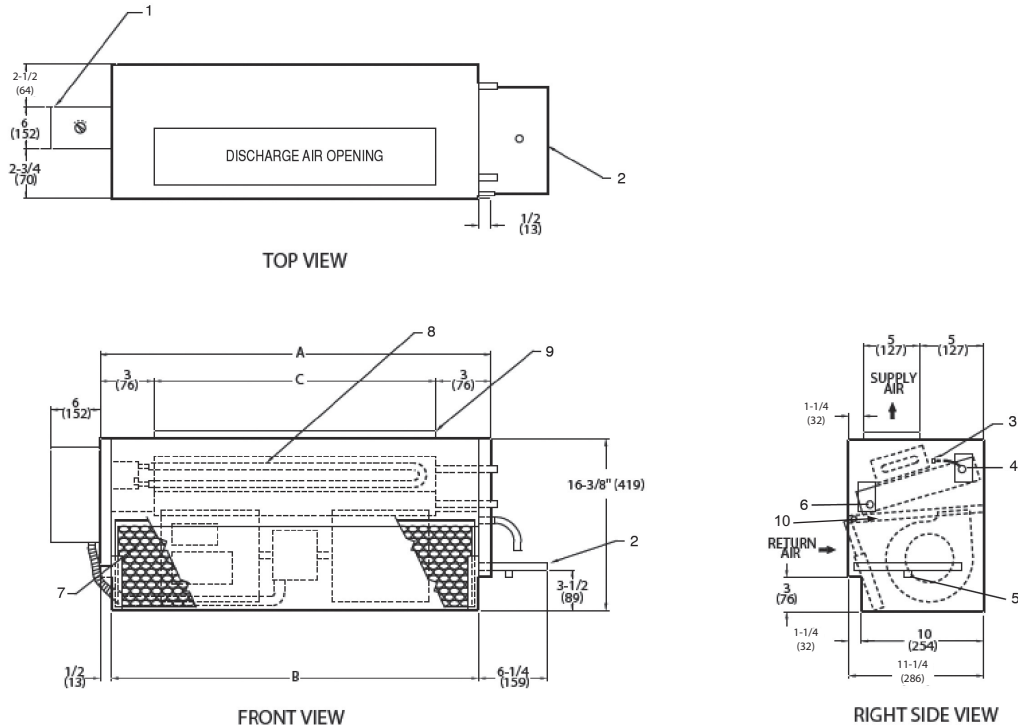
Fig. 19 — 42VF Vertical Cabinet Unit with Slant Top and Electric Heater Dimensions



UNIT SIZE	NOM AIRFLOW (cfm)	DIMENSIONS (in.)			QTY/UNIT		FACE AREA (sq ft)	UNIT WEIGHT* (lb)
		A	B	C	Blower	Motor		
02	200	23	22	17	2	1	1.18	50
03	300	28	27	22	2	1	1.53	60
04	400	36	35	30	2	1	2.08	72
06	600	50	49	44	4	2	3.06	110

*Unit weights are based on dry coils and minimum rows. Weights exclude packaging, valves, and other components.

Fig. 20 — 42VC Furred-In Lowboy Unit Dimensions



LEGEND

- 1 — Unit-Mounted Control Box (Optional)
- 2 — Drain Pan, Auxiliary, Shipped Loose
- 3 — Air Vent, 1/8-in. MPT
- 4 — Supply Conn, 5/8-in. OD
- 5 — Drain, 3/4-in. MPT
- 6 — Return Conn, 5/8-in. OD
- 7 — Filter
- 8 — Electrical Sheath Heater Element
- 9 — Discharge Opening
- 10 — Drain Pan

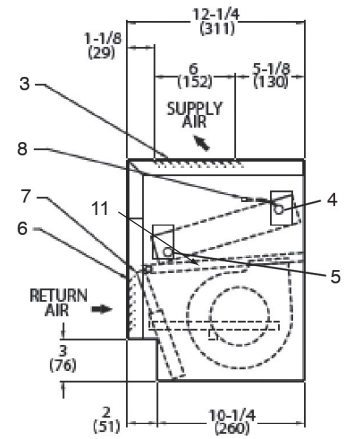
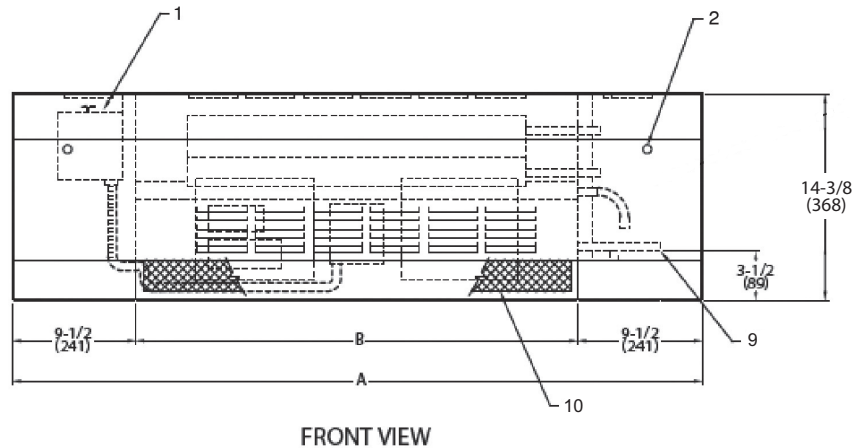
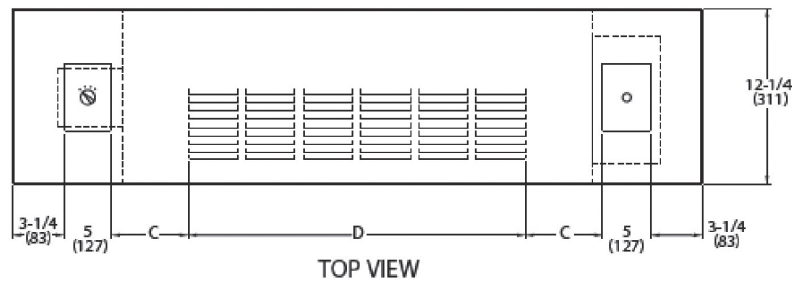
NOTES:

- 1. Right-hand unit shown; left-hand unit opposite. Coil connection locations are $\pm 5/8$ -inch.
- 2. Unit sizes 02 through 04 have one motor, 2 blowers; size 06 has 2 motors, 4 blowers.
- 3. Standard 2-row coil shown.
- 4. Optional unit-mounted switch box and controls, when specified, are installed on opposite side from cooling connections.
- 5. Height increases by 2 in. with electric heat.
- 6. Not shown: 3-speed fan switch, 1/2-in. fiberglass insulation on inside of casing, closed cell foam on main drain pan.
- 7. Units have galvanized finish.
- 8. For optional coil connections, view 42VC-203-1 using the Fan Coil Builder.
- 9. Dimensions shown in inches (mm).

UNIT SIZE	NOM AIRFLOW (cfm)	DIMENSIONS (in.)			QTY/UNIT		FACE AREA (sq ft)	UNIT WEIGHT* (lb)
		A	B	C	Blower	Motor		
02	200	23	22	17	2	1	1.18	50
03	300	28	27	22	2	1	1.53	60
04	400	36	35	30	2	1	2.08	72
06	600	50	49	44	4	2	3.06	110

*Unit weights are based on dry coils and minimum rows. Weights exclude packaging, valves, and other components.

Fig. 21 — 42VC Furred-In Lowboy Unit with Electric Heat Dimensions



LEGEND

- 1 — Fan Switch, 3-Speed, behind Access Door
- 2 — Front Panel Fastener
- 3 — Stamped Supply Grille
- 4 — Supply Conn, $\frac{5}{8}$ -in. OD
- 5 — Return Conn, $\frac{5}{8}$ -in. OD
- 6 — Stamped Return Grille
- 7 — Filter
- 8 — Air Vent, $\frac{1}{8}$ -in. MPT
- 9 — Drain Pan, Auxiliary, with $\frac{3}{4}$ -in. MPT Drain Connection
- 10 — Return Air Grille
- 11 — Drain Pan

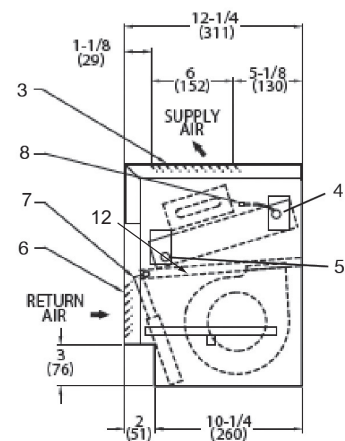
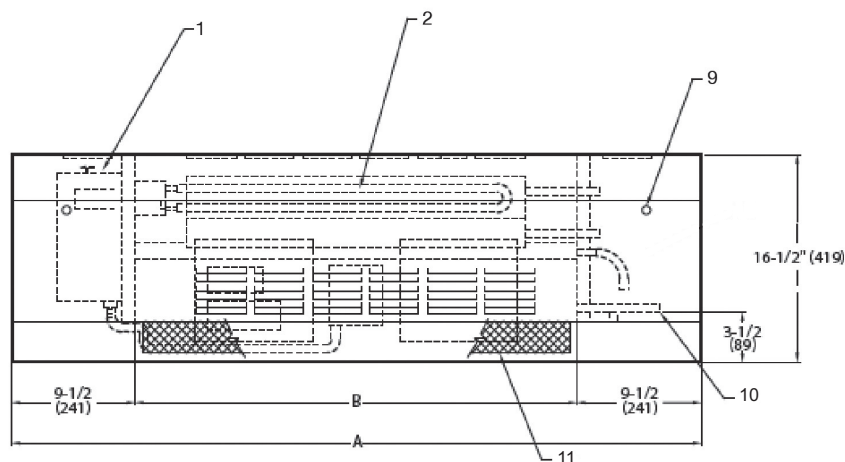
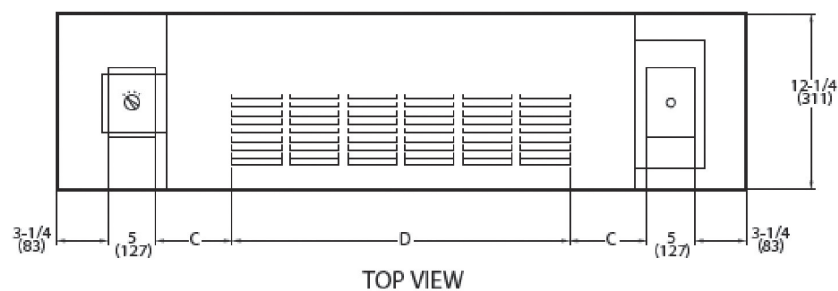
NOTES:

1. Right-hand unit shown; left-hand unit opposite. Coil connection locations are $\pm \frac{5}{8}$ -inch.
2. Unit sizes 02 through 04 have one motor, 2 blowers; size 06 has 2 motors, 4 blowers.
3. Cabinet has an Arctic White baked finish.
4. Height increases by 2 in. with electric heat.
5. Standard 2-row coil shown.
6. Not shown: $\frac{1}{2}$ -in. fiberglass insulation on inside of casing, closed cell foam on main drain pan.
7. For optional coil connections, view 42VC-203-1 using the Fan Coil Builder.
8. Dimensions shown in inches (mm).

UNIT SIZE	NOM AIRFLOW (cfm)	DIMENSIONS (in.)				QTY/UNIT		FACE AREA (sq ft)	UNIT WEIGHT* (lb)
		A	B	C	D	Blower	Motor		
02	200	41	22	3 $\frac{3}{4}$	17	2	1	1.18	72
03	300	46	27	4	21 $\frac{1}{2}$	2	1	1.53	100
04	400	54	35	3 $\frac{5}{8}$	30 $\frac{1}{4}$	2	1	2.08	108
06	600	68	49	4 $\frac{1}{16}$	43 $\frac{3}{8}$	4	2	3.06	154

*Unit weights are based on dry coils and minimum rows. Weights exclude packaging, valves, and other components.

Fig. 22 — 42VE Cabinet Lowboy Unit Dimensions



LEGEND

- 1 — Fan Switch, 3-Speed, behind Access Door
- 2 — Electrical Sheath Heater Element
- 3 — Stamped Supply Grille
- 4 — Supply Conn, $\frac{5}{8}$ -in. OD
- 5 — Return Conn, $\frac{5}{8}$ -in. OD
- 6 — Stamped Return Grille
- 7 — Filter
- 8 — Air Vent, $\frac{1}{8}$ -in. MPT
- 9 — Front Panel Fastener
- 10 — Drain Pan, Auxiliary, with $\frac{3}{4}$ -in. MPT Drain Connection
- 11 — Return Air Grille
- 12 — Drain Pan

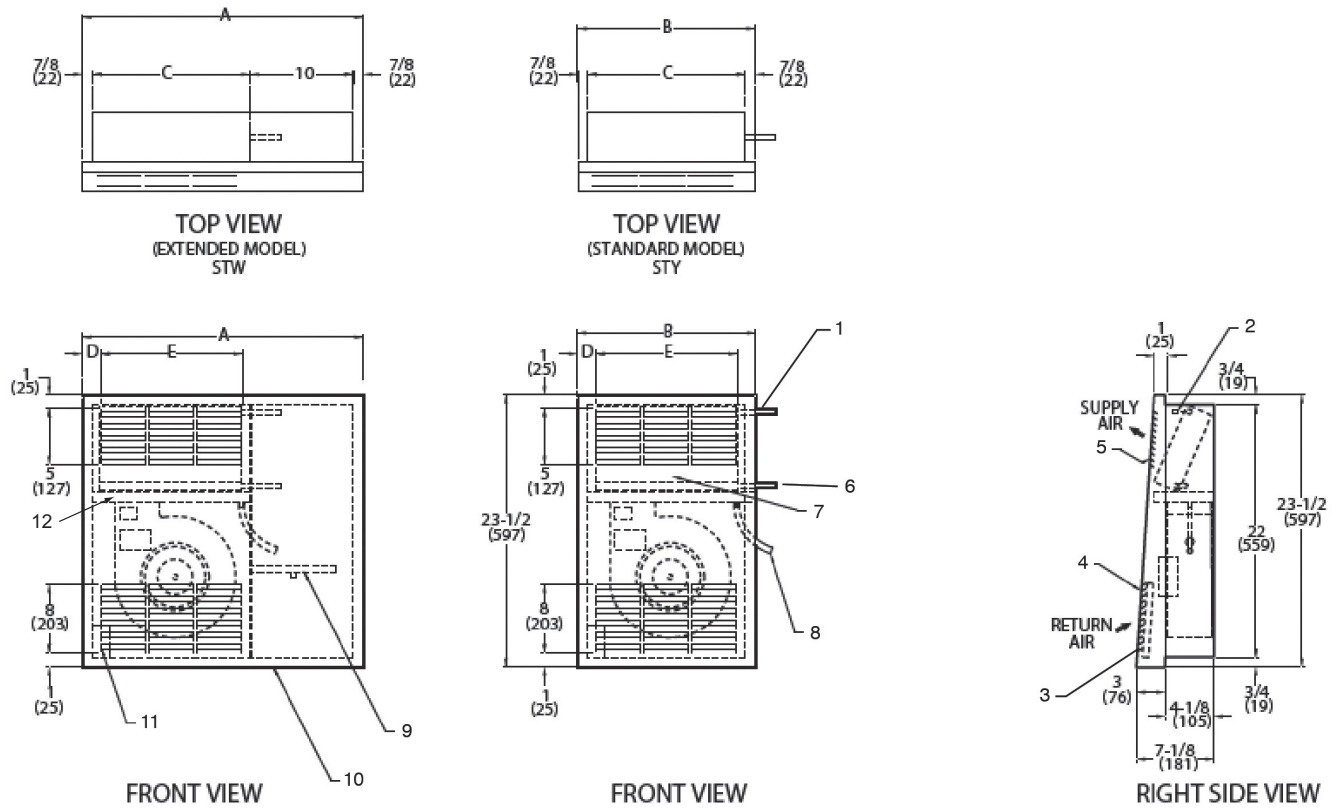
NOTES:

1. Right-hand unit shown; left-hand unit opposite. Coil connection locations are $\pm \frac{5}{8}$ -inch.
2. Unit sizes 02 through 04 have one motor, 2 blowers; size 06 has 2 motors, 4 blowers.
3. Cabinet has an Arctic White baked finish.
4. Height increases by 2 in. with electric heat.
5. Standard 2-row coil shown.
6. Not shown: $\frac{1}{2}$ -in. fiberglass insulation on inside of casing, closed cell foam on main drain pan.
7. For optional coil connections, view 42VC-203-1 using the Fan Coil Builder.
8. Dimensions shown in inches (mm).

UNIT SIZE	NOM AIRFLOW (cfm)	DIMENSIONS (in.)				QTY/UNIT		FACE AREA (sq ft)	UNIT WEIGHT* (lb)
		A	B	C	D	Blower	Motor		
02	200	41	22	3 $\frac{3}{4}$	17	2	1	1.18	72
03	300	46	27	4	21 $\frac{1}{2}$	2	1	1.53	100
04	400	54	35	3 $\frac{5}{8}$	30 $\frac{1}{4}$	2	1	2.08	108
06	600	68	49	4 $\frac{1}{16}$	43 $\frac{3}{8}$	4	2	3.06	154

*Unit weights are based on dry coils and minimum rows. Weights exclude packaging, valves, and other components.

Fig. 23 — 42VE Cabinet Lowboy Unit with Electric Heat Dimensions



LEGEND

- 1 — Supply Conn, 5/8-in. OD
- 2 — Air Vent, 1/8-in. MPT
- 3 — Filter
- 4 — Return Air Grille, Stamped
- 5 — Stamped Supply Grille
- 6 — Return Conn, 5/8-in. OD
- 7 — Removable Front Panel
- 8 — Drain Conn, 7/8-in. OD
- 9 — Auxiliary Drain Pan
- 10 — Valve Compartment
- 11 — Junction Box
- 12 — Drain Pan

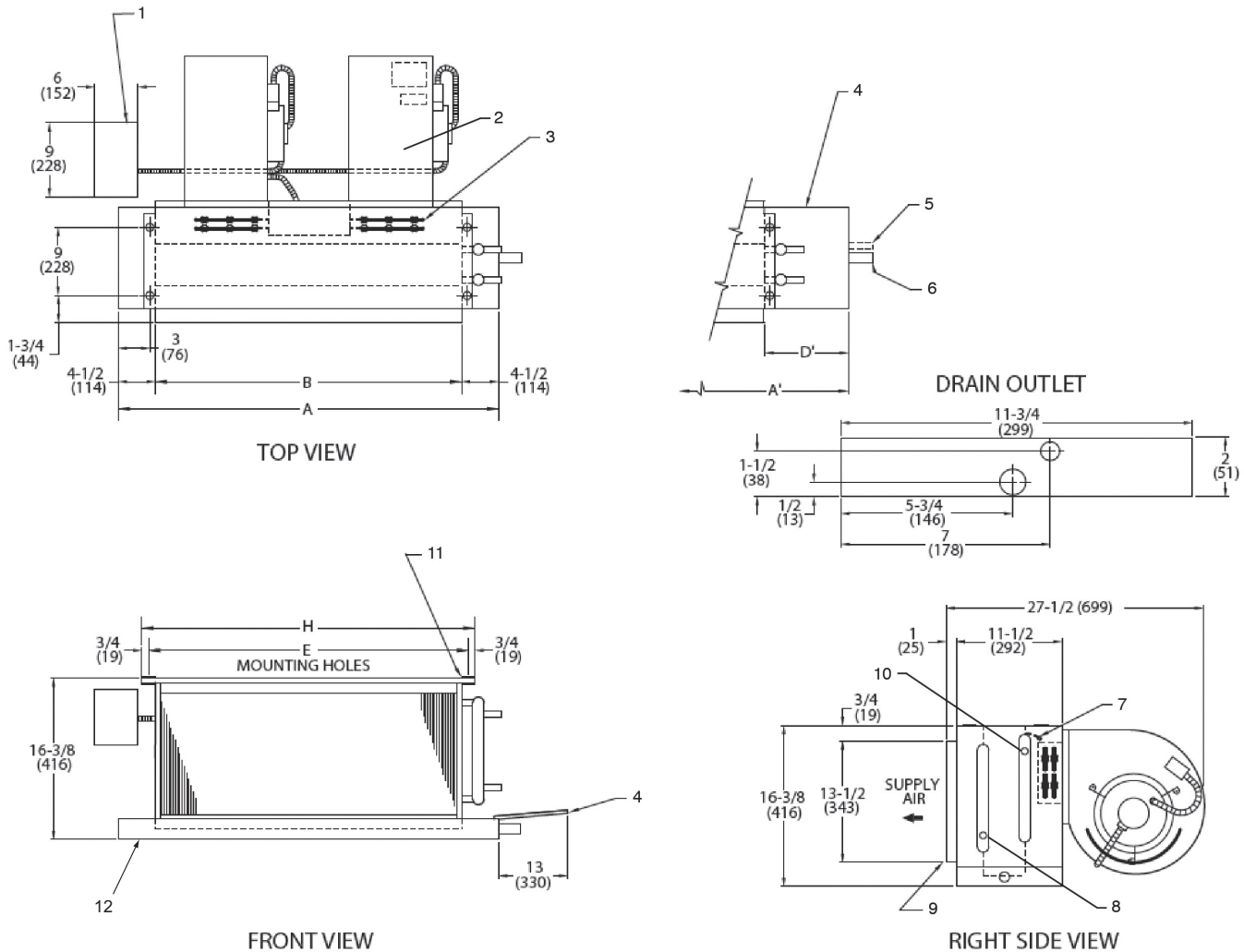
NOTES:

- 1. Right-hand unit shown; left-hand unit opposite. Coil connection locations are $\pm 5/8$ -inch.
- 2. Front panel has an Arctic White baked finish.
- 3. Standard 2-row coil shown.
- 4. Unit size 01 has one motor, one blower; size 03 has 2 motors, 2 blowers.
- 5. Unit has 1/2-in. flanges for mounting to wall surface.
- 6. Front panel hooks at top of unit, swing down and snap in at bottom against a spring clip.
- 7. Not shown: 3-speed fan switch, wall plate, 1/2-in. fiberglass insulation on inside of casing, closed cell foam on main drain pan.
- 8. Dimensions shown in inches (mm).

UNIT SIZE	NOM AIRFLOW (cfm)	DIMENSIONS (in.)					QTY/UNIT		UNIT WEIGHT* (lb)
		A	B	C	D	E	Blower	Motor	
01	150	25 ³ / ₄	15 ³ / ₄	14	1 ¹ / ₂	12 ³ / ₄	1	1	40
03	300	39 ³ / ₄	29 ³ / ₄	28	1 ¹⁵ / ₁₆	25 ⁷ / ₈	2	2	74

*Unit weights are based on dry coils and minimum rows. Weights exclude packaging, valves, and other components.

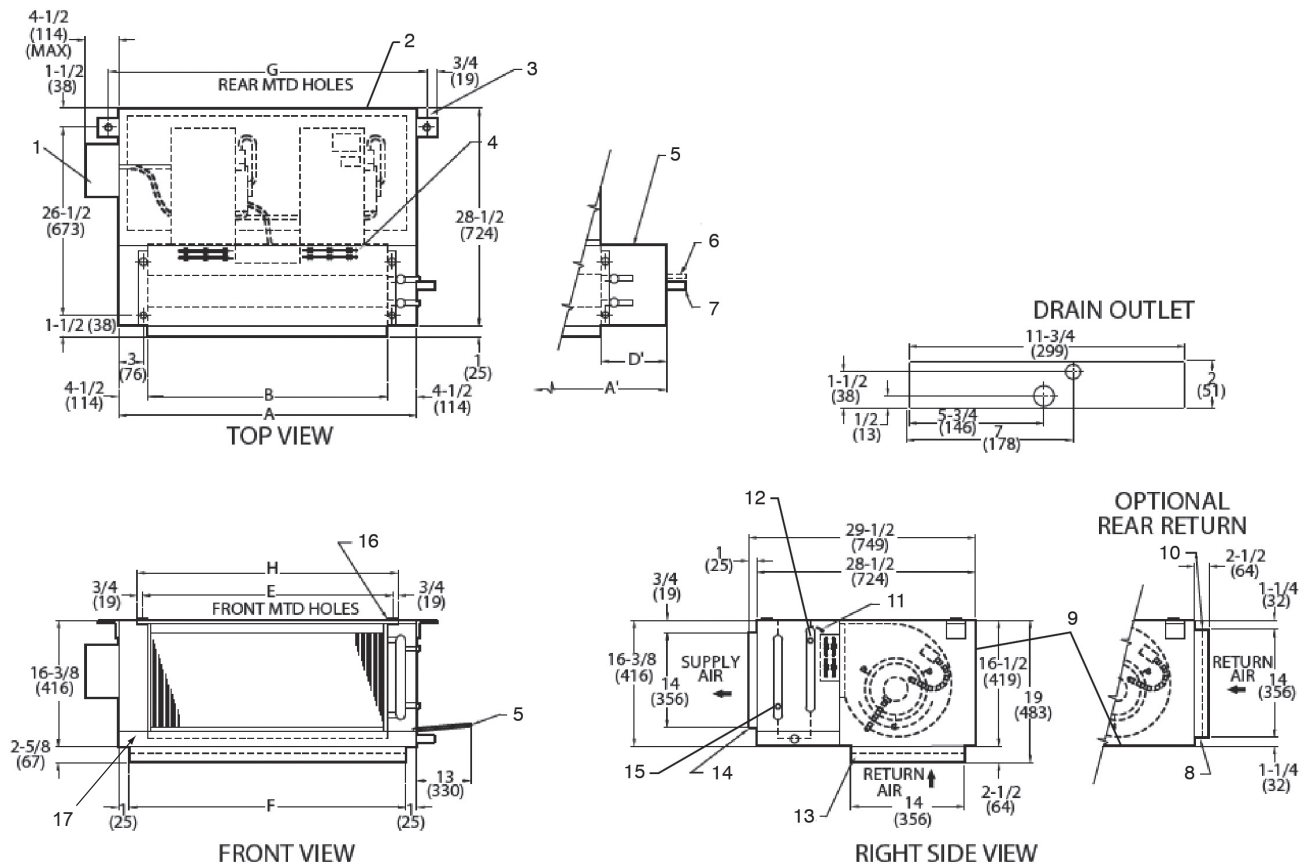
Fig. 24 — 42VG Furred-In Wall Unit Dimensions



UNIT SIZE	NOM AIRFLOW (cfm)	DIMENSIONS (in. $\pm 1/8$)						QTY/UNIT		UNIT WEIGHT* (lb)
		A	A'	B	D'	E	H	Blower	Motor	
06	600	23	32	14	13 1/2	17	18 1/2	1	1	64
08	800	28	37	19	13 1/2	22	23 1/2	1	1	79
10	1000	32	42	23	14 1/2	26	27 1/2	1	1	90
12	1200	37	47	28	14 1/2	31	32 1/2	2	2	108
14	1400	42	52	33	14 1/2	36	37 1/2	2	2	119
16	1600	47	56	38	13 1/2	41	42 1/2	2	2	124
18	1800	52	62	43	14 1/2	46	47 1/2	2	2	141
20	2000	56	66	47	14 1/2	50	51 1/2	2	2	151

*Unit weights are based on dry coils and minimum rows. Weights exclude packaging, valves, and other components.

Fig. 25 — 42DA Furred-In Ceiling Unit with Electric Heat Dimensions



LEGEND

- 1 — Motor Junction Box Opposite Piping
- 2 — Insulated Return Air Plenum
- 3 — Mounting Clips (shipped loose)
- 4 — Electrical Strip Heater Element (optional)
- 5 — Auxiliary Drip Lip (shipped loose) with 3/8-in. Hole
- 6 — Tell-Tale Drain (optional)
- 7 — Drain Connection, 7/8-in. OD
- 8 — Filter Retainer Angle
- 9 — Access Panel
- 10 — Return Duct Collar, 2 1/2-in.
- 11 — Air Vent, 1/8-in. MPT
- 12 — Return Connection
- 13 — Filter, 1-in.
- 14 — Supply Duct Collar, 1-in.
- 15 — Supply Connection
- 16 — Mounting Holes (four, 3/4-in. diameter) with Rubber Grommet

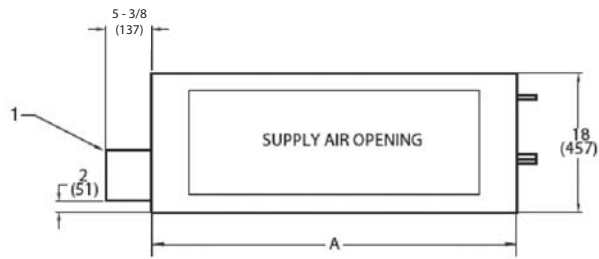
NOTES:

1. Right-hand unit shown; left-hand unit opposite. Coil connection locations are $\pm 3/8$ -inch.
2. Sizes 06, 08 and 10 have one motor, one blower. Sizes 12 through 20 have 2 motors, 2 blowers.
3. Filter and filter rack are standard.
4. Standard 4-row coil shown. Other coil option dimensional data available on request.
5. For optional coil connections, view 42DA-203-1 using the Fan Coil Builder.
6. Fan switch, wall plate not shown.
7. Galvanized finish provided as standard.
8. Dimensions are in inches (mm).

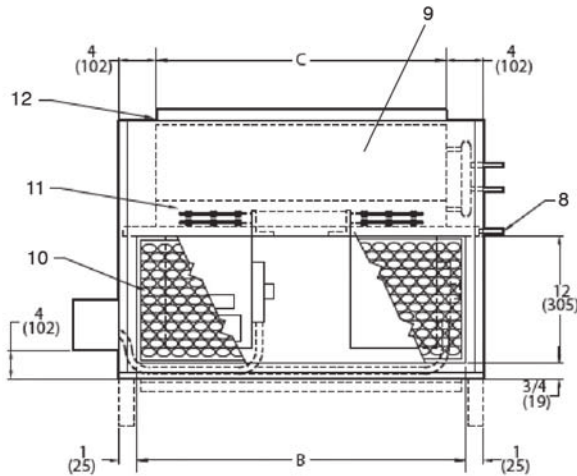
UNIT SIZE	NOM AIRFLOW (cfm)	DIMENSIONS (in. $\pm 1/8$)								QTY/UNIT		UNIT WEIGHT* (lb)
		A	A'	B	D'	E	F	G	H	Blower	Motor	
06	600	23	32	14	13 1/2	17	21	25 1/4	18 1/2	1	1	94
08	800	28	37	19	13 1/2	22	26	30 1/4	23 1/2	1	1	107
10	1000	32	42	23	14 1/2	26	30	34 1/4	27 1/2	1	1	150
12	1200	37	47	28	14 1/2	31	35	39 1/4	32 1/2	2	2	169
14	1400	42	52	33	14 1/2	36	40	44 1/4	37 1/2	2	2	174
16	1600	47	56	38	13 1/2	41	45	49 1/4	42 1/2	2	2	178
18	1800	52	62	43	14 1/2	46	50	54 1/4	47 1/2	2	2	195
20	2000	56	66	47	14 1/2	50	54	58 1/4	51 1/2	2	2	220

*Unit weights are based on dry coils and minimum rows. Weights exclude packaging, valves, and other components.

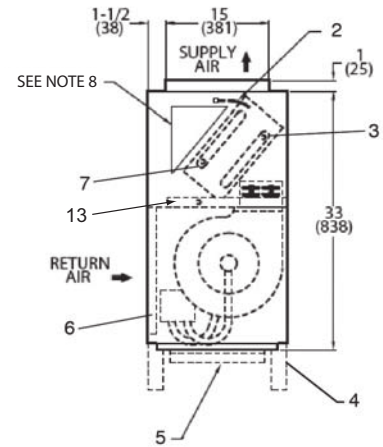
Fig. 26 — 42DC Furred-In Ceiling Unit with Plenum and Electric Heat Dimensions



TOP VIEW



FRONT VIEW



RIGHT SIDE VIEW

LEGEND

- 1 — Motor Junction Box
- 2 — Air Vent, 1/8-in. MPT
- 3 — Return Connection
- 4 — Optional 6-in. Legs
- 5 — Bottom Return (optional)
- 6 — Return Air Opening
- 7 — Supply Connection
- 8 — Drain Connection, 7/8-in. OD
- 9 — Front Access Panel
- 10 — Filter, Throwaway
- 11 — Electric Strip Heater Element (optional)
- 12 — Supply Duct Connection, 1-in.
- 13 — Drain Pan

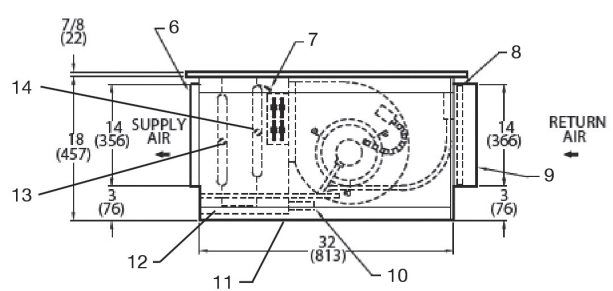
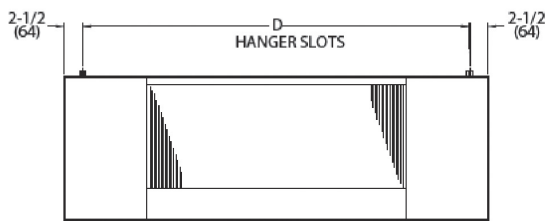
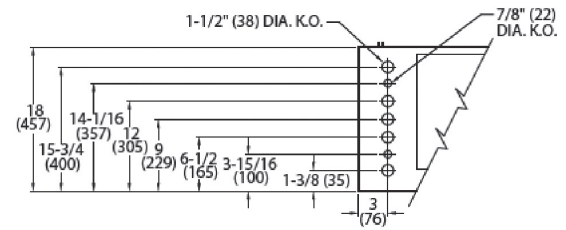
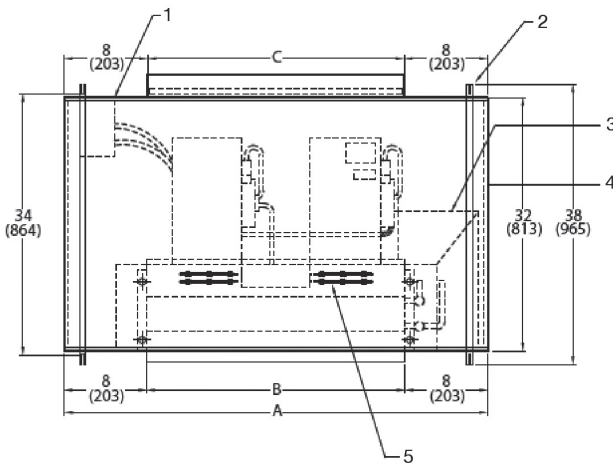
NOTES:

- 1. Right-hand unit shown; left-hand unit opposite. Coil connection locations are $\pm 5/8$ inch.
- 2. Standard 4-row coil shown. Other coil option dimensional data available on request.
- 3. Sizes 06, 08 and 10 have one motor, one blower. Sizes 12 through 20 have 2 motors, 2 blowers.
- 4. For optional coil connections, view 42DD-203-1 using the Fan Coil Builder.
- 5. Fan switch and wall plate are not shown.
- 6. Galvanized finish provided as standard.
- 7. Units with internal factory valve packages have external connections located in triangular section above coil.
- 8. Consult Carrier for ducted front return air and external filter rack with 1-in. duct collar and throwaway filters.
- 9. Units with electric heat require additional access on the side of unit for servicing contactor box.
- 10. With bottom return, access to filter is through the front access panel.
- 11. Dimensions are in inches (mm).

UNIT SIZE	NOM AIRFLOW (cfm)	DIMENSIONS (in. $\pm 1/8$)			QTY/UNIT		UNIT WEIGHT* (lb)
		A	B	C	Blower	Motor	
06	600	23	21	15	1	1	135
08	800	28	26	20	1	1	145
10	1000	32	30	24	1	1	155
12	1200	37	35	29	2	2	180
14	1400	42	40	34	2	2	190
16	1600	47	45	39	2	2	200
18	1800	52	50	44	2	2	215
20	2000	56	54	48	2	2	230

*Unit weights are based on dry coils and minimum rows. Weights exclude packaging, valves, and other components.

Fig. 27 — 42DD Vertical Unit with Full Casing and Electric Heat Dimensions



LEGEND

- 1 — Motor Junction Box
- 2 — Unit Mounting Channel (2), 14-gage; 4 Mounting Slots, 1/2-in. x 2-in.
- 3 — Auxiliary Drip Lip (optional, shipped loose)
- 4 — Side Access Panels
- 5 — Electrical Strip Heater Element (optional)
- 6 — Supply Air Duct Connection, 1-in.
- 7 — Manual Air Vent
- 8 — Filter, Throwaway, 1-in.
- 9 — Return Air Duct Connection, 2 1/2-in.
- 10 — Drain, 7/8-in. OD
- 11 — Bottom Access Panel
- 12 — Drain Pan
- 13 — Coil Inlet, Copper Sweat Connection
- 14 — Coil Outlet, Copper Sweat Connection

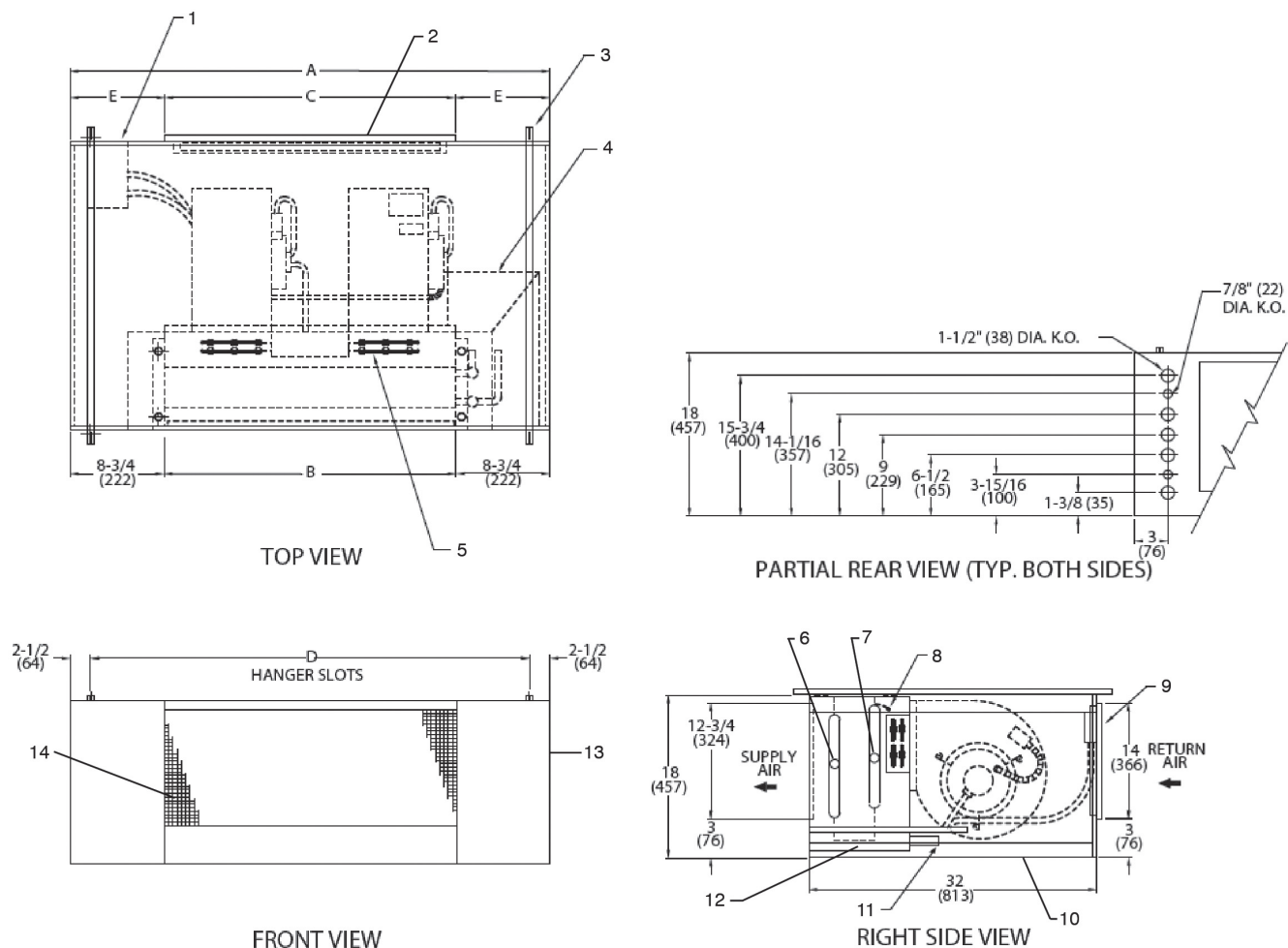
NOTES:

1. Right-hand unit shown; left-hand unit opposite.
2. Coil stub-out location data available on request.
3. Unit fabricated of galvanized steel.
4. Internal parts fabricated of galvanized steel.
5. Sizes 06, 08 and 10 have one motor, one blower. Sizes 12 through 20 have 2 motors, 2 blowers.
6. Units must have drain line pitched and trapped externally.
7. For optional coil connections, view 42DA-203-1 using the Fan Coil Builder.
8. Fan switch, wall plate not shown.
9. Galvanized finished provided as standard.
10. Dimensions are in inches (mm).

UNIT SIZE	NOM AIRFLOW (cfm)	DIMENSIONS (in. $\pm$ 1/8)				QTY/UNIT		UNIT WEIGHT* (lb)
		A	B	C	D	Blower	Motor	
06	600	31	15	15	26	1	1	150
08	800	36	20	20	31	1	1	160
10	1000	40	24	24	35	1	1	170
12	1200	45	29	29	40	2	2	195
14	1400	50	34	34	45	2	2	205
16	1600	55	39	39	50	2	2	215
18	1800	60	44	44	55	2	2	230
20	2000	64	48	48	59	2	2	235

*Unit weights are based on dry coils and minimum rows. Weights exclude packaging, valves, and other components.

Fig. 28 — 42DE Ceiling Unit with Full Casing and Electric Heat Dimensions



UNIT SIZE	NOM AIRFLOW (cfm)	DIMENSIONS (in. ± 1/8)					QTY/UNIT		UNIT WEIGHT* (lb)
		A	B	C	D	E	Blower	Motor	
06	600	31	13 1/2	14	26	8 1/2	1	1	150
08	800	36	18 1/2	20	31	8	1	1	160
10	1000	40	22 1/2	24	35	8	1	1	170
12	1200	45	27 1/2	28	40	8 1/2	2	2	195
14	1400	50	32 1/2	34	45	8	2	2	205
16	1600	55	37 1/2	38	50	8 1/2	2	2	215
18	1800	60	42 1/2	44	55	8	2	2	230
20	2000	64	46 1/2	48	59	8	2	2	235

*Unit weights are based on dry coils and minimum rows. Weights exclude packaging, valves, and other components.

Fig. 29 — 42DF Exposed Ceiling Unit with Supply and Return Grille and Electric Heat Dimensions

INSTALLATION

Step 1 — Place Units in Position

42C UNITS

1. Select the unit location. Allow adequate space for free air circulation, service clearances, piping and electrical connections, and any necessary ductwork. For specific unit dimensions, refer to Fig. 2-13. Allow clearances according to local and national electric codes.
2. Make sure the ceiling is able to support the weight of the unit. See Table 1 for nominal unit weight.
3. Ensure bottom panel has been removed from 42CG, CK units with mounting holes. When unit is lifted, access to the 0.375-in. mounting holes is through the bottom of the unit. Hanger rods and fasteners and other required hardware must be field-supplied. See Table 4 for threaded rod recommendations.
4. Move unit into position. Ensure unit is level or pitched towards drain to ensure proper drainage and operation. Pitch of suspended unit can change after coil is filled; recheck after filling coil.
5. Mounting unit:
 - a. Use rods and fasteners to suspend the unit at the factory-provided mounting holes with rubber grommets on the top of the unit on 42CG, CK units. Reach into unit and attach unit to the ceiling using the 0.375-in. mounting holes (4) in top panel; do not use any other locations.
 - b. Use rods and fasteners to suspend the unit at the factory-provided 0.375-in. hanger slots (4) with rubber grommets on the top of the unit on the 42CA and CE units.

NOTE: The four mounting holes and hanger slots with rubber grommets are NOT for balancing unit.

6. The 42CA units without plenums and 42CE with bottom inlet may be installed in noncombustible areas only.

NOTE: The installation of horizontal concealed units must meet the requirements of the National Fire Protection Association (NFPA) Standard 90A or 90B concerning the use of concealed ceiling space as return-air plenums.

Table 4 — Threaded Rod Sizing Recommendation

MODEL	ROD DIAMETER (in.)	ROD QTY
42C*02-12	3/8	4
42D*06-20		

42V UNITS

While the manufacturer is not involved in the design and selection of support methods and components, it shall be noted that unacceptable system operating characteristics and/or performance may result from improper or inadequate unit structural support.

1. Select the unit location. Allow adequate space for free air circulation, service clearances, piping and electrical connections, and any necessary ductwork. For specific unit dimensions, refer to Fig. 14-24. Allow clearances according to local and national electric codes. See Fig. 30 for minimum clearance recommendations.
2. Ensure the floor is able to support the weight of the unit. See Table 2 for nominal unit weight. Vertical units are designed to be floor-mounted or otherwise supported from below, and bolted to the wall or floor structure through the mounting holes provided in the chassis. These units may be wall-hung only when originally ordered from the factory for wall-mount applications.
3. Ensure wall behind unit is smooth and plumb; if necessary, install furring strips on walls with irregular surfaces or mullions. Furring strips must be positioned behind mounting holes in unit (42VA, VB, VF units). Fasteners, furring strips, and other seals (if required) must be field-supplied.
4. Remove all wall and floor moldings from behind the unit.
5. Ensure 42VA top panel (under window application) and 42VB, VF front panel has been removed from unit to obtain access to the four 0.75-in. mounting holes. Hanger rods and fasteners and other required hardware must be field-supplied.
6. Move unit into position. Ensure unit is level or pitched towards drain to ensure proper drainage and operation. Pitch of suspended unit can change after coil is filled; recheck after filling coil.
7. Adjust 42VA, VB, VC, VE, VF units leveling legs so unit is level. Unit must be level for proper operation and condensate drainage.
8. Mounting unit:
The type of mounting device is a matter of choice, however, the mounting point shall always be that provided in the chassis or cabinet.
 - a. Use rods and fasteners to suspend the unit at the factory-provided mounting holes with rubber grommets on the top of the unit on 42VA, VB, VF units. Reach into unit and attach unit to the wall using the 0.375-in. mounting holes (4) in top panel; do not use any other locations. The four mounting holes and hanger slots with rubber grommets are NOT for balancing unit.
 - b. On 42VG unit ensure unit is placed snug within the wall.
 - c. On 42VC, VE unit ensure unit is placed flush against the wall.

NOTE: For any unit without a return-air duct connection, applicable installation codes may limit unit to installation in single-story residence only.

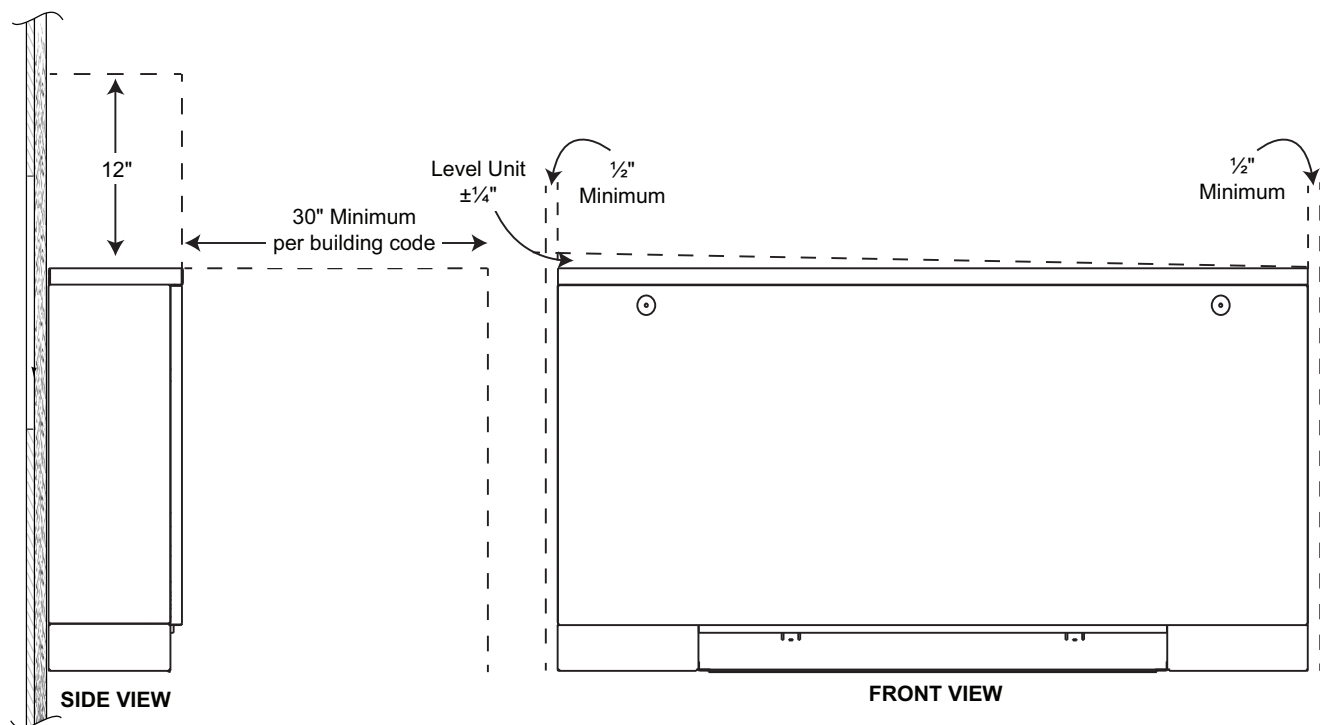


Fig. 30 — Clearance Recommendations

42D UNITS

1. Select the unit location. Allow adequate space for free air circulation, service clearances, piping and electrical connections, and any necessary ductwork. For specific unit dimensions, refer to the submittal drawings. Allow clearances according to the local and national electrical codes.
2. Be sure either the ceiling (42DA, DC, DE, and DF units) or floor (42DD unit) is able to support the weight of the unit. See Table 3 for nominal unit weight.
3. Move unit into position. Ensure unit is level or pitched towards drain to ensure proper drainage and operation. See Fig. 25-29. Pitch of suspended unit can change after coil is filled; recheck after filling coil.
4. Mounting units to the ceiling:
 - a. When unit is lifted, access to the 0.375-in. mounting holes is on the top panel of the unit. Hanger rods and fasteners and other required hardware must be field-supplied.
 - b. Use rods and fasteners to suspend the unit at the factory-provided mounting holes with rubber grommets on the top of the unit. Attach unit to the ceiling using the 0.375-in. mounting holes (4) in top panel; do not use any other locations. Refer to Table 4 for threaded rod recommendations.
 - c. Use the rods and fasteners to suspend the unit at the factory-provided 0.375-in. hanger slots (4) with the rubber grommets on the top of the unit on the 42DA, DC, DE, and DF units.
 - d. Models 42DA and 42DC with bottom inlet may be installed in noncombustible return spaces only.
5. Mounting units on the floor:
 - a. Ensure wall behind the unit is smooth and plumb; if necessary, install furring strips on walls with irregular surfaces or mullions. Furring strips must be positioned

NOTE: The four mounting holes and hanger slots with rubber grommets are NOT for balancing unit.

behind mounting holes on 42DD units. Fasteners, furring strips, and other seals (if required) must be field-supplied.

- b. If the unit has leveling legs, adjust them correctly to level the unit.
6. Protect units from damage caused by jobsite debris. Do not allow foreign material to fall in unit drain pan. Prevent dust and debris from being deposited on motor or fan wheels.

Step 2 — Make Piping Connections

Access to piping is available through the access panels at the side of the units or front of the unit. Qualified personnel in accordance with local and national codes must perform all piping connections. Refer to Tables 1-3 for piping connections.

NOTE: It is important to have a common understanding of which side of the unit is the right-hand side and which is the left-hand side.

When facing the supply-air outlet from the front of the unit (air blowing in your face), your right hand will be on the right side of the unit and your left hand will be on the left side of the unit. See Fig. 31. Refer to Fig. 32 and 33 for typical piping connections.

The supply and return piping connections of the factory-provided valve package are either swaged for field brazing (standard) or union-fitted (optional) for field connection to the coil.

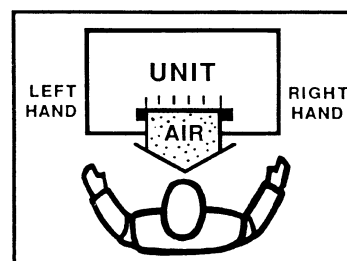


Fig. 31 — Unit End Reference

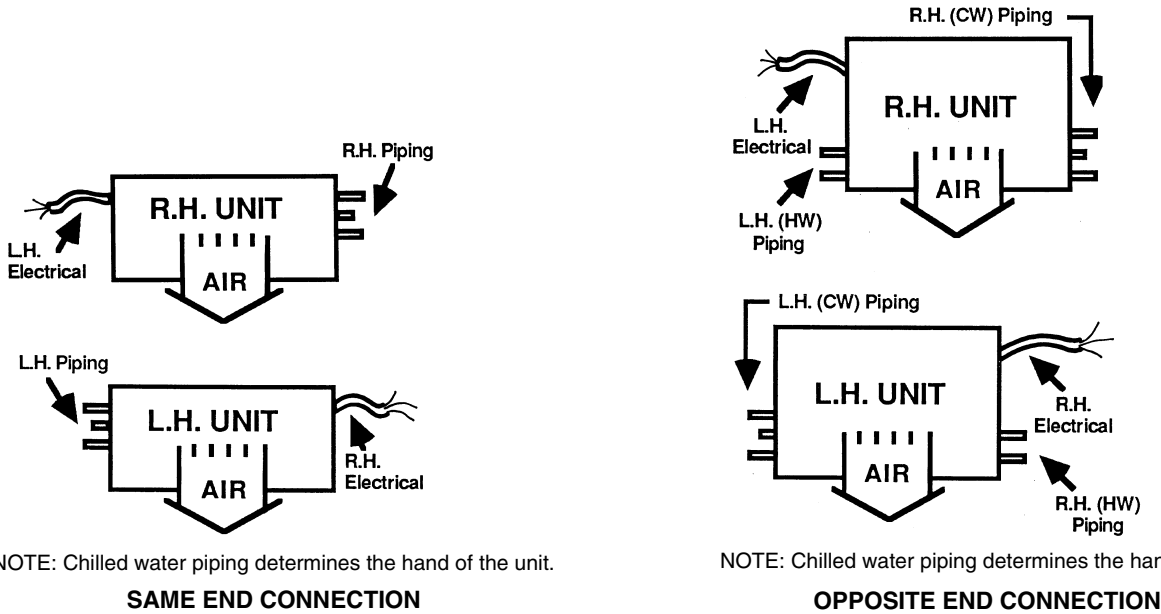
VALVE PACKAGES

There are limitations on physical size of control valves, quantity and type of matching components, and required control interface. See Fig. 34.

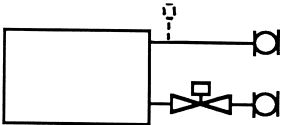
Consult factory before ordering any special valve package components that are not covered in this book.

Valve packages are shipped with the units or in unit cartons. Valve packages include belled ends for field soldering to coil connections.

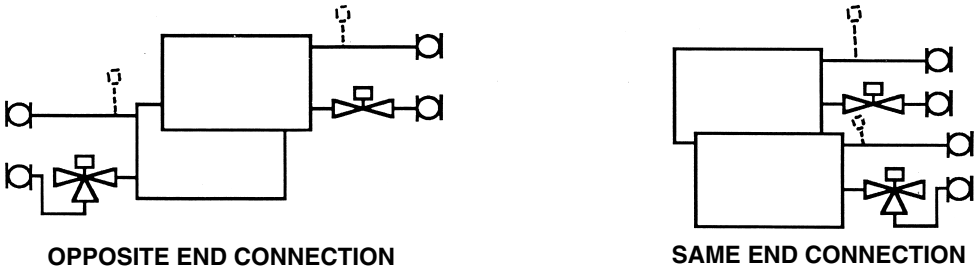
All factory-furnished cooling valve packages are arranged to position as much of the package as possible over an auxiliary drain pan or drip lip. This helps minimize field piping insulation requirements. Refer to Fig. 35-38 for pipe connection configurations.



Valve Packages For 2-Pipe Systems — Valve packages for standard 2-pipe units are piped for same end connection (L.H. or R.H.).



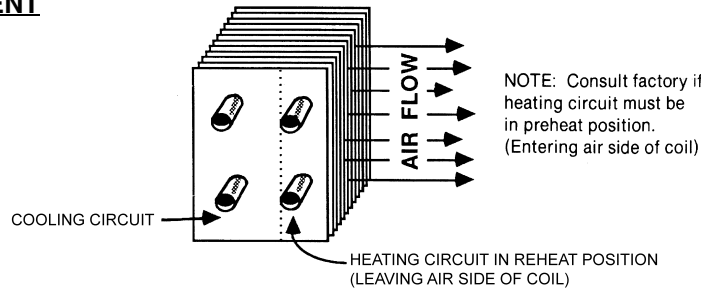
Valve Packages for 4-Pipe Systems — Select 2 valve packages per unit.
NOTE: Hot water valve package requirements may not be the same as chilled water valve package!



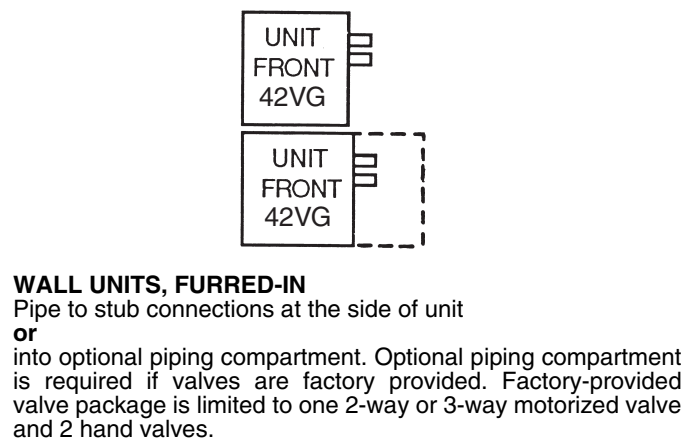
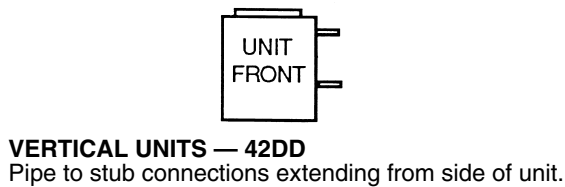
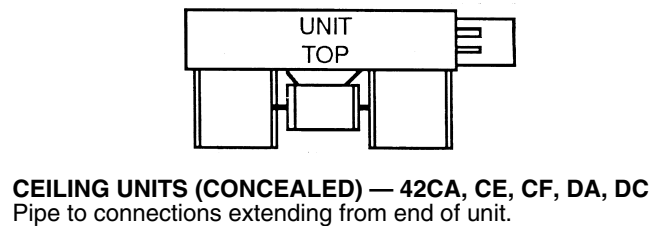
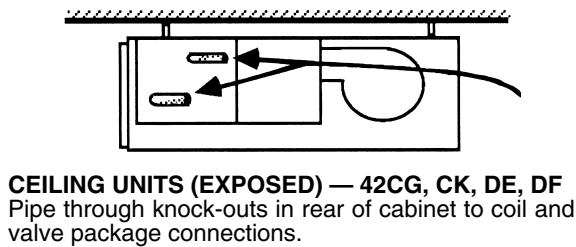
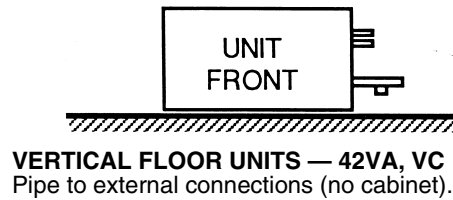
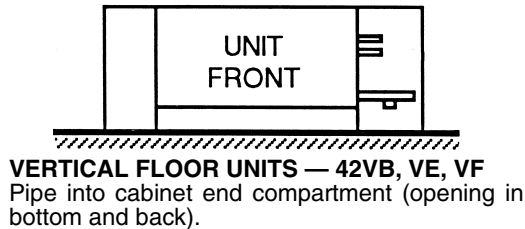
- LEGEND
- CW — Chilled Water
 - HW — Hot Water
 - LH — Left Hand
 - RH — Right Hand

Fig. 32 — Pipe Connection Configurations

HYDRONIC COIL ARRANGEMENT

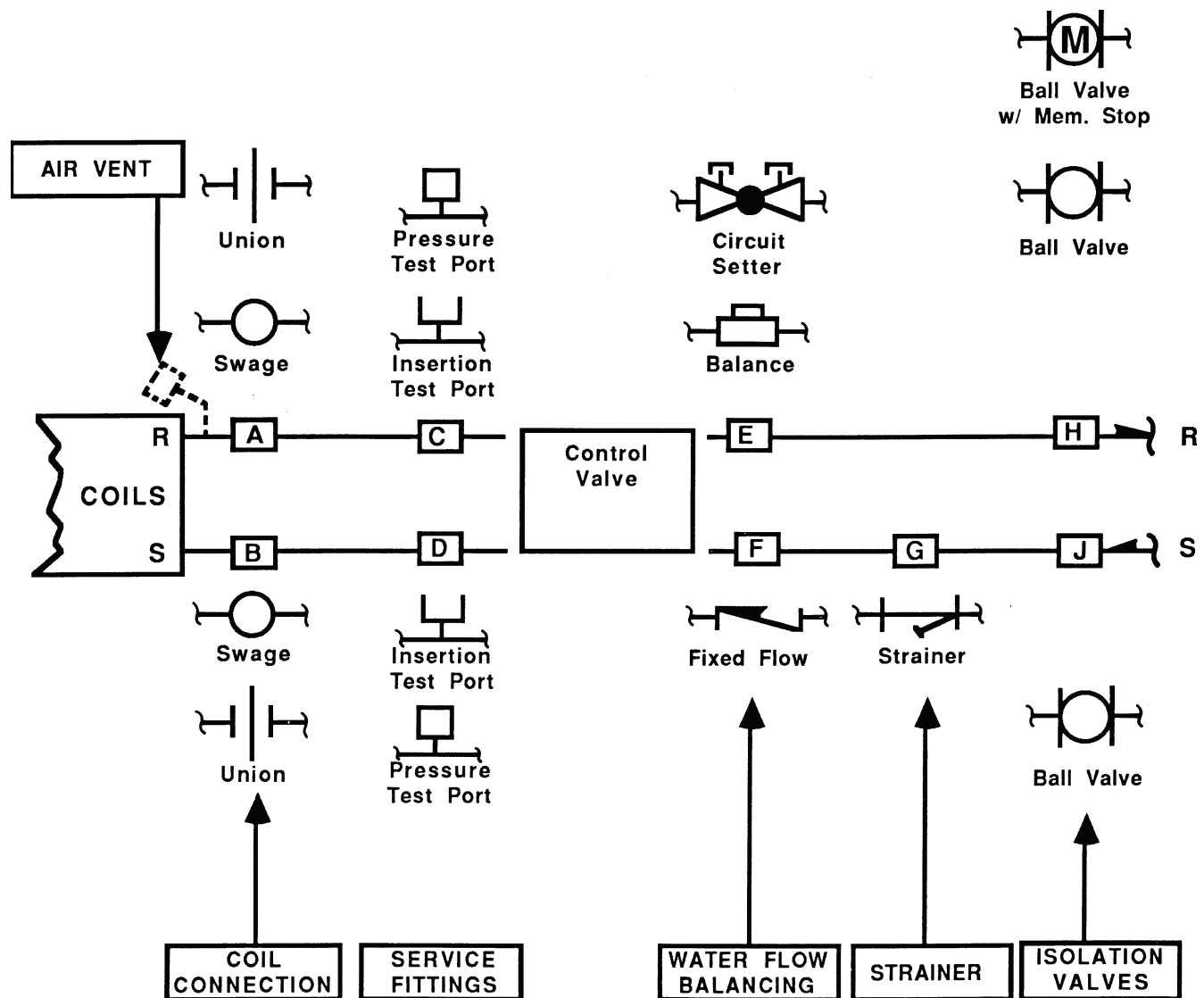


FIELD PIPING CONNECTIONS*



*Location of field piping connections will vary depending on number of coil rows on factory-supplied coil or arrangement of factory-supplied valves.

Fig. 33 — Piping Connection Positions



Coil Connections (Positions A & B) — When isolation valve only is added to supply or return line, the isolation valve will be factory brazed to the coil stub-out. Addition of any other component or connection to the supply or return line will change the respective coil connection(s).

Service Fittings (Positions C & D) — Optional fittings for attaching pressure/temperature sensing devices to obtain pressure drop or temperature differential across coil. Used with ball valve or balance valve where extremely accurate water flow balancing is required.

Water Flow Balancing (Positions E, F, & H) — Only one device per total valve package to be used for balancing water flow through the coil. When isolation valve (ball valve or ball valve with memory stop at position H) is used for water flow balancing, do not specify additional balancing device at position E or F. When balancing device is specified at position E or F, isolation valve does not require balancing feature at position H (with a 3-way motorized valve, a bypass balancing valve may be specified in the bypass line to permit equal flow balancing).

Strainer (Position G) — Does not include blow down fitting and should not be used in lieu of main piping strainers.

Isolation Valves (Positions H & J) — Normally requires one each on supply and return line (see exception under water flow balancing above). When position H is used for balancing (ball valve or ball valve with memory stop), check specifications for service valve requirements.

Fig. 34 — Symbols and Placement of Valves

The 2-way motorized valve motor drives valve open and a spring returns valve to normally closed position (no water flow with unit OFF).

Supply connection at coil will be swage fit for field braze (standard) or union (option). Return connection at coil will be factory brazed if isolation valve only. Addition of any other component will require swage fit for field braze or optional union connection.

Check job specifications for system pressure, pressure drop limitations and flow rate prior to selecting valve package components or valve package size (1/2-in., 3/4-in., etc.).

2-PIPE SYSTEM (One Valve Package) or 4-PIPE SYSTEM (Two Valve Packages) Application:

- 2 Pipe — Hydronic Heating Only
- 2 Pipe — Hydronic Cooling Only
- 2 Pipe — Hydronic Cooling with Total Electric Heat
- 4 Pipe — Hydronic Cooling and Heating

LEGEND



Ball Valve

Motorized 2-Way Valve

NOTE: A 1/4-in. bypass line is included in the piping package when a 2-way valve is specified with a control package containing an automatic changeover device.

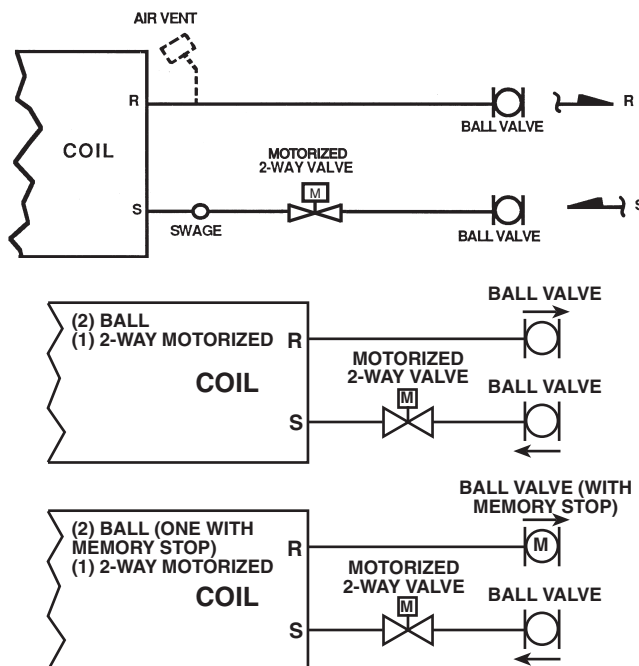


Fig. 35 — Two-Way Motorized Control Valve Package

The 2-way motorized valve motor drives valve open and a spring returns valve to normally closed position (no water flow through coil with unit OFF).

The aquastat bleed bypass bleeds a small amount of water from supply to return when control valve is closed (required for system water temperature sensing by aquastat). Aquastat (A) clips on supply line upstream from aquastat bleed bypass (as shown at right). It senses system water temperature to prevent cooling operation with hot water in system piping or heating operation with chilled water in system piping. Additional aquastat is required to lock out the optional auxiliary electric heat when hot water is in the system.

Supply and return connections at coil will be swage fit for field braze (standard) or unions (option).

Check job specifications for system pressure, pressure drop limitations and flow rate prior to selecting valve package components or valve package size (1/2-in., 3/4-in., etc.).

2-PIPE SYSTEM (One Valve Package) Application:

- 2 Pipe — Hydronic Cooling and Heating
- 2 Pipe — Hydronic Cooling and Heating with Auxiliary Electric Heat

LEGEND



Balancing Valve

Ball Valve

Circuit Setter

Gate Shut Off Valve

Motorized 2-Way Valve

NOTE: Additional aquastat required as noted above.

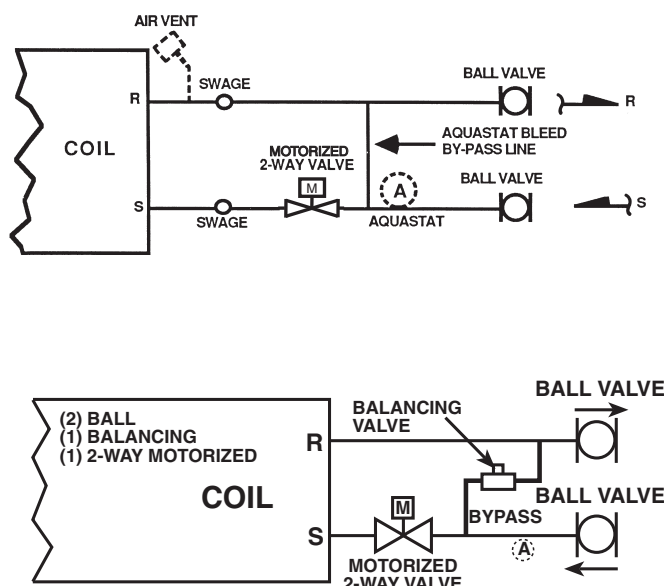


Fig. 36 — Two-Way Motorized Control Valve Package with Aquastat Bleed Bypass Line

On the 3-way motorized valve, flow is normally closed to coil and open to system return. Motor closes bypass flow to system return while opening flow through coil. Water bypasses coil and flows directly to system return when unit is OFF.

The aquastat (A) clips on supply line upstream from 3-way valve (as shown above). It senses system water temperature to prevent cooling operation with hot water in system piping or heating operation with chilled water in system piping. Aquastat(s) required for 2-pipe cooling and heating with automatic changeover control and/or auxiliary electric heat.

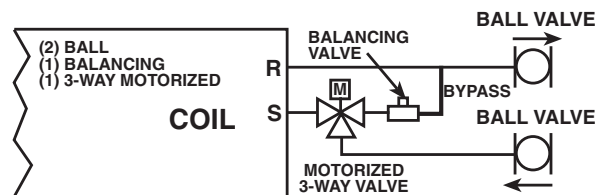
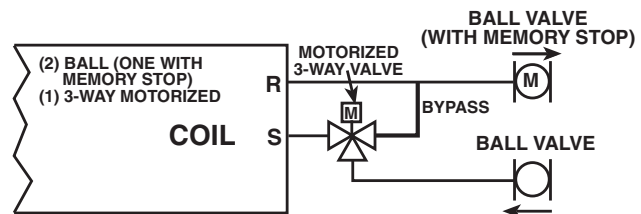
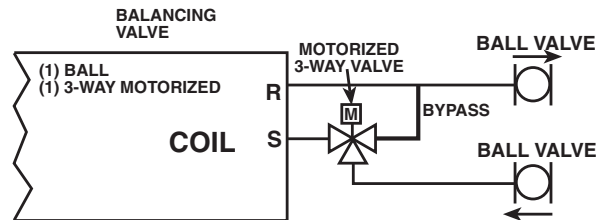
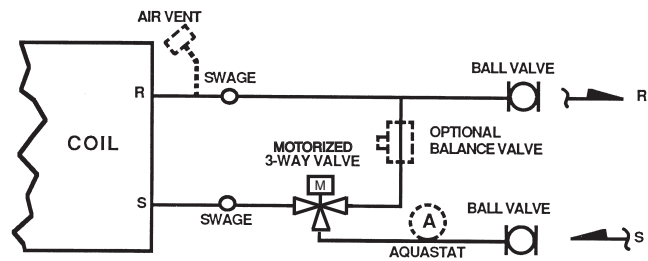
A bypass balancing valve may be specified in the bypass line to permit equal flow balancing.

Supply and return connections at coil will be swage fit for field braze (standard) or unions (option).

Check job specifications for system pressure, pressure drop limitations and flow rate prior to selecting valve package components or valve package size ($1/2$ -in., $3/4$ -in., etc.).

2-PIPE SYSTEM (One Valve Package) or 4-PIPE SYSTEM (Two Valve Packages) Application:

- 2 Pipe — Hydronic Heating Only
- 2 Pipe — Hydronic Cooling Only
- 2 Pipe — Hydronic Cooling with Total Electric Heat
- 2 Pipe — Hydronic Cooling and Heating
- 2 Pipe — Hydronic Cooling and Heating with Auxiliary Electric Heat



LEGEND

- Balancing Valve
- Ball Valve
- Ball Valve with Memory Stop
- Circuit Setter
- Gate Shut Off Valve
- Motorized 3-Way Valve

NOTES:

1. Packages factory furnished and installed.
2. Valves are $5/8$ -in. ODS unless otherwise specified.
3. If an automatic flow control valve is added, it will be located on supply line between shutoff valve and coil (or motorized control valve, if supplied).
4. When aquastat is used for automatic changeover, bypass is required as indicated by dashed line.

Fig. 37 — Three-Way Motorized Control Valve Package

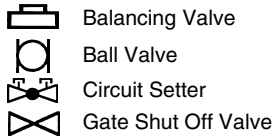
When isolation valves only are specified, they will be brazed to the coil stub-outs.

Check job specifications for system pressure, pressure drop limitations and flow rate prior to selecting specific components or valve package size (1/2-in., 3/4-in., etc.).

2-PIPE SYSTEM ONLY (One Valve Package) Application:

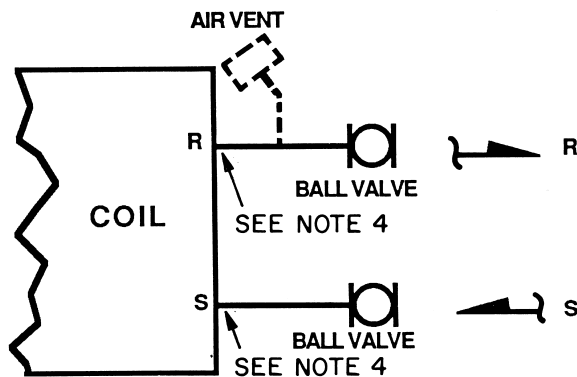
- 2 Pipe - Hydronic Heating Only
- 2 Pipe - Hydronic Cooling Only

LEGEND



NOTES:

1. Continuous water flow, chilled water or hot water.
2. Not recommended for high humidity applications.
3. 2-Pipe System Only: Not recommended with unit-mounted thermostat on vertical units.
4. The addition of any other component(s) will require swage fitting for field braze or optional union connection.
5. Packages factory furnished and installed.
6. Valves are 5/8-in. ODS unless otherwise specified.
7. If an automatic flow control valve is added, it will be located on supply line between shutoff valve and coil (or motorized control valve, if supplied).
8. When aquastat is used for automatic changeover, bypass is required as indicated by dashed line.



WITH HAND VALVES ONLY

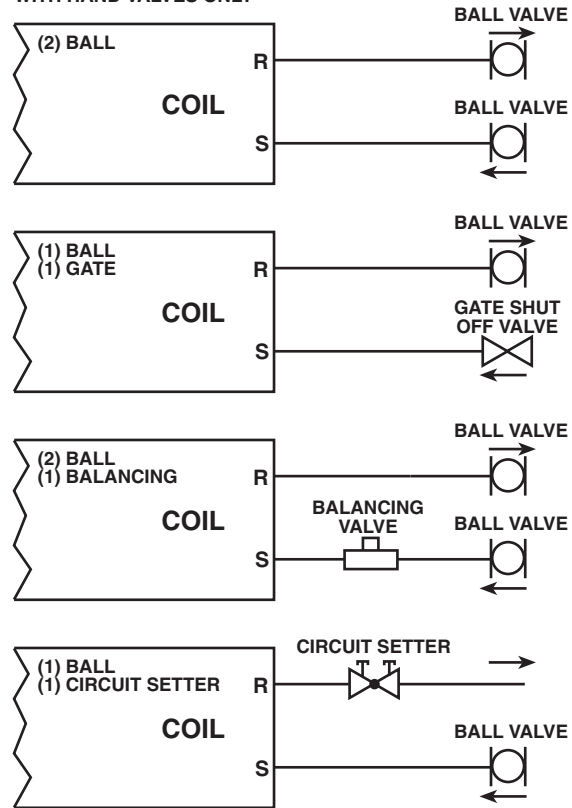


Fig. 38 — Valve Package without Motorized Control

DRAIN CONNECTIONS

Install drain line in accordance with all applicable codes. For proper moisture carry-off, the drain piping should be sloped away from the unit at a pitch of at least 1/8-in. per foot. Insulate the drain line to prevent sweating. Extend the drain line straight from the drain pan before making any turns. The installer must provide proper support for the drain line to prevent undue stress on the auxiliary drain pan. When furnished, the optional 5/8-in. secondary or tell-tale connection must be piped to some location where an indication of drain flow restriction may be readily observed. Units furnished with a tell-tale connection should be sloped very slightly towards the drain outlets.

A drain trap may be required by local codes and is recommended for odor control. The differential height inlet to outlet must be at least 1-in. wg greater than the total static pressure of the unit. The differential height of the outlet to the bottom of the trap must not be less than the total static pressure of the unit. See Fig. 39 (42D) and 40 (42V).

Provide a trap of at least 2 inches near the end of the drain line to prevent odors from entering the rooms.

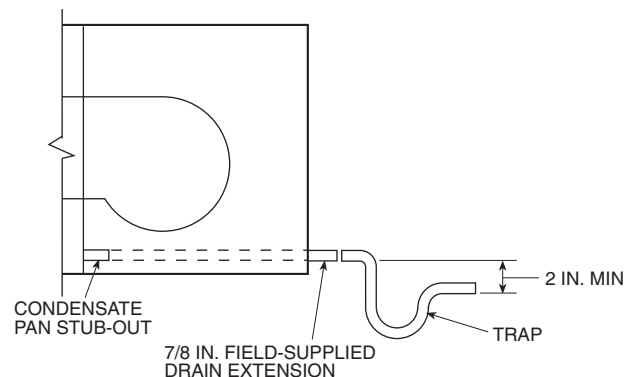


Fig. 39 — Typical Drain Line Details (42D Unit Shown)

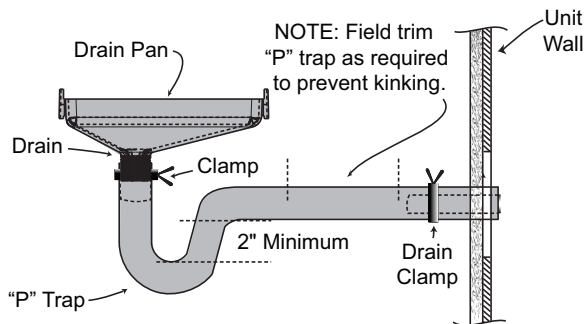


Fig. 40 — “P” Trap Minimum Configuration

WATER SUPPLY/RETURN CONNECTIONS

Install piping in accordance with all applicable codes. Position valves over the drain pan. Be sure valves are in proper operating position and are easily accessible for adjustment, refer to Fig. 35-38.

If coil and valve package connections will be made with a solder joint, care should be taken to ensure that the components in the valve package are not subjected to high temperatures, which may damage seals or other materials. Protect all valve accessories with wet or damp rag wrapped around the body during soldering / brazing process. See Fig. 41. Many 2-position electric control valves are provided with a manual operating lever. This lever should be in the OPEN position during all soldering operations.

If coil connection is made with a union, the coil side of the union must be prevented from turning (it must be backed up) during tightening. Refer to Fig. 35-38 for common valve packages.

The supply and return connections are marked and color coded on the coil stub out and valve package. Supply side is marked as 'S' and return side is marked as 'R.' A blue letter indicates cooling side and a red letter indicates heating side. In case of field-installed valves and piping, install chilled water valve components in a way that any condensate dripping or sweating caused is contained in the extended drain pan or auxiliary drain or drip lip (optional). Optional drip lip is field-installed and may be packaged separately from the unit.

CAUTION

DO NOT OVERTIGHTEN! Overtightening will distort (egg shape) the union seal surface and destroy the union.

NOTE: The project specifications for system pressure, pressure drop limitations, and flow rate should be checked prior to selection of specific components or the valve package size.

STEAM CONNECTIONS

On units with steam heating coils, the maximum steam pressure applied to the unit should never exceed 10 psig. However, when steam is used on a 4-pipe application system with 1-row and 2-row coils the maximum steam pressure should never exceed 5 psig (suitable for only low-pressure steam).

Do not drain the steam mains or take-off through the coils. Drain the mains ahead of the coils through a steam trap to the return line. Overhead returns require 1 psig of pressure at the steam trap discharge for each 2 ft of elevation to ensure continuous condensate removal.

Proper steam trap selection and installation is necessary. As a guideline in creating a steam trap, locate the steam trap discharge at least 12-in. below the condensate return connection. This provides sufficient hydrostatic head pressure to overcome trap losses and ensure complete condensate removal.

DIRECT EXPANSION (DX) REFRIGERANT PIPING

Use the condensing unit manufacturer's recommended line sizes and requirements. Suction line must be insulated for correct operation. Use refrigerant-grade copper lines only. The unit is not applied as a heat pump.

Thermostatic expansion valve (TXV) and sensing bulb are factory-installed on units when DX coil option is chosen with distributor and TXV. The TXV is equipped with an external equalizer connection to allow pressures to equalize when the compressor is shut off. The equalizer piping connection must be made in the field.

NOTE: If a hot water coil is used in the reheat position, a field-supplied freeze-stat must be installed to protect the coil.

TEST AND INSULATE

When all joints are complete, perform hydrostatic test for leaks. Vent all coils at this time. Check interior unit piping for signs of leakage from shipping damage or mishandling. If leaks are found, notify your Carrier representative before initiating any repairs. Release trapped air from system (Refer to “Make Final Preparations” on page 48.)

Never pressurize any equipment beyond specific test pressure. Always pressure-test with an inert fluid or gas, such as clear water or dry nitrogen, to avoid possible damage or injury in the event of a leak or component failure during testing.

CAUTION

All water coils must be protected from freezing after initial filling with water. Even if system is drained, unit coils may still have enough water to cause damage when exposed to temperatures below freezing.

Following the hydrostatic test, insulate all piping to prevent sweating.

To ensure compliance with building codes, restore the structure's original fire resistance rating by sealing all holes with material carrying the same fire rating as the structure.

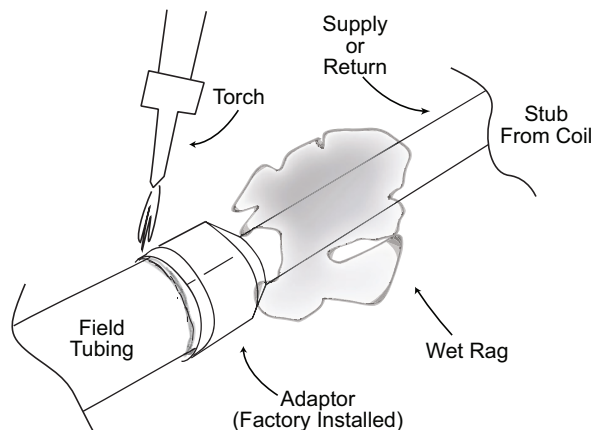
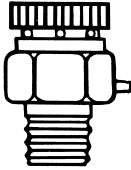
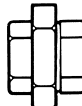
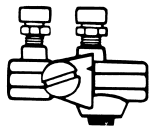


Fig. 41 — Field Piping Connections

Table 5 — Piping Components

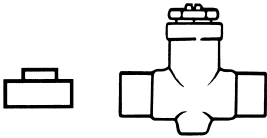
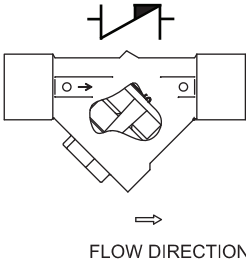
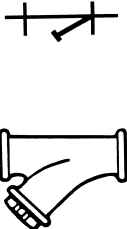
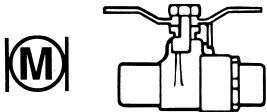
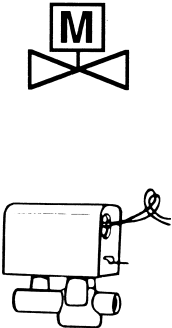
SYMBOL/SKETCH	DESCRIPTION	C _v FACTOR		RATING*		STEAM USE
		1/2	3/4	PSI	F	
 	MANUAL AIR VENT: Threaded brass needle valve with screwdriver slot for adjustment. Application — Body brazed into high point of heating and cooling coils for bleeding air from coil. Standard item on all hydronic coils (not used on steam or DX coils). Should not be used in lieu of main system air vents.	N/A	N/A	400	100	NO
 	AUTOMATIC AIR VENT: Nickel plated brass valve, fiber-disc type, with positive shut-off ball-check and quick vent feature via knurled vent screw. Application — Optional replacement for manual air vent. Automatically passes minute quantities of air through the fiber discs which expand upon contact with water, completely sealing the valve. As air accumulates, the fiber discs dry and shrink, repeating the cycle. Not recommended for removing large quantities of air encountered during initial start-up or subsequent draining and refilling. Should not be used in lieu of main system air vents.	N/A	N/A	125	240	NO
 	SWAGE: Copper tube end expanded to accept a copper tube of the same size for factory or field brazing. Application — Used where possible for all tubing joints for best joint integrity.	N/A	N/A	300	200	YES
 	UNION: Combination wrought copper/cast brass union assembly, solder by solder. Application — Used for quick connect (and disconnect) of valve package components to minimize field labor and facilitate servicing of unit.	N/A	N/A	300	200	YES
 	INSERTION TEST PORT: Brass body valve for acceptance of test probe (up to 1/8-in. diameter). Application — Installed on one (or both) sides of the coil to allow for temperature or pressure sensing. Used for close tolerance water balancing and service analysis.	N/A	N/A	250	250	NO
 	PRESSURE TEST PORT: Brass body 1/4-in. service access fitting with removable depressor type core. Application — Installed on both sides of the coil to allow for pressure sensing. Attach pressure gages to facilitate close tolerance water balancing.	N/A	N/A	400	210	NO
 	CIRCUIT SETTER: Variable water flow balancing valve with manual adjustment knob, pointer, percent-open scale, memory stop and integral pressure read-out ports. Application — Used for close tolerance water flow balancing. Positive shut-off ball valve feature allows usage as combination balancing and shut-off valve.	2.12	3.9	300	250	NO

LEGEND

C_v — Coefficient of Velocity
DX — Direct Expansion
ETO — Engineering to Order

*Check all system component pressure ratings (coils, valves, pumps, etc.) with manufacturer and any applicable local or national piping codes prior to specifying system pressure rating.

Table 5 — Piping Components (cont)

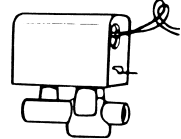
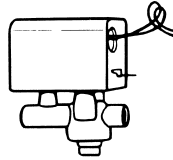
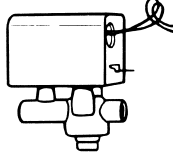
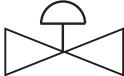
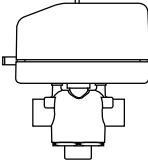
SYMBOL/SKETCH	DESCRIPTION	C _v FACTOR		RATING*		STEAM USE
		1/2	3/4	PSI	F	
	BALANCE VALVE: Variable water flow manual balancing valve with screwdriver slot adjustment screw. Application — Often used in conjunction with test port fittings for water flow balancing. Balance by temperature differential or coil pressure drop (check specifications for service fittings required if balancing by pressure drop). May be used in 3-way valve bypass line to permit equal flow balancing.	4	14	300	250	NO
 FLOW DIRECTION	FIXED FLOW VALVE: Flexible orifice type (non-adjustable). Application — Used for water flow balancing. Valve automatically adjusts the flow to within 10% of set point.	Valve orifice size determines C _v factor. The orifice of these fixed flow valves changes as flow is regulated. As the water pressure increases, the orifice size decreases, thereby automatically limiting the flow rate to the specified gpm (±10%).		600	220	NO
	STRAINER: Y-type body with 20 mesh stainless steel screen. Application — Used for removal of small particles from system water during normal system operation. Should not be used in lieu of main system strainers. Strainer screen may have to be removed during initial high pressure system flushing during start-up. Screen should be removed and cleaned per normal maintenance schedule (provisions for strainer blow-down not provided).	9.0 Clean	19.0 Clean	400	150	N/A
	BALL VALVE WITH MEMORY STOP: Manual balance and shut-off valve. Application — Used for unit isolation and water flow balancing. The adjustable memory stop feature allows return to the balance point after shut-off. Check specifications for service fittings required when used for water balancing.	14.2	28.6	600	350	N/A
	2-WAY MOTORIZED VALVE (25 PSI close off differential pressure): Electric 2-position flow control valve (open/closed). Normally closed body with manual override lever. Installed in supply line to unit. Application — All standard control and valve packages are based upon normally closed valves (valve electrically powered open and closed by spring return when electric power removed). Manual override lever allows valve to be placed in the open position for secondary (unit) flushing, constant water flow prior to start-up, etc. Manual override is automatically disengaged when valve is electrically activated. Consult factory for normally open valve applications.	3.5	3.5	300	200	YES 15 PSI MAX.

LEGEND

C_v — Coefficient of Velocity
DX — Direct Expansion
ETO — Engineering to Order

*Check all system component pressure ratings (coils, valves, pumps, etc.) with manufacturer and any applicable local or national piping codes prior to specifying system pressure rating.

Table 5 — Piping Components (cont)

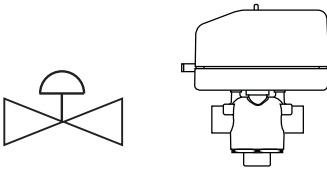
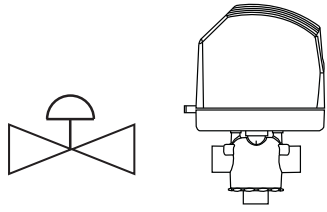
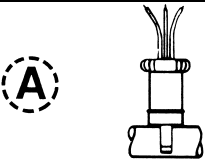
SYMBOL/SKETCH	DESCRIPTION	C _v FACTOR		RATING*		STEAM USE
		1/2	3/4	PSI	F	
 	2-WAY MOTORIZED VALVE (150 PSI close off differential pressure): Electric 2-position flow control valve (open/closed). Normally closed body with manual override lever. Installed in supply line to unit. Application — All standard control and valve packages are based upon normally closed valves (valve electrically powered open and closed by spring return when electric power removed). Manual override lever allows valve to be placed in the open position for secondary (unit) flushing, constant water flow prior to start-up, etc. Manual override is automatically disengaged when valve is electrically activated. Consult factory for normally open valve applications.	4.9	10.3	300	240	NO
 	3-WAY MOTORIZED VALVE (25 PSI close off differential pressure): Electric 2-position flow control valve (closed to coil/open to bypass or open to coil/closed to bypass). Normally closed with manual override lever. Installed in supply line to unit. Application — Same comments as 2-way motorized valve except with manual override lever engaged the valve is open to both ports and water flow will take the path of least resistance through the valve package (not necessarily 100% through the coil).	4.0	4.0	300	200	N/A
 	3-WAY MOTORIZED VALVE (150 PSI close off differential pressure): Electric 2-position flow control valve (closed to coil/open to bypass or open to coil/closed to bypass). Normally closed with manual override lever. Installed in supply line to unit. Application — Same comments as 2-way motorized valve except with manual override lever engaged the valve is open to both ports and water flow will take the path of least resistance through the valve package (not necessarily 100% through the coil).	4.9	4.9	300	240	N/A
 	MODULATING VALVE (Optional) (Non-Spring Return, Floating Point Actuator): Modulating valves are designed to control the flow in the circuit by making incremental adjustments to the flow path within the valve. Application — To control fluid flow in fan coil units. On the 42DD commercial fan coil models, the factory provided modulating valve has application restrictions. In these models, the valve packages are located in the airstream, downstream of the coil. Due to the ambient temperature limitations of the modulating valves, the valves can only be used in the units listed above with 2-pipe cooling only systems.	4.0		300	200	N/A

LEGEND

C_v — Coefficient of Velocity
DX — Direct Expansion
ETO — Engineering to Order

*Check all system component pressure ratings (coils, valves, pumps, etc.) with manufacturer and any applicable local or national piping codes prior to specifying system pressure rating.

Table 5 — Piping Components (cont)

SYMBOL/SKETCH	DESCRIPTION	C _v FACTOR		RATING*		STEAM USE
		1/2	3/4	PSI	F	
	MODULATING VALVE (Optional) (Non-Spring Return, Proportional Type Actuator): Modulating valves are designed to control the flow in the circuit by making incremental adjustments to the flow path within the valve. Application — To control fluid flow in fan coil units. On the commercial fan coil models, the factory provided modulating valve has application restrictions. In these models, the valve packages are located in the airstream, downstream of the coil. Due to the ambient temperature limitations of the modulating valves, the valves can only be used in the units listed above with 2-pipe cooling only systems.	4.0		300	200	N/A
	MODULATING VALVE (Requires ETO) (Spring Return): Modulating valves are designed to control the flow in the circuit by making incremental adjustments to the flow path within the valve. Application — Same comments as non-spring return except when powered, the actuator moves to the desired position, at the same time tensing the spring return system. When power is removed for more than two minutes, the spring returns the actuator to the normal position.	4.0		300	200	N/A
	AQUASTAT: Water temperature sensing electrical switch. (Line Voltage Controls) Application — Clips directly on nominal size 1/2-in. or 3/4-in. copper tubing for water temperature sensing. Must be correctly located for proper control operation.					
	CHANGEOVER SENSOR: Water temperature sensor thermistor. Application — Sensor shall clamp on the outside diameter of the pipe. Sensor plate shall bend to allow its radius to be adjusted to fit the pipe. Sensor shall be secured to the pipe with mounting clamp. Insulate the mounting location of sensor on the pipe.					

LEGEND

C_v — Coefficient of Velocity
DX — Direct Expansion
ETO — Engineering to Order

*Check all system component pressure ratings (coils, valves, pumps, etc.) with manufacturer and any applicable local or national piping codes prior to specifying system pressure rating.

Step 3 — Make Electrical Connections

Refer to unit nameplate for required supply voltage, fan and heater amperage, and required circuit ampacity. Refer to unit wiring diagram for unit and field wiring. Since each project is different and each unit on a project may be different, the installer must be familiar with the wiring diagram and nameplate on the unit before beginning any wiring. Make sure all electrical connections are in accordance with unit wiring diagram and all applicable codes. The type and sizing of all wiring and other electrical components such as circuit breakers, disconnect switches, etc. should be determined by the individual job requirements, and should not be based on the size and/or type of connection provided on the equipment. All installations should be made in compliance with all governing codes and ordinances. Compliance with all codes is the responsibility of the installing contractor.

The fan motor(s) should never be controlled by any wiring or device other than the factory-supplied switch or thermostat/switch combination unless prior factory authorization is obtained. Fan motor(s) may be temporarily wired for use during construction only with prior factory approval and only in strict accordance with the instructions issued at that time.

All components furnished for field installation by either the factory or the controls contractor should be located and checked for proper function and compatibility. All internal components should be checked for shipping damage, and any loose connections should be tightened to minimize problems during start-up.

Any devices such as fan switches or thermostats that have been furnished from the factory for field installation must be wired in strict accordance with the wiring diagram that appears on the unit. Failure to do so could result in personal injury or damage to components, and will void all manufacturer's warranties.

Units with factory-supplied and factory-installed aquastats may be shipped with the aquastats mounted on a coil stub-out. If this is the case, remove the aquastat before installing valve package. When reinstalling aquastats, consult the factory-piping diagram in the submittal for proper location. If the valve package is field-supplied, the aquastat must be installed in a location where it will sense the water temperature regardless of the control valve position. A bleed bypass may be required to guarantee proper aquastat operation. The aquastat bypass line allows a small amount of water to flow from the supply to the return piping when the control valve is closed.

FACTORY-INSTALLED OPTIONS

Condensate Overflow Switch

The condensate overflow switch is used to detect a clogged condensate drain pan. The condensate switch uses a normally closed contact to allow the system control power to pass through the switch energizing the water valves and fans allowing normal operation. When an overflow condition is detected by the switch, it opens the NC contact and de-energizes the water valve and fans.

Aquastat

The aquastat must be able to sense whether the flowing water is being chilled or heated and switches a contact closed to provide automatic summer or winter changeover for the system. When a two-pipe cooling/heating system with optional auxiliary electric heat is desired, an additional aquastat is required.

Units with optional factory-furnished and factory-installed aquastats may be shipped with aquastats mounted on the coil stub out. In this situation, remove the aquastat before valve package installation. Refer Fig. 36 for factory piping diagram for proper location when reinstalling the aquastats. If the valve package is field-supplied the aquastat must be installed in a location where it will sense the water temperature regardless of control valve position. A bleed bypass should be provided for proper operation of aquastat. The bleed line allows a small amount of water to flow from supply to return piping when the control valve is closed for loop temperature sensing.

All field wiring must be in accordance with governing codes and ordinances. Any modification of unit wiring without factory authorization will invalidate all factory warranties and nullify any agency listings. The manufacturer assumes no responsibility for any damages and/or injuries resulting from improper field installation and/or wiring.

IMPORTANT: Refer to unit wiring label for specific functions. Standard wiring diagram configurations are maintained in separate Fan Coil Wiring Diagram literature.

Units may be equipped with line voltage controls or 24 vac control systems. The following descriptions are for typical control sequences only. For detailed control operating sequence, refer to thermostat operating instructions.

STANDARD WIRING PACKAGES

Manual Fan Control

On vertical cabinet units, a fan-speed switch may be furnished unit-mounted and wired. On vertical furred-in units and horizontal units, the switch may be shipped separately on a decorative wall plate for field mounting and wiring.

The standard switch has LOW, MEDIUM, HIGH and OFF positions plus an auxiliary contact to energize thermostats, valves, dampers, etc.

NOTE: Wiring diagrams are for typical applications. If other voltages for heaters or controls are specified, wiring may differ from that shown. Refer to wiring diagram on unit blower housing for unit specific wiring.

Thermostatic Electric Valve Control, 2-Pipe

A thermostatically controlled 2-position valve provides superior control to fan cycling. With this control, the fan runs continuously unless it is manually switched to the OFF or AUTO position. The fan must be on before the valve can be opened to supply water to the coil.

This system can be used for normal 2-pipe changeover systems and can also be furnished for cooling-only or heating-only applications by omitting the changeover and specifying which application is intended. Wiring diagrams show typical applications. Refer to wiring diagram on unit blower housing for unit specific wiring.

Thermostatic 2-Pipe Auxiliary Electric Heat with Valve Control

This system, also called twilight or intermediate season electric heat, goes a long way towards solving the spring and fall control problems of 2-pipe systems.

Chilled water can be run late into the fall, turned on early in the spring, and electric heat will still be available to all units whenever required.

In winter, the system is switched over to hot water. Two changeover devices are required for this. One device switches the action of the thermostat and the other locks out the electric heat when hot water is in the coil.

With this system, the fan runs continuously unless manually switched to OFF or AUTO position. Fan must be on before thermostat can send signal to open chilled water valve or turn on electric heater.

Two control methods are available:

1. Use the standard automatic changeover thermostat with a dead band between heating and cooling.
2. Use a manual changeover thermostat. With this method only one changeover is required.

Be sure to include a 2-way or 3-way electric valve with this system.

NOTE: Wiring diagrams are for typical applications. If other voltages for heaters or controls are specified, wiring may differ from that shown. Refer to wiring diagram on unit blower housing for unit specific wiring.

Thermostat 2-Pipe Total Electric Heat with Valve Control

With this system, the complete heating requirement for the space is provided by the electric heater; the water system is never changed over for heating. It is therefore possible, just as with 4-pipe systems, to have heating or cooling at any time of the year.

The fan runs continuously unless it is manually switched to OFF or AUTO position. Fan must be on before thermostat can send signal to open chilled water valve or turn on electric heater.

Normally, an automatic changeover thermostat with a dead band between heating and cooling is used, but a manual changeover thermostat is also suitable. A 2-way or 3-way valve must also be used so that the chilled water is off whenever the heater is on. No changeover device to sense water temperature is necessary.

NOTE: Wiring diagrams are for typical applications. If other voltages for heaters or controls are specified, wiring may differ from that shown. Refer to wiring diagram on unit blower housing for unit specific wiring.

Thermostatic Valve Control, 4-Pipe

The 4-pipe system provides the ultimate in economy and room temperature control. Both hot water and chilled water are available at any time.

Normally an automatic changeover thermostat is used, but a manual changeover thermostat is also suitable. Two 2-way valves, two 3-way valves, or one 2-way plus one 3-way valve must be selected. An automatic changeover device to sense water temperature is not required.

With this system, the fan runs continuously unless it is manually switched to OFF/AUTO position. Fan must be on before thermostat can send signal to open the chilled water or hot water valve.

Wiring diagrams are for typical applications. If other voltages for heaters or controls are specified, wiring may differ from that shown. Refer to wiring diagram on unit blower housing for unit specific wiring.

Step 4 — Make Duct Connections

Install all ductwork to and from unit in accordance with project plans, specifications, and all applicable codes. Duct construction must allow unit to operate within duct external static pressure limits as shown on job submittals. Units designed to operate with ductwork may be damaged if operated without intended ductwork attached.

Units provided with outside air should have some method of low-temperature protection to prevent freeze-up. This protection may be any of several methods, such as a low temperature thermostat to close the outside air damper or a preheat coil to temper the outside air before it reaches the unit. It should be noted that none of these methods will adequately protect the coil in the event of power failure. The safest method of freeze protection is to use glycol in the proper percent solution for the coldest expected air temperature.

Insulate ductwork as required. Use flexible connections to minimize duct-to-unit alignment problems and noise transmission where specified.

Set unit markings for minimum clearance to combustible materials and first 3 ft of ductwork. Install ductwork, accessory grilles and plenums so that they do not restrict access to filter. The manufacturer assumes no responsibility for undesirable system operation due to improper system design, equipment or component selection, and/or installation of ductwork, grilles, and other related components.

⚠ CAUTION

Prevent dust and debris from settling in unit. If wall finish or color is to be spray-applied, cover all openings to prevent spray from entering unit. Failure to do so could result in damage to the unit and/or the reduction of unit efficiency.

Step 5 — Frame and Finish Unit

EXPOSED UNIT FINISH, TOUCH-UP AND REPAINT

Return access and exposed cabinet units may be furnished with a baked enamel finish. Small scratches in this finish may be repaired with touch-up paint available from the factory. Some colors of touch-up paint are available in aerosol containers and all touch-up paint is available in pint, quart, and gallon cans.

⚠ CAUTION

Proper safety procedures should be followed regarding ventilation and safety equipment during touch-up and repainting since materials may pose a health hazard. The manufacturer's directions should be followed for the products being used.

To repaint the factory-baked enamel, the finish should be prepared by light sanding with no. 280 grit sand paper or no. 000 or no. 0000 fine steel wool. The surface may also be wiped with a liquid surface etch cleaning product such as "No Sand" or "Pasceo." These items should be available at most paint product stores. It should be noted that the more conscientiously this preparation is done, the more effective it will be.

After this preparation is accomplished, the factory finish should provide excellent adhesion for a variety of air-dried top coats. Enamel will give a more durable, higher gloss finish, while latex will not adhere as well and will give a dull, softer finish. Top coats involving an exothermic chemical process between two components, such as epoxies and urethanes, should be avoided.

Factory aerosol touch-up paint may require a number of light “dust coats” to isolate the factory-baked enamel finish from the quick drying touch-up paint.

Step 6 — Cut Out Openings for Grilles and Thermostats

On all units with optional supply-air or return-air grilles, dampers, thermostats, and switch plates, cut out openings where specified on the job plans. Be careful not to cut wires, piping or structural supports.

For remote-mounted thermostats, use a steel thermostat shield ring to protect drywall from thermostat wiring where applicable.

If not included on the unit or furnished from the factory, supply and return grilles should be provided as recommended in the product catalog.

Step 7 — Make Final Preparations

1. Turn off power to the unit (open unit electrical disconnect).
2. Install thermostats and perform any other final wiring as applicable. Check the unit for any loose wires.
3. Perform a final visual inspection. All equipment, plenums, ductwork, and piping should be inspected to verify that all systems are complete and properly installed and mounted, and that no debris or foreign articles such as paper or drink cans are left in the units or other areas. Clean dirt, dust, and other construction debris from unit interior. Be sure to check fan wheel and housing.
4. Rotate fan wheel by hand to be sure it is free and does not rub housing. Check that wing nuts securing fan assembly to fan deck are tight.
5. Ensure all panels and filters are installed before checking fan operation. Turn on power to the unit.
6. Install filter in frame at front of coil. If field-supplied filters are used, be sure size is as specified in Tables 1-3.

⚠ CAUTION

Do not start up or operate unit without filter. Be sure filter and unit interior are clean. Failure to do so could result in damage to the equipment or building and furnishings and/or void all manufacturer's warranties.

7. ECM (Electronically Commutated) Blower:
If the unit is equipped with an ECM blower, additional steps may be required during the air balancing process. The ECM blower is controlled by one of three control boards, depending on the options ordered with the unit. Review project submittals or order acknowledgment to determine which ECM control scheme the unit has. Alternatively, match the control board to the illustrations identified in the Control Board Type section.
8. Check the fan and motor operation.
9. Be sure drain line is properly and securely positioned and that the line is clear. Pour water into drain to check operation.
10. Prior to the water system start-up and balancing, the chilled/hot water systems should be flushed to clean out dirt and debris which may have collected in the piping during construction. During this procedure, the system

should be flushed from the supply riser to the return riser through a cross-over loop at the end of the riser column, and all unit service valves must be in the closed position. This prevents foreign matter from entering the unit and clogging the valves and metering devices. Strainers should be installed in the piping mains to prevent this material from entering the units during normal operation. Vent all air from unit coil and related piping. Air venting from the unit is accomplished by the use of the standard manual air vent fitting, or the optional automatic air vent fitting installed on the coil. Venting can be accomplished by depressing the needle valve core. Automatic air vents may be unscrewed one turn counterclockwise to speed initial venting, but should be screwed in for automatic venting after start-up operations. When steady stream of water begins to escape, close valve. Vent release air slowly, usually dripping water into drain pan in the process.

Make sure all service valves are open and that the motorized control valves, if supplied, are set for automatic operation.

⚠ CAUTION

The air vent provided on the unit is not intended to replace the main system air vents and may not release air trapped in other parts of the system. Inspect the entire system for potential air traps and vent those areas as required, independently. In addition, some systems may require repeated venting over a period of time to properly eliminate air from the system. Failure to properly vent system may negatively affect operation.

11. Check all control valves in the system for proper operation in accordance with valve manufacturer's instructions.
12. For units with factory-installed ball valves with lever handles: when handle is perpendicular to valve body, there is no flow through valve. Ball valves may be used as shutoff valves.

ECM CONTROL OPTION.

⚠ CAUTION

Both of the procedures described below require the control box to be powered while adjustments are made. Line voltage components are concealed behind a secondary cover. However, installer should still take all reasonable precautions to prevent electrical shock.

3-Discrete Speed Potentiometer Field Adjustment (See Fig. 42)

The unit has been factory configured to produce PSC equivalent airflow on high speed, with medium and low speed set at 80% and 60% of high, respectively. If these settings are acceptable, then no further configuring is required.

If alternative airflows are desired, use board-mounted pots to adjust the airflow associated with each input. Each output can be adjusted from 0 to 100% of the motor's factory programmed operating range. Use voltmeter and airflow chart (on control box cover) to set values. Refer to “APPENDIX A — POTENTIOMETER ADJUSTMENT” on page 53 for adjustment procedure.

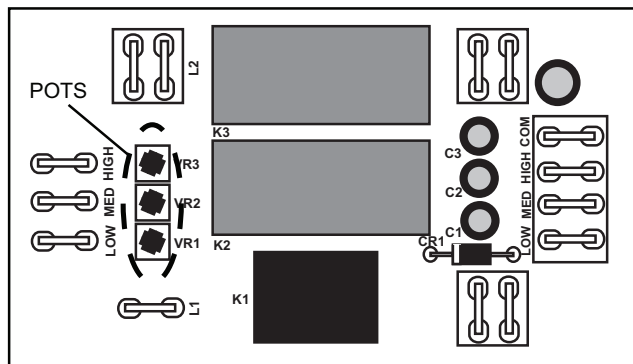


Fig. 42 — 3-Speed Potentiometer Adjustment

4-Discrete Speed Potentiometer Field Adjustment, Solid State

The unit has been factory configured to produce PSC equivalent airflow on high speed, with medium and low speed set at 80% and 60% of high, respectively. If these settings are acceptable, then no further configuring is required.

Board-mounted pots are provided to adjust the airflow pertaining to each output. Each output can be adjusted from 0 to 100% of the motor's factory programmed operating range. Use voltmeter and airflow chart (on the control box cover) to set values. Refer to "APPENDIX B — EVO/ECM 4-SPEED ADJUSTMENT" on page 54 for adjustment procedure.

Variable Airflow for 0-10 vdc Input

No control board is required and no field adjustments are possible. Motor uses 0-10 vdc signal directly. See control box label. Fan enable at 1.5 vdc.

CAUTION

Both of the start-up and servicing procedures described below require the control box to be powered while adjustments are made. Line voltage components are concealed behind a secondary cover. However, installer should still take all reasonable precautions.

START-UP

Before beginning any start-up operation, the start-up personnel should familiarize themselves with the unit, options and accessories, and control sequence to understand the proper system operation. All personnel should have a good working knowledge of general start-up procedures and have the appropriate start-up and balancing guides available for consultation.

The building must be completely finished including doors, windows, and insulation. All internal walls and doors should be in place and in the normal position. In some cases, the interior decorations and furniture may influence overall system performance. The entire building should be as complete as possible before beginning any system balancing.

Except as required during start-up and balancing operations, no fan coil units should be operated without all the proper duct-work attached, supply and return grilles in place, and all access doors and panels in place and secure.

Start-up procedures vary depending on time of year (summer or winter) and building characteristics (new building/old building, occupied/unoccupied, etc.)

Start-up in the cooling mode requires that proper care be given to avoid condensation problems. Condensation forms on surfaces that are colder than the dew point of the surrounding air. If a unit is started and is piped with low-temperature chilled water in a hot, humid atmosphere, condensation will

form on many parts of the unit. In order to avoid excessive condensation, higher temperature water should initially be used (approximately 65°F to 70°F) and the fan coil control set at low or medium fan speed. Be sure the fan current does not exceed motor nameplate values. Also, outside air supply fans, and bathroom and kitchen exhaust fans should be off.

As the building temperature drops, the chilled water temperature can be gradually reduced until it reaches 50°F. At this point the outside air fans can be turned on. When the chilled water temperature is reduced to its design point, the exhaust fans can be turned on.

Cooling/Heating System

Prior to the water system start-up and balancing, flush the chilled / hot water systems to clean out dirt and debris which may have collected in the piping during construction. During the process, all unit service valves must be in the closed position to prevent foreign matter from entering the unit and clogging the valves and metering devices. Strainers should be installed in the piping mains to prevent such material from entering units during normal operation.

During system filling, air venting from the unit is accomplished by the use of standard manual air vent or optional automatic air venting installed on the coil. Manual air vents are basically Schrader valves. For air venting, depress the valve unit the air has vented the coil. When water begins to escape through the valve, release the valve. Automatic air vents may be unscrewed one turn counterclockwise to speed initial venting but should be screwed in for automatic venting after start-up operation. See Fig. 43 and 44.

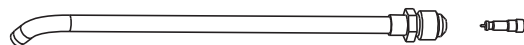


Fig. 43 — Manual Air Vent

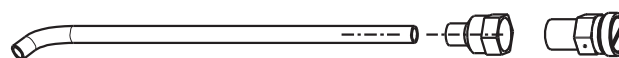


Fig. 44 — Automatic Air Vent

Air System Balancing

All duct stubs, grilles, filters, and return-access panels must be properly installed to establish actual system operating conditions BEFORE beginning air balancing operations.

Each individual unit and the attached ductwork is a unique system with its own operating characteristics. For this reason, air balancing is normally done by balance specialists who are familiar with all procedures required to properly establish air distribution and fan-system operating conditions. These procedures should not be attempted by unqualified personnel.

Units with no ductwork have air volumes predetermined at the factory by supply grille size and normally do not require air balancing other than selecting the desired fan speed. Units furnished with optional dampers on supply grilles may require some small adjustments to "fine tune" the air delivery to each grille. Opposed blade balancing dampers are not available for all grilles on a unit with electric heat.

After proper system operation is established, the actual unit air delivery and the actual fan motor amperage draw for each unit should be recorded in a convenient place for future reference.

Water System Balancing

A complete knowledge of the hydronic system, along with its components and controls, is essential to proper water system balancing. This procedure should not be attempted by unqualified personnel. The system must be complete, and all components

must be in operating condition BEFORE beginning water system balancing operations.

Each hydronic system has different operating characteristics depending on the devices and controls used in the system. The actual balancing technique may vary from one system to another.

After the proper system operation is established, the appropriate system operating conditions such as various water temperatures and flow rates should be recorded in a convenient place for future reference.

Before and during water system balancing, conditions may exist due to incorrect system pressures which may result in noticeable water noise or undesired valve operation. After the entire system is balanced, these conditions will not exist on properly designed systems.

Water Treatment

Proper water treatment is a specialized industry. Carrier recommends consulting an expert in this field to analyze the water for compliance with the water quality parameters listed in Table 6 and to specify the appropriate water treatment regimen. The expert may recommend typical additives such as rust inhibitors, scaling preventative, antimicrobial growth agents or algae preventatives. Anti-freeze solutions may be used to lower the freezing point.

Carrier's water coil tubes and headers are constructed of pure copper. Multiple brass alloys may be present in the valve package, depending on unit configuration. It is the user's responsibility to ensure the tube and piping materials furnished by Carrier are compatible with the treated water.

Failure to provide proper water quality will void the fan coils unit's warranty.

Table 6 — Water Quality Concentrations

WATER CONTAINING	REQUIRED CONCENTRATION
Sulphate	Less than 200 ppm
pH	7.0 to 8.5
Chlorides	Less than 200 ppm
Nitrate	Less than 100 ppm
Iron	Less than 4.5 mg/l
Ammonia	Less than 2.0 mg/l
Manganese	Less than 0.1 mg/l
Dissolved Solids	Less than 1000 mg/l
CaCO ₃ Hardness	300 to 500 ppm
CaCO ₃ Alkalinity	300 to 500 ppm
Particulate Quantity	Less than 10 ppm
Particulate Size	800 micron max

Controls Operation

Before proper control operation can be verified, all other systems must be operating properly. The correct water and air temperatures must be present for the control function being tested. Some controls and features are designed to not operate under certain conditions. For example, on a two-pipe cooling/heating system with auxiliary electric heat, the electric heater cannot be energized with hot water in the system.

A wide range of controls, electrical options and accessories may be used with the equipment covered in this manual. Consult the approved unit submittals, order acknowledgments, and other literature for detailed information regarding each individual unit and its controls. Since controls and features may vary from one unit to another, care should be taken to identify the controls used on each unit and their proper control sequence. Information provided by component manufacturers regarding installation, operation, and maintenance of their individual controls is available upon request.

When changing from one mode to another (cooling to heating or heating to cooling), it may take some time to actually notice a change in the leaving air temperature. In addition, some units may be designed for a very low air temperature rise in heating. Before declaring a unit inoperative or a component defective, it may be necessary to verify operation by more than one method.

SERVICE

Excessive Condensation on Unit

Running chilled water through a fan coil unit with the unit fan off can cause excessive condensation. If fan cycling is used, a water flow control valve should be installed to shut off the water when the fan stops.

Other methods of control that avoid condensation problems are as follows:

1. Continuous fan operation with motorized chilled water valve controlled by a thermostat.
2. Continuous fan operation with thermostat control to switch fan from high to low speed (instead of off).

To Clean Coil

1. Be sure electrical service switch is open, locked, and tagged while working on unit.
2. Remove return-air grille access panel and brush between coil fins with stiff wire brush. Care should be taken to not damage coil fins. Follow-up by cleaning with vacuum cleaner. If coil is cleaned with air hose and nozzle, take care not to drive dirt and dust into other components. Blow air through the coil fins from the leaving air face. This should again be followed by vacuuming. Units provided with the proper type of air filters, replaced regularly, will require less frequent coil cleaning.
3. Install clean filter. Refer to Clean or Replace Air Filters section on page 51.

Drain

The drain must be checked before initial start-up and at the beginning of each cooling season to assure that the drain trap and line are clear. If it is clogged, take steps to clear the debris so that condensate will flow easily.

Make periodic checks of the drain during the cooling season to maintain a free flowing condensate. Units provided with secondary or tell-tale drain connection will indicate a clogged main line by flow from the tell-tale connection.

NOTE: Should the growth of algae and/or bacteria be a concern, consult an air conditioning and refrigeration supply organization familiar with local conditions for chemical or other solution available to control these growths.

Check Drain

Lock open and tag unit electrical service switch.

Check drain pan, drain line and trap before initial start-up and at start of each cooling season. A standard type pipe cleaner for 3/4-in. ID pipe can be used to ensure that pipe is clear of obstruction so that condensate is carried away. Check the drain line at filter cleaning time during the cooling season. Be sure that debris has not fallen into unit through supply-air grille. Should the growth of algae and/or bacteria be a concern, consult an air conditioning and refrigeration supply organization familiar with local conditions for chemicals or other solutions available to control these agents.

Fan Motor Bearings

Lock open and tag unit electrical service switch.

Standard motors are permanently sealed and lubricated. No lubrication is required unless special motors have been supplied or unusual operating conditions exist.

Clean Fan Wheel

Lock open and tag unit electrical service switch.

For access to fan assembly, remove front or bottom panel. Fan assembly may be removed from its tracks if unit has a long conduit lead. Dirt and debris should not be allowed to accumulate on the blower wheel or housing. This can result in an unbalanced blower wheel condition which can damage a blower wheel or motor. The wheel and housing may be cleaned periodically using a vacuum cleaner and a brush, taking care not to dislodge the factory balancing weights on the blower wheel blades.

Clean Electric Heater

Lock open and tag unit electrical service switch.

1. Remove dust, dirt, or foreign material before start-up. Do not block normal airflow to and from units; blockage may damage electric heaters.
2. Clean heater elements with soft brush or vacuum cleaner as necessary.
3. To replace blown fusible links (nichrome heaters only):
 - a. Remove fan deck (horizontal units only) for access to heater.
 - b. Remove nut securing link at each end; install new link; reinstall nuts.
 - c. Reinstall fan deck (if removed).

Electric resistance heaters typically require no normal periodic maintenance when unit air filters are changed properly. The operation and service life may be affected by other conditions and equipment in the system. The two most important operating conditions for an electric heater are proper airflow and proper supply voltage. High supply voltage and/or poorly distributed or insufficient airflow over the element will result in element overheating and possible limit switch opening. This condition may result in the heater cycling on the high-limit thermal cutout. Sheath heaters have automatic reset switches only. Open strip heaters have an automatic reset switch with a backup, high-limit thermal switch. Automatic reset switch resets automatically after the heater has cooled down. High limit thermal switch must be replaced once the circuit has been broken. The high-limit thermal cutout device is a safety device only and is not intended for continuous operation. With proper unit application and operation, the high-limit thermal cutout will not operate. This device only operates when a problem exists, and ANY condition that causes high-limit cutout MUST be corrected immediately. High supply voltage also causes excessive amperage draw and may trip the circuit breaker or blow the fuses on the incoming power supply.

After proper airflow and supply power are assured, regular filter maintenance is important to provide clean air over the heater. Dirt that is allowed to deposit on the heating element will cause hot spots and eventual element burn through. These hot spots will normally not be enough to trip the high-limit thermal cutout device and may not be evident until actual heater element failure.

Filters

The type of throwaway filter most commonly used on fan coil units should be replaced on a regular basis. The time interval between each replacement should be established based on regular filter inspection and should be recorded in the log for each unit. Refer to product catalog for recommended filter size for each product type and size. If the replacement filters are not purchased from the factory, the filter used should be

of same type and size as those furnished from or recommended by the factory. Pleated media or extended surface filter should not be used since the high air pressure drop encountered with these type of filters is not compatible with the type of fan coil unit covered in the manual.

A maintenance schedule for permanent filters should be developed in the same manner as throwaway filters. Unlike throwaway filters, permanent filters may be cleaned and reinstalled in the unit instead of being discarded when dirty. The optional factory permanent filter may be cleaned in hot soapy water to remove any trapped dirt, then set aside on edge to dry.

Before replacing the filter in the unit, it should be recharged with some type of entrapment film. The filter should be sprayed on both sides or submerged in the film to assure complete coverage. The filter should not be allowed to soak in the film but should be immediately removed and the excess film drained from the filter before re-installation in the unit.

NOTE: Permanent filters normally have less static pressure loss than throwaway filters.

Clean or Replace Air Filters

Lock open and tag unit electrical service switch.

At the start of each cooling season and after each month of operation (more or less depending on operating conditions) replace the throwaway filter or clean the permanent filter.

THROWAWAY FILTER

The type of throwaway filter most commonly used on fan coil units should be replaced on a regular basis. The time interval between each replacement should be established based on regular inspection of the filter and should be recorded in the log for each unit. Replace filter with a good quality filter of the size shown in Tables 1-4. Do not attempt to clean and reuse disposable filters. If the replacement filters are not purchased from the factory, the filters used should be the same type and size as those furnished from or recommended by the factory. Consult the factory for applications using filter types other than the factory standard or optional product. Filters with high arc pressure drops are generally not compatible with the fan coil units in this manual.

PERMANENT FILTER

A maintenance schedule for permanent filters should be developed in the same manner as throwaway filters. Unlike throwaway filters, permanent filters may be cleaned and reinstalled in the unit instead of being discarded when dirty.

1. Tap on solid surface to dislodge heavy particles.
2. Wash in hot water. If needed, use mild solution of commercial solvent such as sal soda or trisodium phosphate.
3. Set filter on end so that water drains out through slots in frame. Allow filter to dry thoroughly.
4. Recharge filter with recharging oil. Three ounces is sufficient for medium size filter. Oil may be applied by insect spray gun. For easier spraying, the oil can be warmed.
5. If the filter is dipped in the recharging oil, remove it immediately and allow draining through slots in frame.
6. Replace filter in unit.

If another type of filter is used, follow the filter manufacturer's instructions.

Electrical Wiring and Controls

The electrical operation of each unit is determined by the components and wiring of the unit. This may vary from unit to unit. Consult the wiring diagram attached to the unit for the actual type and number of controls provided on each unit.

The integrity of all electrical connections should be verified at least twice during the first year of operation. Afterwards,

all controls should be inspected regularly for proper operation. Some components may experience erratic operation or failure due to age. Wall thermostats may also become clogged with dust and lint and should be periodically inspected and cleaned to provide reliable operation.

When replacing any components such as fuses, contractors, or relays, use only the exact type, size and voltage component as furnished from the factory. Any deviation without factory authorization could result in personal injury or damage to the unit. This will also void all factory warranties. Only factory-supplied replacement parts ensure that the warranty and agency status remain in effect. All repair work should be done in such a manner as to maintain the equipment in compliance with governing codes, ordinances and testing agency listings.

More specific information regarding the use and operating characteristics of the standard controls offered by the manufacturer are contained in other manuals.

Valves and Piping

No formal maintenance is required on the valve-package components most commonly used with fan coil units other than a visual inspection for possible leaks in the course of other normal periodic maintenance. In the event that a valve should need replacement, the same precautions taken during the initial installation to protect the valve package from excessive heat should also be used during replacement.

Warranty

All equipment and components sold through the Parts Department are warranted under the same conditions as the standard manufacturer's warranty with the exception that the warranty period is thirty (30) days unless the component is furnished as a warranty replacement. Parts furnished as warranty replacements are warranted for the remaining term of the original unit warranty or not less than thirty (30) days.

APPENDIX A — POTENTIOMETER ADJUSTMENT

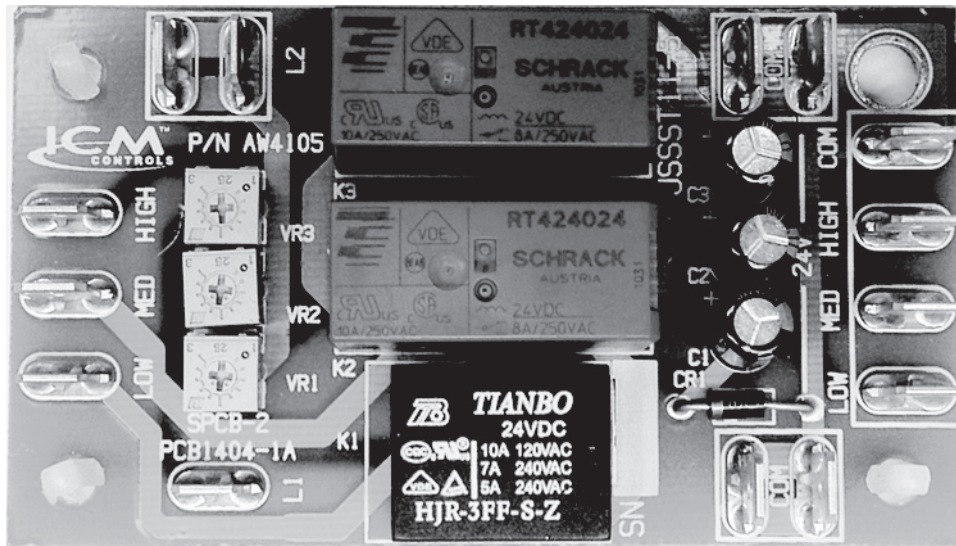


Fig. A — 3-Speed ECM

Adjusting the low, medium, and high potentiometers requires the use of a multi-meter capable of measuring 0~5 vdc.

1. Only trained and qualified individuals should attempt to adjust or service components on any electrical component. Failure to follow safety rules could result in electrical shock or hazard.
2. Unit must be powered to perform the following procedure. If main power is not available, connecting a temporary 24v-40va power supply to parallel with a secondary outputs of the unit's transformer is recommended.
3. Set the electrical multi-meter to volts direct current (vdc) on the 0~5 or 0~20 vdc scale.
4. Attach black (negative) lead of meter to the DC common terminal, labeled "L2" above the potentiometer and to the left of the orange relay.
5. Attach the red (positive) lead of the meter to the red wire that bridges the 0-10 vdc outputs: high, medium, and low.
6. High Speed: Close high speed relay by applying 24-v to the high terminal. Using a small screwdriver turn the VR3 potentiometer so the meter measures 4.51 vdc. This will set the ECM speed to 90% of maximum for high speed. Open the high speed relay.
7. Medium Speed: close medium speed relay by applying 24-v to the medium terminal. Using a small screwdriver turn the VR2 potentiometer so the meter measures 3.53 vdc. This will set the ECM speed to 70% of maximum for medium speed. Open the medium speed relay.
8. Low Speed: Close low speed relay by applying 24-v to the low terminal. Using a small screwdriver turn the VR1 potentiometer so the meter measures 2.06 vdc. This will set the ECM speed to 40% of maximum speed for low speed operation. Open the low speed relay.

APPENDIX B — EVO/ECM 4-SPEED ADJUSTMENT

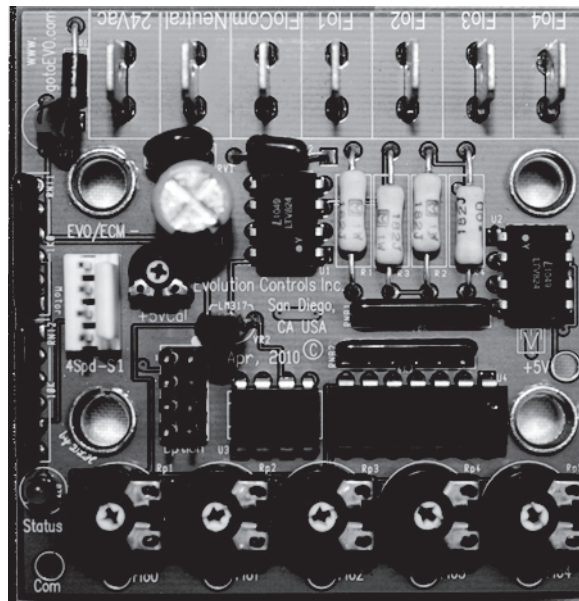


Fig. B — 4-Speed ECM

Adjusting the Flo1, Flo2, Flo3 potentiometers requires the use of a multi-meter capable of measuring 0~5 vdc.

1. Only trained and qualified individuals should attempt to adjust or service components on any electrical component. Failure to follow safety rules could result in electrical shock or hazard.
2. 24 vac power must be supplied to ECM board to make adjustments.
3. Set the electrical multi-meter to volts direct current (vdc) on the 0~5 or 0~20 vdc scale.
4. Attach black (negative) lead of meter to the “Com” terminal to the left of the potentiometers and below the status light.
5. Attach the red (positive) lead of the meter to the high speed “Flo1” terminal below the potentiometer.
6. High Speed: Using a small screwdriver, turn the Flo1 potentiometer so the meter measures 4.51 vdc. This will set the ECM speed to 90% of maximum for high speed operation.
7. Medium Speed: Using a small screwdriver, turn the Flo2 potentiometer so the meter measures 3.53 vdc. This will set the ECM speed to 70% of maximum speed for medium speed operation.
8. Low Speed: Using a small screwdriver, turn the Flo3 potentiometer so the meter measures 2.06 vdc. This will set the ECM speed to 40% of maximum speed for low speed operation.
9. For setting of Flo0 and Flo4 contact Carrier. Otherwise, these potentiometers should be set to full counter-clockwise rotation.

APPENDIX C - 42CE/42DC RETURN MODIFICATION

Below are the procedures for converting furred-in ceiling model fan coils with factory-installed plenum's from rear return to bottom return.

Precautions

Use eye, ear, and hand safety gear prior to handling sheet metal or modifying any fan coil units.

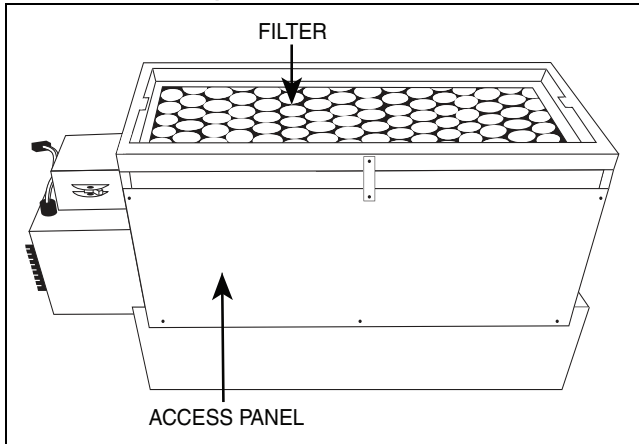
42CE and 42DC Units

All necessary holes for attachment are present on the unit.

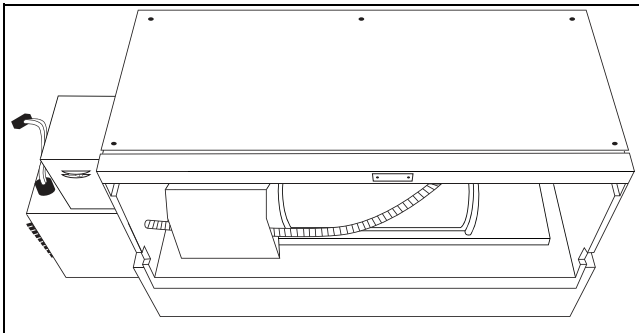
Do not drill new holes.

Use #8 sheet metal screws for all attachments.

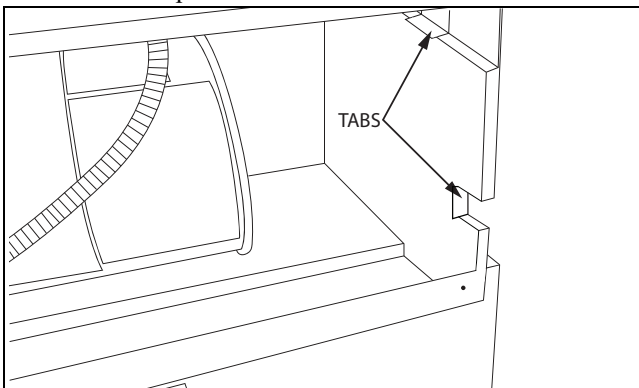
42CE Rear to Bottom Return Conversion (Typical 42CEA03 Rear Return Unit Shown in Pictures Below)



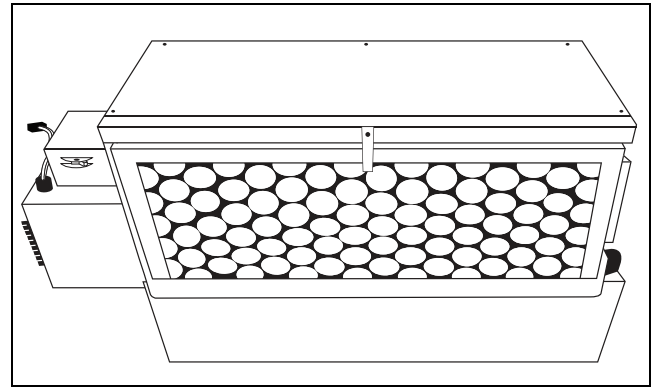
1. Remove filter and access panel.
2. Install access panel on the rear of the unit with 5 screws.



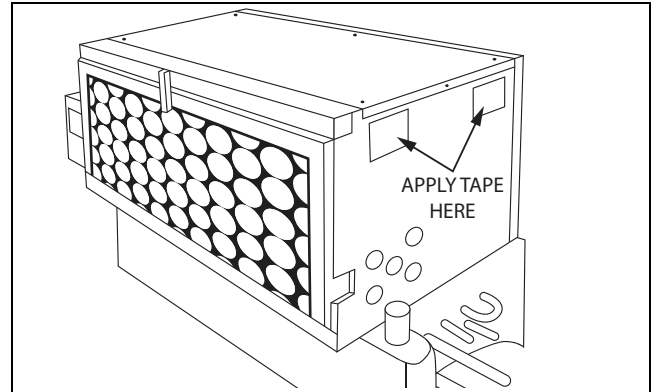
3. Bend the tabs on each of the plenum side panels to hold the filter in place.



4. Install filter.

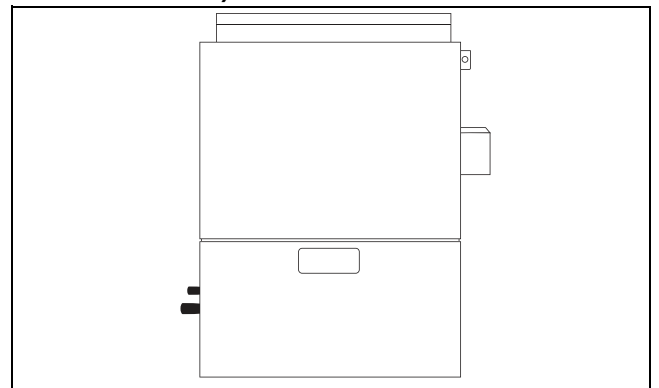


5. Use aluminum tape to cover up the holes on both of the plenum side panels.

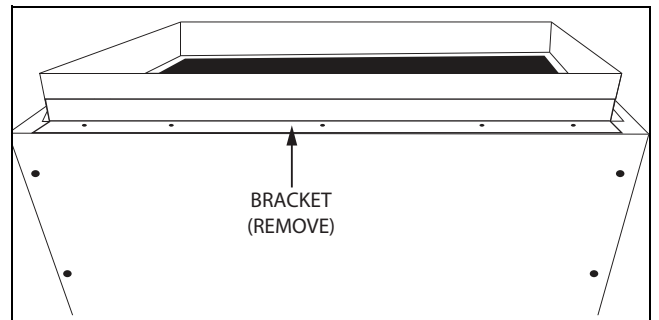


To convert a Bottom Return unit to Rear Return, follow the same process but ensure you bend the correct tabs for holding the filter in place.

42DC Rear to Bottom Return Conversion (Typical 42DCA03 Rear Return Unit Shown in Pictures Below)

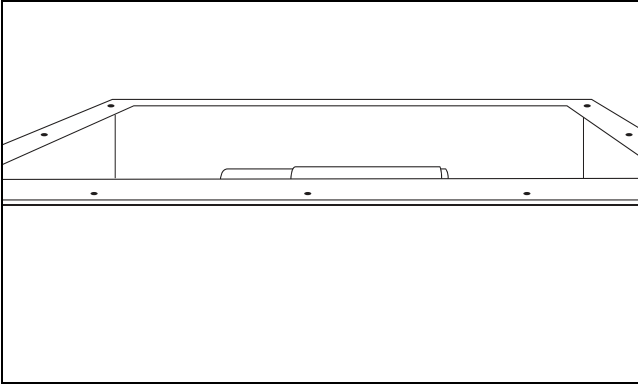


1. Remove filter bracket and take out the filter.

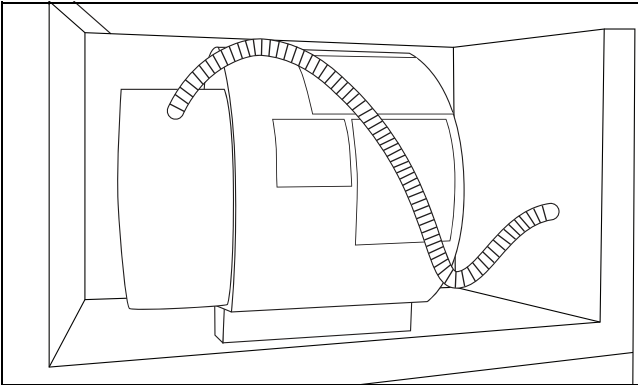


APPENDIX C - 42CE/42DC RETURN MODIFICATION (cont.)

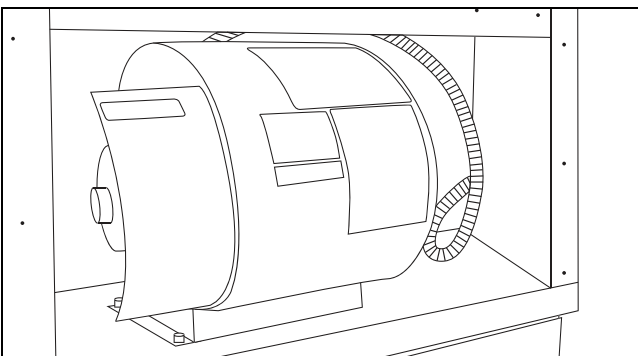
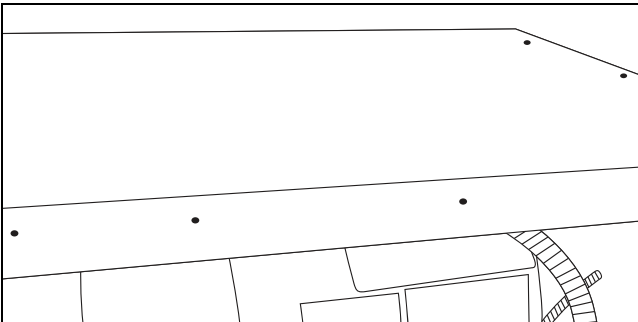
2. Remove duct collar assembly.



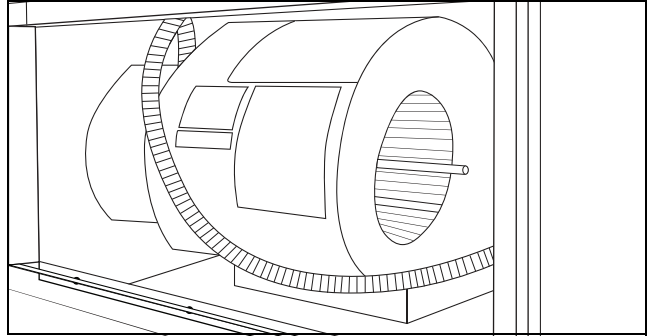
3. Remove access panel.



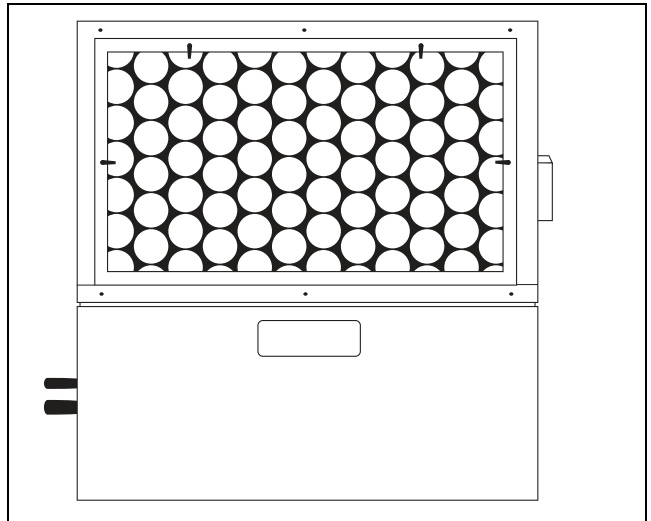
4. Install access panel on the rear of the unit.



5. Install duct collar assembly.



6. Slide the filter in the duct collar opening and install filter bracket.



Conversion is complete.

To convert a Bottom Return unit to Rear Return, follow the same process in reverse.

START-UP CHECKLIST FOR 42C,D,V SERIES FAN COIL AIR CONDITIONERS

NOTE: To avoid injury to personnel and damage to equipment or property when completing the procedures listed in this start-up checklist, use good judgment, follow safe practices, and adhere to the safety considerations/information as outlined in preceding sections of this Installation, Start-Up, and Service Instructions document.

I. Project Information

Job Name _____

Address _____

City _____ State _____ Zip _____

Installing Contractor _____

Sales Office _____

Start-up Performed By _____

INSPECTION, INSTALLATION, AND START-UP CHECKLIST

ITEM	COMPLETE	ITEM	COMPLETE
Receiving & Inspection		31. Control outside air for freeze protection	
1. Unit received undamaged		32. Insulate all ductwork as required	
2. Unit received complete as ordered		Electrical Connections	
3. "Furnish only" parts accounted for		33. Refer to unit wiring diagram	
4. Unit arrangement/hand correct		34. Connection incoming power service(s)	
5. Unit structural support complete and correct		35. Install and connect "furnish only" parts	
Handling & Installation		36. All field wiring in code compliance	
6. Mounting grommets/isolators used		Unit Start-Up	
7. Unit mounted level and square		37. General visual unit and system inspection	
8. Proper access provided for unit and accessories		38. Check for proper fan rotation	
9. Proper electrical service provided		39. Record electrical supply voltage	
10. Proper overcurrent protection provided		40. Record ambient temperatures	
11. Proper service switch/disconnect provided		41. Check all wiring for secure connections	
12. Proper chilled water line size to unit		42. Close all unit isolation valves	
13. Proper hot water line size to unit		43. Flush water systems	
14. Proper refrigerant line sizes to unit		44. Fill systems with water/refrigerant	
15. Proper steam line sizes to unit		45. Vent water systems as required	
16. Proper steam condensate trap on return line		46. All ductwork and grilles in place	
17. Proper steam supply pressure to unit (10 psi max)		47. All unit panels and filters in place	
18. All service to unit in code compliance		48. Start fans, pumps, chillers, etc.	
19. All shipping screws and braces removed		49. Check for overload condition of all units	
20. Unit protected from dirt and foreign matter		50. Check all ductwork and units for air leaks	
Cooling/Heating Connections		51. Balance air systems as required	
21. Protect valve package components from heat		52. Record all final settings for future use	
22. Mount valve packages		53. Check piping and ductwork for vibration	
23. Connect field piping to unit		54. Check all dampers for proper operation	
24. Pressure test all piping for leaks		55. Verify proper cooling operation	
25. Install drain line and traps as required		56. Verify proper heating operation	
26. Insulate all piping as required		57. Reinstall all covers and access panels	
27. Install drip lip under piping as required		58. Verify proper condensate drainage	
Ductwork Connections			
28. Install ductwork, fittings, and grilles as required			
29. Flexible duct connections at unit			
30. Proper supply and return grille type and size used			

Manufacturer reserves the right to discontinue, or change at any time, specifications or designs without notice and without incurring obligations.

[illegible]

CUT ALONG DOTTED LINE